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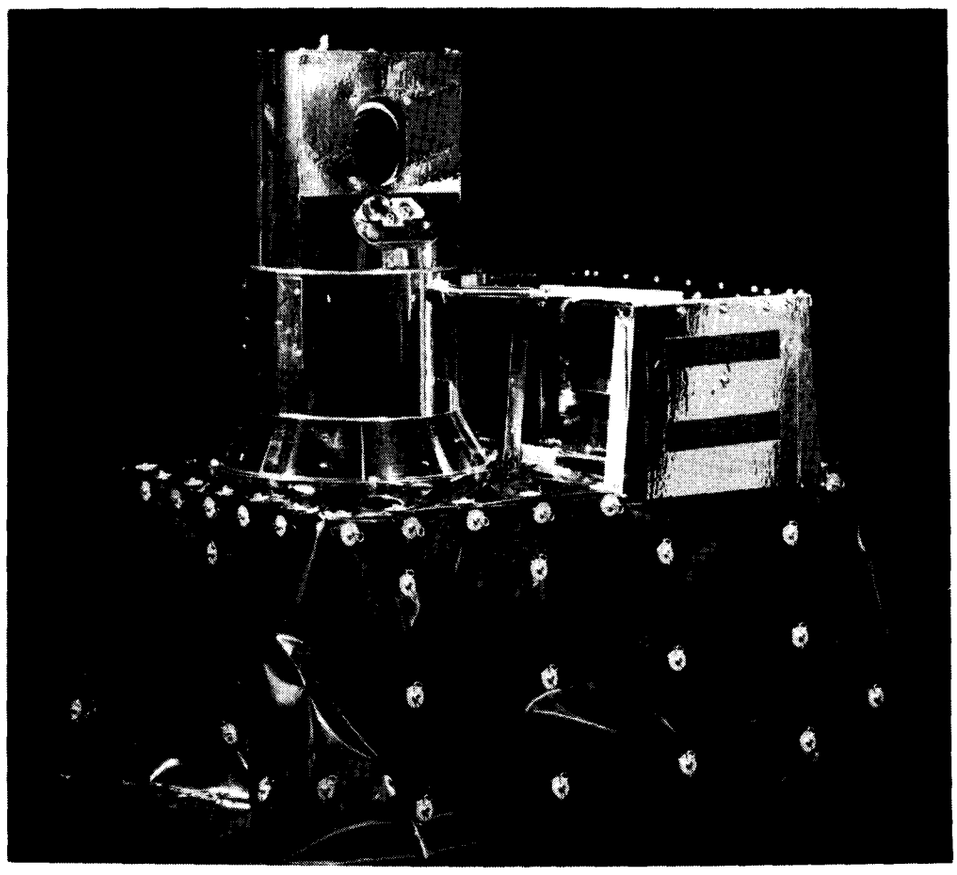
Langley Sensor Scheduled for Launch



The Stratospheric Aerosol & Gas Experiment (SAGE), the only element of the Applications Explorer Mission-B (AEM-B), is scheduled for launch aboard a Scout vehicle on January 25, 1979, from the Wallops Flight Center.

Developed by Langley, SAGE is a sensor that will provide the scientific community with information to help answer questions about the effects of aerosols and ozone on climate and environmental quality.

The AEM, managed by the Goddard Space Flight Center, is a series of small experimental spacecraft in special orbits to satisfy mission-unique experimental data acquisition requirements. SAGE is the second in the AEM series.

The SAGE mission is international in scope, as its findings will be checked against extensive "ground truth" programs conducted by special teams in Japan and Europe.

SAGE follows two previous aerosol satellite experiments, the Stratospheric Aerosol Measurement (SAM) flown on Apollo during the Apollo-Soyuz Test Project, and SAM-II presently flying on Nimbus 7. SAGE's mission is to map vertical profiles of ozone, aerosol, nitrogen dioxide, and molecular extinction in the stratosphere around the globe. This will be accomplished by using the solar occultation or limb extinction technique.

SAGE will lock on to the Sun as the spacecraft experiences a Sunrise or Sunset and measure the Sun's brightness at four colors or wavelengths. This information is interpreted in terms of vertical profiles of the atmospheric constituent that attenuated or dimmed the Sunlight. Over one year, 10,000 profiles are measured from 78 degrees South to 78 degrees North latitude, repeating latitude approximately every two weeks.

The main objective of SAGE is to obtain global measurements of the spatial and temporal distribution of stratospheric aerosols and ozone, and to use these data to study their effects on the Earth's radiation budget and environmental quality.

Ozone plays an important role in controlling the amount of ultraviolet radiation that reaches the surface of the Earth by acting as a filter for this ultraviolet radiation. Thus, a reduction in ozone will allow increased radiation to reach the Earth's surface.

The possible reduction of stratospheric ozone has been the center of recent controversy over SST emissions and spray can propellants containing chloroflouromethanes (CFMS). Current models of stratospheric chemistry predict that, if CFM releases were to continue at the 1975 rate, about 18 percent of the global-average ozone column content would eventually be destroyed, with about half of this destruction attained in 50 years.

The predicted depletion varies with the height such that the greatest relative depletion (50–65 percent) occurs between the heights of 22 (35 km) to 28 miles (45 km). SAGE will accurately measure the concentrations in this region. This data, taken over time, should help confirm or negate the predicted CFM effects, according to Dr. M. Patrick McCormick, SAGE experiment scientist and science team leader.

Aerosols, on the other hand, have a large effect on the temperature of the Earth's surface and climate. Aerosols are small solid particles or liquid droplets

Continued on page 4.

Cousteau to Speak

Captain Jacques-Yves Cousteau, world-renowned ecologist, oceanographer and explorer, will speak on "The Role of the Oceans in the Future of Man" at the Langley colloquium on Monday, January 29. Held in the Activities Center (Building 1222), he will lecture from 2 to 3 p.m.

Cousteau will give the same lecture at 8 p.m. that evening in the Hampton Coliseum as part of the "Our Future in the Cosmos" public lecture series. This series is co-sponsored by NASA and the College of William and Mary. Free tickets may be obtained by calling 877-9231, ext. 200 or 238, by January 20. After that date, tickets are available at the Coliseum box office.

In his talks, Cousteau will present his personal views on the important role of the oceans in the future of man, including the use of space satellites for monitoring and mapping the oceans, the urgency of international control of the seas, the oceans as a natural collector for solar energy, and the equitable sharing of marine resources among all nations. Cousteau has dedicated his life to the belief that, of all priorities, "the supreme imperative is to conserve, to protect, to nurse the water resources of our planet, because its future is our own future."

Cousteau began his exploration of the seas in 1946 as a means of preserving mankind's quality of life. In 1950 he began the famous adventures aboard the oceanographic research vessel *Calypso.* Many of his projects have been documented on film and he has many books to his credit, including *The Ocean World of Jacques Cousteau,* a 20-volume encyclopedia.

AIAA Meets Jan. 16

Leroy Spearman, Chief Scientist for Military and Foreign Technology at Langley, will be the guest speaker at the January 16 meeting of the Hampton Roads Section, AIAA. The meeting will be held at the Langley Activities Center with a social at 6 p.m., dinner at 7 p.m. and the program at 8 p.m.

Spearman will discuss "Soviet Research, Development and Technology." The USSR views science and technology as a pivotal national objective necessary to the all-around development of the socialist system and its position for world influence. Insights into Soviet design philosophy as well as educational processes in support of research and development will be discussed.

One of the results of the Soviet efforts that will be illustrated is the emergence of powerful land, air, and sea forces over the past few decades. These forces, in particular the Air Forces and cruise missile activities, will be reviewed to provide insights into the technical trend in Soviet weapon systems capabilities.

Reservations should be made by calling Al Taylor, ext. 3877.

Stockroom Closed

The Stockroom will be closed for inventory from January 29 to February 9. Please anticipate your requirements for this period and order in advance. During the inventory period, emergency stock issues may be requested by contacting the Head, General Supply & Warehousing Section, ext. 3947.

Suggestion for the Day

SETTING OF TIME CLOCKS

If supervisors are having difficulty with time and attendance reporting due to occasional variations in clock settings around the Center, one supervisor has found a simple solution. The noon siren is an accurate calibration source, so the supervisor has simply assigned several staff members to make it a point to adjust the clocks periodically when the hands don't match the noon noise. Try it sometime. You might not wonder whether your employees are late or early tomorrow.

Frosch Discusses NASA's Future

In a year-end interview, NASA Administrator Robert Frosch talked with newsmen about what NASA will be doing in the next few years. Here are excerpts from the interview that concern some of Langley's work.

"In aeronautics, we are going to emphasize the basic research and basic technology, preparing the way for future advances in aviation. At the same time, we'll continue to try to move the technologies to the point where industry can take them up. I see the coming emphasis as an attempt to get way out ahead in research and development and plan the aircraft of 15 to 20 years from now."

During 1979, "in aeronautics there will be some new facilities that are in the process of being built and modified in a wind tunnel way. We're in a position now to integrate our computational capabilities, our wind test facilities and our flight test capabilities better than we ever have been before. I look for some excitement in the things to come out of that."

"Technologically, in space the Shuttle gives us a brand new set of opportunities to learn how to build things in space. We've always before had to assemble them and package them in restricted weights and spaces and assume they would work when deployed. We

Continued on page 8.

Special Thanks

The *Langley Researcher* staff extends special thanks to Wesley Berryman and Bob Nye for their outstanding contributions to the Christmas issue. Wes designed the cover especially for the paper and Bob took the photograph used as the inside cover.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Karen Miller
Editorial Assistant . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

1979 Launch Schedule

Eleven launches on NASA's 1979 schedule are reimbursables, satellites launched for other agencies or corporations.

Activities for 1979 will include the first launch and orbital flight of the crew-carrying Space Shuttle; Jupiter and Saturn encounters by two Voyager spacecraft; and a flyby of the rings of Saturn by the Pioneer II spacecraft.

The 1979 schedule begins with two launches on January 25. Spacecraft Charging at High Altitudes (SCATHA) will be launched aboard a Delta from Cape Canaveral for the Department of Defense. That same day, a NASA applications satellite, Stratospheric Aerosol and Gas Experiment (SAGE-A) will be sent aloft on a Scout from Wallops Island, Va.

Two more launches are earmarked for April: NOAA-A, a weather satellite to be launched for the National Oceanic and Atmospheric Administration, on an Atlas-F and Navy-20 for the Department of Defense. Both launches will be at Vandenberg.

FLTSATCOM-B, a Navy/Air Force communications satellite is on the calendar for May, aboard an Atlas Centaur from Cape Canaveral.

UK-6, a scientific satellite will be launched for the United Kingdom on a Scout launch vehicle from Wallops in June.

Westar-C, a communications satellite, will be launched from Cape Canaveral on a Delta in July and another communications satellite, Intelsat V-A, will be launched in August from Cape Canaveral on an Atlas Centaur for Comsat Corp.

One of NASA's scientific satellites, High Energy Astronomy Observatory-C (HEAO-C), will be launched in September on an Atlas Centaur from Cape Canaveral. Another NASA satellite, this one in the applications area, Magsat-A, a magnetic field satellite, is also scheduled for September from Vandenberg on a Scout.

The Solar Maximum Mission (SMM-A), a NASA scientific mission, is scheduled for October on a Delta from Cape Canaveral and Navy 21, on a Scout, from Vandenberg.

In November, another communications satellite, Intelsat V-B, will be launched for Comsat Corp., on an Atlas Centaur from Cape Canaveral.

The year will close out with two launches in December: a weather satellite, NOAA-B, for the National Oceanic and Atmospheric Administration on an Atlas-F from Vandenberg; and RCA-C, a domestic communications satellite for RCA on a Delta from Cape Canaveral.

–photo by Bob Nye

In a December 7 ceremony, the Technical Library was dedicated to Dr. Floyd L. Thompson, Langley Director from 1960 to 1968. Participating in the ceremony were Don Hearth, Director, Mrs. Thompson, and her grandchildren, Elizabeth Hamilton Kemper and Carlton Thompson Kemper.

LAA Travel '79

This is the last call for the Rio de Janerio charter that departs from Norfolk on January 28 and returns on February 5. The price of this trip is $654 per person and includes transportation, accommodations, transfers, baggage handling, taxes, gratuities, welcome party and most meals.

Future planned trips include a stay in Las Vegas from May 3 to 6, with discount prices beginning at $284 per person, and a trip to London from May 31 to June 8 for $573 per person.

Two trips to Hawaii during 1979 are arranged, a one-week trip in the fall and a two-week trip in the winter. Brochures and discount prices for 1979 cruises can be obtained by calling the Activities Association Office 3139, Ernie Greene 2312 (Home 838-0357), or Herb Boulter 3234 (Home 838-4773).

Bowling News

With almost half the season completed, the NASA Tenpin Bowling League leaders are as follows: Women's Average—Ruth Price, 174, and Penny Dagenhart, 171; Men's Average—Don Booth, 183, John Paulson, Sr., 178, John Paulson, Jr., 177; High Team Game—Ballers, 1104; High Team Set—ACD, 3162. High scores rolled by the men are Bob Malosh—708 set, John Paulson, Jr.—299 game and Bob Golub with a 707 set and 278 game. High scores for the women are Betty Ruth, 708 set and 273 game, and Sue Wilson's 688 set and 251 game.

Team Standings

Flyers	34–18
Bombers	31–21
Bits & Bytes	30½–21½
Hot Gas Lab	30½–21½
ACD	30–22
Skylarks	29–23
Question Marks	28½–23½
Ballers	27–25
Pinwigglers	26½–25½
Short Circuits	25–27
Gutter Gals	24½–27½
CSC	23–29
Medallions	22½–29½
AMF	22–30
Aces	22–30
Mixed Nuts	21–31
Tuits	21–31
Hits & Misses	20–32

SAGE Launch Scheduled
(continued from page 1).

suspended in Earth's atmosphere. Their sources are both natural and manmade, such as aircraft, volcanic eruptions, and various chemical and photo chemical reactions.

The stratospheric aerosol layer's peak concentration is just below the ozone layer peak and similar to ozone in that it alters the Earth-atmosphere energy balance by reflecting and absorbing incoming solar radiation and infrared radiation from the Earth and lower atmosphere. This layer acts somewhat like a venetian blind by regulating the amount of Sunlight reaching the Earth's surface and escaping to space.

Small changes in aerosol concentrations may adversely affect the climate and growing season, which would be catastrophic to areas of the world with marginal growing seasons. Some scientists claim that a large enough increase in particles in this aerosol layer in the stratosphere could even trigger an ice age.

One example of an increase in particles causing a change in the Earth's environment is a volcanic eruption. When a large volcano erupts, it spews particles and gases into the stratosphere creating brilliant optical effects and cooling the surface temperature by a fraction of a degree, yet potentially enough to change the global climate.

McCormick said if a volcano does erupt while SAGE is operating, it will provide the opportunity for the first time to globally measure the increase in particles and its dispersion. Models of formation, transport, and radiation effects could then be confirmed or negated.

Trends in environmental and climatic changes are very difficult to detect because they are masked by the usually large diurnal and seasonal variations. "A large volcanic eruption would provide us with the opportunity to check present models," McCormick said.

The ability to resolve the aerosol/ozone/environmental issues "is severely limited at present by several major gaps in our knowledge and in the existing aerosol and ozone data base," according to McCormick. "The SAM-II and SAGE experiments, and their associated ground truth programs, will do an excellent job of eliminating major gaps in our present knowledge," he added.

Happenings

HONEY BUNCH. The NASA-Langley Apicultural Club will meet from 7 to 9 p.m. Monday, January 15, in the Activities Center. Following a short business meeting, Ronnie Henk will talk on basic construction of equipment and hives for beginning beekeepers. Demonstration of equipment and assembly, including wiring and nailing frames will be done. This is part 1 of a two-part program for beginning beekeepers. Frank Fulgham, state bee inspector, will give a seminar on Beginning Beekeeping in February.

ECVP MEETING. The Engineers Club of the Virginia Peninsula will meet on Thursday, January 25, at Sammy & Nick's Steak House, 2718 W. Mercury Boulevard, Hampton. Axel Mattson, Chairman of the Virginia State Air Pollution Control Board, will be the guest speaker, addressing the topic, "Virginia Air--Its Conditions, Needs and Laws." The evening begins at 6 p.m. with a cash bar, followed by a steak dinner ($5 per person) at 7 p.m. and the program at 8 p.m. Please make reservations by calling George Meidinger, 827-2306, by Monday, January 22.

HISTORICAL SOCIETY SPECIAL PROGRAM. A special program on the "Flowerdew Windmill" will be presented at the Visitor Center auditorium at 7:30 p.m. on February 5th. This program will consist of a presentation by staff members of the Southside Historic Sites Foundation and will include a film. Emphasis will be placed on the research done to document the original 17th century windmill and the creation of a faithful replica near the original site. This program will be sponsored by the LRC Historical and Archeological Society and will be open to the general public.

BOATING SAFETY COURSE. The Coast Guard Auxiliary Boating Safety and Seamanship course will be given by Williamsburg Flotilla 67 at the Kingsmill Clubhouse beginning Tuesday, February 6. The class will meet each Tuesday from 7 to 9 p.m., with the final exam on May 1. The course is free, but there is a small charge for the optional textbook. Call Andy Swanson, 229-8024, for details.

JAMES-YORK DOG TRAINING ASSOCIATION. New classes in kindergarten puppy training (KPT), basic and advanced dog obedience began on Thursday, January 11, 1979. The next lesson will be on Thursday, January 18, at the Hampton Armory, 504 North King Street. You may register for the course before the class begins at 7:30 p.m. All puppies and dogs are required to have all shots recommended by the vet for their age and to be free of worms. Please bring your dog's shot record. Each dog will be fitted with a special training collar; six foot leads are required and will be available at registration. For further information, please call 874-5706 or Doris Bryan, ext. 2127.

BOATING COURSE. Hampton Roads Power Squadron will offer its Spring Free Boating Course at Lindsay Jr. High School beginning on Monday, January 23, at 7 p.m. Classes will meet every Monday night for 11 weeks with the final exam given on April 3rd. Subject matter presented will cover all aspects of safe boating, including piloting, seamanship, mariner's compass, aids to navigation, charts, and course plotting. For further information please contact W. Gordon Diggs at 245-2707.

HAPPY HOUR. The next LAA Happy Hour will be held Friday, January 19, from 4 to 6:30 p.m.

Recent Retirees

Bill A. McMillan, Fabrication Division, retired on December 15, 1978.

Clarence J. Allison, Jr., Scientific and Technical Information Programs Division; **Grayson V. Dixon,** Research Facilities Engineering Division; and **Frank H. Joyner,** Plant Engineering Division, retired on December 18, 1978.

Retiring on December 22, 1978, was **Evelyn C. Allison,** Management Support Division, and on December 30, 1978, was **Charles S. Kaiser,** Operations Support Division.

Harold R. Long, Operations Support Division; **Craig H. Collins,** Plant Engineering Division, and **A. Harper Gerringer,** Systems Engineering Division, retired on January 2, 1979.

Thank You

Evelyn Allison, who recently retired from the General Files and Mail Section, MSD, writes, "Thanks to all my many friends for coming to my retirement luncheon on December 20. I enjoyed working at Langley and thank everyone for the kindness and courtesy shown to me."

—photo by Bob Nye

Docent Graduation. In a December ceremony at the Langley Visitor Center, graduation certificates were presented to fourteen volunteers who completed an intensive program to guide tour groups on the Center. Pictured are: (front row, from left) Mrs. Elizabeth W. Gibbs of Yorktown, lists her special talent as having "the ability to communicate with people;" Mrs. Laura L. Press of Hampton, former LRC Klate-Holt employee, an enthusiastic supporter and promoter of the Visitor Center; Mrs. Caroline G. Hayford of Hampton, Ikebana teacher and gourmet cook; Mrs. Joan H. Wallis of Hampton, college level psychology instructor; researching "Housing Satisfaction as Related to Job Satisfaction and Family Mobility;" Mrs. Jean Thompson of Hampton, widow of former LRC Director, Floyd Thompson, retains an active interest in LRC and the work of the Visitor Center in addition to her bridge club and church work activities; Fred F. Eichenbrenner of Hampton, special talents include photography and wood-carving; Mrs. Dorothy Wilkinson, Docent Coordinator; (back row, from left): Warner Mooney of Newport News, special interest and talent, "instructing others;" Mrs. Louise Caplan of Newport News, President of Peninsula Tennis Assoc. and coach of the Boys Tennis Team of Carver Junior High; Ms. Fran S. Lanning of Hampton, Branch Manager of First American Title of the Peninsula, Inc., and State Parliamentarian for Epsilon Sigma Alpha International; Mrs. Peggy Hewes of Newport News, learning to pilot planes in addition to a special interest in playing tennis; Lloyd J. Fisher of Newport News, retired head of LRC Impacting Structures Section, divides his available time as a docent with the Mariners Museum; Not pictured: Mrs. Jeanette Kern of Seaford; David Hillerson of Hampton; Clarence A. Brown, MATD-Marine Environments Branch.

Retirement Parties

W. Bruce Dunn, Scout Project Office, retires from NASA today after 28 years of service. Dunn will be honored with a retirement party (cash bar at 6:30 p.m., buffet at 7:30 p.m.) at the Activities Center, on February 10, 1979. Cost (including gift) is $6.50 per person. Contributions for gift only are welcome. Contact Grace Girton at extension 2641 for reservations or send remittance to Joe Dixon at Mail Stop 158A. Reservations must be in by February 5, 1979.

A retirement luncheon will be held for **George R. Topping** on February 8, 1979, at 11:30 a.m. in the Activities Center (Bldg. 1222). Cost will be $5 per person (including gift). Contributions for gift only are welcome. Send reservations to Miriam Hall, M/S 235, by February 2, 1979.

Lucy C. White retires from Full Scale Tunnel today and will be honored with a cocktail buffet and dance on January 13, at 7 p.m. at the Fort Monroe Officers Club. Cost is $7 per person or $13 per couple. Call Sue Grafton or Clara Simmons at 2184 for reservations. Cash bar.

Robert (Bobby) P. Weaver, who retires today from the Model Engineering Section, will be honored with a retirement luncheon in the Activities Center on Tuesday, January 23, at 11:30 a.m. The menu includes roast beef and seafood casserole and costs $5.50 per person (includes gift). Contributions of $1 to gift only are welcome. Please make reservations by contacting John L. Price, ext. 4666, by Friday, January 19.

Stanley Press, Flight Electronics Division, will be honored with a retirement party on Saturday, January 13, at the Reid Activities Center. A cash bar cocktail hour will begin at 6:30 p.m. and a steamship round dinner will be at 7:30 p.m. The price is $6.50 per person, which includes the $1 gift contribution. Contributions to the gift only are welcome. For reservations, send check or cash to Freda L. Richardson, Mail Stop 256, ext. 3585.

L. Ross Levin, retires from the Materials Division today after over 36 years service. He will be honored with a retirement luncheon in the Activities Center at 11:30 a.m. on January 31. The buffet menu will include southern fried chicken or seafood casserole. The cost is $5 per person or $9 per couple (includes $1 for gift). Contributions of $1 for gift only are welcome. For reservations, contact Ronald D. Brown, ext. 3894, or Carol Olsen, ext. 2968 (Mail Stop 396), by January 26.

A retirement luncheon for **Neva B. Brooks,** General Files, will be held on Thursday, January 25, 1979. For more information call Barbara Newton or Arlene Evans, Ext. 3221.

Champion Aerobatic Pilot Visits Langley

Aerobatics. A sport that calls for precision flying. A sport in which every muscle in the body is exercised and goes through great physical punishment. A sport in which the pilot flies at 180 mph and pulls 8 g's with every move. A sport in which only a flick of a pilot's eye can cause him to lose enough points to trade the lead for a position far down in the pack.

Leo Loudenschlager is one of the finest aerobatic pilots in the U.S. In fact, he is the best. Loudenschlager has won the U.S. Championship the past four years.

Loudenschlager visited Langley November 17 "to bring aerobatics to knowledgeable people." He also said that he is building a new plane and was here to gather valuable information from researchers that would be applicable to the aircraft.

Loudenschlager said that in aerobatics there is a limited use for aerodynamics, but application of the type of research done during the days of NACA are easily applied to the specialty of aerobatic aircraft.

Loudenschlager, 32, entered the sport of aerobatics in 1971. He said he became interested one day when he looked up and decided that's what he wanted to do. He then built his plane and taught himself how to fly.

Loudenschlager practices three to four times a week in the fields over Sussex, N.J. He said he currently is trying to compete just in the National Championship competition.

In his first National Championship competition in 1971, he finished ninth in a field of 14. Four years later he won his first National Championship.

A spectator of the sport may think the risks are high, but Loudenschlager said that the sport doesn't have to be dangerous. He said that a person needs to educate himself and take precautions. Loudenschlager said that from the competition viewpoint, maybe only one accident has occurred in the U.S. The sport calls for "precision flying" and the pilot must stay out of hazards.

Aerobatics is not a large spectator sport, Loudenschlager said, but it is becoming more popular. "More people go to air shows than aerobatic competitions, but I expect the number of spectators to grow in the future."

Loudenschlager, left, and his wife, right, toured the hangar during their visit. Explaining Langley's stall/spin program are Joe Stickle, second from left, and Paul Stough, second from right.

The National Championship is held every year in the Fall. The competition takes five to six days with 60 to 80 competitors. There are only two rules in competition, the plane must be piston driven and the pilot must stay in the box, the area in which all maneuvers are made.

Loudenschlager, an American Airlines pilot at LaGuardia Airport, said there are five main maneuvers done in aerobatics: the roll, both horizontal and vertical; snap and rolls; rolling 360's; tail slide, where the plane flies straight up and slides backward drifting to a predetermined side; and the hammerhead, where the plane flies straight up, stops, turns around and comes straight down.

The physical punishment in aerobatics is great. At 4 g's a person begins to lose vision and at 6 g's most are blind from loss of blood to the optic system. However, aerobatic pilots routinely pull 8 and 9 g's during competition.

Loudenschlager said that the physical effects are short term. He said that a person could take quite a toll if not in condition, but eventually a person builds a tolerance to the g's. He added that the long term effects of the physical punishment are unknown.

Loudenschlager's first International competition was in 1976 at Kiev. In 1972 he was the assistant U.S. judge at the competition in Salon, France. He said the competitions, which take place every two years, last a week to a week and a half.

He noted that the U.S. team is completely financed by its members. He said there are five males on the team and positions for five females, but only one or two usually qualify for the team.

At the 1978 Internationals, in Czechoslovakia, Loudenschlager finished 12th overall, receiving two gold medals and one silver medal. The U.S. team finished second behind the Czechs.

He said there are four categories in the International competition. The first is the compulsory, in which everyone flies the same flight. The second category is the unknown, in which the pilot is handed the flight pattern and maneuvers only 24 hours prior to flight and no practice is allowed.

The third category is freestyle, in which the pilot makes up the flight but certain maneuvers must be included. And the fourth category, open only to the top third in scoring, is the four-minute freestyle, in which the pilot may do any maneuvers he wishes.

Loudenschlager and his wife Suzy have two children and live in Sussex, N.J. Suzy says that her husband's flying does bother her some but, "he is very safety minded." She said she tries to support him and not worry too much. She has accompanied him to both International competitions, financing the trips herself.

Questions & Answers

Q. First I would like to say that I think that closing down the entire center during certain holiday periods *can* be a very effective means of saving energy. However, I did work a few hours on Friday after Thanksgiving (in a building that was officially closed). My findings were as follows:

(1) The heat between the two sets of front doors was on, which is wasteful at any time.

(2) The heat was on in the building. The temperature in three different rooms ranged from 74° to 79° F.

(3) One person was trying to cool off by running an electric fan.

(4) The heat was on (76° F) in an unoccupied corridor connecting the main office building with the wind tunnel area.

(5) The heat in the restroom in the wind tunnel area was on.

Of course a savings in energy will be shown on paper but that will be primarily because the wind tunnels were not operating.

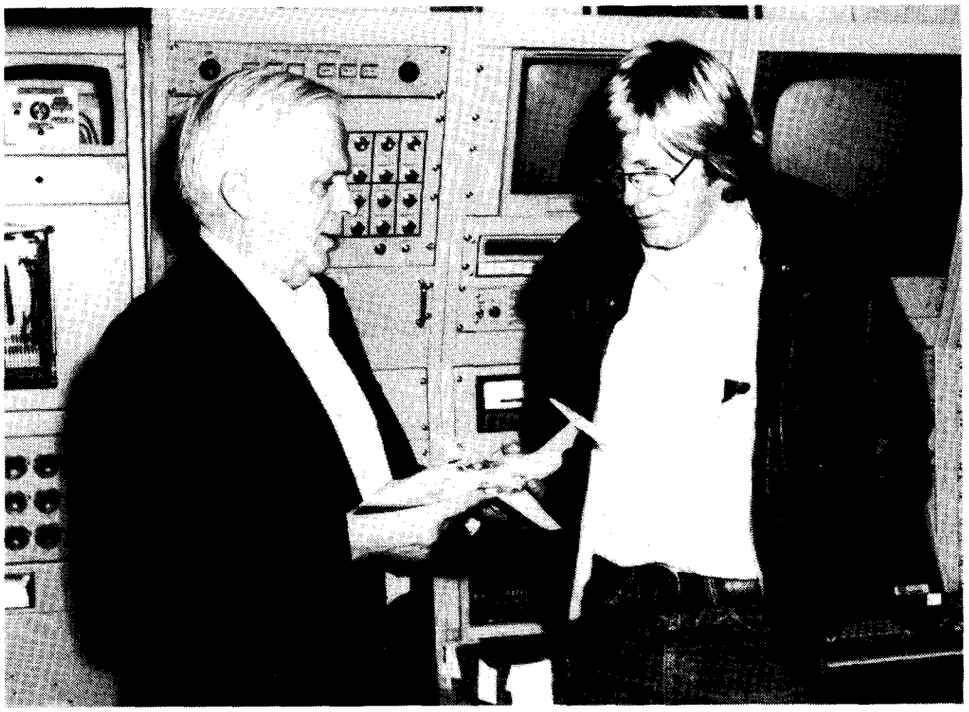
Isn't this another typical example of how great achievements are shown on paper when in reality the achievements are nil?

A. This question was referred to the Plant Engineering Division (PED) and their reply is as follows:

"Since the Specific Building is not identified it is impossible to provide the writer with a specific explanation. There are, however, general comments that can be made concerning energy conservation as it relates to many of the Center facilities.

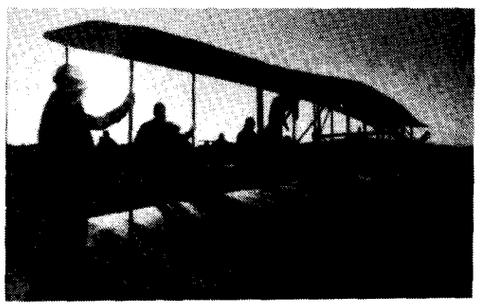
Although all practical efforts are made to minimize energy use in the facilities selected for shutdown, total use of energy cannot be eliminated. The most significant savings are in electricity as a result of eliminating lights, pumps and blowers for the heating systems, and compressors and air handlers for cooling systems. In many cases it is not practical to shut off hot water supplied to the buildings for heating. Fuel oil is conserved, however, since pumps and fans are not operated. The hot water alone in the heating system piping can be more than enough to heat, or overheat, buildings on relatively mild days such as was experienced during the Thanksgiving week. This might have been the case at the building in question. If these buildings were open as usual, it is also possible that cooling with outside air ventilation might have been required to maintain personnel comfort.

Unfortunately, most of the center buildings and facilities were designed and constructed when energy use and cost were relatively unimportant. The heating and cooling and lighting systems, unless modified are not easily adaptable to the most energy efficient modes of operation. The above situation is just one example. Systems are being revised, however, where energy savings justify the modification cost. The current guideline for payback on investment is 5 to 7 years."



– photo by Bob Nye

Dr. Richard Whitcomb (left) talks about airplanes with Kenneth Kellett, who visited Langley in late December. Kellett built a nearly exact model of the Wright Flyer and attempted to fly it near Kitty Hawk, N.C., on the 75th anniversary of the first powered flight.



– photos by Bill Piland

Early morning preparations for flight were made December 17 by Kenneth Kellett and friends as Kellett attempted to duplicate the Wright brothers' first powered flight.

Thanks

"I wish to thank all the wonderful Center personnel, currently employed or retired, who honored me at my recent retirement party. It was an evening of good fellowship, good cheer, reminiscing, and a few tears.

I am delighted with the gifts and mementos presented to me. They are all lovely and meaningful.

Again, my thanks to all of you who made my years at Langley Research Center so rewarding and fulfilling."

Sincerely,

Mary Lemke

NASA Future (from page 2).

now will have an opportunity to build things . . ., maintain them and repair them, to put things on a much more routine kind of basis than they've been before. That, in a way, will prepare us for the greatest revolutions, technologically, because it gives us capabilities whose value we can scarcely anticipate, although we can plan for them."

Concerning Tiros and Nimbus satellites, "that's all part of our attempt to understand the atmospheric part of the global environment. More accurate measurements have implications not only for weather, but for our understanding of the chemical composition of the atmosphere and how we affect it . . . .

That information is important for our understanding of long-term climate changes because--particularly the things that Nimbus senses, the chemical changes--are intimately involved in the questions of the Sun's effect on the upper atmosphere, our human effect on the upper atmosphere through the things that we do chemically, and all of that adds up to a possibility for data that can be put together with a suitable modeling to give us a much better understanding of the things that affect climate."

Notice

Material Receipt Notification

Payments to vendors for material received at LRC cannot be made without a "Receipt and Inspection Report" form, properly executed. When material is picked-up by Langley personnel directly from a vendor, it is imperative that the individual who received the material promptly notify the Facilities & Materiels Contracting Branch (Ext. 2324) to prevent delay of payment.

swap and shop

FOR SALE

Articles

Textbooks—1/3 off, excellent condition: Elements of Gas Dynamics, by Liepmann and Roshko, $14; Random Data Analysis and Measurement Procedures, by Bendat and Piersol, $20. Call Mathis, 722-7629.

General Electric gold refrigerator (manual defrost), EC, 14 cubic ft. with freezer on top, $200 OBO (4 yrs. old). Call 898-4727 after 5 p.m. weekdays.

Hide-a-Bed Davenport, dark brown/rusk tweed, nice condition, $135; Complete bedroom set—walnut finish, $235. Call 826-8738 day or evenings.

Car battery, Gulf Cruisemaster maintenance free, type 22F—for use in compact cars, used only 3 hours, lists for $38.12, will sell for $19. Call Miller, 599-4321.

Tires--two A78-13 Whitewall show tires with studs mounted and balanced on wheels for Ford Pinto or Mercury Bobcat, asking $40 or best offer. Call 851-0343.

Hospital bed, manual type with side rails, EC, $250, and a wheel chair, deluxe, fully adjustable, EC, $350. Call Pearson, 838-1219.

Vehicles

Motorcycle, 1976 Suzuki GT 250 A, bought new Feb. 1978, only 5,000 miles, garage kept, immaculate condition, must sell, $750 neg. Call Len Power, ext. 4666, or home: 877-1706.

Mercedes Benz '63 250-SE, AT, PB, AM-FM radio, sun-roof, immaculate condition, $4,900 or best offer. Call 827-6704 after 5 p.m.

Mustang fender, pre-C.B.S. series, very good condition. Call 722-4660 after 5 p.m.

Animals

German shepherd puppies, two white and four black with brown markings. Call Chapin 3234 or 722-7582.

Keeshond--approximately 1 year old, female, gentle and lovable. Call 898-4100 after 5 p.m.

WANTED

Riding combination from Mathews or Gloucester, Va., to West area on 8:00 shift. Call Barbara Buchanan, 827-2159 or 827-4156.

Car pool member in the Hidenwood--Glendale area on the 8:00 shift. Call 599-4321.

cafeteria menu

WEEK OF JANUARY 15

MONDAY: Corn Chowder; Baked Lasagna; Teriyaki Baked Chicken; Clam Strips. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Braised Beef & Vegetables; Fried Filet of Trout; Wiener Burritos. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Meat Loaf; Breaded Veal Cutlet. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Broiled Beef Liver; Baked Tuna & Noodle Casserole. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Chicken Chow Mein; Beef Pot Pie. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF JANUARY 22

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Savory Baked Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Pepper Steak; Fried Filet of Trout; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Baked Virginia Ham; Beef Enchiladas. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers w/Onions; Franks, Bacon & Cheese; Roast Beef Au Jus. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Country Style Steak; Chicken Pot Pie. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

Activities Center Suffers Abuse

Since it's re-opening, Activities Center has experienced many acts of vandalism and theft.

The Activities Association and Center management have gone to great effort to provide employees with a recreational and conference complex of which they can be proud.

Some of the things that have happened include destroying plumbing fixtures, defacing walls and pictures, overturning potted plants, removing items from the coordinator's desk and removing lamps and signs from the building.

Activities Center users are urged to help maintain the facility and keep it a place to be proud of.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 2

January 26, 1979

Phillips Receives Presidential Award

William H. Phillips, Chief, Flight Dynamics and Control Division, has received one of the nation's highest honors, the President's Award for Distinguished Federal Civilian Service. Only six Federal workers received the honor.

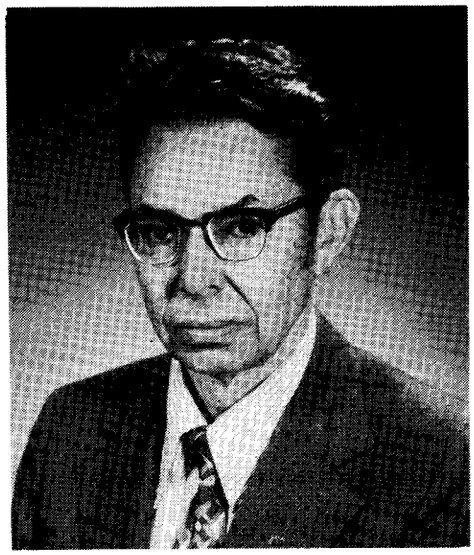
Dr. Robert Frosch, NASA Administrator, presented the award, on behalf of President Carter, at a Headquarters ceremony on Monday, January 22.

Phillips and the other recipients were recommended to the President from a group of 32 outstanding candidates nominated from several government agencies.

The citation that accompanied Phillips' award states:

"Recognized world-wide as an authority on guidance and control and flying qualities of aerospace vehicles, he has made extraordinary contributions to these and other fields of aircraft and spacecraft stability and simulation research.

"His achievements include theoretical and practical contributions to World War II aircraft and spacecraft, jet and supersonic aircraft, and spaceflight from its early stages through the Space Shuttle era."



Phillips, born near Liverpool, England, in May 1918, came to the United States with his parents when he was two years old. He graduated from high school second in his class in Belmont, Mass. He earned bachelor of science and master of science degrees in aeronautical engineering from Massachusetts Institute of Technology in 1939 and 1940, respectively.

Phillips began his career with NASA's predecessor agency, the National Advisory Committee for Aeronautics (NACA), in 1940. He became a section head in 1946 and a branch chief in 1961. He was named Assistant Chief of Langley's Aeronautics and Space Mechanics Division in 1962, and became Chief of the Division in 1963. He was appointed to his present job in 1968.

He is a member of the Engineers Club of Virginia Peninsula, and he was made a Fellow of the American Institute of Aeronautics and Astronautics (AIAA) in 1975.

Phillips received the AIAA's Lawrence Sperry Award in 1944, and the NASA Medal for Exceptional Scientific Achievement in 1967.

Phillips and his wife, Mary, live in Hampton. They have two sons and a daughter.

Only five of the Presidential awards are usually given each year but, because of the high quality of the 1977 nominations, six people were selected for the honor.

Other award recipients, in addition to Phillips, are:

Ellsworth Bunker, U.S. Ambassador at Large; Philip C. Habib, Under Secretary of State for Political Affairs; John R. McGuire, Chief of the Forest Service, Department of Agriculture; Stanley Sporkin, Director, Division of Enforcement, Securities and Exchange Commission; and Rosalyn S. Yalow, Senior Medical Investigator for the Veterans Administration.

Thompson Fellowship

The Floyd L. Thompson Fellowship Program, established in 1977, honors two Langley researchers each year by giving them the opportunity to spend up to 12 months in research activity at an educational or research institution. The Fellowship provides the recipients a unique opportunity to do individual research at an institution of distinction and thus enhance the individual's research capability. It also provides a means for infusing the Langley Research Center with new ideas from other centers of excellence in specific research fields.

The Floyd L. Thompson Fellowship Program is intended for nonsupervisory researchers who have demonstrated continued growth in research capability and have been at the Center more than 10 years. Recipients receive full salary and benefits, travel, per diem, and such additional funding as appropriate to permit the purchase of research equipment or computer usage at the institution visited.

Since its inception, four Langley researchers have been Fellowship recipients. They have included: Calvin T. Swift, National Oceanic and Atmospheric Administration, Boulder, Colorado; Martin M. Mikulas, Jr., California Institute of Technology, Pasadena; John B. Anders, Jr., University of Southern California, Los Angeles; and Marion C. Bailey, University of Mississippi. Continued page 4.

LANGLEY MANPOWER

The President's FY 1980 budget submitted to Congress last Monday reduced civil service employment levels throughout government, including all NASA Centers. Langley's ceiling was reduced to 3005 by the end of the current fiscal year and to 2980 in fiscal 1980. The current employment level at Langley is 3030. Center Director Donald Hearth has stated that these new Langley ceilings will not require a Reduction In Force and that current hiring commitments to specific individuals will be honored.

— photo by Bob Nye

The six teachers pictured here recently completed a one-day training session at Langley to be certified for borrowing a lunar sample. The Johnson Space Center is loaning samples of Moon rocks to science teachers for educational purposes. Each sample has six rocks imbedded in a plastic disc about six inches in diameter. Shown are: (from left) Steve Kite, Geology Department, James Madison University; Una Cook, Yorktown Intermediate School; Ken Pinzel, York High School; Carolyn Smith, Bruton High School; Kathryn Ramer, Bruton High School; and Jim Beavers, Yorktown Intermediate School.

Engineers - People Bringing Purpose to Progress

National Engineers Week will be observed this year February 18–24. The National Society of Professional Engineers, with more than 70,000 members, began sponsoring National Engineers Week in 1951. The purpose of the week is to familiarize the public with the work of engineers and to honor outstanding members of the profession. The week of George Washington's birthday is traditionally selected for the observance because our nation's first President had the educational background of an 18th century civil engineer.

President Carter has issued an official Proclamation for the week, in which he lauded the myriad contributions engineers have made and continue to make toward human progress. He said, "We look more than ever with pride, appreciation, hope and confidence to all members of this vital profession."

"People Bringing Purpose to Progress" is the theme of this year's observance. Several activities have been planned on the Peninsula to commemorate the National Engineers Week Observance. These include exhibits at Coliseum Mall, visits by engineers to local high schools and colleges, a Career Day program to be held at Langley, and a banquet on February 24.

The banquet will be held at the Langley NCO Club with a cash bar at 6 p.m., prime rib dinner at 7 p.m. and the program at 8 p.m. The guest speaker will be Wyatt Durrett, representative of Fairfax, Virginia, to the Virginia House of Delegates. The highlight of the evening will be the presentation of the Engineer of the Year Award. Tickets are available now for $7 each (due to multiple society distribution, tickets must be paid for in advance). Contact Jerry Deaton, ext. 3940, or Al Taylor, ext. 3877, for reservations.

Notice

The Office of Occupational Health and the Optical Dispensing Services have been relocated to B-1149, 2nd floor. Use door fronting on Moffett Road to the right of the "Emergency Entrance."

Attention Former Employees of Aerospace Contractors

Under existing law (Sec. 7, Public Law 91-303 (84 Stat. 372)), NASA employees formerly employed by certain aerospace contractors are required to submit a report containing information specified in the statute. Personnel who were formerly employed by certain aerospace companies are required to file such a report with Personnel Records, Mail Stop 174A, by February 15, 1979, if they also meet the following criteria:

1. Employment with the listed aerospace contractor terminated on or after October 1, 1974; and
2. Salary rate during employment with the listed aerospace contractor was $15,000 per annum or more; and
3. NASA Salary rate at any time during the period October 1, 1977, through September 30, 1978, was equal to or greater than GS-13.

Additional information and NASA Forms 1480 may be obtained from Personnel Records or Norma B. Schultz, Extension 2624. Failure to file a report is punishable by a maximum of 6 months imprisonment or a fine of not more than $1,000, or both. A listing of the aerospace companies covered by this statute is posted on bulletin boards.

Speakers Bureau

On January 17, **Bill Grantham** spoke to the Yorktown Rotary Club on Seasat.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Karen Miller
Editorial Assistant . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

NASA FY 1980 Budget Presented to Congress by President Carter

NASA's FY 1980 budget plan, presented to Congress this week as part of the Carter Administration's total U.S. budget, is $4.725 billion, an increase of just under 3.5 percent over the FY 1979 budget.

NASA Administrator Robert Frosch, discussing the new budget with newsmen on January 20, said the increase is not enough to cover the current rate of inflation.

Although no major new NASA programs are planned for FY 1980, present programs--including those in aeronautics--will continue to be supported.

Within the total budget, Research & Development funds total approximately $3.6 billion; Construction of Facilities $157 million; and Research & Program Management just under $965 million.

Langley's share of the R&D budget has not yet been announced, but should remain at about the same level as in FY 1979, with a slight increase to help offset inflation.

Major Construction of Facilities funds for Langley include the final increment for construction of the National Transonic Facility, $12 million, and modifications to three wind tunnels and one laboratory: Model Support System 8-Foot High-Temperature Structures Tunnel; $1.4 million; 8-Foot Transonic Pressure Tunnel, $2 million; Transonic Dynamics Tunnel, $970,000; and Gas Dynamics Laboratory, $3.6 million.

Research & Program Management funds for Langley total just over $110 million.

Attention Retired and Ex-Fiscal - FMD Employees

For the first time since its inception, the Financial Management Division will now be under one roof. The Financial Management Building 1192, will be formally dedicated on Thursday, March 1, 1979, and the ribbon cut at 10 a.m. Following the dedication there will be an open house with refreshments.

An area of the cafeteria will be reserved for all FMD current and past employees to eat together at 12:15 p.m. (Dutch Treat).

All ex-Fiscal--FMD employees still here, are requested to call Blanche Johnson, Ext. 2724, so that we may plan refreshments and reserve seats in the cafeteria. They will also be issued a special identification badge. Retired and separated employees will have special invitations mailed to them, but anyone not receiving one should also write or call in for their honored guest badge.

Good-bye Karen

Karen Miller, Editor of the *Langley Researcher,* is leaving Langley in February. The Public Affairs Office will honor Karen with a party at the Langley Officers' Club on February 10. Anyone interested in attending should call Jean Drummond, extension 2934, by February 2, for more information.

Revealing more detail than the very best groundbased telescopic photographs, this Voyager I image of Jupiter taken December 10 from 52 million miles shows the Great Red Spot (lower right) surrounded by a turbulent atmosphere. The entire visible surface of Jupiter is made up of multiple layers of clouds, composed primarily of ammonia ice crystals colored by small amounts of materials of unknown composition. Largest of all the planets, Jupiter's volume could contain more than 1,200 Earths. Voyager I will fly past Jupiter on March 5, studying the planet and five of its 13 moons, and continue on to Saturn. Voyager 2 will arrive at Jupiter on July 9.

Veteran Test Pilot Retires

Wherever he goes, if he sees a washer he picks it up. He calls himself a "washer nut."

His name is **Robert Champine,** NASA Langley Research Center's senior test pilot. After 31 years with NACA/NASA, Champine made his final research flight on January 11 at Wallops on the Boeing CH-47. He retired Jan. 12, 1979.

Champine has accumulated over 11,000 hours in over 175 types of aircraft, most of which have been experimental, during his 35 years of flying.

Champine has had extensive research piloting experience with both the military and NACA/NASA's Langley Research Center. He has flown a large variety of aircraft categories at Langley and other locations, some of which have been in foreign countries.

His research piloting has included investigating stability and control; aerodynamic loads; performance characteristics; pilot workload; ride quality; safety and operating problems; task performance and problem areas on new configuration aircraft modified for research purposes; or tasks arising from new operating procedures.

Champine was born in St. Paul, Minnesota. He graduated from the University of Minnesota in 1943 with a bachelor degree in aeronautical engineering. While attending college he began primary flight training under the Civilian Pilot Training Program and later completed naval flight training at Pensacola, Florida, receiving a commission as Naval Aviator in 1946.

He completed 21 years as a pilot in the Naval Air Reserves program at the U.S. Navy Air Station, Norfolk, retiring with the rank of Commander.

Released from active duty in 1947, Champine joined the staff of the National Advisory Committee for Aeronautics at Langley as an aeronautical research pilot-engineer.

In 1948 he was transferred to NACA's high-speed flight research unit at Edwards Air Force Base, Muroc, Calibornia, now NASA's Dryden Flight Research Center. His assignment there was that of a civilian test pilot for the rocket-plane Bell X-1 and the Douglas D-558 I and II. He became one of the world's first supersonic pilots. He returned to Langley in 1950.

Champine has flown the more difficult types of aircraft and flight research, such as initial penetrations investigating vorticity with small general aviation aircraft, helicopters, and jet aircraft behind larger aircraft, research programs involving the nation's largest and most complicated helicopters, and Vertical-Takeoff-and-Landing planes. He has flown test-bed or "one-of-a-kind-aircraft," such as the X-1, D-558 I and II, VZ-2, DOAK, XV-4A, XV-5A, CL-84, X-22, XC-142 and the P-1127 Harrier.

As a hobby Champine builds model airplanes. This hobby, earned him a trip to Weisbaden, Germany, in 1955 as a member of the United States team in international model competition, in which he finished 11th.

He is interested in general aviation aircraft and has restored a 20-year-old Cessna 190 five-place light plane. Champine noted that when he retires he might go into restoring antique aircraft, but as of yet, he hasn't come to a full decision.

For the present time, however, he said he probably will just do the usual jobs of painting his house and yard work.

Thompson Fellowship

Continued from page 1.

The criteria for evaluation of applications include the research record of the individual, the distinction of the proposed institution and its staff, the merits of the program of research to be conducted, and the anticipated long-range value to the division and Center.

Any questions regarding this program shall be addressed to the Training and Educational Services Branch at extension 2611.

Aerospace Penpoints
by Wesley Berryman

"When man has conquered all the depths of space, and all the mysteries of time, then he will be but still beginning!"

H.G. WELLS

Key Positions

The following Langley employees were recently selected for key positions:

Willard W. Anderson, Acting Head, Flight Management Branch, Flight Dynamics and Control Division; **Jim J. Jones,** Acting Head, Aerothermodynamics Branch, Space Systems Division; and **James C. Dunavant,** Acting Assistant Head, Aerothermodynamics Branch, Space Systems Division. **Roger N. Messier** was recently selected Head, Systems Development Support Section, Systems Development Branch, Systems Engineering Division. **Earl S. German, Jr.** has been selected Head, Instrument Control Office, Instrument Research Division.

Members of the Power Plant Plume Lidar Development Team were recently presented Group Achievement Awards for outstanding contributions in the development and demonstration of lidar system technology for characterizing plumes from power plants. Pictured are: (front row, from left) G. Burton Northam (HSAD, formerly in AESD), Forrest C. Diehl (Wyle Labs.), Carolyn J. Butler (ODU), Edward V. Browell (AESD), Thomas J. Lash (OSD), and Robert J. Allen (ODU); (back row, from left) James H. Siviter (AESD), William F. Hunt (Wyle Labs.), Loyd W. Overbay (OSD), James F. Kibler (AESD), and Charles A. Bartusiak (Wyle Labs.). Not pictured: Jeffrey C. Weil, Martin Marietta Labs.

Thirty-three Employees Retire

Thirty-three Langley employees retired from the Center on January 12. Retiring from their government careers were:

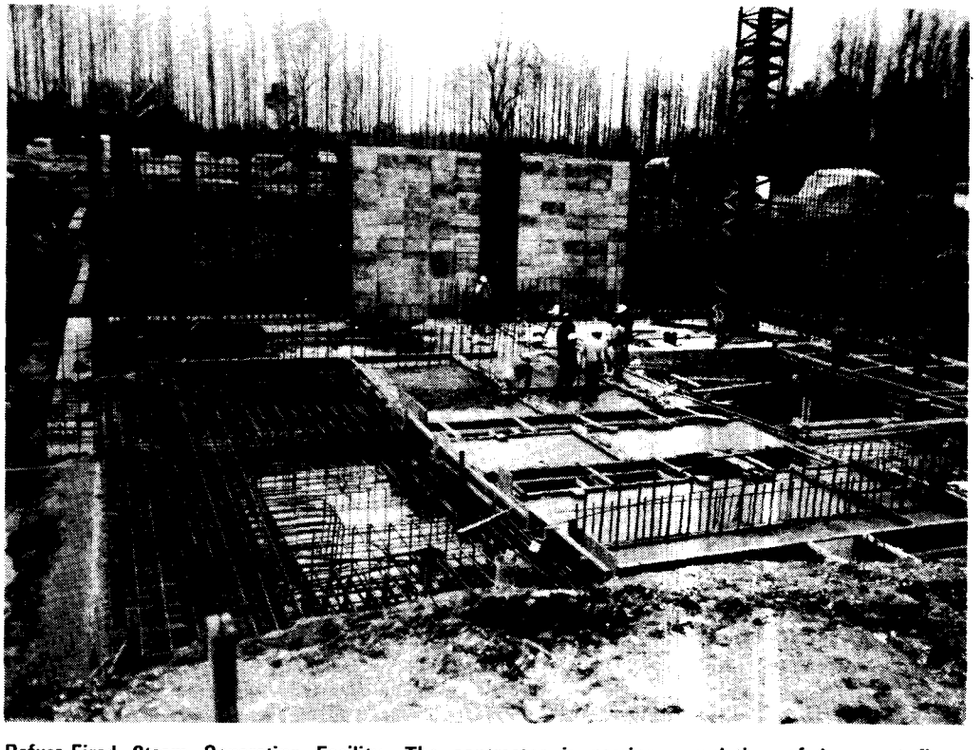
Thomas Willis Preston, Leroy Jones, George W. Lamb, Walter P. Kabana, Osborne F. Davis, Nathaniel E. Bowman, and **Floyd S. Rogers, Jr.,** Fabrication Division.

Robert Y. Green, Charles W. Taylor, Alfred G. Bridger, Sr., Ogie L. Hayes, Herbert L. Freeman, Jr., Cecil Allen Field, George A. Stacey, James W. Huggett, and **Charles L. White,** Operations Support Division.

Stanely E. Pearson and **George R. Topping,** Instrument Research Division; **Kazimierz R. Czarnecki** and **Lucy C.** Continued on page 6.

1978 Langley Tennis Tournament Winners. Front row, from left are: Al Wilhite, Championship Ladder finalist and Doubles Ladder Champion; Bob Murray, Senior Mens Champion; Louis Buldain, Senior Mens Finalist; Judy Spain, Womens Ladder Champion and Womens Singles finalist; Charles Bryant, Mens Ladder Champion and Mens Singles finalist. Back row, from left, are: Dave McDougal, Mens Singles Champion; Dennis Bartlett, Doubles Ladder Champion; Leonard Credeur and Jerry Creedon, Doubles finalists; Billy Haigler, Doubles Champion and Doubles Ladder Champion. Not shown are: William Haigler, Doubles Champion and Doubles Ladder Champion; Joanne Daus, Womens Singles Champion; and Margaret Sobieski, Womens Ladder finalist.

Members of the Earth Radiation Budget Study Team were recently presented Group Achievement Awards for outstanding contributions in developing mathematical methods and performing comprehensive analyses and simulations for data interpretation, mission design, experiment definition, and program development for the Earth Radiation Budget Satellite System. Pictured are: (front row, from left) John T. Suttles, Mary R. Woerner, Lee M. Avis, and Richard N. Green (AESD); (back row, from left) Robert A. Babcock III (IRD), George E. Sweet (AESD), Charles V. Woerner (ERBE Project Office), G. Louis Smith, James F. Kibler (AESD), and Edwin F. Harrison (MATD). Not pictured: E. Brian Pritchard, John E. Cooper, and William L. Weaver (MATD); T. Dale Bess and George R. Young (AESD); Robert J. Curran (Goddard Space Flight Center); and Gary G. Gibson, Michael R. Luther, and Phillip G. Renfroe (Vought Corporation).



Refuse-Fired Steam Generating Facility. The contractor is nearing completion of basement floor slabs and has started pouring refuse pit walls. A crane has been installed to set forms and building steel. Weather permitting, floors and major wall pours were scheduled to be completed by January 1, 1979.

A Time for Action, Not Panic

During the past few months the Staffing and Special Programs Branch has received many calls from employees who are eligible for retirement and are concerned about being brought under universal social security coverage. They are wondering if they should retire now because they are afraid this might reduce some of their present retirement benefits.

There is no need to panic. Congress has appointed a universal social security study group, to report their recommendations in December 1979. Congress will not be able to act on the group's recommendations until 1980.

If the study group recommends universal coverage, the subject is so complicated that it very well may take several years for Congress to work out a program. So, those of you who are near retirement age have at least a few years to make a decision.

It should be noted that when Congress ordered the study, it was made clear that government employees should not lose any of their present benefits. It is possible that Congress may decide to place only future employees under universal coverage. At this time, it's too early to know what will happen.

THIRTY-THREE EMPLOYEES RETIRE

Continued from page 5.

White, Subsonic-Transonic Aerodynamics Division; **Walter H. Lee, Jr.** and **William H. Guy, Jr.,** Scientific and Technical Information Programs Division, and **Neva B. Brooks** and **Joseph S. Stodghill,** Management Support Division.

Barbara G. Burbank and **Walter B. Horne,** Structures and Dyamics Division; **Robert P. Weaver,** Systems Engineering Divsion; **L. Ross Levin,** Materials Division; **Stanley Press,** Flight Electronics Division; **Henry A. Smith,** Analysis and Computation Division; **Bryant L. Johnson,** Research Facilities Engineering Division; **William B. Dunn,** Scout Project Office; and **Robert A. Champine,** Flight Research Division.

Happenings

BINGO. The first bingo game of the 1979 season will begin at 7:30 p.m., Thursday, January 11. Games will be held every Thursday at that time unless cancelled by official Langley functions or holidays. There will be two $500 jackpots with increasing numbers and consolation prizes until won. There will also be one $200 guaranteed coverall special each night. There will be a winner-take-all as the last game each evening. For further information, call Eugene Hicks, ext. 3737.

TOASTMASTERS. If you need to improve or maintain your public speaking and leadership skills, refresh your memory on parliamentary procedures, or improve your listening and evaluation capabilities, then join Toastmasters. The TAC Air Toastmasters meet each month on the second and fourth Wednesdays at 7:15 p.m. at the Langley Officers' Club. For more information, contact Rama Bhat, ext. 4275; Jim Moss, ext. 3770; Jim Sharp, ext. 2592; or Bob Lee, ext. 2486.

WILLIAM & MARY BASKETBALL. The College of William and Mary will sponsor an Employees Night for all NASA personnel on Saturday, February 3, 1979. The basketball game will start at 8 p.m.--William and Mary vs Navy. Admission is free to NASA employees--all you have to do is show your identification badge.

HAPPY HOUR. The next Happy Hour is scheduled for Friday, February 2, at the Activities Center from 4 to 6:30 p.m.

Directory Call Notice

This call notice is to remind all offices that any changes in the Organizational Listing of the Service Directory Listing for inclusion in the March 1979 issue are due at M/S 196 by **February 1, 1979.**

The furnishing of accurate information for the Alphabetical Personnel Section of the Directory is the responsibility of each individual employee. Langley Form 133 entitled, "NIPPS—Telephone Directory Transcript," (Change Notice) is provided in the back of the Langley Telephone Directory for reporting change in mail stop, building number, room number, and telephone number. These changes must be submitted no later than **February 1, 1979,** for inclusion in the March issue.

— photo by Bob Nye

Jess G. Ross, Chief, Management Support Division, turns on the new tennis court lights at the Activities grounds while Herb Boulter, President of the Activities Association, and Sue Juanarena, Manager of the Activities Association observe. The $9,000 project was funded by the NASA Exchange Council.

Job Openings

The following Merit Promotion Announcements are currently open:

79-3 — AST, Technical Management; GS-801-11 or 12; Office of the Director for Structures; Closes January 26, 1979.

79-4 — AST, Technical Resources Management; GS-801-13 or 14; Director for Management Operations; Programs and Resources Division; R&D Programs Branch; Closes January 26, 1979.

79-5 — Supervisory Engineering Technician; GS-802-10 or 11; Operations Support Division; Mechanical Support and Utilities Operations Branch; Mechanical Equipment Support Section; Closes January 29, 1979.

79-6 — Clerk-Typist, GS-322-4 or Clerk (Typing), GS-301-5; Aeronautics Directorate; Flight Research Division; Flight Programs Branch; Closes February 2, 1979.

79-7 — Employee Development Specialist; GS-0235-5; Office of Director for Management Operations; Personnel Division; Training and Educational Services Branch; Closes February 2, 1979.

Bloodmobile Report

Two hundred ninety-six pints were donated at the January 10 visit of the Red Cross Bloodmobile. The next opportunity to donate will be on Wednesday, March 21.

Achieving gallon status were:

9 gallons — John A. Moore; Robert Mulac.

7 gallons — Littleton Burgess.

6 gallons — Albert B. Stacy.

4 gallons — Ben M. Tengelhoff.

3 gallons — Clifton M. McMillan; Tucker A. Clark; Vincent J. Fleck; William G. Johnson, Jr.; Sharon Crockett; Wilbur Fichter; James Dorst.

2 gallons — Robert Hedgepeth; Daniel S. Coombs; Charles E. Caldwell; Billie T. Neal; David H. Gibson.

1 gallon — Joseph Weitz; Jan E. Davis; Reginald C. Rose; Warren Fitzgerald.

NASA Coordinator for the Bloodmobile was Robert L. (Scotty) McArthur. Mrs. Pat Poslik was the Red Cross Coordinator. Physicians serving were Dr. Peter Fitzer and Dr. R. T. Pierce.

swap and shop

FOR SALE

Articles

Machinery handbook, EC, $15; Gun cabinet, holds 7 guns, Walnut finish, humidity controlled interior, locked gun and ammo. storage compartments, new, $85; and hobbyist or collector's item—Antique Bucksaw and foreplane, 1800 Vintage, VGC, $65. Call 595-2149, anytime.

Textbooks--1/3 off, EC: Statistical Fluid Mechanics, by Monin and Yoglom, $18; Turbulence, 2nd Ed., by Hinze, $20. Call Mathis, 722-7629.

Vehicles

'61 Falcon, 4-door, $50. Call 723-0004.

Sailboat, Mobjack one-design racer/day sailor without sails or trailer, displayed at Coliseum boat show, new, $2,695. Call M. D. Williams, 851-0675.

Mercedes Benz '68, 250-SE, AT, PB, AM-FM, sun roof, showroom condition, $4,900 or best offer. Call 827-6704 after 5 p.m.

1970 Camaro, 307, automatic transmission on floor, PS, disk brakes, rear spoiler, dunlop tires & aluminum mags, dual exhaust, recent tune-up, new metalic jade green paint, EC, $2,000 or best offer. Call Darlene, ext. 2939 or 826-1437 after 5.

Vega, 1972, hatchback, 4-speed, AM, radials, $250. Call 874-4572 after 5 p.m.

Animals

Parti-color Toy Poodle--6 weeks old. Call 851-2292.

Cairn Terrier pups--9-11 weeks old, females and males, all shots, wormed, AKC-reg., show quality $250, pet $200. Call 596-8484 or 1-232-1575 after 5 p.m.

FOR RENT

Real Estate

Excellent location--Fox Hill area, 3 BR (4th BR or DR) LR, eat-in Kit., 1½ BA, fenced-in yard w/shed, available immediately, $310 per mo. Call Day: 826-6114, evenings after 5, 596-8484.

WANTED

Ride from Turlington Rd., Denbigh to NASA, West area, on 7:30 shift, share expenses. Call Johnnie Hayes, ext. 3737.

LOST

Glasses with black frame and bifocal lenses. Call Lee, 3131.

Thanks

David Thomas, of the Materials and Applications Technology Division, would like to extend his thanks to all his friends at Langley for their well-wishes and thoughtfulness during his recent hospitalization.

Retirement Parties

A. Harper Gerringer, Systems Engineering Division, will be honored with a retirement party on Thursday, February 15, 1979, at the Langley Officers' Club. A cash bar cocktail hour will begin at 6:30 p.m. with dinner to follow. The price is $7 per person, which includes the $1 gift contribution or $13 a couple. Contributions to the gift only are welcome. For reservations, send check or cash to Maria Stephens, Mail Stop 431, ext. 4508, by Thursday, February 8, 1979.

Floyd S. Rogers retired from the Fabrication Division on January 12, 1979, after 40 years service and will be honored with a buffet dinner Tuesday, February 13, 1979, at the Hampton Yacht Club. The menu includes top round roast beef, chicken, and Seafood Newburg, vegetable and dessert. Cocktails from 6:30 to 7:30, BYOB, setups available at extra cost. Dinner at 7:30, party to follow. Cost is $7.50 per person which includes $1 for gift. Contributions for gift only are welcome. For reservations, send check or cash to Bill Leftwich, M/S 255, X-2775, by February 9, 1979.

cafeteria menu

WEEK OF JANUARY 29

MONDAY: Wonton Soup; Chicken Cream Corn Soup; Sweet & Sour Pork; Chicken Chow Mein; Shrimp Egg Foo Yung; Soup, Entree, Vegetable, Coffee or Tea all for $1.80; Complimentary Egg Roll with every dinner or order a la carte. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Braised Beef & Vegetables; Broiled Beef Liver; Fried Filet of Trout. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Clam Strips; Baked Pork Chops. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Barbecued Ham Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Meatloaf; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF FEBRUARY 5

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Country-Style Steak. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Roast Beef Au Jus; Fried Filet of Trout; Pepper Steak. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Spanish Omelette; Beef Enchiladas. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Fresh Broiled USDA Choice 10 oz. Strip Loin Steak; Braised Chicken Livers; Beef Balls Stroganoff. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory Baked Chicken; Franks, Bacon & Cheese. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 3

February 9, 1979

Richmond Spacewatch

The Langley Research Center is presently involved in a special month-long program in the Richmond area featuring lecturers, speakers, films, exhibits, publications, and special events on many aspects of space flight and aviation.

The program, which runs through February, is entitled "Richmond Spacewatch." It is a community involvement project concerned with the nation's space and aeronautics programs.

In his proclaiming the month of February as "Richmond Spacewatch" Richmond Mayor Henry L. Marsh III noted, "The National Aeronautics and Space Administration (NASA) has contributed to not only the heritage, but also the advancement of knowledge of the citizens of the United States, the Commonwealth of Virginia and the City of Richmond through its programs aimed at the exploration of the universe."

Marsh acknowledged that the City of Richmond was "grateful to NASA for bringing its record of achievement to the Capital of Virginia" and he urged everyone to participate in the program.

"Spacewatch" was developed by the Science Museum of Virginia, the Richmond City School System, the Richmond Public Library and the regional Mathematics and Science Center.

Special events through the remainder of the month include:

Feb. 12: Space Shuttle astronaut Robert L. Crippen will tour the city schools and visit the City Council meeting.

Feb. 13: Crippen will give a talk to a joint meeting of the Richmond Council of PTAs at the Henderson Middle School Theater.

Feb. 15 and **22:** "Mars, the Red Planet." A special program examines Mars in history, fantasy and as the 1976 Viking mission saw it. Thomas Jefferson Planetarium.

Feb. 17: Aeronauticsmobile exhibit at Willow Lawn Shopping Center.

Feb. 19: Aeronauticsmobile exhibit at the Science Museum of Virginia.

Feb. 20–21: Aeronauticsmobile exhibit at the Richmond Technical Center for interested students.

Feb. 22: Dr. Donald P. Hearth, Langley Director, will speak to area science educators and address a dinner meeting of the Chesterfield County Junior Chamber of Commerce.

Feb. 24: Space suit pictures for children and an astronaut "complex coordinator" at Willow Lawn.

Dr. Alan Lovelace (left), NASA Deputy Administrator, and Dr. Robert Frosch (right), NASA Administrator, congratulate W. H. Phillips upon his receiving the President's Award for distinguished federal civilian service. The award was presented at a NASA Headquarters ceremony on January 22.

The Langley Research Center and the Patternmakers League of North America, Newport News Association, have agreed to extend the duration of their negotiated agreement until September 9, 1979. Pictured at the signing ceremony are Dr. Donald P. Hearth, Director, and John S. Powell, Jr., President of the Patternmakers League.

Black History Week

February 12–16, 1979, has been set aside as the 52nd annual observance of Black History Week. The week commemorates the proud heritage of a people who were and are important to the development of the United States. Black History Week is a reminder to all of us of the nation's commitment to creating an environment wherein persons of all races and colors can share fully in the economic and social benefits of this great country.

The Langley Research Center takes this opportunity to share in America's dedication to recognize the often unheralded contributions of Black Americans. The history of the Black American merits our unqualified recognition and deserves our undiminished effort to fulfill the reality of the American dream for all of our citizens.

Photographs depicting the significant achievements of Blacks will be on display in the West Cafeteria during this week, coupled with a mid-week film presentation. Further details regarding the film will be made available through a special release.

A Day With Scientists, Engineers and Technicians

In observance of National Engineers Week, February 18–24, the Langley Research Center will hold a Career Day program from 9 a.m. to 2 p.m. on February 22.

The program is expected to draw approximately 400 juniors and seniors from the Peninsula area high schools that have a career objective in the science and engineering fields.

This is the fifth year NASA Langley has participated in the Peninsula Engineers Week activities. The purpose of the week is to familiarize the public with the work of engineers and to honor outstanding members of the profession.

This year's Langley program will be divided into three sections.

In the first section, the students will be given an overview on NASA's aeronautical research and development program by George Hastings, aerospace science education specialist. At this time the students will also hear talks from co-ops and engineering technicians focusing on their work at Langley and the programs they are involved in.

After the talks, which will be given in the Activities Center, the students will be given tours of selected facilities at the Center.

Afterwards, the students will return to the Activities Center where they will partake in small group interaction sessions with engineers, co-ops and technicians. Lunch will consist of a brown bag lunch during the interaction session.

Other activities on the Peninsula that will take place during the week are exhibits at the Coliseum Mall, visits by engineers to local high schools, and a banquet on February 24.

EOP Has Moved

The Equal Opportunity Programs Office (EOP) has moved to the first floor of Building 1153, Mail Stop 178. The telephone number, ext. 3487, has not changed.

Key Positions

William F. Lawson was recently named Acting Head, General Files and Mail Section, Administrative Services Branch, Management Support Division.

Harry H. Heyson was named Head, Vehicle Integration Branch, Aeronautical Systems Division.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Karen Miller
Editorial Assistant . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Shuttle Orbiters Named After Sea Vessels

NASA has named the first four Space Shuttle orbiters to operate in space after sea vessels used in world exploration.

Orbiter 102, scheduled to be launched into Earth orbit late this year, will be named Columbia. Subsequent orbiters will be named Challenger (Orbiter 099), Discovery (Orbiter 103) and Atlantis (Orbiter 104).

The first orbiter constructed (Orbiter 101) was named Enterprise in 1976 after the flagship in the popular television series "Star Trek." Enterprise also was a sailing ship which took part in an important Arctic expedition between 1851 and 1854.

Enterprise, which flew the Shuttle approach and landing tests in 1976, now is undergoing vibration tests at the Marshall Space Flight Center.

The Challenger made a prolonged oceanic exploration cruise from December 1872 to May 1876 gathering data about the Atlantic and Pacific Oceans that filled 50 volumes. Challenger also was the name of the Apollo 17 lunar module that landed on the Moon in December 1972.

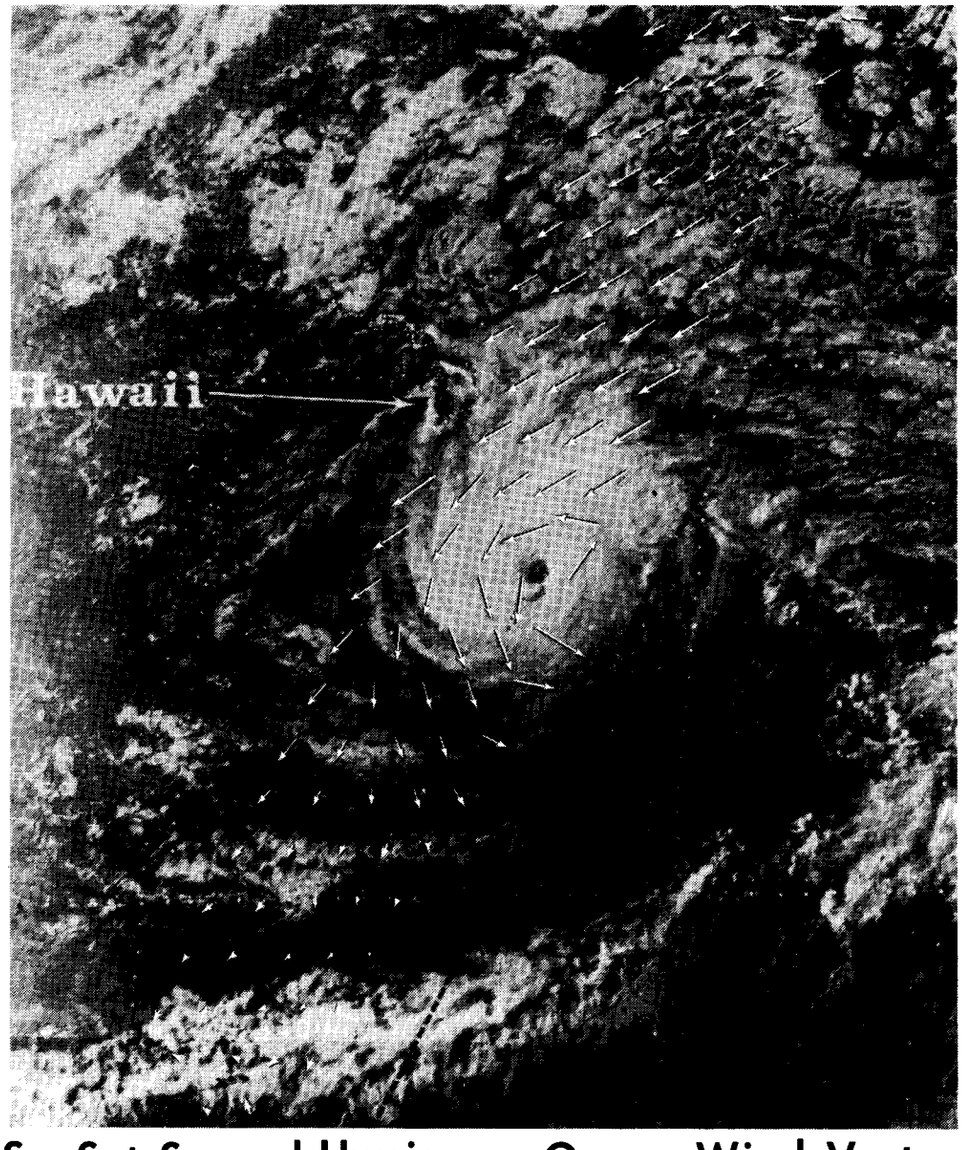
The sea-going Columbia, out of Boston, entered and explored the mouth of the Columbia River in 1792. Captain Robert Gray named the river after his sloop. Columbia also was the name of one of the first U.S. Navy ships to circumnavigate the globe and the name of the Apollo 11 command module which circled the Moon during the first manned landing on the lunar surface, July 20, 1969.

The Discovery was used to explore Hudson Bay in Canada and to search for a northwest passage from the Atlantic to the Pacific in 1610 and 1611.

The Discovery also was one of two ships in the 1770s used to discover the Hawaiian Islands and explore the coasts of southern Alaska and western Canada.

During the Revolutionary War, Benjamin Franklin issued a safe-conduct request for the English ship Discovery because of interest in the scientific objectives of its expeditions.

The two-masted ketch Atlantis logged half a million miles between 1930 and 1966 as the first American-operated vessel designed especially for ocean research.



SeaSat Sensed Hurricane Ocean Wind Vectors

The Langley-developed scatterometer wind measurement instrument--flown aboard NASA's SeaSat satellite--has derived, for the first time, the ocean wind victors of a hurricane that formed in the Pacific Ocean in July 1978.

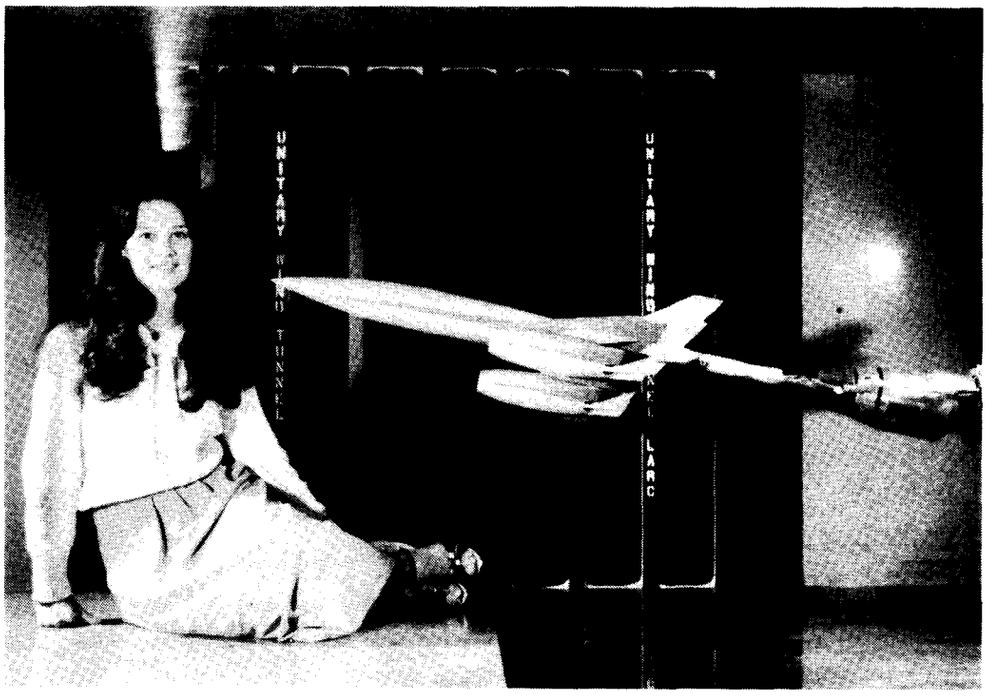
The wind vectors (shown as white arrows in the accompanying photograph) sensed by the scatterometer are overlayed on a NOAA (National Oceanic and Atmospheric Administration) satellite photo of Hurricane Fico, taken just before SeaSat flew over the hurricane on July 20, 1978. SeaSat's subtrack is the black dotted line on the photo.

The scatterometer wind vectors are derived from radar cross-section measurements made over a 250-mile swath that covered the western half of Fico. Wind speeds range from 4 knots in the doldrums south of Fico (bottom of photo) to over 50 knots near the hurricane's center. The scatterometer winds compare favorably with surface observations made by nearby ships and reconnaissance aircraft.

Detailed comparisons of the various data must await calibration of the SeaSat scatterometer, using precision aircraft scatterometer data taken in September 1978 during verification experiments at the ocean surface.

If this proof-of-concept for the scatterometer wind sensor is successful--as preliminary findings indicate it will be--a SeaSat type of scatterometer can be used in future satellites to measure ocean wind fields around the world on an operational basis.

Working under contract to Langley on development of the instrument were General Electric, Valley Forge, Pa.; Hughes Aircraft Co., Torrance, Calif.; and Aerojet-General Corp., Azusa, Calif.



– photo by Bob Nye

Pat Jones, Projects Management Systems Division, is shown here with the Space Jet model in the Unitary Plan wind tunnel. The vehicle is designed to take off from a runway in a conventional manner powered by turbojet engines; after acceleration to supersonic speeds, the turbojets would be released to fly back to the launch site and the larger orbiter would continue to orbit under rocket power.

AFGE to Hold Training Session

A training session on the contents of the agreement recently negotiated between the American Federation of Government Employees (AFGE) Local 2755 and Langley management will be held Wednesday, Feb. 21, in the Activities Center (Bldg. 1222), beginning at 4 p.m.

The main purpose of the session is to review portions of the agreement and explain its contents.

Copies of the agreement were recently distributed to all Langley technicians, wage grade and clerical employees eligible to be represented under it. All of these employees, except supervisors, are invited to attend the session, regardless of membership of non-membership in the union.

Employees who attend the session should be on their own time (after working hours or on annual leave), bring personal copies of the agreement and have questions to ask on points of interest.

Of special interest will be the articles on Overtime (Article 8), Career Promotions (Article 16), Merit Promotion and Internal Placement (Article 15), Rights of Employees (Article 5), and Flexitours (Section 7-15).

Employees on the 8–4:30 shift will not miss any of the sessions's contents, because they will have a chance to ask questions on their points of concern.

SAGE Launch Rescheduled

The Stratospheric Aerosol and Gas Experiment (SAGE), the only element of the Applications Explorer Mission-B (AEM-B), has been rescheduled for launch aboard a Scout vehicle February 14, 1979, from the Wallops Flight Center.

The launch, originally set for January 25, 1979, was delayed because of problems encountered with the spacecraft. Goddard Flight Center and Boeing Aerospace Co., Seattle, a division of Boeing Co., are working to correct the problem.

Developed by Langley, SAGE is a sensor that will provide the scientific community with information to help answer questions about the effects of aerosols and ozone on climate and environmental quality.

The main objective of SAGE is to obtain global measurements of the spatial and temporal distribution of stratospheric aerosols and ozone, and to use these data to study their effects on the Earth's radiation budget and environmental quality.

Job Openings

The following Merit Promotion Announcements are currently open:

79-10 – Technical Publications Editor, Permanent/Part-time, position not to exceed 32 hours a week; GS-1083-9; Office of Director for Management Operations; Scientific and Technical Information Programs Division; Technical Editing Branch; Closes February 16, 1979.

79-11 – Contract Specialist; GS-1102-11 or 12; Acquisition Division; Research and Development Contracting Branch; Contract Negotiation Section; Closes February 16, 1979.

79-12 – Resource Control Assistant; GS-0301-5 or 6; Director for Projects; Projects Management Systems Division; Resources Analysis and Control Office; Closes February 16, 1979.

79-13 – AST, Control and Guidance Systems; Supervisory Aerospace Engineer; GS-861-13 or 14; Office of Director for Electronics; Flight Dynamics and Control Division; Simulation and Human Factors Branch; Closes February 26, 1979 – NASA-Wide.

Key Positions

Raymond T. Moore was recently selected Acting Head, Buying Section, Facilities and Materiels Contracting Branch, Acquisition Division.

Ernest L. Rowe was selected Acting Head, Work Control Office, Operations Support Division.

William L. Simkins was selected Head, Management Analysis Branch, Management Support Division.

Robert W. Boswinkle is serving as Acting Director for Aeronautics from Feb. 4 to March 23, while Robert E. Bower attends the Federal Executive Institute. **Allen H. Whitehead, Jr.,** replaced Boswinkle as Technical Assistant for Aeronautics, beginning Feb. 5.

Summers to Discuss Energy at February 12 Colloquium

Dr. Robert A. Summers will speak on "Planning Advanced Energy Technologies (Fusion, MHD, and Satellite Power Systems Examples)" at the February 12 colloquium. The lecture will be held in the Activities Center, Building 1222, beginning at 2 p.m. There will be a question and answer session at 2:50 p.m. and an informal discussion period from 3 to 3:30 p.m.

Some of the problems of planning advanced energy technologies will be discussed in terms of the technological uncertainties and the necessity for economic viability in the energy supply marketplace. Brief descriptions of the technical status, problems, and plans for three quite different advanced technologies will be provided as examples: fusion energy, magnetohydrodynamic power generation, and satellite power stations.

Summers is Executive Director of the Research and Development Coordination Council in the U.S. Department of Energy. He is responsible to the Director of Energy Research for the overall conduct of the council's activities and directs the council staff. He previously served as Chief of Plans and Programs in the Office of the Assistant Administrator for Field Operation at the Energy Research and Development Administration (ERDA) which became part of the Department of Energy in 1977. Before joining ERDA in 1975, he was employed at the System Planning Corporation.

One of his work assignments involved research in flight control systems at the MIT Instrumentation Laboratory; he was chief project engineer at Allied Research Associates, project leader in aerospace systems at the Institute of Naval Studies, and principal engineer and program manager at NASA.

Summers has had extensive experience in both government and industry, much of it in program management related to space and defense systems research and development, applications of space technology, technology transfer to developing countries and energy research and development.

He received a bachelor of science degree from Rensselaer Polytechnic Institute and master and doctor of science degrees, all in aeronautical engineering, from the Massachusetts Institute of Technology (MIT). He received a Douglas Aircraft Corporation Fellowship in aeronautical engineering at MIT and was an overseas exchange fellow with the Royal Institute of Technology, Stockholm, Sweden.

Retirement Parties

Billie J. Walker, who will retire from the Subsonic-Transonic Aerodynamics Division on February 28, will be honored with a retirement party at the Langley Officers' Club on Saturday, March 3. A cash bar will be open at 6:30 p.m. and dinner will be served at 8 p.m. Choice of dinner will include steak teriyaki or stuffed flounder; please indicate choice when sending in reservations. Cost of dinner will be $7.50 per person, which includes the $1 gift contribution, or $14 per couple. Donations for gift only are welcome. Please make all checks payable to R. J. Margason. Send reservations to Ann Bell or Nettie Orie, M/S 286, ext. 3611, by February 26.

Robert A. Champine, Operations Branch, Flight Mechanics Division, retired on January 12, 1979, after 31 years of service with NACA/NASA. A retirement social (heavy hors d'oeuvres) will be held on March 17, 1979, 7:00 p.m., at the Activities Center. Cost is $5 per person (includes gift contribution). There will be a cash bar. Contributions for gift only are welcome. For reservations, send check or cash to J. M. Patton, Jr., M/S 255A by March 9, 1979.

E. William (Bill) Randolph III will be honored with a retirement party on Friday, February 23, 1979, at the Langley Activities Building, beginning at 6:30 p.m. The price is $5 per person which includes $1 for gift. A cash bar will also be available. Contributions for gift only are welcome. For reservations, send check or cash to Floyd E. Jennings, M/S 267, ext. 2701, by February 16, 1979.

Cecil A. Field and **James W. Huggett,** OSD Work Control Office, will be honored with a retirement party on Tuesday, February 20, 1979, at the NASA Activities Center. The luncheon will begin at 11 a.m. The price is $5 per person, which includes a $1 gift contribution or $9 per couple. Gift contributions only are welcome. For reservations, send check or cash to Daisy Terry, M/S 166B, ext. 2032, by Wednesday, February 14, 1979.

Warren J. Price, of the Electronics Fabrication Development Branch, will retire on February 28 after 36 years service. A retirement party will be held in his honor on March 9 at the Activities Center. If you would like to attend, please contact Stephen Wright, ext. 3095, or Morriss Holliday, ext. 2086.

Charles W. Wiggs will retire from the Operations Support Division on February 28, 1979, after 30 years service and will be honored with a luncheon Tuesday, February 27, 1979, at the Activities Center. Cost is $5.60 per person which includes $1 for gift. Contributions for gift only are welcome. For reservations, send check or cash to Billie Walker, M/S 286, ext. 3611, by February 20, 1979.

Craig H. Collins, Plant Engineering Division, will be honored with a retirement party on Saturday, February 24, 1979, at the Langley Activities Center. A cash bar cocktail hour will begin at 6:30 p.m. with dinner to follow. The price if $6.50 per person which includes a $1 gift contribution or $12 per couple. Contributions for a gift only are welcome. For reservations, send check or cash to A. B. Smith, M/S 448, ext. 4694, by Friday, February 16, 1979.

Runners' Club Event

The next Runners' Club event will be a 10-mile run scheduled for Saturday morning, February 17. The course begins in front of the Activities Center (B-1222) and consists of two laps around a 5-mile loop encompassing the NASA west side.

There will be a series of staggered starts between 9:00 and 9:45 a.m. to provide handicaps. Those participants who have previously entered any Runners' Club event of 2 miles or more will start in the group appropriate to their most recent performance, that is, faster runners start later. All other participants may start with the group they feel is appropriate to their pace.

This event is open to all NASA and contractor employees and their families, and those who desire may run a single five-mile lap and have their times recorded. No pre-registration is necessary. For further information, call Don Humes, ext. 3781.

The Atmospheric Lidar Working Group. Front row: Jack Harris, Langley Manager of the Atmospheric Lidar Study Office; Larry Korb, GSFC; Phil Russell, SRI International; Maire-Lise Chanin, CNRS, France; Vince Alreu, University of Michigan; Bob Seals, Jr., NASA Headquarters. Second row: Ed Browell, Langley Project Scientist; Georgio Fiocco, Laboratorio Plasma Spazio, Italy; Harvey Melfi, NASA Headquarters; Pat McCormick, Langley; Lance Thomas, Appleton Laboratory, England. Third row: Jim Kibler, Langley Executive Secretary; Wolfgang Renger, German Aerospace Establishment, West Germany; Gerald Grams, Georgia Tech; Tom Wilkerson, University of Maryland. Fourth row: Ed Hinkley, JPL; Alan Carswell, York University, Canada; Sid Bowhill, University of Illinois; Ken Crumbly, Langley Project Engineer; Rick Hake, SRI International. Not pictured: Shelby Tilford, NASA Headquarters Chairman; Aram Mooradian, MIT Lincoln Laboratory; Bob Hudson, GSFC; Gary Swenson, MSFC.

Lidar Briefing to be Held February 13 and 14

A formal presentation of the General Electric Lidar System Definition Study results will be held on February 13 and 14, 1979, at the NASA Langley Research Center, Hampton, VA.

The briefing will be held in the main auditorium of the Activities Center, Building 1222, beginning at 8:30 a.m. on February 13 and is expected to end by 5 p.m., February 14. The meeting is open to the public.

The System Definition Study is being conducted by the General Electric Co., Valley Forge Space Division, for the Langley Atmospheric Lidar Study Office. An international Atmospheric Lidar Working Group has been meeting periodically since September 1977 to define science objectives and experiment definitions for a proposed lidar facility to be flown on the Space Shuttle in the 1980's.

An atmospheric lidar (light detection and ranging) system is expected to be a key element in the research program undertaken with the Shuttle in the 1980's. One goal of that program is to contribute to an understanding of the processes governing the Earth's atmosphere and its susceptibility to manmade and natural perturbations.

The atmosphere is governed by many different processes that influence its overall chemical composition, energy budget, and dynamical behavior. It is characterized by continual change. Some of the change is rapid, such as storm developments, while some is gradual, as in seasonal effects and long term climate.

Unfortunately some of these changes are neither repetitive nor random, and require continual observation for complete understanding. Using research from space, we can obtain the necessary global or snyoptic coverage to observe these changes.

The Space Shuttle provides an ideal platform for verifying the potential of a spaceborne atmospheric lidar system. A Shuttle lidar system can give daily coverage, it has a superior spatial resolution compared to passive sensors, the spatial and spectral characteristics of the laser can be tailored to provide a measurement sensitivity that is often superior to that of passive techniques, and in some cases only a lidar technique is capable of making the measurement.

Seven major science and applications objectives have been developed for the Shuttle atmospheric lidar system:

1) Trace the global flow of water vapor and pollutants in the troposphere and lower stratosphere.

2) Verification of chemical/transport models of the stratosphere and mesosphere.

3) Evaluation of radiative models of the atmosphere.

4) Augment the meteorological data base.

5) Study excitation, propagation, and dissipation of wave motions in the upper atmosphere.

6) Study chemistry and transport of thermospheric atomic species.

7) Study magnetospheric aspects of Sun/weather relationships.

The objectives have been developed by considering valuable areas to which lidar can make an important contribution, and they are not intended as a comprehensive listing of atmospheric problems. They do include, however, several areas of national and international concern.

The NASA Atmospheric Lidar Working Group will meet February 15, 1979, to discuss details of the working group final report.

Happenings

CAVALIER TOASTMASTERS invites all female employees to take advantage of the opportunity for extensive training in formal and informal speeches or mini-presentations. This opportunity exists in any Toastmasters Club at a very nominal cost. The basic training program outlines methods for correcting the most common problems encountered by the average person when speaking. Each participant receives a basic training manual which allows individuals to proceed at their own speed. Each speech is individually critiqued and written comments and suggestions provided. There is no better way to overcome that nervous feeling when you stand up to speak than to practice among friends. Cavalier Toastmasters is the oldest club on the Peninsula and meetings are held the first and third Tuesday at 7 p.m. at the Hampton Holiday Inn. Contact Robert Davis, 722-6138, or Joe Boyle, 723-3400.

HAPPY HOUR. Don't forget the next Happy Hour is scheduled for Friday, February 16, from 4 to 6:30 p.m. at the Activities Center.

GIFT SHOP TO ADD COSMETICS. On February 15 and 16, from 11 a.m. to 2 p.m., two Max Factor representatives will be showing their cosmetic products in the cafeteria. Orders will be taken from employees at PX prices. Future inventory suggestions to our NASA Gift Shop cosmetic volunteer, Geneva Kelly, will be appreciated. Information on the new Mattel electronic games is now available at the Gift Shop, including: Hockey, Soccer, Football II, Space Alert, Subchase, Tank Attack, Horoscope Computer, Basketball, Video Computer Game, Computerized Pinball, and Pinball Coffee Table. New books on our area now include: Virginia Dynasties, Virginia Beautiful, Road To Yorktown and Peninsula Pilgrimage.

BOAT SALE. The Langley Yacht Club (LYC) is providing four used Alcort "Sunfish" sailboats for sale by sealed bid. These are fiberglass boats in good condition complete with spars, sails, daggerboard, rudder, running rigging and fittings. The Sunfish is one of the most popular and widely used instructional and class racing sailboats in America today. These boats will be available for examination by prospective bidders between 9 a.m. and 4 p.m. on February 10–11 at the Langley Yacht Club, Bldg. 607. Minimum bid is $250 and all active duty military personnel, DOD and NASA civilians assigned to Langley as well as members of the LYC are invited to participate in this auction. All bids must be received in person at the LYC Clubhouse (Bldg. 607) by 7 p.m. on Friday, 16 February 1979. Winners will be announced and boats may be picked up at 10 a.m. on Saturday, 17 February 1979.

A CHILDREN'S CONCERT featuring "Tubby the Tuba" and other narrated stories will be presented by the Peninsula Youth Orchestra, Sunday February 18, 1979, at 3 p.m., in Warwick High School Auditorium. Mr. Cary McMurran will be conductor and Mr. Jerry Sandford will be narrator. Tickets are $1.25 each, available at the door or by calling 245-6187 or 898-5691. The program is sponsored by Newport News Branch of American Association of University Women for benefit of the Educational Foundation Programs.

TAC AIR TOASTMASTERS. If you need to improve or maintain your public speaking and leadership skills, refresh your memory on parliamentary procedures, or improve your listening and evaluation capabilities, then join Toastmasters. The TAC Air Toastmasters meet each month on the second and fourth Wednesdays at 7:15 p.m. at the Langley Officers' Club. For more information, contact Rama Bhat, ext. 4275; Jim Moss, ext. 3770; Jim Sharp, ext. 2592; or Bob Lee, ext. 2486.

THE NASA VEGETABLE GARDENS CLUB is currently assigning plots for the 1979 season. Anyone wishing a plot should send their name, mail stop, office phone, home phone, size of plot desired (20'x20' or 20'x40'), color of corn to be planted (if any) and whether they are willing to plant club-provided flower seeds along one border to Martha Norman, M/S 249B, by February 15. Club Officers for 1979 are: Karen Credeur, RFED, President; Tom Bundick, FED, Vice-President; Leonard Melfi, SSD, Treasurer; and Martha Norman, ASD, Librarian.

HONEY BUNCH. The Langley Apicultural Club will meet from 7:00 to 9:00 p.m., Monday, February 19, in Building 1209, Room 180. Following a short business meeting, Frank Fulgham, state bee inspector of this region, will give a seminar on Beginning Beekeeping. This is part 2 of a two-part program for beginning beekeepers.

Jogging on NASA Property

The number of Center personnel who have become involved in jogging has significantly increased. The potential physical benefits to individuals participating in such exercise are well documented as well as the precautions that such individuals should follow. However, the jogging on Center presents the necessity that certain jogging criteria be established.

Because of the vehicular traffic, employees are requested to limit their jogging to the Activities recreation area or to the route of Cinder Road (adjacent to the Activities Center) to Bush Road and the subsequent loop of Bush Road encompassing NASA Buildings 1262, 1258, 1162 and 1164.

Jogging along roads is restricted to the shoulders (where present) and joggers should always face the oncoming vehicular traffic. There are no designated jogging paths at Langley and it must be emphasized that moving vehicles on the roads have the right-of-way. In this sense, joggers are not considered as pedestrains. Further, joggers should always form single files, and should limit groups to three people or less.

Jogging along the roads during normal work hours (8:00 a.m. to 4:30 p.m.) is discouraged because of the heavier business traffic.

Your cooperation is requested in this matter. Let us make sure that the jogging activity is safe for everyone.

New Instrument Work Orders Required

IRD's Instrument Control Office is changing procedures for maintaining its historical repair and calibration data for LaRC's research instrumentation. Effective March 5, 1979, the *NEW* version of the instrument work order (form 165) now available from stock issue, will be required to obtain instrument repair and calibration services through IRD. Please obtain new work orders from stock and destroy all obsolete editions of form 165 now in your possession. Effective immediately, calibration data, repair data, and other pertinent information will be delivered through regular mail delivery instead of with the instrument. If there are any questions about this procedure please contact the ICO, 2801 or 2162.

FOR SALE

Articles

Textbooks--1/3 off, EC: Wind Waves, by Kinsman, $15; A First Course In Turbulence, by Teanekes & Lumley, $10. Call Mathis, 722-7629.

Dog house for medium sized dog, nearly new, heavy wood construction, painted and shingled roof. Call Snyder, 4656 or 868-7091.

Vehicles

75 Ford Elite--white vinyl top, AC/AT, AM/FM stereo, red leather seats and int., $3,200. Call 868-7648 after 5 p.m.

71 Pickup Truck, Dodge, ½ ton green, radio and heater, 2 new tires, No. 5 insp. sticker, $1,250 firm. Call 868-7648 after 5 p.m.

1972 Nova Coupe, red/black vinyl top, 350 v/8, 38,000 mi., EC, below NADA avg. retail. Call McLemore, 838-0003.

1977 Pontiac Sedan, Bonn. Broughan, bro. with beige vinyl top, 301 v/8, 15,600 mi., EC, below NADA avg. retail. Call McLemore, 838-0003.

Motorcycle, 1976 Suzuki GT 250 A, bought new Feb. 1978, only 5,000 miles, garage kept, immaculate condition, must sell, $625 neg. Call Len Power, ext. 4666, or home: 877-1706.

FOR RENT

Bryce Mt. chalet, LR, DR, Kit, 5 BR, 3 Baths, game room w/ping pong and pool tables, dishwasher, washer, dryer, disposal, elec. range, a/c and heat, large deck, $300/wk; $50/day. Call Geer after 6 p.m. weekends, 723-5842.

Wintergreen Condominium--on Ski Slope, two bedrooms and sleep sofa, available weekdays only. Call Ladson, 877-3632 after 5 p.m.

WANTED

The person who borrowed the Biomation Logic Analyzer from IRD, please return it to G. Gaetano. Call 3446.

Driver to join 4-member car pool in Hidenwood—Glendale area on 8 to 4:30 shift. Call Miller, 599-4321.

Circuit diagram for Eico 232 VTVM. Call Swanson, 2721.

Ride from Colony Rd., Newport News to NASA West area, on 7:30 or 8:00 shift, share expenses. Call Gail Dawkins, ext. 2611.

Wanted to Contact--Persons interested in Scandinavia tour, 15 days (May 24—June 7), small group, first class, $1470, local group with local escort, Scandinavian escort while in Europe, see Fjords and land of Hans Christian Anderson and more, visit Bergen, also, Stockholm, Gothenburg and Copenhagen, regularly scheduled flights with land portion via deluxe motor coach, centrally located first class hotels, details in brochure. Call Sinelnick, 596-1851.

LOST

Lady's Elgin Wristwatch with Diamonds, in the vicinity of the Headquarters Bldg. 1219, parking lot and Civilian Personnel, Bldg. 1195C. Call 827-2932, -2933.

Commuter Bus Service Considered

A Commuter Bus Service, between Gloucester Courthouse and NASA Langley via Route 17 and Magruder Blvd., is being considered. The Greyhound-type bus will be scheduled to arrive and depart points in the West Area at times convenient for the 8 a.m. to 4:30 p.m. work shift. This service, however, will only be possible if there can be at least 25 steady riders. If you are interested, please call Graham, extension 2866, M/S 266, before February 18.

Thanks

C. David Nichols, Jr., son of Charles Nichols, FED, writes, " I want to personally thank the many people who contributed blood for my daughter, Laura Lynn, during the recent bloodmobile visit. I have come to know many friends through my father, Charles Nichols, and have found that during a crisis the NASA folks all band together and do everything they can to help out. The 23 pints of blood contributed in Laura's name were far more than anyone can ask, and I want to express my heartfelt appreciation for the time you took to give this most lifesaving contribution in her behalf."

Neva B. Brooks writes, "May I, by means of the *Researcher*, thank all the wonderful folk who attended and/or planned my retirement luncheon on Jan. 25. Thanks also for the gifts and mementos of 30 years at Langley working with such wonderful people. I miss you already."

cafeteria menu

WEEK OF FEBRUARY 12

MONDAY: Corn Chowder; Baked Lasagna; Chicken Chow Mein; Clam Strips. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Fried Filet of Trout; Meat Loaf; Baked Tuna & Noodle Casserole. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Beef Pot Pie; Beef Enchiladas. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Braised Beef & Vegetables; Broiled Beef Liver. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Teriyaki Baked Chicken; Country Style Steak. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF FEBRUARY 19

MONDAY: HOLIDAY

TUESDAY: Bull Island Clam Chowder; Spaghetti Dinner; Fried Filet of Trout; Chicken Pot Pie. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Beef Balls Stroganoff; Baked Virginia Ham. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Crab Cutlets; Roast Beef Au Jus; Braised Chicken Livers. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory Baked Chicken; Franks, Bacon & Cheese. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

In Memoriam

Sanger M. (Tod) Burk, Jr., Flight Mechanics Division, died Saturday, January 27, 1979, in Riverside Hospital, Newport News. A native of Atlanta, Georgia, and a graduate of Georgia Tech, he had been employed at the Langley Research Center for 35 years. He was a member of the Hilton Christian Church. He is survived by his wife Doris A. Burk and two sons Stuart and Daryl.

National Aeronautics and
Space Administration

Langley Research Center

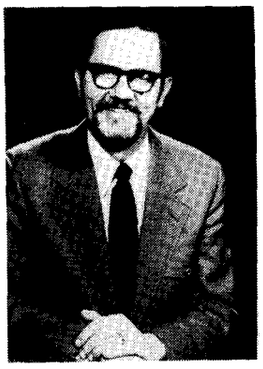
NASA

Langley Researcher

Volume 18 Issue 4

February 23, 1979

Director's Comments



The heavy snow storm that struck the Tidewater area during the morning of February 7 caught us all by surprise, and I know it caused some inconvenience to many Langley employees.

A large part of the problem was caused by the timing of the heaviest snowfall. Early weather reports indicated that we could expect a lighter snow than actually fell. Langley's snow removal crews were clearing the Center's streets by just after 3 a.m., and telephone information to me at about 4 a.m. was encouraging. However, the heaviest snowfall came between 4 and 6 a.m., which allowed very little time for me to assess the situation, make decisions about closing the Center, and get the word out to employees through local radio stations.

Despite the unpredictability of the weather, I realize the importance of a well-developed plan for dealing with unusual weather conditions. Because of the February 7 snowstorm, we have reviewed and tightened up all procedures that involve emergencies. Here's how the procedures will work in the future:

When snow is expected after regular work hours, Langley's Emergency Preparedness Officer will stay in contact with several sources of information on weather conditions, including Langley Air Force Base weather forecasters, local police traffic bureaus, and the LRC fire dispatcher.

The Emergency Preparedness Officer will report information to me before 4:45 a.m., so that I will have as complete an assessment of expected conditions as possible. Once I have all available weather information, I plan to make a decision at 5 a.m. on whether or not to close the Center. If my decision is to close it, assignments have been made to make certain that major radio stations in the area are notified as quickly as possible.

It should be made clear that no announcement about Langley will be made if the Center is to be open, regardless of announced closings by other organizations.

Employees can get their best information on when to report to work by listening to one of these radio stations:

AM: WGH (1310 on the dial), WTAR (790), WNOR (1230), WWDE (1490), WCMS (1050), or WMBG (740).

FM: WGH (97.3), WNOR (99), WWDE (101.3), WCMS (100.5), WQRK (104.5), WBCI (96.5), or WYVA (94.1).

Because many other organizations, from schools to businesses, are also calling the radio stations, there may be some small delay in getting the word to all stations.

Based on our recent review, the Emergency Preparedness Plan is as thorough and fast-acting as any that can be devised to cope with conditions as unpredictable as winter weather.

Hinners Leaves NASA

Dr. Noel W. Hinners, NASA Associate Administrator for Space Science, will leave NASA in March to become Director of the National Air and Space Museum.

Hinners joined NASA in 1972 as Deputy Director and Chief Scientist, Apollo Lunar Exploration, Office of Manned Space Flight. He began his present job in June 1974.

SAGE is Launched Ahead of Snowstorm

Langley's SAGE (Stratospheric Aerosol and Gas Experiment) satellite was successfully launched, just ahead of a snowstorm, last Sunday, February 18, at 11:18 a.m., from the Wallops Flight Center.

The satellite was placed in a good orbit by a four-stage Scout launch vehicle, the 99th Scout launch since 1960.

Dr. Pat McCormick, SAGE experiment scientist, reported that the SAGE instrument is operating as expected. It was activated Wednesday morning and has begun measuring ozone and aerosols in the stratosphere.

During its expected year-long mission, SAGE is expected to provide scientists with valuable information on the stratosphere, the fragile layer of the atmosphere that helps protect Earth from the Sun's ultraviolet radiation.

Energy Issue Coming

A special announcement on reducing the use of energy was distributed this week to all Langley employees. The announcement outlines plans that will help the Center comply with a recent White House memorandum on reduction in the use of petroleum fuels.

A special issue of the *Langley Researcher* next week will present more details on what will be done at Langley to reduce energy use, and provide background information on the necessity for such reduction.

– photo by Fred Jones

Construction continues on Project Recoup--even in the snow.

Retirement Parties

Billie J. Walker, who will retire from the Subsonic-Transonic Aerodynamics Division on February 28, will be honored with a retirement party at the Langley Officers' Club on Saturday, March 3. A cash bar will be open at 6:30 p.m. and dinner will be served at 8 p.m. Choice of dinner will include steak teriyaki or stuffed flounder; please indicate choice when sending in reservations. Cost of dinner will be $7.50 per person, which includes the $1 gift contribution, or $14 per couple. Donations for gift only are welcome. Please make all checks payable to R. J. Margason. Send reservations to Ann Bell or Nettie Orie, M/S 286, ext. 3611, by February 26.

Charles W. Wiggs will retire from the Operations Support Division on February 28, 1979, after 30 years service and will be honored with a luncheon Tuesday, February 27, 1979, at the Activities Center. Cost is $5.60 per person which includes $1 for gift. Contributions for gift only are welcome. For reservations, send check or cash to Billie Walker, M/S 286, ext. 3611.

Notice

The Insurance and Retirement Office telephone number has been changed to 2523.

Pederson Appointed to Headquarters Post

Kenneth S. Pederson has been named Director, International Affairs Division, Office of External Relations. He comes to NASA from the Nuclear Regulatory Commission, where he was Director of the Office of Policy Evaluation. Pederson replaces Norman E. Terrell, who left NASA to become Deputy Assistant Secretary of State for Science Technology.

In a related action, Richard J. H. Barnes has been named Deputy Director of the International Affairs Division, replacing Stephen E. Doyle who has transferred to the Office of Technology Assessment, U. S. Congress, as Group Manager for the Telecommunication and Information Systems Group. His appointment was effective February 4, 1979.

Job Openings

The following Merit Promotion Announcements are currently open:

79-16 – AST, Data Systems Electronics Engineer; GS-855-9; Office of Director for Aeronautics; Flight Mechanics Division; Closes March 6, 1979.

79-18 – AST, Fluid and Flight Mechanics; Supervisory Aerospace Engineer; GS-861-13 or 14; Office of Director for Aeronautics; Subsonic-Transonic Aerodynamics Division; Low-Speed Aerodynamics Branch; Closes March 13, 1979; NASA-Wide.

79-19 – Accounting Assistant; GS-0501-5 or 6; Financial Management Division; Office of the Chief; Payroll Office; Closes March 6, 1979.

79-20 – Clerk-Stenographer; GS-312-4 or 5; Director for Electronics; Flight Electronics Division; Spacecraft Instrumentation Branch; Closes March 6, 1979.

Final Call for Abstracts

The 1979 Annual Meeting of the Virginia Academy of Science will be held on May 8–11, 1979, at the University of Richmond in Richmond, Virginia.

The presentation of papers in the Space Sciences and Technology Section is scheduled for Thursday, May 10. If you would like to present a paper in this section, please send a brief abstract, including author(s), affiliations and mailing addresses to Bob Hall, M/S 287.

The deadline for submission of an abstract is March 1. For additional information call Bob at 3711.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Karen Miller
Editorial Assistant . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

SILTS to be Completed This Year

—photo by Bob Nye

The four men pictured here are discussing the Langley developed Shuttle Infrared Leeside Temperature Sensing Experiment (SILTS), which will fly on three Shuttle operational flights. The SILTS experiment project objective is to obtain accurate, high resolution temperature images of the upper surfaces of the Shuttle during entry and to provide these data in a format compatible with computer analysis techniques. Pictured from left to right are James C. Dunavant, SILTS principal investigator; William I. Watson, SILTS experiment manager; Dean R. Chapman, Ames, Director of Astronautics; and Victor L. Peterson, Ames, Chief, Thermo and Gas Dynamics Division.

The Shuttle Infrared Leeside Temperature Sensing (SILTS) Experiment, an infrared camera system to be carried aboard the Space Shuttle, is expected to be completed this year. SILTS will obtain accurate, high resolution temperature measurements of the upper surfaces of the Shuttle orbiter during entry.

Langley is responsible for the experiment development which includes design, fabrication, test, data reduction and reporting. SILTS is in support of the NASA Office of Aeronautics and Space Technology goals of developing technology for advanced aerospace transportation systems.

Advanced space transportation systems are expected to be fully reusable, have longer life and lower cost than the Shuttle system. Concepts for future space transportation systems that are being considered include Earth entry vehicles that have lightly loaded lifting surfaces for entry, which reduces thermal load, and are much larger than the size of the current Shuttle. In these vehicles, the primary structure may become the external surface and reduce the need for some or all thermal protection systems.

SILTS flight data will reduce the uncertainty in design of the leeside (upper surface) thermal protection system currently based on estimations from small-scale wind-tunnel tests, which will be evaluated against SILTS flight data. Understanding of leeside heating is required in order to reduce the weight and cost of the thermal protection system.

From the SILTS experiment, information will be gathered which may allow thermal protections on upper surfaces to be safely modified. This could result in elimination of some of the fragile, reusable surface insulation, which may reduce both weight and refurbishment cost for Shuttle and future orbiters.

The SILTS experiment will operate on a minimum of three operational flights. It will be turned on five minutes prior to entry, at an altitude of 400,000 feet. Leeside heating effects will be measured for approximately 30 minutes.

The experiment is mounted in a pod structure which will replace the tip of the Shuttle vertical tail. The infrared camera is a commercially available unit which has been modified to withstand the Shuttle environment. The system consists of an infrared camera/dome assembly, data and control module, and a pressure system module.

The camera, data and control module and pressure system module must be heated during the orbital mission period since component temperature approaching -150 degrees fahrenheit can be experienced. Thermostatically controlled heaters are installed on each of the three major components. Insulation will be installed on each module to protect major components from elevated temperatures during entry.

The camera and dome assembly consists of an object lens, electromechanical scanning mechanism, relay optics and a detector cooled by an open loop cryostat. The detector is cooled to -320 degrees fahrenheit for proper operating sensitivity.

The camera alternately looks through two windows and provides data coverage of the upper fuselage and left wing of the Shuttle. The windows must be protected from contamination before the data period and be cooled to less than 200 degrees fahrenheit during the data period. Window protection plugs are designed to eject when the GN_2 (gaseous nitrogen acting as the coolant) flows. If the experiment is not turned on, no gas will flow and the plugs will remain locked in place.

The pressure system module has two latching solenoid valves that are latched "on" when the experiment power is applied. Two cross strapped pressure bottles supply infrared camera sensor coolant and window coolant. The system is designed so that either pressure bottle will supply adequate sensor and window cooling.

The data and control module provides power conditioning, infrared camera position motor control, engineering measurements, black body calibration control, video data conditioning and GN_2 supply actuation.

swap and shop

FOR SALE

Articles

Two orch. tickets to Peninsula Symphony Orchestra concert, featuring William Barker, baritone, on Sunday, Feb. 25, 4:00 p.m., at Warwick High School. $13 value, will sell for $12. Call Miller, 599-4321.

Basketball goal, marine plywood backboard, net, support mounting bracket, 3½-inch steel support post with off-set for backboard installation, $30. Call 723-1235.

Textbooks--1/3 off, EC: Principles of Gen. Thermodynamics, by Hatsopoulos & Keenan, $17; Spectral Analysis and Its Applications, by Jenkins & Watts, $18. Call Mathis, 722-7629.

Vehicles

Station Wagon, 1969 Custom Ford, 18 miles per gallon--uses regular gas, one owner, $645. 877-3825.

Fiat '75, 131 dark green, low mileage, AM radio, auto. trans, EC, $2,250. Call weekdays after 5 p.m., anytime on weekends. 722-2787.

Animals

AKC registered charcoal female toy poodle, 10 weeks old. Call 851-2292 or 851-9457.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 br., washer, dryer, dishwasher, fp, 1/2 block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate, gov't employees, $350/wk--winter rate $350/mo. Call G. O. Kent, Va. Beach, 420-8391.

Beach cottage with small sailboat, white sand beach with high dunes, fully equipped, $160/wk summer. Call Jim Martin, 693-4241 or 827-3911.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' trailer, furnished including dishes, etc., 3 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, $150/wk. Weekends also available. Call Fogle, 2025.

WANTED

Driver from Whealton Heights area to West Area on 8 o'clock shift. Please contact Robert Sleeper at 2273 or Walter Pickrell at 4534.

Donations of used books, both hard cover and paper back, for the annual used book sale of the Hampton Branch of the American Association of University Women. For pick up call 596-0515.

Happenings

AFGE MEETING. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, February 27, 1979, at 7:30 p.m. in the Activities Center, Building 1222.

THE NASA SOFTBALL ASSOCIATION meeting will be held on Thursday, March 1, at 1 p.m. at the Activities Association bar sun porch. A representative from each prospective team should attend.

BINGO. LAA Bingo is held every Thursday, at 7:30 p.m. in the Activities Center. Prizes include two $500 jackpots and one $200 jackpot. Refreshments, including hamburgers, hot dogs, barbeque, soft drinks and beer are available.

HAPPY HOUR is scheduled for Friday, March 2, at the Activities Center, Building 1222, from 4–6:30 p.m.

YOUTH SOCCER. The Air Force Activities Association extends an invitation to children of NASA employees to join the Spring Soccer team. Registration is being held for children ages 7–17 until February 28, at the Langley AFB Youth Activities office. The fee is $10 with family membership, $14 without family membership. For more information, call 764-2300, 2682.

YOUTH JUDO. Registration for youth judo classes is now being held Mondays and Fridays at 5 p.m., in Langley AFB Building 190. Girls' and boys' ages 6–18 may register. Cost is $4 per month with membership, $5 per month without membership. The classes are sponsored by the Air Force Activities Association and children of NASA employees are invited to participate. For further information, call 764-2300, 2682.

A SCOUT COMMEMORATIVE COIN will be minted to celebrate the 100th Scout launch. Advance orders are being taken in the Employee Gift Shop from now until March 12. Prices for the silver-dollar size coin are: aluminum, $.50; bronze, $2; silver, $22; three coin set, $25; bronze coin with chain, $4. Gold coins are also available and will be priced as they are ordered.

cafeteria menu

WEEK OF FEBRUARY 26

MONDAY: Corn Chowder; Teriyaki Baked Chicken; Clam Strips; Braised Beef & Vegetables. Snack Bar: Soup and Chili; Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Broiled Beef Liver. Snack Bar: Soup and Chili; NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Meatloaf; Beef Pot Pie. Snack Bar: Soup and Chili; Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Steak Smothered w/Onions; Baked Tuna & Noodle Casserole. Snack Bar: Soup & Chili; Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Chicken & Dumplings; Beef Enchiladas. Snack Bar: Soup & Chili; Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF MARCH 5

MONDAY: Vegetable Soup; Spaghetti Dinner; Crab Cutlets; Savory Baked Chicken. Snack Bar: Soup and Chili; Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Roast Beef au jus; Fried Filet of Fish; Beef Balls Stroganoff. Snack Bar: Soup and Chili; Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Franks, Bacon & Cheese; Pepper Steak. Snack Bar: Soup and Chili; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato; Hot Italian Sausage Sub.

THURSDAY: Chicken Gumbo Soup; SPECIAL: Fresh broiled USDA Choice 10 oz. Strip Loin Steak; Braised Chicken Livers Over Rice; Baked Virginia Ham. Snack Bar: Soup and Chili; Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Pot Pie; Country Style Steak. Snack Bar: Soup and Chili; Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
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SPECIAL AWARDS ISSUE

March 2, 1979

Langley Employees Receive Awards

Paul F. Holloway (right), Director for Space, presents Dr. Edward V. Browell, Atmospheric Environmental Sciences Division, with a $750 check and a Certificate of Recognition for an invention entitled "Two Wavelength Double Pulse Tunable Dye Laser."

Leon A. Williams, Jr. (left), receives congratulations from Hubert K. Clark, Chief, Systems Engineering Division, for an invention entitled "Fluid Velocity Measuring Device."

Dr. Vernon L. Bell (left) and Dr. Terry L. St. Clair (right), Materials Division, receive checks and Certificates of Recognition from William A. Brooks, Jr., Chief, MD, for their invention entitled "Process for Curing Epoxides with Diamines."

Certificates of Recognition

A Certificate of Recognition is awarded for the creative development of a scientific contribution which has been determined to be of significant value in the advancement of the aerospace technology program of NASA. In addition to the Langley employees pictured, invention awards have been presented to:

William L. Kelly, IV, Ernest E. Burcher, Dr. Stephen J. Katzberg, William R. Young, Charles W. Stump, Dr. Roger A. Breckenridge, William J. Debnam, Jr., and Dr. Carl L. Fales, Jr., Flight Electronics Division; Dr. John E. Lamar, Donald L. Maiden, Renaldo V. Jenkins, and Dr. Paul L. Coe., Jr., Subsonic-Transonic Aerodynamics Division; David F. Thomas, Jr., and David C. Grana, Marine and Applications Technology Division; Charlton W. Mann, Operations Support Division; Dr.

Continued on page 2.

Dr. Wolf Elber (left), Materials Division, is presented a check and a Certificate of Recognition, by William A. Brooks, Jr., Chief, MD, for an invention entitled "Partial Interlaminar Separation System for Composites."

CERTIFICATES OF RECOGNITION

Continued from page 1.

Terry L. St. Clair, Materials Division; Alexander P. Sabol, High-Speed Aerodynamics Division; John F. Garren, Jr., and Frank R. Niessen, Flight Mechanics Division; Maynard C. Sandford, Structures and Dynamics Division; and Richard T. Wilem, Systems Engineering Division.

Billy R. Ashworth, Analysis and Computation Division; and David B. Rhodes, Dr. Reginald J. Exton, Otto Youngbluth, Jr., Bruce Flagge, William T. Davis, David C. Davis, and David L. Gray, Instrument Research Division. Receiving two Certificates of Recognition each were H. Douglas Garner, Flight Electronics Division; Dr. Judd R. Wilkins, Marine and Applications Technology Division; Dr. Joseph S. Heyman, Instrument Research Division; and Ronald N. Jensen, Plant Engineering Division. Stacey M. Mills, Albin O. Pearson, Robert A. Champine, and Bert C. Deis, retirees, were also presented awards for their inventions.

Special Achievement Awards

Special Achievement Awards were presented as follows:

Structures and Dynamics Division: Sumner A. Leadbetter; Victor L. Vaughan, Jr.; Charles J. Camarda; and Dr. Raymond G. Kvaternik.

Fabrication Division: Swen G. Anderson; Richard K. Stoops; John S. Powell; Earl S. Knight; and Archerbald J. Epps, III.

Operations Support Division: George W. Askew and Everett S. Browne.

Not pictured: Vickie S. Parsons, Business Data Systems Division; Dennis L. Dicus and Charlotte W. Tyeryar, Materials Division; Edith K. Spritzer, Management Support Division; Peter E. Lewis and John F. Wilson, Research Facilities Engineering Division; James M. Michael, Flight Mechanics Division; Craig H. Collins and Thomas H. Hall, Jr., Plant Engineering Division; Dr. George W. Ivey, Jr., Systems Engineering Division; and Dr. Jerry H. Tucker, Aircraft Energy Efficient Project Office.

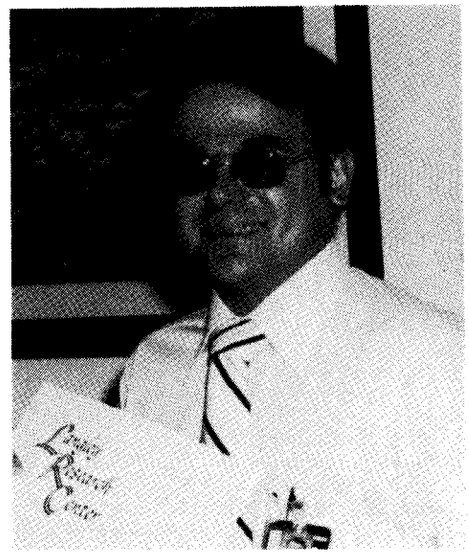
Athena T. Markos, Charles I. Hahn, and Kenneth S. Bates, Analysis and Computation Division; John E. Canady, Jr., and Gerald C. Purgold, Marine and Applications Technology Division; Aaron J. Ostroff, Richard M. Hueschen, Alfred L. Jones, Winn R. Vaughan, Aubrey E. Cross, and Joy W. White, Flight Electronics Division; Dr. George M. Wood, Robert L. Krieger, Jr., and S. Franklin Edwards, Instrument Research Division; James L. Raper, Dr. James M. Russell, III, Nancy S. Holt, and Walter T. Blackshear, Atmospheric Environmental Sciences Division; and P. Kenneth Pierpont, Subsonic-Transonic Aerodynamics Division.

CAMARDA

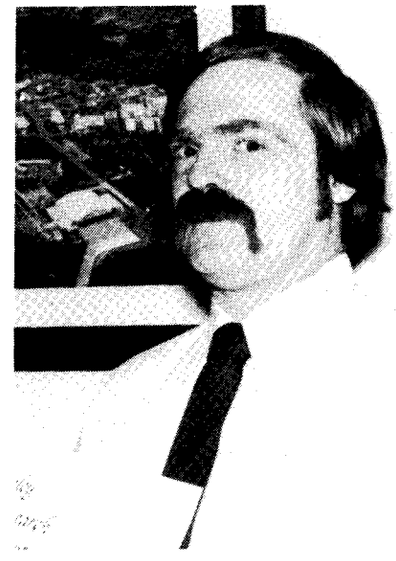
POWELL

Beverly Z. Henry, Jr., Space Systems Division; Dr. Clemens A. Powell, Jr., and Kenneth Margolis, Acoustics and Noise Reduction Division; Murray J. Wilson, Fabrication Division; Joseph R. Phillips and James C. Ward, Jr., Projects Management Systems Division; Richard T. Bright, II, and Charlotte T. Hardy, Acquisition Division; Guy W. Boswick, Office of External Affairs; Edith R. Horrocks, Scout Project Office; and Clarence J. Allison, Jr., and William H. Guy, retirees.

KVATERNIK

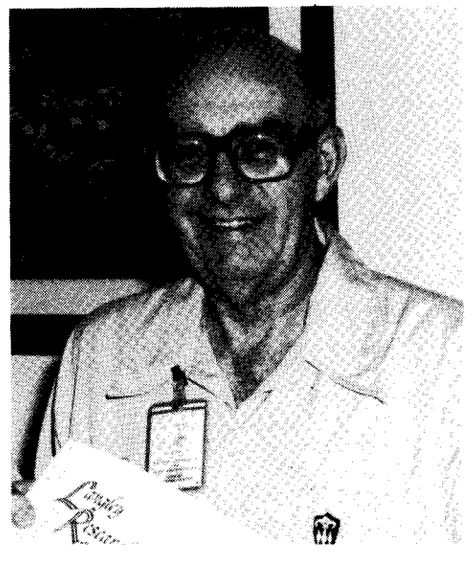


EPPS



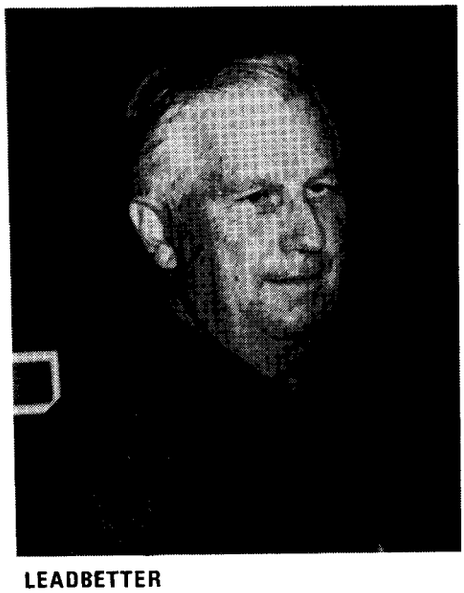
ASKEW

VAUGHAN



BROWNE

STOOPS



LEADBETTER

KNIGHT

ANDERSON

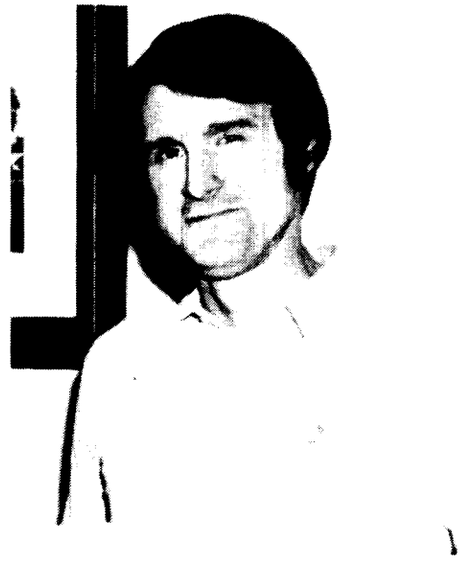
Suggestion Awards

Suggestion Awards have been presented to:

Barry L. Price, James M. Arbuckle, Woodrow W. Midgette, Jr., Linwood G. Burcher, E. Thomas Hall, Jr., William B. Ball, and William E. Robbins, Fabrication Division; Dr. Randall Davis, Structures and Dynamics Division; George W. Johnson, James J. Kiss, Jesse T. James, George C. Grady, Troy A. Wilson, Johnny McK. Williams, Henry M. Goad, and Frederick J. Hines, Jr., Operations Support Division.

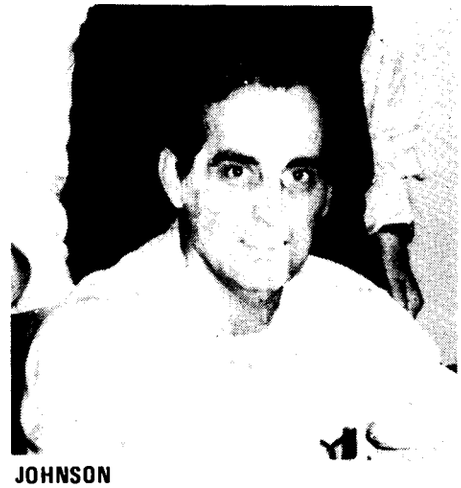
Not pictured: Alan W. Wilhite, JoAnn W. Hudgins, and John J. Rehder, Space Systems Division; Boyce E. Lavender, Jr., and Gary L. Carl (received two Suggestion Awards), Operations Support Division; William C. Moughon, Instrument Research Division; Ernest L. Nicholas and Mildred T. Hartman, Financial Management Division; Anne F. Bristow, Systems Engineering Division; and Eugene B. McLemore and Bruce A. Adderholdt, Fabrication Division.

Robert L. Calloway, Space Systems Division received an Energy Suggestion Award. Honorary Suggestion Awards have been presented to: Virgil H. Justice, Jr., and James R. Morris, Operations Support Division; Charles I. Tynan, Jr., Space Systems Division; Nancy C. Ferro, Financial Management Division; and George Adamowski and Sarah J. O'Keefe, Fabrication Division.



ROBBINS

PRICE

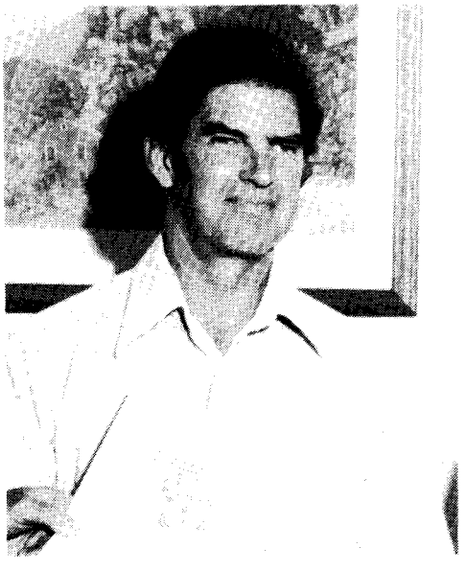


JOHNSON

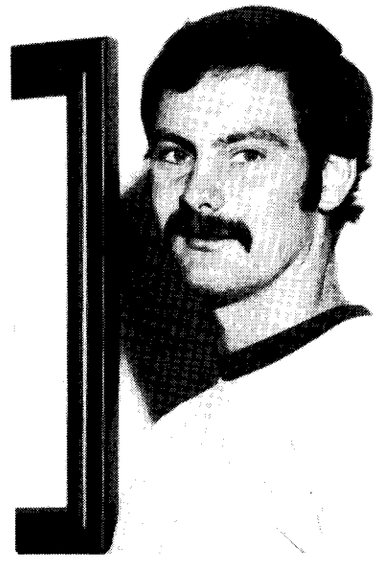
HINES

GRADY and WILLIAMS

ARBUCKLE

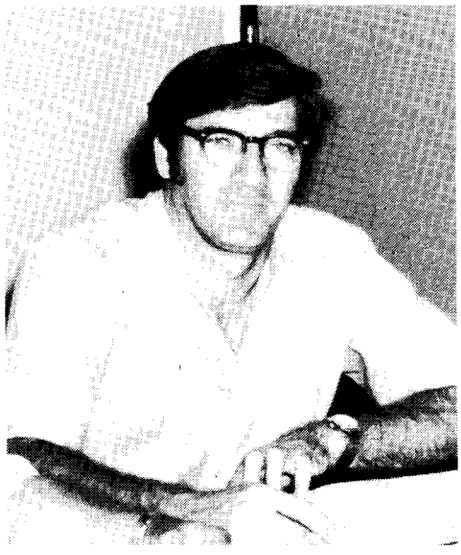


WILSON

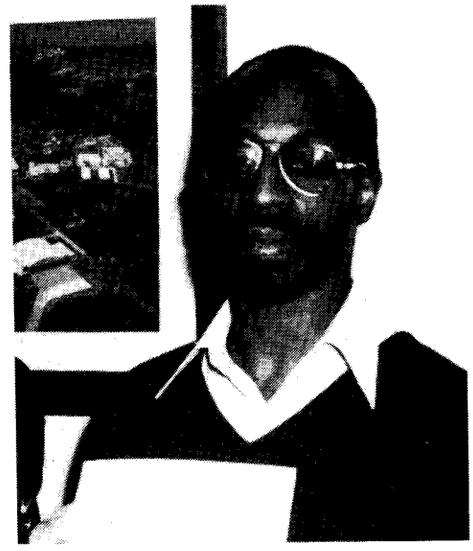


BALL

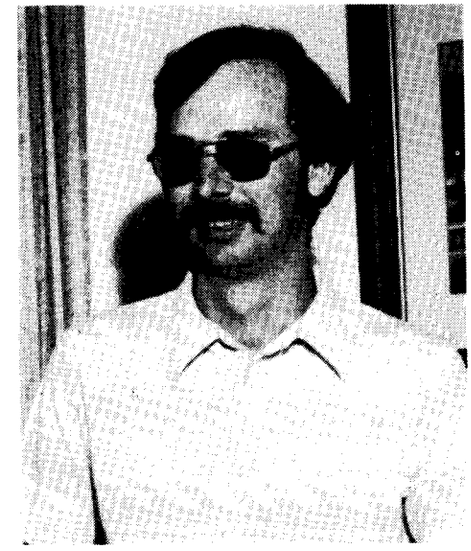
GOAD



KISS



JAMES



MIDGETTE

DAVIS

BURCHER

HALL

Tech Brief Awards

The quarterly "NASA Tech Briefs" journal, distributed nationwide, stimulates technology transfer by disseminating information on new developments stemming from aerospace research. Cash awards and certificates for Tech Briefs were presented to the following employees by Dr. John E. Duberg, Associate Director:

Aaron J. Ostroff, Flight Electronics Division; Troy G. Brooks, Winfrey E. Arnold, Jr., Ashby G. Lawson and Peter Vasquez (not pictured), Fabrication Division; Andronicos G. Kantsios, Dr. Joseph S. Heyman, William F. Stewart, S. Franklin Edwards, David S. Vann, Howard B. Edwards, and Emmett L. Bryant, Instrument Research Division; Delwin R. Croom and Charles H. Fox, Jr., Subsonic-Transonic Aerodynamics Division; and James A. Martin, Space Systems Division.

L. Robert Jackson, William J. Small, Manuel D. Salas, and John P. Weidner (not pictured), High-Speed Aerodynamics Division; Randolph F. Culotta, David B. Robelen, and Powell D. Mitchell, Operations Support Division; William R. Latta and John R. Karns, Structures and Dynamics Division; Dr. Jay C. Hardin, Acoustics and Noise Reduction Division; Clarence C. Poe, Jr., Anne K. St. Clair (not pictured), Dr. Terry L. St. Clair (not pictured), Thomas T. Bales, and Dick M. Royster, Materials Division; Melvin H. Lucy, Systems Engineering Division; and W. R. Messick, retired.

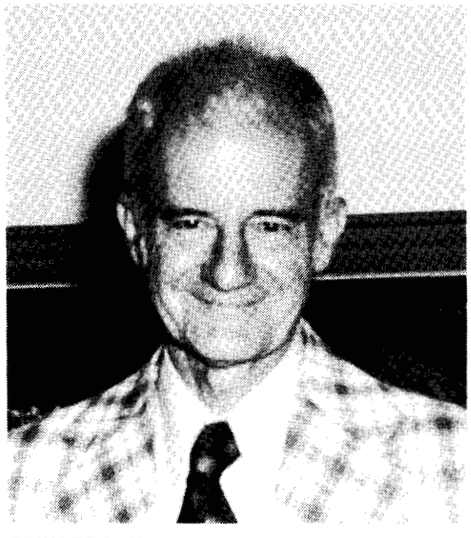
LUCY and MESSICK

KARNS and LATTA

SMALL, JACKSON and MARTIN

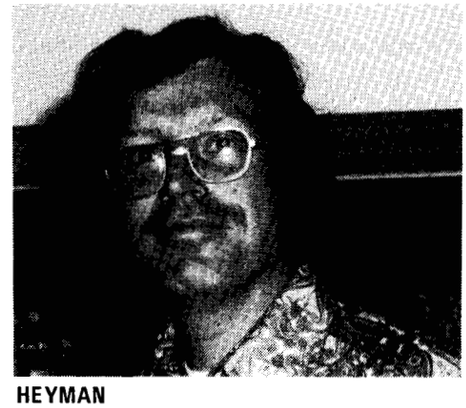
HARDIN

BROOKS, ARNOLD, BALES, LAWSON, MITCHELL and ROYSTER

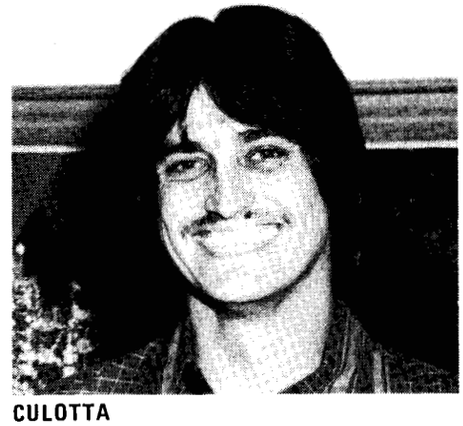


EDWARDS, H.

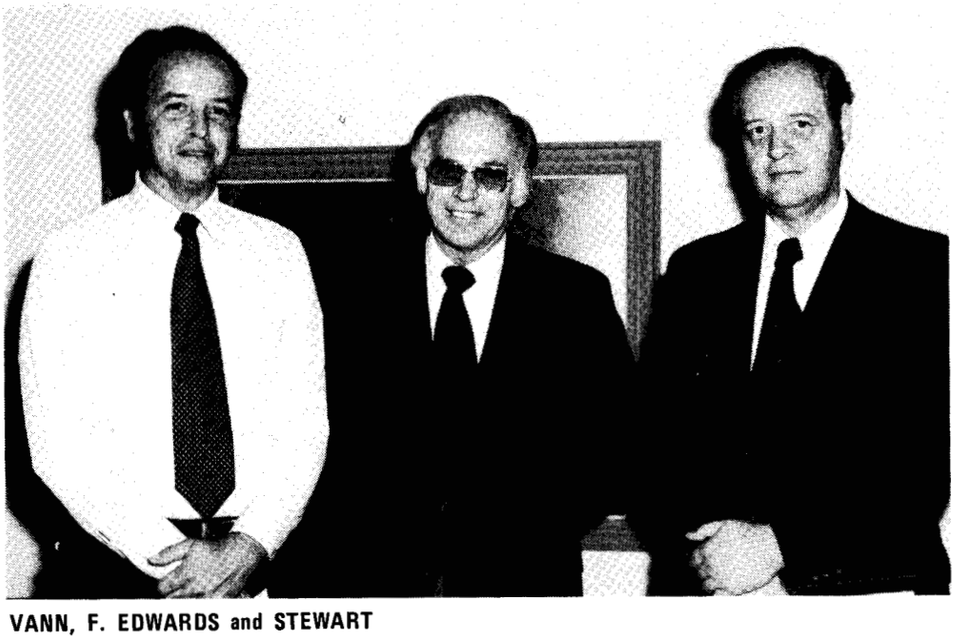
SALAS



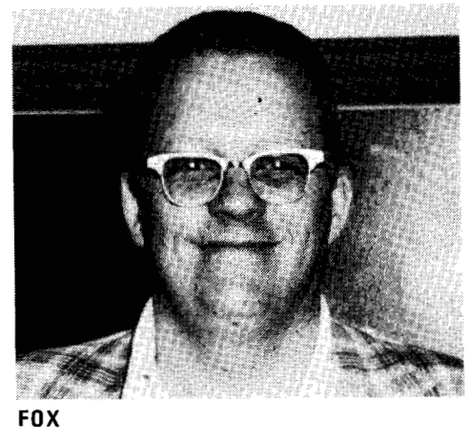
HEYMAN



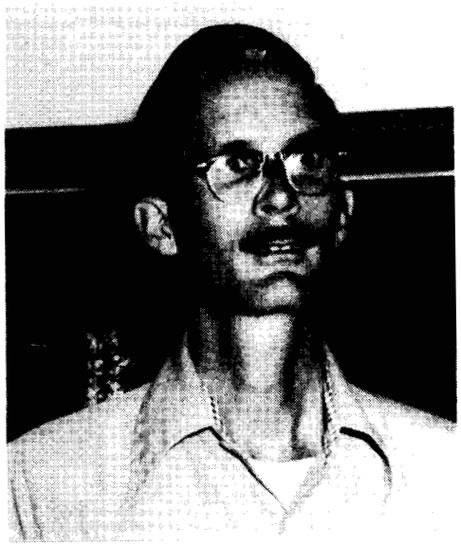
CULOTTA



VANN, F. EDWARDS and STEWART

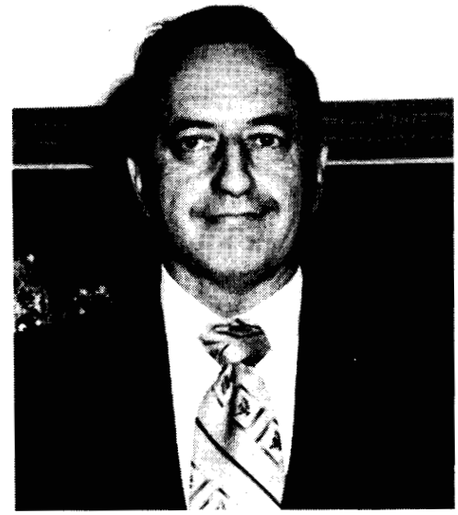


FOX



ROBELEN

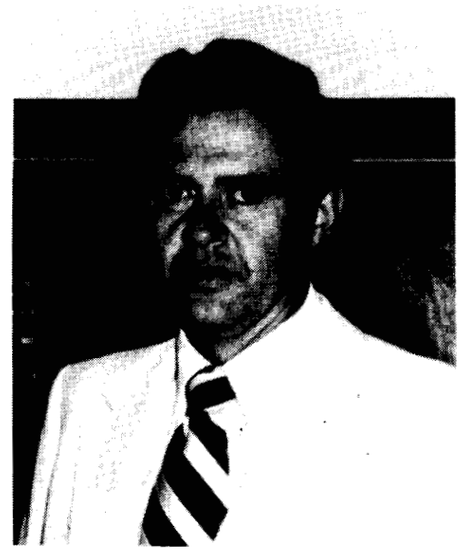
CROOM



BRYANT

OSTROFF

KANTSIOS



POE

National Aeronautics and
Space Administration

Langley Research Center

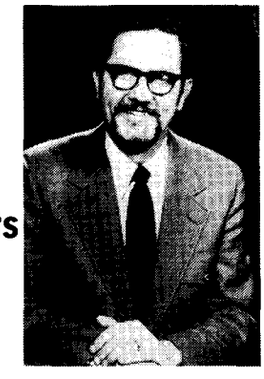
NASA

Langley Researcher

SPECIAL ENERGY ISSUE

March 9, 1979

Director's Comments



Each of us recently has received an LRC Announcement on the subject of Reduction of Energy Use. The tight supply of petroleum fuels and the resulting rapidly rising cost of energy are of critical importance to all of us.

By the application of the same common sense and practices that all of us employ for reducing energy use in our homes, Langley should be able to meet the President's goal of reducing energy use in government facilities by another 5 percent this year. We must, however, make every effort to meet this goal by reducing our "housekeeping" use of energy--such things as office heat and air conditioning and office lighting. The alternative is the reduction of energy use for our vital research work.

I fully support this Energy Reduction Program and I am confident that you will join me in this important endeavor.

Oil Shortage to Affect Virginians

If the present oil shortage continues, it will definitely affect residents of Virginia, but when and to what extent is still in question.

Several factors are involved in estimating what effect the oil shortage will have on Virginians, according to Dr. Temple Bayliss, program development officer of the Division of Energy, State Office of Emergency and Energy Services.

One factor is how long it will take the Iranians to begin exporting their oil and in what quantities. The Daily Press reported, on February 25, that Amir Entezam, deputy prime minister of Iran, said that Iran will begin selling oil again within 15 days.

Another factor is how much Saudia Arabia is going to continue exporting and what will be its prices. Saudia Arabia has increased oil production to offset the effects of the Iranian oil loss, but there is a question as to whether they will continue this additional production.

Many of the oil exporting countries have announced that they will increase their prices for oil as much as 15 percent, and there is a question as to whether all others will follow this trend. If the Iranian exports remain down, then prices probably will go up.

How much gasoline and heating oil prices will increase is still very much in question, according to David Catterton, president of the Virginia Oil Jobbers Association of Virginia. "We can safely assume that it's going up," but how much is unanswered, he said.

Daniel Sneade, assistant executive secretary of the Virginia Gasoline Retailers Association, Inc., said that he expects gasoline to increase 15 cents a gallon over the next year and as much as 25 to 30 cents a gallon over a two-year period.

There are now no expected shortages of gasoline and heating oil in Virginia, except for spot shortages of high-octane, unleaded gasoline, which are predicted to occur in the spring, according to Catterton. He added, however, that there will definitely be a supply problem in the future. "It's going to be tough to make people aware," he said.

How long the supply will remain stable is very much in question, according to Larry Wickham, director of the Virginia Oil Fuel Institute. He added that it depends pretty much on the supply and demand.

Sneade said that he expects oil companies will start allocating gas supplies to service stations between now and June. He added that he would expect some type of rationing sometime after June.

Iranian Shutdown Brings Oil Shortage

In the coming months the oil outlook will change with an expected increase in prices and a shortage of oil. Much of this change is in response to the cutback in Iranian exports of crude oil caused by the present change in the Iranian government.

Before Iran shut down its exportation of oil, it exported 4.9 million barrels a day, 10 percent of the world supply. Iranian oil accounted for five percent of the total United States supply.

To offset this loss, Saudia Arabia raised its production to 10.3 million barrels a day, then cut back production to 9.5 million barrels, which is still an increase of 1.7 million barrels over the pre-crisis level.

Other OPEC countries also raised their production, for an overall increase of 1.3 million barrels a day. This still leaves a world shortage of 2 million barrels a day at present consumption levels. The U.S. shortfall is about 500,000 barrels, according to Department of Energy (DOE) figures.

Many of the oil producing nations have taken advantage of the oil shortage by raising prices by as much as 15 percent. The spot market prices, supplies not tied to long-term oil contracts, have increased to over $20 a barrel, about $7 more than OPEC prices of approximately $13.34 before the crisis.

Continued on page 4.

Energy Cutbacks Urged at Federal Installations

In response to the present shortage in oil production, the White House recently issued a statement to all executive departments and agencies to immediately reduce the use of petroleum fuels.

President Carter stated, "Because of the world shortfall in oil production resulting from the Iranian situation, I am directing that executive departments and establishments take immediate steps to reduce the use of petroleum fuels."

Carter urged that agency heads pursue employee awareness programs on energy conservation and promote employee use of carpools and mass transit. Carter listed the following actions that agency heads could include, but were not limited to, in energy conservation programs.

- Lower thermostat settings in Federally owned and operated buildings to not more than 65 degrees during the day and 55 degrees during the night.
- Reduce electrical use generally throughout agency activities, particularly lighting.
- Reduce petroleum use by eliminating unnecessary activities, vehicle trips and combining and consolidating essential ones.
- Reduce energy activities that use large amounts of energy and could be deferred, such as research and experimental activities that involve the use of highly energy-intensive equipment.

NASA is in the process of reducing energy use, by fiscal year 1985, 50 percent, using fiscal year 1973 as the base line. At the end of fiscal year 1978, a 37 percent reduction had been achieved. NASA Headquarters, in response to Carter's statement, issued a statement suggesting that NASA centers set a short-term, fiscal year 1979, goal of an additional two to three percent reduction below the previous forecasts for fiscal year 1979 from the 1973 base year.

NASA Headquarters suggested that this additional reduction could be achieved by improving and tightening present measures in effect and by deferring high energy use where possible.

In response to the President's directive, a meeting was held February 15 with the Langley Facility Coordinators to plan immediate reductions in thermostat settings and other actions to conserve energy. The coordinators pointed out that the biggest reductions will be sought in the areas of lighting and heating and the energy used "around-the-clock" to keep the Center operating. They noted that conservation efforts on the Center should have little or no impact on research and they recommended immediate implementation of conservation actions and energy savings.

Before the present shortage in oil production, Langley's budget for fiscal year 1979 was 152 million kilowatt hours (mkwh), the Director's reserve was 5 mkwh, and the Center goal was 147 mkwh. The new requirements for Langley are a Center budget of 144.5 mkwh, Director's reserve of 5 mkwh, and Center goal of 139.5 mkwh (amount for allocations to the Directorates).

Because of the oil shortage, Langley must reduce energy consumption by 7.5 mkwh. This is a five percent reduction over the fiscal year 1978 budget. Much of this reduction is being sought in the facility load.

Ways to reduce the load in this area include employees turning out lights when not needed (such as when leaving a room for more than 10 minutes), turning off electrical equipment when not in use, and reducing thermostat settings.

Thermostats were to be set at 68 degrees fahrenheit during the day, beginning the week of February 19, and 65 degrees fahrenheit during the day, beginning the week of February 26. Timers were to be adjusted where available to further reduce night and week end energy use.

Because of the kinds of heating systems in some facilities, minimum energy settings may occur at higher temperature (e.g., it may take less energy to keep buildings heated at 70 or 75 degrees than to lower the temperature to 65 degrees). Proper settings are being provided to Facility Coordinators for these special cases.

A Center Announcement to all employees states that "with some efforts and compromises on everybody's part, we will be able to minimize the impact of the energy shortage on our research activities."

The announcement also noted that adjustments would be required in wearing apparel and that lower temperature settings might be uncomfortable at first, but that employees should cooperate with and support Facility Coordinators in their energy-saving actions.

Car Pools Encouraged at Langley

In 1944 the Langley Memorial Aeronautical Laboratory Procedure Manual contained the following statement:

"An LMAL employee who uses his private automobile for transportation to and from work is eligible for a gasoline ration for this purpose. If a sedan is used, three or more passengers must be carried; or if a coupe is used, at least one passenger must be carried."

We are not at war, nor do we have gas rationing, but we do have an energy problem. Unlike the World War II situation, our problem is not going to end when the enemy surrenders because in a large sense, we are the enemy.

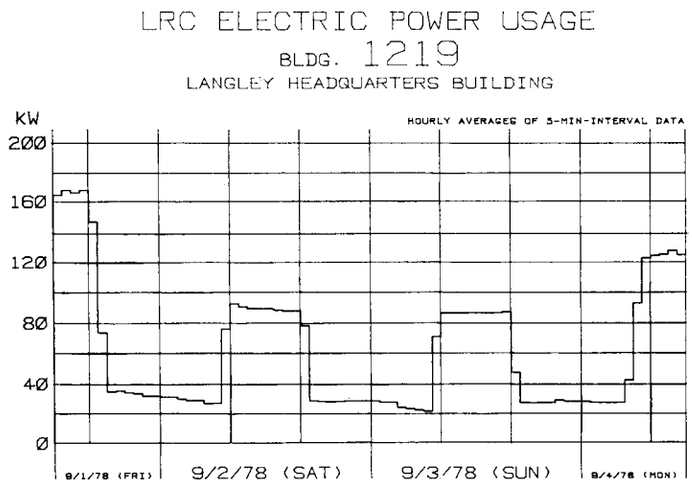
A recent survey showed that 3,600 vehicles carrying 1.2 passengers arrive at the Center each day. Conservatively, this means a yearly fuel consumption of 1,771,000 gallons costing approximately $1,230,000.

Obviously employees could, through car pooling, generate significant fuel savings. Estimates based on this survey show that:

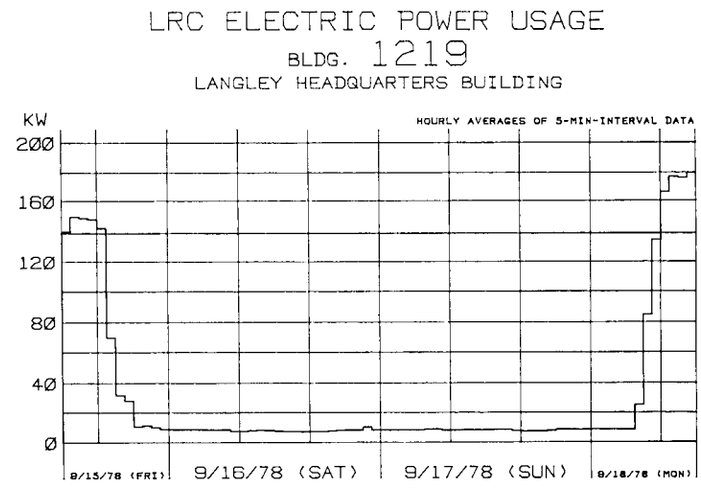
- Four people per car would save 1,224,520 gallons of fuel every year.
- Three people per car would save 1,062,600 gallons.
- Two people per car would save 678,040 gallons.

To encourage fuel conservation and car pooling, some changes being considered are: more flexible shift assignments, special parking privileges for car pool vehicles, and an information exchange to help employees form car pools.

Center management solicits your cooperation in making voluntary car pooling one of our answers to an increasing energy problem.



(MID 48-HR TOTAL = 2,449 KWH)
(72-HR TOTAL = 4,435 KWH)



(MID 48-HR TOTAL = 401 KWH)
(72-HR TOTAL = 2,297 KWH)

The plot on the left is a graph of weekend power usage for Bldg. 1219 from noon Friday, Sept. 1, 1978, to noon Monday, Sept. 4, 1978. The purpose of the plot is to show phase-down of equipment on Friday, the power actually required for Saturday and Sunday, and the start up of equipment on Monday morning. This plot reveals that the building air conditioning system operated over the weekend. A check showed that the timer for controlling the system had malfunctioned. After repair, the system functioned normally as shown in the plot on the right.

Langley Working Toward Energy Reduction

Langley, through implementation of its conservation and management program through fiscal year 1978, has reduced energy use by 24 percent from the fiscal year 1973 base year. This is about half of its fiscal year 1985 goal of 50 percent under NASA's Energy Management Multiyear Action Plan.

Energy conservation began with low-cost initiatives and operational changes which very quickly produced relatively large reductions. Typical conservation measures in fiscal years 1974 to 1976 were:

- Reduction of lighting levels.
- Use of timers to control operation of heating, ventilation and air conditioning (HVAC) equipment.
- Implementation of manual set-back of temperatures for nights and weekends.
- Adjustments of heating and cooling temperature settings.
- Initiation of studies to determine good energy projects and investments in facility automation beyond that already implemented for efficient use of manpower.

Many projects, control and management policies, and continuing studies are in progress to realize energy reduction and conservation. Some of the more important activities, either completed or underway, are:

- Refuse-fired steam generating facility.
- Solar energy building and other solar application projects.
- Utility control system for automated control of facility HVAC systems.
- Rehabilitation of steam distribution and metering steam use.
- Metering electrical energy use in all major facilities.
- Rehabilitation of HVAC systems in numerous facilities.
- Further automation and modernization of technical facilities.

Efforts are continuing to meet the challenge for energy conservation. Current studies and evaluations now either in progress or being planned will identify the most cost effective energy project investments or point to areas of essential long-term development needs, such as:

- Continued extensive rehabilitation of HVAC and lighting in all major facilities.
- Continued practical automation and modernization of technical facilities.
- Expanded application of alternative energy.
- Effective planning and scheduling of facility operation.
- Modification of building systems design.

Reduction and management of energy is being achieved through modification of facilities and facility systems, use of operating procedures and policies, allocation of energy to directorates in accordance with program plans, monitoring of energy use versus allocations, support of management, and cooperation of Center employees.

Tracking and documentation of energy use and savings from energy initiatives is an essential part of the program. Unique at Langley is the Energy and Environmental Monitoring Base Station, which has advanced monitoring and data processing capabilities. Environmental data is also tracked and recorded at the facility.

The ability to remotely monitor energy use at the Center and about 90 separate facilities enables allocation and monitoring of energy use by individual Center directorates and research activities. It also enables identification of base load and institutional-type energy use, which permits the planning of conservation efforts to specifically reduce or minimize energy use in these two categories without compromising Center research programs.

Another major thrust in reduction of energy use is the rehabilitation of Center

Continued on page 4.

IRANIAN SHUTDOWN
Continued from page 1.

OPEC countries were expected to increase their prices to $14.55 in December, but because many of the other oil producing nations have increased their prices and the spot market prices are so high, it is expected that they will raise their prices before December.

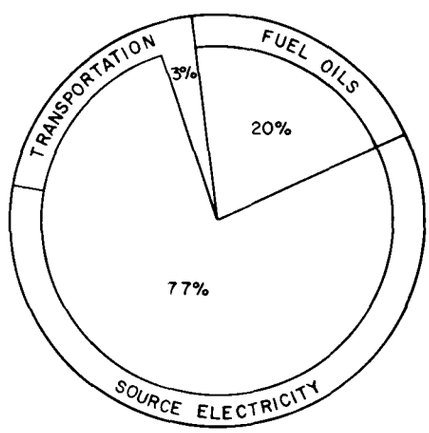
Saudia Arabia has been charging approximately $14.55 a barrel for the one million barrels over its normal target, or approximately $1.21 over the going OPEC price before the crisis. They may also follow the trend and increase their overall price in the near future.

Iran has announced that it will begin exporting oil in the near future, which may help control prices and offset the oil shortage. According to a DOE spokesman, the Iranian government wants to resume exports but is experiencing internal conflicts with the oil workers.

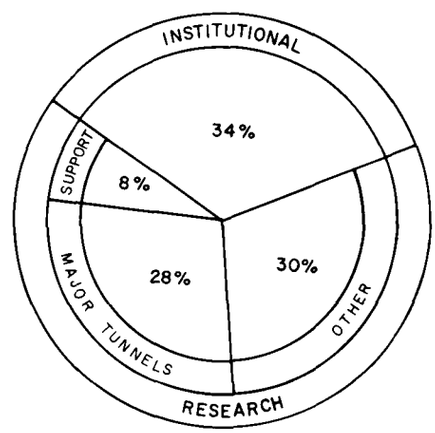
A DOE spokesman said that technically they could resume exports very quickly, even without outside help, such as U.S. engineers. He estimates that within 30 days of production, export levels could be as high as two to three million barrels a day.

The spokesman also noted that DOE may need to take action before the summer if consumption levels remain the same and Iran oil exports do not resume. However, he said he did not see any action being taken by DOE in the near future.

LaRC UTILITY SOURCES AND UTILIZATION



ENERGY SOURCES



ENERGY UTILIZATION

ENERGY REDUCTION
Continued from page 3.

buildings. Primary areas of concentration are proper insulation, and energy-efficient lighting, windows and HVAC systems. Through Executive Order 12003, which allocates funding for upgrading federal buildings, Langley expects to make a large investment in the early 1980's to make energy efficient modifications to many major buildings.

Some part of Langley's 50 percent reduction in energy use will come from new energy sources. Solar energy is being or will be used to supplement energy requirements at several Center buildings and facilities.

A 12,000-square-foot solar collector system, which tests different types of solar collectors under operating conditions and evaluates solar heating and cooling capabilities, provides 90 percent of the heating and 60 percent of the cooling requirements of Building 1209, the Systems Engineering Building.

Solar energy is being used at the Photo Lab and will be used at the new graphics building and at other locations.

Another new energy system, funded by NASA-Langley, Langley Air Force Base and the City of Hampton, is the Refuse–Fired Steam Generator Facility. Scheduled to begin operating about mid-1980, the plant will provide a major portion of the Center's steam needs and replace almost two million gallons of oil now used annually. This innovative effort will also solve the problems of limited landfill areas, aircraft operational problems caused by birds attracted to the landfills and increasing community needs for refuse disposal.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 5

March 9, 1979

James Walker to Speak at March 12 Colloquium

Dr. James C. G. Walker will speak on "The Influence of Life on the Evolution of the Atmosphere" at the March 12 colloquium. The lecture will be held in the Activities Center, Building 1222, beginning at 2 p.m. There will be a question and answer session at 2:50 p.m. and an informal discussion period from 3 to 3:30 p.m.

According to Walker, the early history of life on Earth may have been characterized by the concurrent evolution of life forms and the composition of Earth's atmosphere. Developments in early organisms affected the atmosphere, and resulting atmospheric changes stimulated the ability of microbial forms to change and grow.

Walker is Senior Research Associate and Head of Ionospheric Research at the National Astronomy and Ionosphere Center in Arecibo, Puerto Rico. He has conducted research in aeronomy, ionospheric physics, planetary atmospheres, and atmospheric evolution. He has served as principal investigator on the Atmosphere Explorer Program, coinvestigator on Spacelab I, and Assistant Professor and Associate Professor at Yale University, Department of Geology and Geophysics.

He was born in Johannesburg, South Africa. He received a bachelor of science degree from Yale University and a doctorate in geophysics from Columbia University. He has had postdoctoral experience at Goddard Institute for Space Studies in New York; Goddard Space Flight Center; and the Queen's University of Belfast, Northern Ireland.

Walker is the author of *Atmospheres* and *Evolution of the Atmosphere*.

– photo by Bob Nye

Edward A. Howe, Chief of the Financial Management Division, cuts the ribbon during a dedication ceremony for the Financial Management Building 1192. The ceremony was held on Thursday, March 1. Assisting Howe are Dr. Donald P. Hearth (left), Director, and Edwin C. Kilgore (right), Director for Management Operations.

First Shuttle Begins Journey to Kennedy

The first Shuttle Orbiter flight vehicle, designated OV-102, was scheduled, at *Researcher* press time, to begin the first part of its journey from California to the Kennedy Space Center yesterday, March 8.

The Orbiter was to be moved overland from the Rockwell International facility at Palmdale, Cal., to the Dryden Flight Research Center. The nine-hour road trip, called a rollover, was to begin at 8 a.m. EST and end at Dryden at 5 p.m. The Orbiter and its Boeing 747 carrier were to be mated immediately.

At 10 a.m. EST today the 747 and its huge backpack will make a short check-out flight, refuel and begin an air hop to Kennedy at 12:30 p.m. EST.

The 747 will stop at Biggs Air Force Base near El Paso to refuel and arrive at Kelly Air Force Base near San Antonio at 6:20 p.m. EST. Tomorrow, March 10, the flight will leave Kelly at 9 a.m. EST, refuel at Eglin Air Force Base, Pensacola, and arrive at Kennedy about 3 p.m.

Voyager 1 took this photo of Jupiter and two of its satellites (Io, left, and Europa) on February 13. Io is about 350,000 kilometers (220,000 miles) above Jupiter's Great Red Spot and Europa is about 600,000 kilometers (375,000 miles) above Jupiter's clouds. Jupiter is approximately 20 million kilometers (12.4 million miles) from the spacecraft. Voyager 1 made its closest encounter of the planet at approximately 7:42 a.m. (EST) Monday, March 5, at a distance of 278,000 kilometers (172,750 miles) from the visible cloud tops.

NEBA Membership Campaign Underway

Before the Federal Employees' Group Life Insurance (FEGLI) existed, NASA initiated a group life insurance plan, the NASA Employee Benefits Association (NEBA), for its employees. Now in its 27th year, the NASA plan has been continuously improved and it is now possible to insure the lives of our dependents as well as our own, at very attractive rates. The membership has grown to 12,000 throughout the Agency; over 1,950 of these are Langley employees.

During the next few weeks, the annual membership campaign will be underway for permanent employees not currently enrolled. Each non-participant will receive information on the NEBA plan through distribution to acquaint them with the advantages of this insurance available only to NASA employees. Most of the Langley NEBA members have made arrangements with the Langley Federal Credit Union to pay their quarterly premiums by an allotment.

Any questions concerning enrollment should be directed to William L. Williams, 3278; Edward A. Howe, 2724; or Annette L. Forrest, 2523.

Management Training Series Continues

The second in the series of pre-supervisory/management training courses to be offered at Langley, through a cooperative arrangement with Thomas Nelson Community College (TNCC), will be BUAD 114, PRINCIPLES OF SUPERVISION. The class will meet once a week, from 4:40 to 7:30 p.m., beginning March 27 and ending the first week in June. Title of the textbook to be used is SUPERVISION: CONCEPTS AND PRACTICES OF MANAGEMENT.

Persons desiring to attend this course should call Eloise McGehee, ext. 2611, for the necessary forms. Those who have not taken a previous course for credit at TNCC will have to pay a $5 registration fee, and all students must purchase their textbooks. Tuition will be paid by Langley Research Center.

LAA Travel 1979

Plans are now being made to visit London, from May 31 to June 8. The price per person is $573 (double occupancy). The trip includes round trip DC-8 transportation; deluxe hotel accommodations; daily continental breakfast; half-day trip to Windsor Castle; city orientation tour, including Parliament, Picadilly Circus, Westminster Abbey and Changing of the Guard; all round trip transfers via deluxe motorcoach and baggage handling from airport to hotel; all taxes and gratuities.

Other trips planned for this year at discount prices include: Las Vegas, May 3 for four days; Hawaii, October 3 for one week with an optional two night stay in San Francisco on return trip; Hawaii, Maui and Oahii, December 31 for two weeks; cruise from Norfolk to Bermuda, June 13 and September 11; cruise from Norfolk to the Carribean, December 14.

A $75 deposit is required to reserve a space for any trip. Call the LAA office, extension 3139; Ernie Greene, 2312, home 838-0567; or Herb Boulter, 3234, home 838-4773, for the desired brochures.

Job Openings

The following Merit Promotion Announcements are currently open:

79-23 – Quality Assurance Specialist (Aerospace); GS-1910-11; Director for Projects; Scout Project Office; Closes March 20, 1979.

79-24 – Engineering Technician; GS-802-9 or 10; Operations Support Division; Laboratories Operations Branch; Technical Support Section A; Closes March 20, 1979.

79-25 – Engineering Technician; GS-802-9 or 10; Operations Support Division; Tunnels Operations Branch; Technical Support Section C; Closes March 20, 1979.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Maurice Parker
Editorial Assistant . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Happenings

THE CHILDREN'S CONCERT featuring "Tubby the Tuba" and other narrated stories has been rescheduled for Sunday, March 11, at 3 p.m., in the Warwick High School Auditorium, due to the February 18 snowstorm. The concert will be performed by the Peninsula Youth Orchestra and conducted by Mr. Cary McMurran. The tickets cost $1.25 and may be purchased at the door or reserved by calling 599-6046, 245-6187 or 898-5691; tickets for February 18 will be valid. The program is sponsored by the Newport News Branch of American Association of University Women for benefit of the Educational Foundation Programs.

GOLF ASSOCIATION. The 1979 membership drive for the NASA Golf Association is now open to all NASA employees and retirees. The annual membership dues are $6 and must be paid to W. B. Jones, M/S 235, by March 13, to be eligible for the first tournament later this month at the Langley Golf Course. Ten tournaments, including select short, two- and four-man best ball and individual, are planned for the season. Each tournament, scheduled about three weeks apart, will be played at a different golf course. For additional information, call Tom Carpini, ext. 3492, or Fred Kern, ext. 3234.

FEDERAL EMPLOYEES ALMANAC. The Activities Association has 15 copies of the 1979 Federal Employees Almanac left for sale. The cost is $2 each. For further information call Sue Juanarena, ext. 3139.

HAPPY HOUR. Celebrate St. Patrick's Day on Friday, March 16, at the LAA Happy Hour, in the Activities Center, from 4 to 6:30 p.m.

SPRING SKEET LEAGUE. The Langley Skeet Club will sponsor the Spring Skeet League from March 10 through May 19. Everyone is eligible to participate and the entry fee is $8.50. To register or for additional information, call Pat Knutson, at 851-5921.

EINSTEIN SPECIALS. To commemorate the 100th birthday of Albert Einstein, WHRO-TV, Channel 15, will televise "Einstein's Universe," on Sunday, March 11, at 5 p.m. The 90-minute explanation and demonstration of Einstein's extraordinary ideas will be narrated by Peter Ustinov. "Einstein," a 60-minute film biography of his life, will be presented by NOVA, on Thursday, March 15, at 8 p.m., on Channel 15.

William H. Phillips Retires from Langley

Among more than a score of Langley employees who recently retired was William H. Phillips, Chief of the Flight Dynamics and Control Division. He completed more than 38 years of service to NASA and NACA on February 28.

Beginning his career in 1940, after earning a master of science degree in aeronautical engineering from MIT, Phillips moved up the research-management ladder to become a division chief in 1963. He was appointed to his last position in 1968.

Phillips capped his career in January, when he was presented with the President's Award for Distinguished Federal Civilian Service, one of six government employees honored for 1978.

SEVRCG. The Southeastern Virginia Radio Control Group will hold its annual auction of radio control models and accessories on Tuesday, March 13, at 7:30 p.m., in the Activities Center.

WOMEN AND GOVERNMENT SEMINAR. A seminar, entitled "Women and Government," will be held today, at 8 p.m., and Saturday, March 10, at 10 a.m., at the Campus Center, Christopher Newport College. The seminar is designed to examine the influence of music, art, drama and the humanities on attitudes toward women and their involvement in government. For additional information, call 727-9402 or 599-6046.

BOATING CLASS. The U.S. Coast Guard Auxiliary Boating Safety and Seamanship Course, sponsored by Hampton Flotilla 61, will begin March 13. Classes will be held at the Langley Air Force Base Safety Office, Building 366. For more information, contact Prenntis Smith, 877-3159, or Ed Roth, 838-3824.

NAGS. The next meeting of NAGS Hampton Roads Branch, will be held on March 20, at Captain George's Restaurant (formerly Hampton House), 2710 W. Mercury Boulevard, Hampton. A social will begin at 6:15 p.m. and dinner will be served at 6:30 p.m. Nancy La Cross, Ft. Eustis Upward Mobility Office, will speak on "Women Getting Themselves Totally Together." Reservations must be made by February 16 with Reachie Hall, 827-2150, or Shirley Davis, 827-2759. Cancellations will be accepted until noon, March 20.

Roberts to Speak

Dr. Leonard Roberts, Director of Aeronautics and Flight Systems at the Ames Research Center, will talk about "Future Trends in Civil Rotorcraft" to the Hampton Roads Chapter, American Helicopter Society, on March 21.

The talk, scheduled to begin at 8 p.m., will follow dinner at the Fort Monroe Officers' Club.

Roberts, a former Langley researcher, will discuss future civil aviation trends, particularly as they might affect rotorcraft development. He will also review NASA's plans for expanding its rotorcraft research and technology program.

Cocktails will be served at 6 p.m. and dinner at 7 p.m. The cost to members and spouses is $5.75--$6.75 for non-members. Call Ms. Trish Williams, 878-2704, before March 19, to make reservations.

Thanks

Herbert E. Boulter, Instrument Research Division, expresses his thanks to the many NASA friends who sent him cards and gifts during his recent hospitalization and recuperation. He also sends his appreciation to those who donated pints of blood to the Red Cross in his name.

Aerospace Penpoints
by Wesley Berryman

Everyone who is seriously involved in the pursuit of science becomes convinced that a spirit is manifest in the Laws of the Universe. A spirit vastly superior to that of man, and one in the face of which we with our modest powers must feel humble.

Albert Einstein
Born March 14, 1879

swap and shop

FOR SALE

Articles

Baldwin Funster Organ, model 122, 6 months old (Retails for $1,640) will sell for $1,300. Call 877-2210 after 5 p.m.

Folding wheelchair, $110; Bed rails, $55; Aluminum Walker, $20. Call Boyden, 3711 or 898-5833.

Textbooks--1/3 off, EC, Principles of Dynamics, D. T. Greenwood, $14.50, Lagrangian Dynamics (Schaum's Outline), D. A. Wells, $4. Call Mathis, 722-7629.

Vehicles

1977 Dodge Van B-200 318V8, 3 spd., reg. gas, fully customized, AM-FM stereo, CB and more, EC, Ex. M.P.G., $5,000. Call 898-6394 after 5 p.m.

Animals

Sheep dog/collie puppies, 6 weeks old; excellent pets and watch dogs; $10. Call 838-0923.

FREE

Animals

Black retriever, spayed female, about 3 yrs. old, friendly, gentle temperament. Call 868-6739.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 br., washer, dryer, dishwasher, fp., 1/2 block from ocean and Backbay (fresh water), air conditioned, electric heat, 4-car parking, summer rate $350/wk; winter rate, $350/mo. Call G. O. Kent, 420-8391 after 5 p.m. or ext. 3095.

House: 1917 Sommerville Drive, Hampton (Andrews Blvd. area); 3 BR, stove; refrig., AC, washer, newly decorated inside. $250 per month. Call McKenzie, 874-7449, evenings; 827-3487, days.

WANTED

Teenager to stay with two children for six weeks during the summer, four hours a day, Mon.—Fri.; East Hampton area. Call 722-0710 after 5:30 p.m.

To join or form car pool from Kingsmill area to West area on 8 o'clock shift. Call Dick Powell, 3911.

To form two person car pool from Robanna Shores to West area, 8 a.m. shift. Call H. Elksnin, 4666.

Car pool members from Croaker-Williamsburg area to NASA on 8 a.m. shift. Call Tompkins, ext. 2434.

To buy a large old school teacher's desk, swivel chair, file cabinet, solid oak. Call 827-9456.

FOUND

A pair of eye glasses found in Photo Lab, Building 1155. Call 3521 to identify.

Black and white slide of one of the planets, photo number LO-106, found near Bldg. 1192. Call Nancy Ferro, Cashiers' Office, 3802.

Retirement Parties

William L. Ervi, Jr., Systems Safety, Quality and Reliability Office, will be honored with a retirement part at the Langley Officers' Club on Friday, April 6. A cash bar will open at 6 p.m. and dinner will be served at 7 p.m. Cost of the party will be $7.50 per person or $14 per couple including gift. Donations of $1 for gift are acceptable. For reservations send cash or check to James N. Chacamaty, M/S 429, ext. 2528, by March 29.

A retirement party for **Walter P. Kabana**, Fabrication Division, will be held at Sammy's Steak House, 12399 Warwick Boulevard, on Thursday, March 29, at 7 p.m. The cost is $6 per person or $11.50 per couple (includes gift). Donations of $1 for gift only are also welcome. A cash bar will be open at 6 p.m. Send your reservations to Tom Hall, Mail Stop 397, by March 26.

Charles L. "Pete" White, Operations Support Division, will be honored with a retirement party at the Activities Center (Building 1222) on Friday, March 23. A cash bar will be open at 5:30 p.m. and free beer will be served. Dinner will be served at 7 p.m. The cost of the dinner will be $6 per person. For reservations, send remittance to Meredith Ballard or Jack Fowler, M/S 166A, ext. 2592, by March 20.

An Hors D'oeuvres social will be held on April 6, at 5:30 p.m., in the Activities Center, for **James H. Schrader, Robert N. Parker** and **Arch R. Sinclair,** who are retiring from the Flight Electronics Division. A cash bar will be provided. The cost of the social will be $6 per person or $9 per couple. Reservations or contributions to gifts should be sent to Pat Hurt, M/S 476, by March 30.

cafeteria menu

WEEK OF MARCH 12

MONDAY: Corn Chowder; Chicken Chow Mein; Broiled Beef Liver; Clam Strips. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Braised Beef & Vegetables. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Enchiladas; Beef Pot Pie. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Meat Loaf. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Chicken & Dumplings; ★★★St. Patrick's Day Special★★★; Corned Steamship Round of Beef. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF MARCH 19

MONDAY: Vegetable Soup; Spaghetti Dinner; Teriyaki Baked Chicken; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Beef Balls Stroganoff; Fried Filet of Fish; Baked Virginia Ham. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Pepper Steak; Spanish Omelette. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Roast Beef Au Jus; Franks, Bacon, & Cheese. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Pot Pie; Steak Smothered w/Onions. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

Thanks

Lucy White would like to thank all her friends and co-workers for the lovely retirement party given in her honor at the Fort Monroe Officers' Club on January 13 and also for the treasured gifts and fond memories of her years at the Full Scale Tunnel.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 6

March 23, 1979

Hubbard Receives Aeroacoustics Award

Harvey H. Hubbard, Assistant Chief, Acoustics and Noise Reduction Division, has received the American Institute of Aeronautics and Astronautics (AIAA) Aeroacoustics Award for 1979. Hubbard is the first U.S. citizen to receive this distinguished award.

The AIAA presents the award annually for an outstanding technical or scientific achievement by an individual's contribution to the field of aircraft community noise reduction.

The award was presented to Hubbard at an Awards Luncheon on Tuesday, March 13, during the 5th AIAA Aeroacoustics Conference in Seattle, Washington.

The citation that accompanied Hubbard's award states:

"For outstanding scientific contributions to understanding and reducing the generation, propagation and effects of aircraft noise."

Born on June 17, 1921, in Swanton, Vermont, Hubbard graduated valedictorian from Swanton High School. He received a bachelor of science degree in electrical engineering from the University of Vermont in 1942 and has performed graduate work in aerodynamics at the University of Virginia.

Hubbard began his career with NASA's predecessor agency, the National Advisory Committee for Aeronautics (NACA), in 1945 as a flight vehicle acoustician. In 1958 he was appointed Head, Atmospheric and Acoustics Branch of the Dynamic Loads Division. In 1959 Hubbard was made Head, Acoustics Branch, Dynamic Loads Division and continued in that position until 1973, when the Branch was elevated to the Acoustics and Noise Reduction Division. He was appointed to his present position at that time. Prior to coming to Langley, Hubbard was employed at Westinghouse Manufacturing Company for a short period in 1942, where his work resulted in a U.S. patent for a

flame-quenching device in circuit breakers. From 1942 to 1945 he served as an officer in the U.S. Army Signal Corps and Air Corps. He later retired with the rank of Lieutenant Colonel in the Air Force Reserves.

The author or co-author of more than 100 technical reports, journal articles and book chapters, Hubbard received the NASA Special Service Awards for Exceptional Service in 1967 and for Outstanding Scientific Achievement in 1968, the Group Achievement Award in 1968, and the Gold Medal for Outstanding Scientific Achievement in 1969. The Silver Medal Award of the Acoustical Society of America was presented to Hubbard in 1978 for his contributions to the understanding of aircraft noise, its generation, propagation, and control, and its effects on people and structures.

Hubbard is a fellow of the Acoustical Society of America; associate fellow of AIAA; President of the Institute of Noise Control Engineering; and a Charter member of the British Institute of Acoustics.

He is married to the former Sadie Margaret Miller of Iron City, Georgia, and lives in Newport News, Virginia. They have two sons and two daughters.

Bond Series to Change January 1980

Treasury Secretary W. Michael Blumenthal recently announced the introduction of new Series EE and HH U.S. Savings Bonds to replace the current E and H Bonds, effective January 2, 1980.

Some highlights of the new Series EE Bonds are:

- The purchase price will be one-half the face value;
- The lowest available denomination will be $50, face value. Other denominations will be $75, $100, $200, $500, $1,000, $5,000 and $10,000;
- The interest rate of six percent (for five or more years) remains, while the term to maturity will be 11 years and nine months;
- The annual limitation on purchases will increase from the present $7,500 issue price to $15,000 issue price;
- The new Series EE Bonds will be eligible for redemption six months after issue;
- The requirement that a bond beneficiary must consent to a change in the bond will be eliminated;
- The Series E Bonds bought between 1941 and April 1952 will stop drawing interest exactly 40 years after their respective issue dates;
- An additional 10-year extension of interest will be given to unredeemed Series E Bonds issued after April 1952, all U.S. Savings Notes (Freedom Shares), and Series H Bonds issued after May 1959;
- Owners of Series E Bonds and Savings Notes can exchange them for the new HH Bonds after they go on sale January 2, 1980. This can be done up to a year after final maturity of the old

Continued on page 2.

Names Being Sought of Vietnam Veterans

President Carter will proclaim the week of May 28 to June 3 as Vietnam Veterans Week, a national tribute to the veterans of the Vietnam conflict for their service, sacrifice and patriotism.

Vietnam veterans are those men and women who served on active duty with the armed forces between August 5, 1964, and May 7, 1975. They did not have to serve in Vietnam or its neighboring countries to be considered Vietnam veterans.

Langley employees who are Vietnam veterans are requested to call Jane Swartzwelder of the Personnel Office, extension 3007, so they may be recognized for their contributions to the nation.

BONDS

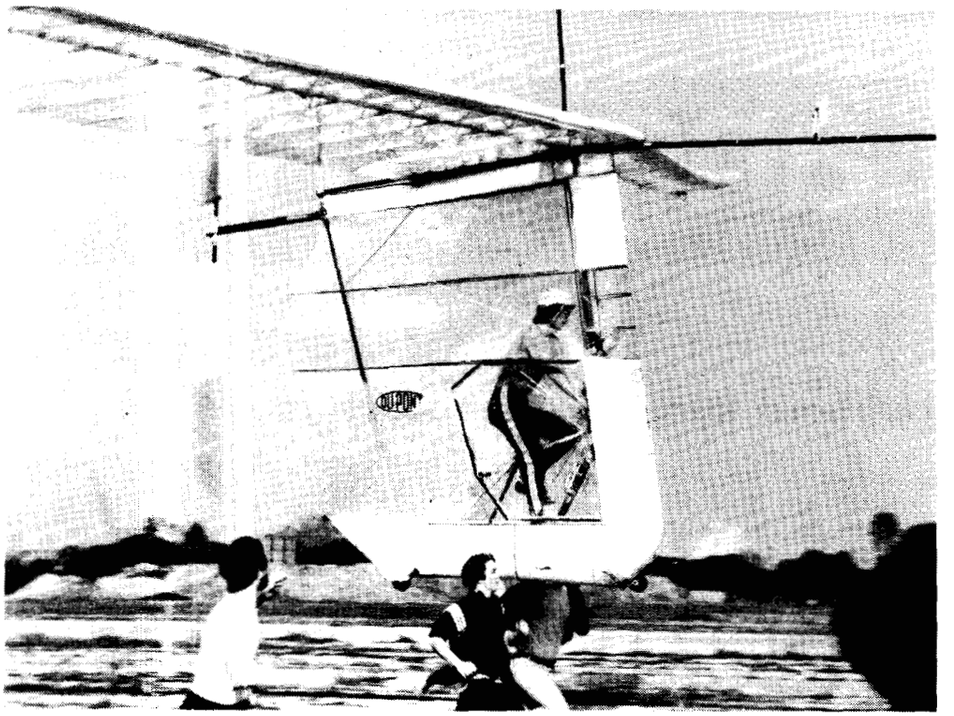
Continued from page 1.

E Bonds. This exchange carries the same tax-deferral privilege as the present E to H Bond exchange. For tax purposes, the interest from the new Series EE Bonds will be reported the same way the interest is reported on the current E Bonds.

The Savings Bond Program has not been changed significantly since 1941 and the administrative costs, particularly for E Bonds, have risen substantially. The changes which have been announced are designed to make the program more cost effective while retaining or improving those features which have made Savings Bonds attractive.

The Department of the Treasury Offering Circular, which will be published in the fall of 1979, will contain tables showing the amount of interest earned from the Savings Bonds. Forms showing the redemption values will be available from the Bureau of the Public Debt or any Federal Reserve Bank or Branch. Banks and other financial institutions which pay bonds can also advise bond owners of the amount of interest included in the redemption value of bonds that are cashed.

Series E Bonds will be available to employees purchasing through payroll plans until the employing organization has been able to convert to the sale of Series EE Bonds, which must be accomplished no later than June 30, 1980.



The "Gossamer Albatross," piloted by Bryan Allen, slowly lifts off the ground during a test flight. The human-powered airplane flies at a speed of 11 miles-per-hour at an average altitude of about 30 feet. "Gossamer Albatross" weighs 55 pounds and has a wingspan of 96 feet.

Langley Hosts Low Speed and Motorless Flight Symposium

The Third International Symposium on the Science and Technology of Low Speed and Motorless Flight will be held March 29 and 30 at Langley. The event is sponsored by NASA and the Soaring Society of America (SSA).

The symposium will include presentations of papers, a tour of Langley facilities and a banquet. The guest speaker at the banquet will be Dr. Paul MacCready, designer of the first human-powered airplane to make a controlled flight, the "Gossamer Condor."

MacCready will speak on the "Gossamer Condor" and the "Gossamer Albatross," a new human-powered airplane that will attempt to cross the English Channel this spring from Great Britain to France.

Topics to be covered in the two-day symposium are low-speed aerodynamics, optimal flight techniques, structures and materials, ultra-light sailplanes and hang gliders, and powered sailplanes. Presentations will be made by individuals from Germany, Belgium, France, Poland, Italy and the United States.

The conference is also expected to draw people from England, Canada, Finland, Brazil, Norway, the Republic of South Africa and the United States who are interested in soaring, gliding, and light general aircraft.

Co-chairmen for the event are Oran W. Nicks, Deputy Director of Langley, and Dr. James Nash-Webber, past chairman of the SSA technical board and a professor at the Massachusetts Institute of Technology. The symposium organizer and technical program chairman is Perry Hanson, of Langley's Structures and Dynamics Division.

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Guastaferro Selected for Headquarters Post

Angelo "Gus" Guastaferro, Manager of the Large Space Systems Technology (LSST) Program, has been named Director for Lunar and Planetary Programs at NASA Headquarters.

He will begin his new job, within NASA's Office of Space Science, April 2. He will be responsible for management of all unmanned planetary programs, including Voyager and Pioneer. He will also manage studies in planetary astronomy, atmospheres and geology; advanced science planning; advanced programming and technology; extraterrestrial materials research; and flight program support.

He succeeds A. Thomas Young, another former Langley manager, who is now Deputy Director of the Ames Research Center.

Guastaferro, who began his present job in May 1977, is a former manager with the Viking Project. From 1968 to 1975, he held several management positions, including Deputy Project Manager (Management). He also managed the Rotor Systems Research Aircraft (RSRA) Project for 16 months.

He received NASA's Outstanding Leadership Medal in 1977 for his work on Viking, and he received Langley's Special Achievement Award three times (1974, 1976 and 1977) for outstanding work.

Born June 4, 1932, in Hoboken, N.J., he earned a bachelor of science degree in mechanical engineering from

New Jersey Institute of Technology in 1954, and a Master of Business Administration degree from Florida State University in 1963. He was in the U.S. Air Force from 1955 to 1958.

Guastaferro joined NASA in September 1963 as a resident engineer and Scout Project Manager at the Vought Corp. in Dallas, Tex. He became Langley Mission Support Office Manager at Vandenberg Air Force Base, Lompoc, Calif., in May 1966, and transferred to the Viking Project at Langley in 1968.

He and his wife live in Hampton with their three sons. Guastaferro is active in several community activities.

Runners' Club Event

The 7th Intercenter Meet will be held during the time period of April 1–15. Runners will have four opportunities to submit a time in each event. The events and timing information are as follows:

2 Mile	10,000 Meter
Tuesday, April 3 and Tuesday, April 10	Thursday, April 5 and Thursday, April 12
11:30 Bethel HS Track	Bethel HS Track
5:00 Orange Course Front of Bldg. 1199	Green Course, Front of Activities Center, Bldg. 1222

The participants will be grouped according to the following ages:

Men	Women
29 and under	29 and under
30 – 34	30 and over
35 – 39	
40 – 44	
45 – 49	
50 and over	

All NASA and contractor employees, retirees, university affiliates, and co-ops (on work quarter) are eligible to compete. Awards will be given to each participant. Participation and speed will count; a new scoring system has been devised which includes the best of both. So come out and support our Center. For further information, call Don Humes, ext. 2289.

Retirement Parties

A retirement party for **Walter P. Kabana**, Fabrication Division, will be held at Sammy's Steak House, 12399 Warwick Boulevard, on Thursday, March 29, at 7 p.m. The cost is $6 per person or $11.50 per couple (includes gift). Donations of $1 for gift only are also welcome. A cash bar will be open at 6 p.m. Send your reservations to Tom Hall, M/S 397, by March 26.

James P. O'Briant, Jr., Operations Support Division, will be honored with a retirement party at the Activities Center, Building 1222, on Wednesday, April 4, at 11:30 a.m. Cost of the luncheon will be $6 per person or $11 per couple. Gift contributions will be appreciated. Send check to Jud Black, M/S 396, ext. 2821, or Carol Olsen, M/S 396, ext. 2968.

A retirement luncheon for **Allen L. Fox**, Instrument Research Division, will be held at the Activities Center, Building 1222, on Friday, April 20, at 11:30 a.m. Cost will be $5 per person (includes gift). Donations of $1 for gift are welcome. For reservations send cash or check to Miriam A. Hall, M/S 235, ext. 3907, by April 17.

Thomas Vranas, Instrument Research Division, will be honored with a retirement party on Tuesday, April 17, at Sammy's Steak House, 12399 Warwick Blvd. A cash bar cocktail hour will begin at 6 p.m., with dinner at 6:30 p.m. Cost of the dinner will be $7.25 per person, which includes the $1.50 gift contribution, or $13 per couple. Contributions for gift only are welcome. Please make checks payable to Roger Phelps. Send reservations to Charlie Scott or Roger Phelps, M/S 238, ext. 3483, by April 2.

Thanks

W. Bruce Dunn thanks all the friends who attended his retirement party on February 10. Special thanks goes to the people of the Scout Office who organized the party.

Bob Green who retired Jan. 12th from O.S.D. thanks all his many friends for the wonderful retirement party. The gifts are very nice. Many thanks to the ones who planned this special occasion and also special thanks to Fred Jones for the wonderful pictures.

– photo by Bob Nye

Shown here are members of the Working Group on Validation Methods for Fault Tolerant Avionics and Controls who met at Langley March 12, 13 and 14. The Working Group is attempting to define the impact of fault tolerant technology on digital avionics and control system validation methods, and to identify research needed to provide an acceptable validation process for further avionics and control systems. Pictured are: (front row, from left) Dale G. Holden and Gerard E. Migneault, FED; Dr. Gerald M. Masson, The Johns Hopkins University; Dr. Albert L. Hopkins, Jr., The Charles Stark Draper Laboratory Inc.; C. L. "Buster" Seacord, Honeywell, Inc.; G. Robert Flynn, The Boeing Company; Dr. Herb Hecht, SoHaR Inc.; Professor John F. Meyer, The University of Michigan; Dr. William C. Carter, IBM Research, T. J. Watson Research Center; Steven Toth, ORI Inc.; (middle row, from left) Michael Melliar-Smith, SRI International; Ron L. Coffin, Rockwell International; Dr. Jack J. Stiffler, Raytheon Co.; Jack Goldberg, SRI International; Allan White, LTV Aerospace; Nicholas D. Murray and J. Larry Spencer, FED; Professor Edward J. McCluskey, Stanford University; Dr. Richard K. Smyth, Milco International Inc.; Dr. Susan Gerhart, USC/Information Sciences Institute; William R. Mann, Rockwell International; Lynn Buhler, ORI Inc.; (back row, from left) Dr. John Myers, Consultant; Kurt Moses, Bendix Corporation; Bill Rogers, ORI Inc.; Brian Lupton, FED; John H. Wensley, August Systems Inc.; John Hart, Lockheed-Georgia Co.; Dr. Donald D. Dillehunt, Rockwell International; Billy L. Dove, FED; and Bill Patten, ORI Inc.

Barger to Speak at AIAA Meeting

The American Institute of Aeronautics and Astronautics (AIAA), Hampton Roads Section, will meet on Wednesday, March 28, in the Cafeteria, Building 1213. A social will begin at 4:15 p.m., and at 4:45 p.m., Dr. James E. Barger, Chief Scientist at Bolt, Beranek and Newman, Inc., will speak about "Analysis of Recorded Sounds of the Assassination of President Kennedy."

Barger will discuss the signal processing and acoustical modeling techniques used to arrive at the findings recently presented to the House Select Committee on Assassinations, and which have been applied to localization of gunfire from other shooting episodes.

Barger has worked in several areas of theoretical and applied acoustics including marine vehicle noise, sonar systems, forensic science and medical ultrasonics. A Fellow of the Acoustical Society of America, Barger is well known in the field of acoustical research and has made major contributions in developing and applying techniques for the acoustical analysis of recorded sounds. In particular, he led the research programs to analyze gunfire sounds recorded during the Kent State Shooting episode and the assassination of President Kennedy.

For reservations, please contact Al Taylor, ext. 3877, or Buddy Cary, ext. 4546, by March 27.

Thanks

Edith Horrocks writes: "I wish to express deep appreciation to all my friends who took part in my wonderful retirement luncheon on February 26. Also, many thanks for the lovely gift. It was a very happy occasion which I shall remember always."

John J. Cox, Personnel Division, writes: "During my recent stay in the hospital I received many expressions of good wishes for which I am deeply appreciative. I want to offer my gratitude for all of the kind remembrances."

Successful Car Pools

Some employees who are not in a car pool relish the idea of joining one. And some who participate in car pools don't like them for various reasons. Yet some car pools work.

One reason some car pools fail is that ground rules are never established. When setting up a car pool, members should make rules and adhere to them. Criteria that might be considered in establishing car pools are: smoking or nonsmoking; radio or silence; conversation or meditation; number in the car pool; handling habitually late members; allowable "side trips;" notification for absences; use of car in emergencies.

These considerations seem to be common sense, but are really the things that make a car pool work. If one member makes the others late for work, ill feelings are generated. If one member listens to rock music and another prefers "classical," then someone is unhappy.

Success requires planning and adherence to the plans whenever possible. Talk to your neighbor and see if you can benefit from car pooling.

Personal Opinions

Why don't you ride in a car pool?

Nellie Dick
High-Speed Aerodynamics Division

"I have been driving to NASA by myself for 23 years. It would be hard for me to adjust to riding in a car pool. There aren't many people living near me who work here. By the time I could get to someone, I would almost be here. I only live seven miles from my office. I never thought it would be to my advantage to join a car pool."

JoAnn Woodcock
Materials Division

"It is inconvenient. I have children and I want to be in the position to leave if one of them gets sick. If I am in a car pool, I can't do that. When I was single, I was in a car pool and it worked out fine. I would not join a car pool unless it was the only way I could work at NASA."

Robert Baucom
Materials Division

"I live in Isle of Wight County and not many people there come this way. In order for me to be in a car pool, provisions must be made for me to be on a flexible shift. The only other person from my immediate area working for NASA comes in 30 minutes earlier than I do."

Charlie Jackson
High-Speed Aerodynamics Division

"There are several reasons why I don't ride in a car pool. First of all, my work schedule is not very easily regimented to regular hours. I have to stay late quite frequently. I have to go off base sometimes and it's inconvenient to use taxis. Secondly, I value my independence. I hate to wait for people, either coming or going. I don't think I would ever join a car pool. I rode in car pools the first 10 to 15 years of my career out here and I didn't like them then. I vowed that when I got to the point that I could afford not to be in a car pool, I'd never get in one again."

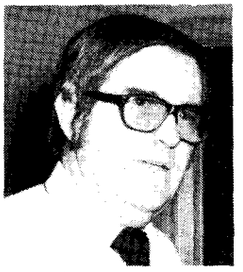
Burnett Peters
Office of Equal Opportunity Programs

"About three years ago, I was in a car pool and it worked out real well. However, I was not going to school. I go to school at night and quite often I go from work directly to school. I do favor car pools. With the energy crisis getting worse and gasoline prices going up, we will have to do something to offset these problems. When I finish school, I certainly want to get into a car pool. If I could find someone who did not want a car pool every day or who would allow me to get out of it on my school days, I would like to take part. Right now, I don't know of anyone nearby coming to this area."

Note from the Editor: If you have any questions you would like answered in this column, please send them to "Personal Opinions," Mail Stop 115A.

Frances Sabo
Subsonic-Transonic Aerodynamics Division

"I don't ride in a car pool because I go to school two or three times a week. I use the time between work and school to study. I'd be more inclined to participate in a bus program. I could ride the bus when it was convenient and not be tied down to a car pool where I would have other people depending on me."



Warner Robins
High-Speed Aerodynamics Division

"I detest car pools, primarily because there is no flexibility. You have to leave on time every day. The problem of inflexibility that car pools provide, makes it impossible for me to do my job. Sometimes I stay very late. So I have a little car, presumably economical, and I go by myself. I used to belong to a car pool, but I can't imagine any circumstance that would make me give up my single auto means for a car pool."

Pamela Jenkins
Acquisition Division

"I live so close to the base that I really wouldn't be of benefit to anyone in a car pool. It only takes me five to seven minutes to get to work. I would have a longer distance to travel to pick up members than if I just drive by myself. It's not worth my time to go far out of my way to pick them up. I would be willing to join a car pool if other employees lived nearby."

Continued on page 6.

Credit Union Extends Christmas Club Deadline

The deadline for establishing a Christmas Club account at the Langley Federal Credit Union (LFCU) has been extended through April 30. The new service was first offered to all LFCU members in February, and thus far, it has proven to be very popular.

Members must sign a club membership card indicating the amount of each payment, the frequency and the method of payment. No new account number or membership fee is involved. Christmas Club accounts ride as trailers to regular share accounts. Once a member joins the club, the account remains active until the member closes it or stops making payments.

The amount of agreed-upon payment can be any figure from $5 up; the frequency can be weekly or bi-weekly; and the payment can be made in cash or by payroll deduction.

Children 16 and under may join the club as outlined above. However, for their benefit, payments may start as low as 50 cents and go up in multiples thereof.

Dividends will be paid at the same rate and under the same conditions as apply to regular share accounts. However, monies in these accounts cannot be pledged as collateral for a loan nor can they be withdrawn without closing the account. Once closed, the Christmas Club account cannot be reopened until the start of a new club year.

Since Christmas Clubs are new at LFCU, 1979 will be an abbreviated year. The service is being started now to provide our members a chance to establish an account, see how they like it, and determine the amount and frequency that best suit their needs. Christmas Club checks will be mailed in early November. Members who do not join the program by April 30 will have to wait until November 1, 1979, when the 1980 program gets underway.

Job Openings

The following Merit Promotion Announcements are currently open:

79-27 – AST, Earth Sciences Utilization; GS-1301-14 or 15; Office of Director for Space; Marine and Applications Technology Division; Marine Environments Branch; Closes March 30, 1979.

79-28 – AST, Fluid Mechanics; Supervisory Aerospace Engineer; GS-861-13 or 14; Office of Director for Aeronautics; High-Speed Aerodynamics Division; Fluid Mechanics Branch; Closes March 30, 1979.

79-29 – AST, Measurement and Instrumentation Systems; Supervisory Electronics Engineer; GS-855-14 or 15; Office of Director for Electronics; Flight Electronics Division; Avionics Technology Research Branch; Closes March 30, 1979.

79-30 – AST, Measurement and Instrumentation Systems; Supervisory Electronics Engineer; GS-855-13 or 14; Office of Director for Electronics; Flight Electronics Division; Electromagnetics Research Branch; Closes March 30, 1979.

Thanks

Karen Miller thanks all her many friends for the farewell party and gifts in her honor. Most of all, "Thank you for all the kind thoughts and well-wishes. I'll miss all the wonderful people I've worked with over the years."

Charles W. Wiggs, Jr., expresses his appreciation to those who planned and attended his retirement luncheon on February 26. Many thanks for the gifts and mementos he received from all his friends.

George R. Topping writes: "I wish to thank all of the wonderful Center personnel currently employed or retired who honored me at my recent retirement luncheon. It was a time of good fellowship, good cheer, reminiscing, and good food. I am delighted with the gifts and mementos presented to me and I will put them all to good use. Again thanks to all of you who made my years at Langley Research Center so rewarding and fulfilling."

John Borowski thanks the many friends and co-workers who recently contributed blood through the NASA Bloodmobile for his brother Charles.

Thanks

Billie J. Walker thanks all her friends who had any part in the planning, contributing to, and attending her retirement party. She adds, "Thanks for the beautiful gifts and mementos; my years of working with you were just great."

PERSONAL OPINIONS

Continued from page 5.

Paul Coe
Subsonic-Transonic Aerodynamics Division

"The reason I don't ride in a car pool is because it is somewhat inconvenient. A lot of times it is beneficial for me to come in early or leave late and with a car pool, I would not be able to do that. I suppose if there were two or three people who would be willing to work the hours I am accustomed to, it would be convenient. I would like to join a car pool simply because of the difficulties associated with the energy situation. I do feel a little guilty about it. However, there is no way I can require people to wait for me."

Dave Caplan
Office of Chief Counsel

"I am usually later than 4:30 leaving the office and I enjoy the leisurely drive home. It is a relaxing time for me. In order for car pools to work, Management, at all levels at the Center, has got to make a firm commitment to end meetings at the end of the work shifts, normally at 4:30. People can then meet their car pools on time."

– photos by Bob Nye

Happenings

AN EASTER EGG HUNT will be held on Sunday, April 3, at 2 p.m., at the Activities Center. Cartoons will be shown and there will be three prize eggs for each age group. Children should bring their own baskets.

TOASTMASTERS. You are invited to join the TAC AIR TOASTMASTERS to develop the arts of giving speeches, evaluating speeches and chairing an organization or committee. TAC AIR meets every second and fourth Wednesdays of the month at the Langley Officers' Club, at 7:15 p.m. Call Bob Lee, ext. 2486; Bob Miserentino, ext. 2817; Jim Moss, ext. 3770; Jim Shipp, ext. 2592; or Gayle Wilson, ext. 3551.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, March 27, at 7:30 p.m., in the Conference Room, Building 1212.

HAPPY HOUR. The LAA will sponsor a Happy Hour on March 30, beginning at 4 p.m.

FLEA MARKET. The Poquoson Boy Scouts Troop 28 will hold a flea market and junk collection on April 7, from 10 a.m. to 6 p.m., at Wythe Creek Plaza, corner of Little Florida and Wythe Creek Roads. Help the Boy Scouts purchase camping equipment by donating unwanted items and buying the priceless objects that will be for sale.

BOAT INSPECTION. As a public service, the U.S. Coast Guard Auxiliary, Flotilla 61, will inspect motor boats at the Riverdale Plaza Shopping Center on Saturday, April 7, from 9 a.m. to 3 p.m. Rain date will be April 14. The Auxiliary is not a law enforcement agency; deficiencies will not be reported. Boats fulfilling the Federal law requirements and Auxiliary standards will have a decal affixed to a port window. Items to be inspected are: personal flotation devices, fire extinguishers, running and anchor lights, anchor and rode, and sound producing devices. For further information, call Prentiss Smith, 877-3159.

BUSCH GARDENS is looking forward to its biggest season ever. The gate price this year is $9.25. The Activities Association has approximately 200 tickets left from last year which will be sold for $7.25. When this supply is exhausted, LAA will offer discount tickets for $7.75. Busch Gardens will open April 7.

Question and Answer

Q. Why are sweaty male joggers allowed to walk the hallways of NASA Building 1244 and others, bare to the waist?

A. The reason given for joggers walking the hallways in Building 1244 is that there is no direct access to the outside from the locker room. In other buildings, there were no known incidences of the problem occurring.

BINGO. Every Thursday the LAA sponsors Bingo in the Activities Center, beginning at 7:30 p.m. Food and beverages are available throughout the evening. Bring your family and friends and get in on the great prizes.

VARIETY SHOW AND DANCE. On Saturday, April 28, from 9 p.m. to 1 a.m., the LAA will sponsor a Country Western-Bluegrass Variety Show and Dance, featuring Bob Watson and the Westernairs, and the Fun Time Cloggers. The cost is $3 per person including setups. Tickets will go on sale at the Activities Office on April 13, or they can be purchased at the door.

KINGS DOMINION. Discount tickets for Kings Dominion will be available again this year through the Activities Association Office, starting April 1. The ticket price for May, September and October is $7; the price for June, July and August is $7.75. The gate price this year is $9.25.

TIDEWATER DINNER THEATRE. Discount tickets are available through the Activities Association Office for $10.75. Currently playing at the Tidewater Dinner Theatre of the Stars is "Cabin in the Sky." For further information, contact Sue Juanarena, ext. 3139.

THE FUN TIME CLOGGERS from Virginia Beach will perform during the March of Dimes Telethon on Channel 10, Saturday, March 24, and Sunday, March 25. They also performed at last year's LAA Carnival and Variety Show.

EMPLOYEES' REUNION. An effort is underway to organize an informal get together for all employees whose permanent duty assignment began on July 1, 1969. If you were a member of this group, please contact either Rosa Webster, at 2266, or Daniel Jobson, at 3661.

Recent Retirees

The following Langley employees recently retired from their government careers:

Donald E. Wright, Fabrication Division, retired on February 23. **Romie B. Ferree**, Financial Management Division, retired on February 24.

Retiring on February 28 were **Jack Bettis**, Systems Engineering Division; **Robert N. Parker, Charles D. Engle, Archibald R. Sinclair** and **James H. Schrader**, Flight Electronics Division; **Warren J. Price, Frank K. Gough, Jr.**, and **Donald A. Johnson**, Fabrication Division; **Edmund W. Randolph, III**, National Transonic Facility Project Office; **Max C. Kurbjun**, Flight Dynamics and Control Division; **John B. Tyndall**, Instrument Research Division; **Edith R. Horrocks**, Projects Technical Operations Division; **Charles W. Wiggs, Jr.**, Operations Support Division; **Billie J. Walker** and **Robert W. Mulac**, Subsonic-Transonic Aerodynamics Division; **John W. Parker** and **Bernard Ellis**, Plant Engineering Division; and **Earl C. MacDonald, Jr.**, and **Thomas H. Brady**, Flight Mechanics Division.

Edwin F. Williams, Systems Safety, Quality and Reliability Office, retired on March 1.

Retiring on March 9 were **Henry J. E. Reid, Jr.**, Flight Electronics Division; **William F. Wood, Jr.**, Systems Engineering Division.

Retiring today is **James P. O'Briant, Jr.**, Operations Support Division.

Educators Need Summer Housing

From June 4 through August 10, twenty-eight college and university educators will be participating in a Summer Faculty Post Doctorate Research Institute at Langley. The program is sponsored jointly by NASA and the American Society of Engineering Education.

Many of these individuals will be bringing their families and will be seeking furnished apartments or housing in the Norfolk, Virginia Beach, Hampton or Newport News area.

If you are anticipating renting your house or subletting your apartment, and you are interested in this possibility, please contact Dr. G. L. Goglia, Old Dominion University, at 489-6485.

swap and shop

FOR SALE

Articles

B-flat Bundy Clarinet—recently tuned, padded, and new corking, $130; and Girl's 20" Sears Motorcross Bike—like brand new, $40. Call 877-2210 after 5 p.m.

Corner booth and table, storage space under booth, lime green with flowers, ideal for mobile home. Call 868-6509.

Maytag washer, ringer type; electric hedge clipper; and sofa bed. Call 723-5735.

David Bradley 5 h.p. (walk behind) garden tractor with drag harrow, cultivator, disc harrow, plow and various spare parts, $250. See at 4 Brook Run, Tabb (Yorkshire Terrace) after 5 p.m. or on weekends.

Motorola 40 channel CB base station model 4025, EC. Call Hudgins, 4544 or 642-2501 (Gloucester).

Vehicles

1976 Datsun B-210, VGC, 4 speed, 31-40 MPG, FM stereo cassette, CB—radial tires, blue book price $2,800. Call Mehrens, 722-4660 after 5 p.m.

1962 Austin Healy Sprite with larger later year 1098cc engine, EC, no rust, new top, upholstery, tires, battery, front shocks, trans. just rebuilt, $900. Call Berrier, 2674 or 595-3406.

FOR RENT

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, $150/wk. Weekends also available. Call Fogle, 2025.

Take a break from the cold weather, enjoy fishing and/or relaxing on the Outer Banks of N.C.--rent a comfortable, warm (electric heat) cottage, off season rates, $150/wk., fully equipped, kit. has dishwasher, 3 BR, sleeps 8 adults, everything included except food and linens, short walk to ocean, approx. 1/4 mile to fishing pier. Information, call Culotta, 723-6142; reservations, 919-995-5252.

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, fp, ½ block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk; winter rate, $350/mo. Call G. O. Kent, 420-8391, Va. Beach, work, ext. 3095.

Brain Teaser

A medical director's letter about the treadmill exercise test states, "Out of 1,000 individuals tested, we expect to find 100 abnormal tests. Out of these 100 abnormal tests, we would expect 25 to have significant coronary artery disease. Statistics indicate that if you are identified as having an abnormal test, your chances of having coronary artery disease are approximately 15 times greater than your chances would be if you had a normal test."

Based on this, what is the probability:

A) That you have coronary artery disease?

B) That your test will be normal if you have coronary artery disease?

C) That your test will be abnormal if you don't have coronary artery disease?

WANTED

Riders and/or drivers to form car pool from Kempsville-College Park area (Va. Beach) to West Area, 8—4:30 shift. Contact Karen Sutton at 3325, M/S 149.

To form two person car pool from Marlbank to West area, 8 a.m. shift. Call Crockett, 2645.

Parents from the York County, Tabb, and Hayes area interested in a nonprofit, nonsectarian, cooperative approach to pre-school education for 3- and 4-year-olds. Emphasis on socialization and learning through play. Contact Margo Bavuso at 898-4473 or call 898-6864.

FOUND

Found in parking lot of B-1195--pair of black rimmed glasses with black case; found--red, white and blue glasses cloth case. Contact Security Office, 2452.

cafeteria menu

WEEK OF MARCH 26

MONDAY: Corn Chowder; Savory Baked Chicken; Fried Shrimpettes; Braised Beef & Vegetables. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkev Dinner; Meat Load; Beef Pot Pie. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Country Style Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Beef Enchiladas; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF APRIL 2

MONDAY: Vegetable Soup; Spaghetti Dinner; Crab Cutlets; Teriyaki Baked Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Roast Beef; Baked Virginia Ham. Snack Bar; Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Franks, Bacon & Cheese; Pepper Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo-Soup; Beef Balls Stroganoff; Braised Chicken Livers; Breaded Veal Cutlet. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Old Fashioned Bean Soup; Fish Dinner; Chicken Pot Pie; Steak; Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 7

April 6, 1979

'Aviation Week' Publisher-Editor Colloquium Speaker

Robert B. Hotz, Publisher-Editor of "Aviation Week and Space Technology" and a world-renowned aerospace journalist, will speak on "The Future of International Space" at the Langley colloquium Monday, April 9. The lecture will be held in the Activities Center, Building 1222, at 2 p.m., followed by a brief question and answer session. At 3 p.m., the speaker will move to the adjoining Langley Room for an informal discussion.

Hotz will give the same lecture at 8 p.m. that evening in the Hampton Coliseum as part of the "Our Future in the Cosmos" public lecture series, sponsored by NASA and the College of William and Mary. Free tickets are available at the Coliseum box office.

In his talks, Hotz will express his personal views on the need for international cooperation in space. He believes that the future development and safety of all nations depends on a coordinated and organized international space exploration and research effort. He will stress the technical, economic and social trends in space technology which are shaping new methods of improving life on Earth and unlocking the secrets of the universe. His lectures will also emphasize trends in the massive Soviet space program and the growing capabilities of Europe and Japan.

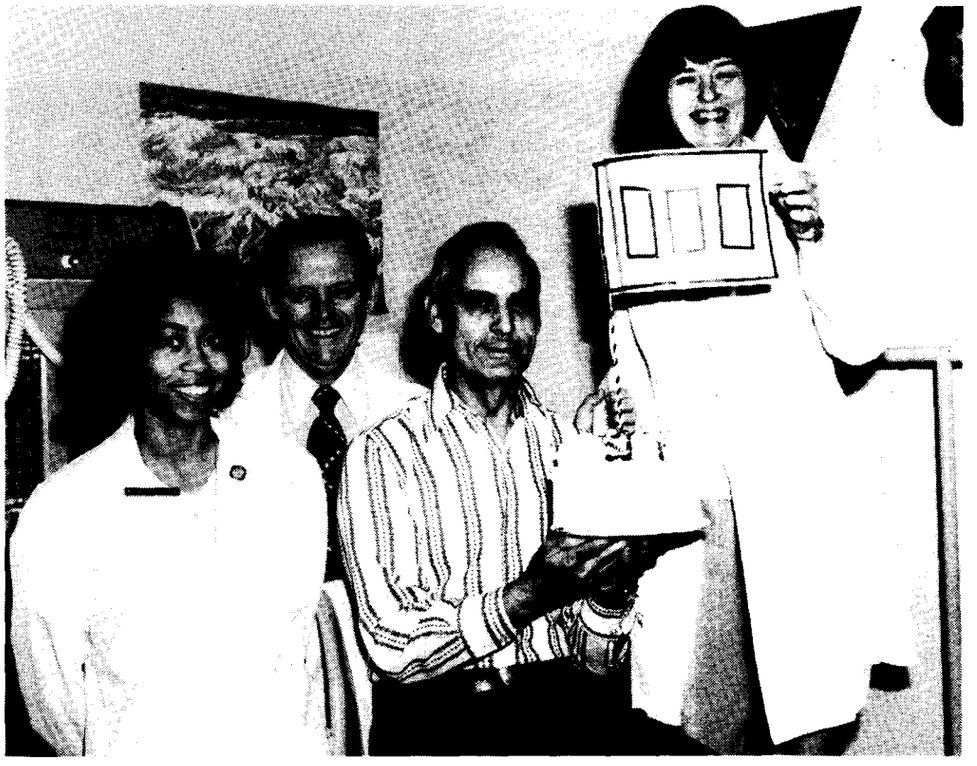
An outspoken advocate of an imaginative, long-range national space program, Hotz has covered aerospace activities for 39 years on four continents. He served in the U.S. Air Force during World War II and was a war correspondent during the Korean conflict. In 1973 he was among the first U.S. journalists to visit the Soviet supersonic transport production line and the cosmonaut training center. In 1975, he was the only journalist invited by both the Israeli Defense Ministry and the Egyptian Ministry of War to visit their respective air forces and discuss the airpower lessons of the October 1973 war.

A graduate of Northwestern University, Hotz is the author of several books, including "With General Chennault, the Story of the Flying Tigers." He was assistant producer of an official Air Force documentary film, "China Crisis."

Hotz has received the American Business Press Association Crain Award; Long Island University Aviation Pioneer Award; Aviation Writers Association Strebig, Ball and Lyman Memorial Trophies; American Astronautical Society Achievement Award; National Space Club Press Award; Paul Tissandier Diploma of the Federation Aeronautique Internationale; and the Airpower Award of the Air Force Association, New York State Wing.

He is a member of the Caterpillar Club, White Correspondents Association, National Press Club, Explorers Club, Sky Club, Royal Aero Club of London, American Institute of Aeronautics and Astronautics, and is a companion of the Royal Aeronautical Society.

Harvey H. Hubbard (right), Assistant Chief, Acoustics and Noise Reduction Division, receives congratulations from Craig Simcox of the Boeing Company upon receiving the American Institute of Aeronautics and Astronautics (AIAA) Aeroacoustics Award for outstanding contributions to the field of aircraft community noise reduction. The award was presented at the AIAA Aeroacoustics Conference in Seattle, Washington, on March 13.



– photo by Bob Nye

Dr. Manuel Queijo (third from left), Flight Dynamics and Control Division, was the 1000th Langley employee to receive the treadmill examination. The Occupational Medical Center staff had a cake baked for the occasion with a flag made of EKG paper. Celebrating with Queijo are Bess Charity, R.N., Dr. F. Kelly and Sharron Phillips.

Travel Accident Insurance Notice

Premium notices will be distributed for Travel Accident Insurance on Monday, April 16. Participants are warned that there is no grace period for this insurance. The current period expires midnight, April 30. If your annual premium, due by May 1 for next year, is not paid by this time, you are no longer covered and protected by the insurance. This notice is the only notice participants will receive. No second notices will be sent.

You may reinstate the insurance at any time merely by making premium payment; *however, the premium payment must be for the full year regardless of when it is paid during the month of May.*

For the convenience of members, a NEBA representative will be in the West Cafeteria from 11 a.m. to 1 p.m., each weekday from April 16 through April 28 to accept premium payments. If you prefer, you may mail your check to NEBA, Mail Stop 136.

Energy Saving Tips

Now that spring is here and warmer weather is approaching, remember to take advantage of solar energy on sunny days. Keep windows clean and draperies open to let the sun provide some heat and light for your home. Be sure to close draperies again in the evening to avoid heat loss.

The Department of Energy has published a booklet entitled, "Tips for Energy Savers." Free copies may be obtained by writing Energy Conservation Now, Pueblo, Colorado 81009.

Key Positions

Burnett W. Peters, Jr., has been selected as Assistant Chief, Scientific and Technical Information Programs Division.

Andrew J. Hansbrough has been named Head, Office of Equal Opportunity Programs.

Speakers Bureau

On February 1, **Archie Fripp** spoke to the Queens Lake Intermediate School about the electron microscope; **Cary Spitzer** spoke to students at Francis Asbury School about Viking. He also spoke on "Mars--A New Look" at the Planetarium on February 8, 15 and 22, and about Viking to Cub Scouts Pack 213 on February 23.

On February 5, **John Samos** spoke to the Optimist Club about spinoffs; he spoke to the Byrd International Airport Club about the Tech House on February 15.

On February 7, **Sam Scott** spoke to the Bank of Virginia Volunteers about careers in science and engineering.

On February 8, **Jim Arrington** spoke to the Sertoma Club about the Space Shuttle; **Axel Mattson** spoke to the Riverside Garden Club about conservation.

On February 12, **John Covington** spoke about careers in aeronautics to the Warwick High School Science Club.

On February 14, **John Shoosmith** spoke about mathematics in aerospace research to students at James Madison University.

On February 15, **Irv Hamlet** spoke at TRADOC about solar heating and cooling.

On February 21, **Pam Bradley** and **Keith Koehler** spoke about non-traditional careers at Phoebus High School.

On February 27, **Duke Reiber** spoke to the Richmond Senior Citizens Group about Viking; **Howard Wright** spoke to the Downtown Richmond Rotary Club about "Expectations of Aeronautics and Space Development Programs by the year 2000."

On February 28, **Bob Wright** spoke about Viking at the New Beginnings Therapeutic Foster Home.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

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

Learning Center Offers Alternative

A new method of training, called a Learning Center, is being introduced for employees at Langley. The method is based on individualized learning.

Training to date for Langley employees has been through one basic method, classroom instruction. There are, however, problems with classroom instruction, such as the large amount of time away from work, inconvenience of class schedules and cost effectiveness.

The Learning Center, under the Training and Educational Services Branch, Personnel Division, offers an alternative to classroom instruction by providing a method of learning on an individual basis.

Beth Huff, Learning Center Coordinator, said some advantages of the Center are that a student's learning schedule can be arranged to fit an individual's needs, no peer pressure is involved, and there is a minimum of time away from work. She noted that the Learning Center will not replace classroom instruction as a means of training employees at Langley.

The Learning Center offers courses in five general areas: clerical, engineering/scientific, management/supervisory, technical and general. Some examples of instruction in these areas include "Grammar," "Digital Signaling Processing," "Introduction to Microprocessors," "Time Management," languages, advanced math and personal development.

Courses are multi-media and include instruction on audioviewers, filmstrips, videotapes, audiotapes and a computer terminal called PLATO (Programmed Learning for Automated Teaching Objectives).

The PLATO system, originally developed at the University of Illinois, is marketed by Control Data Corporation (CDC). The system offers a high quality of individualized instruction integrated with conventional and multi-media learning.

The system permits several instructional modes, including drill and practice, inquiry, dialogue, tutorial and simulation. The system has an easy operating procedure that requires no prior computer knowledge from students and requires no programming knowledge for instructors of PLATO courseware.

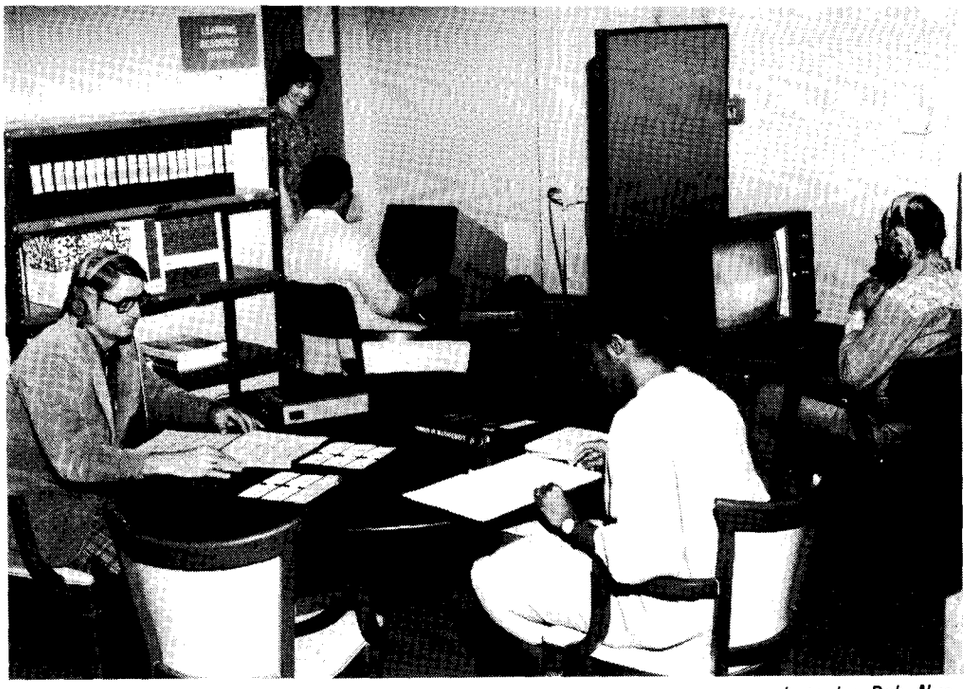
Several advantages of the PLATO system are ease of scheduling, self-paced learning and less student dependence on the abilities of a particular instructor, according to Don Wilkinson, CDC consultant.

The PLATO terminal consists of control circuitry, a keyboard and a touch-sensitive screen. The system can present text and pictures simultaneously, incorporate extensive simulation models into a lesson, and respond to fingertip touch.

Instructors can choose a particular course for a student through the PLATO catalog or students may design their own courses. At Langley, a Time and Attendance course was recently designed for Time and Attendance Clerks.

A newsletter highlighting Learning Center courses and presenting the procedure for using the Learning Center will be distributed to all supervisors and placed on office bulletin boards early this month. A Learning Center catalog and a PLATO catalog will be distributed to all training coordinators.

The Learning Center is open 8 a.m. to 4:30 p.m. and is located in Building 1195, Room 139. Employees interested in taking courses can call their Training Coordinators or the Learning Center at ext. 2611.



– photo by Bob Nye

The Langley Learning Center provides employees with an alternative to classroom instruction. Students work on an individual basis, using multi-media devices such as videotapes and filmstrips. Beth Huff (second from left), Learning Center Coordinator, works with a student on the PLATO (Programmed Learning for Automated Teaching Objectives) terminal. Students may take courses through the terminal, combined with conventional and multi-media instruction.

Credit Union Offers Prizes

The Langley Federal Credit Union reminds young members, 16 years or under, to get tickets for three cash prizes of $175, $125, and $75 to be given away on April 27. To be eligible, a minimum of $15 must have been deposited in the youth account during the first quarter of 1979. Depending on the amount of the deposit, tickets will be issued as follows:

$15 – $49	1 ticket
$50 – $99	2 tickets
$100 – $149	4 tickets
$150 or more	5 tickets

A copy of the quarterly statement must be presented at any Branch Office by April 25 to receive tickets.

Youth, 16 or under, who are not members can become regular savers by opening an account with a minimum deposit of $25, plus 25 cents fee. Each new member will receive a "Superman" or "Millie Mouse" bank free and will be eligible to participate in the cash prize drawings at the end of the second quarter.

Local Firm to Manufacture Langley Invention

A license to manufacture a NASA-invented sulfur dioxide pollution detector, called a "Stack Plume Visualization System," has been granted to a Williamsburg company.

The system, developed at Langley, is a video air pollution monitoring system that can be used by environmental agencies and by private industry.

The marketed system is intended primarily to monitor coal- and oil-fired power plants and facilities that manufacture sulfuric acid. The system visualizes sulfur dioxide emission plumes by observing the absorption of ultraviolet radiation by sulfur dioxide against the normal sky background.

The most widespread type of community air pollution is sulfurous smog, air predominately polluted by sulfur oxides and other sulfur-bearing compounds, usually in association with particulate matter. In many communities, sources such as power plants and heavy industry contribute to the major portion of primary pollutants: sulfur oxides and particulate matter.

Visiplume, the marketed version of the NASA invention, is a microprocessor computer-controlled system which uses video techniques to measure sulfur dioxide concentration as high as 3,000 parts per million, gaseous flow velocity and the sulfur dioxide emission rate. The flow velocity is obtained by tracking fluctuations in the sulfur dioxide concentration as a function of time.

The video system of the "Stack Plume Visualization System" monitors invisible plumes at a plant. The system, developed at Langley, can visualize sulfur dioxide emission plumes by observing the atmospheric absorption of sulfur dioxide against the ultraviolet sky background. NASA has granted an exclusive license to Research Ventures, Inc., Williamsburg, for the ultraviolet video pollution monitoring system.

A standard television monitor is used to display the plume and those locations in the plume where the measurements are taken. The monitor is also used to display instructions to the operator for proper procedure. Final results are displayed on the monitor and in a computer printout.

Visiplume is the first commercially available system for remotely measuring sulfur dioxide gas flow. The velocity of the gas, plus the simultaneous measurement of sulfur dioxide concentration, yields the emission rate, which is the ultimate measure of pollution.

The exclusive license to manufacture the system was granted by NASA to Research Ventures, Inc. Dr. Reginald J. Exton, President of Research Ventures, said, "We also hope that the system will be useful in checking the efficiency of various gas desulfurizing techniques such as the use of scrubbers." Scrubbing is a process of removing sulfur dioxide from the gaseous flow of fossil-fired plants after combustion.

The normal way of monitoring sources of sulfur dioxide is by stack sampling, according to Exton. This involves the use of a team of regulatory personnel who must gain access to the gas stream, take "grab" samples and then perform chemical analysis.

"Hopefully, remote techniques can bypass some of these problems and offer a truly cost-effective way of monitoring these pollution sources," Exton said.

Sulfur dioxide has many effects on the environment. Precipitating sulfur dioxide, called acid rain, has been found to kill fish, erode buildings, and destroy plants.

In the form of sulfurous smog, it interacts with aerosols to affect the lower respiratory system of humans. It has been found to damage the leaves of plants exposed to sufficiently high concentrations and dosages, and prolonged exposure to sulfurous smog is known to have caused serious damage to building marble, limestone and mortar.

Langley-Marshall Join in LSST Project

Assembly techniques for joining the elements of large space structures are being tested inside a huge water tank at NASA's Marshall Space Flight Center in Huntsville, Ala.

The test project is one part of NASA's Large Space Systems Technology (LSST) program, managed at the Langley Research Center.

Pressure-suited engineers work inside the 1.3-million-gallon water tank, called a Neutral Buoyancy Simulator, to assemble tubular columns designed at Langley.

Each column is made of long, tapered struts that can be nested together (like a stack of paper cups) during transport into Earth orbit aboard a Space Shuttle Orbiter. Once in orbit, two struts are joined at their larger ends to form a column. Several columns can then be connected to form tetrahedral (four-sided) frames, which would become the basic elements of a large space structure.

The struts are made of a new graphite-epoxy composite material that has a high strength-to-weight ratio.

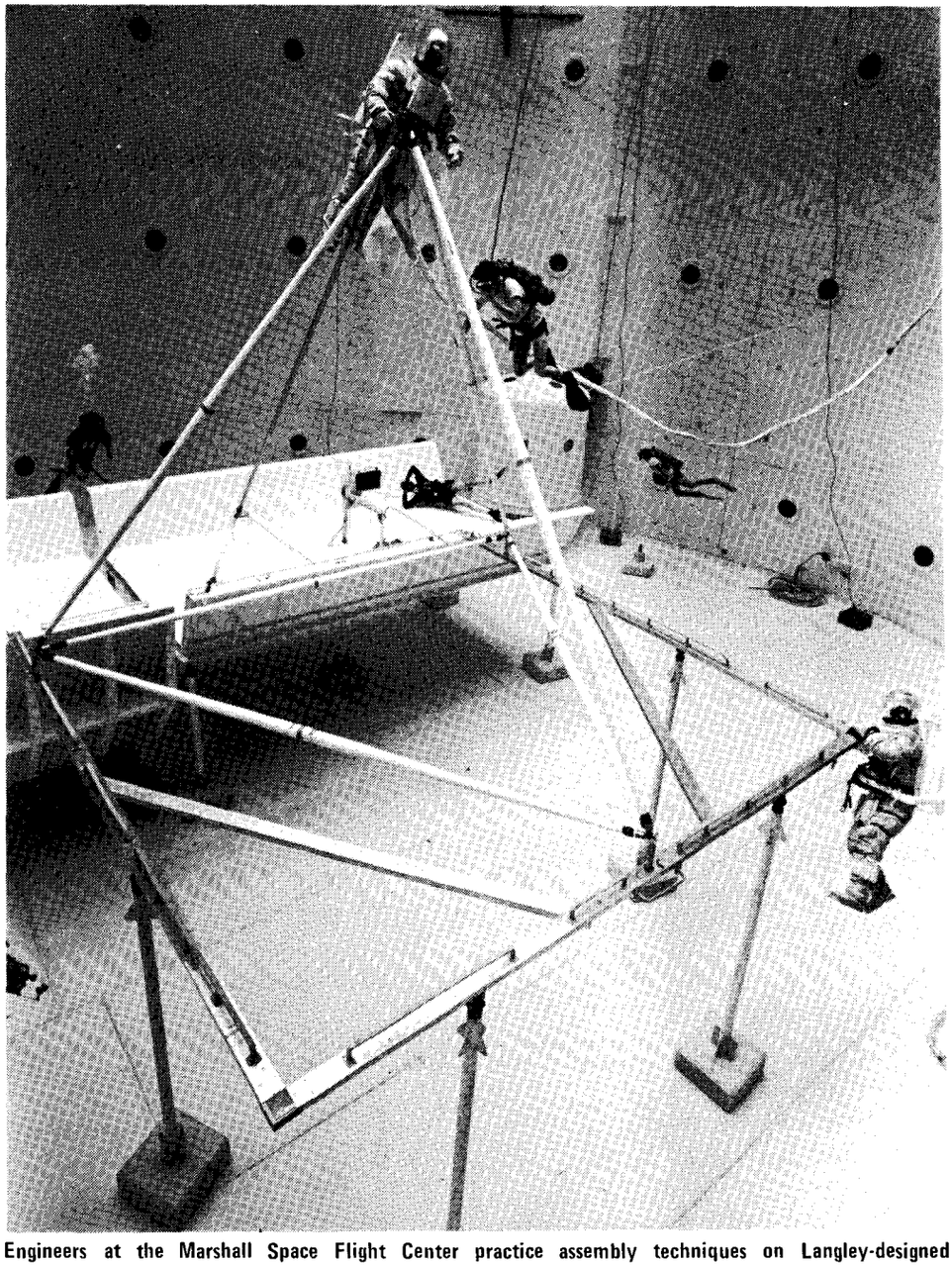
The test project, which will continue through May, seeks to prove the mechanical design of the columns, study different space assembly techniques and determine how well the structural elements can be maneuvered in the weightlessness of Earth orbit.

The pressure-suited engineers are weighted so they become neutrally buoyant inside the water tank, neither rising nor sinking, to simulate the zero-gravity of space.

Two engineers from Langley, Harold Bush and Larry Bement, Structures and Dynamics Division, are actively participating in the tests at Marshall, although they are not working inside the simulator tank. Jack Stokes of Marshall is in charge of the Neutral Buoyancy Simulator.

The LSST program is managed at Langley in cooperation with other NASA centers and several private companies. The program is providing NASA with a technological base for the possible construction and deployment of large space systems in the 1985 to 1990 time period.

Large space systems will be needed to support such potential missions as orbiting communications systems, Earth observation platforms, power systems to generate electricity for Earth and large, multi-purpose platforms.



Engineers at the Marshall Space Flight Center practice assembly techniques on Langley-designed tubular struts inside a huge water tank. The test project is part of Langley's Large Space Systems Technology (LSST) program.

Key Positions

The following have been selected for key Langley positions: **William F. Croswell**, Head, Electromagnetics Research Branch, Flight Electronics Division; **Duncan E. McIver**, Acting Head, Avionics Technology Research Branch, Flight Electronics Division; **Arthur M. Grist**, Head, General Supply and Warehousing Section, Property Management Branch, Management Support Division; **Jeffrey A. Parker**, Head, Equipment Management Section, Property Management Branch, Management Support Division; **Sadie L. Boyer**, Head, R&D Programs Branch, Programs and Resources Division; **Maurice K. Morin**, Acting Head, Programing Techniques Branch, Analysis and Computation Division; **James E. Stitt**, Acting Chief, Flight Dynamics and Control Division.

– photo by Bob Nye

Anita Holland, Scientific and Technical Information Programs Division, recently won second place in the District Occupational Scrapbook Contest sponsored by the Vocational Industrial Clubs of America. A student at Bethel High School, Anita works part time in the Photographic Branch as part of the Industrial Cooperative Training Program. Her scrapbook was on photography.

Langley Employees Support Bloodmobile

Three hundred nine Langley employees donated a pint of blood on March 21 when the Red Cross Bloodmobile visited the Center.

Achieving gallon status were:

6 gallons: William W. Fernald; Roger Buchanan; Eugene Bunting; and Harry Slade.

5 gallons: Robert F. Berry.

4 gallons: Mercer Christian; Prentiss Childs; Philip H. Glaude; Frances Hartman; Roy Henley; and John S. Evans.

3 gallons: Robert A. Baals; Charles P. Shore; Wade Douglas Morris; Mary S. Saylor; Grace Sykes; James Scheiman; William H. Garrison; and Willis Shearin.

2 gallons: Paul D. Prillaman; Robert Miserentino; JoAnne Walsh; Wayne E. Silver; Earl S. Knight; and Victor E. Wilson.

1 gallon: Raymond C. Scholz; Ronnie Henk; James B. Williams; Daniel Milburn; Kathryn Wurster; Timothy J. Marshall; Joseph Drewry; James Sperance; George E. Wyatt, Jr.; and Vernon Wessell.

The Bloodmobile visit was coordinated by Scotty McArthur, Office of Occupational Health Services.

Retirement Parties

Robert W. Mulac, who retired from the Subsonic-Transonic Aerodynamics Division on February 28, will be honored with a retirement luncheon in the Activities Center, Tuesday April 17, from 11:30 a.m. to 1:30 p.m. Cost of luncheon will be $6 per person, which includes the $1 gift contribution, or $11 per couple. Donations for gift only are welcome. Please send reservations and checks made payable to Doris Vandeveer, M/S 286, ext. 2961, by April 10.

Thomas Brady and **Earl MacDonald**, who retired from the Research Aircraft Support Section on February 28, will be honored with a retirement party in the Activities Center, on Wednesday, April 18. A cash bar will open at 6:30 p.m. Dinner will be served at 7:15. The cost of the dinner will be $7.50, including gift. Donations for gift only are welcome. For reservations, send remittance to Nathan Johnson or Gene Barr, M/S 255, ext. 2775, by April 17.

William Hewitt Phillips will be honored with a retirement social (hors d'oeuvres and cash bar) on Friday, May 4, at 7 p.m., in the Activities Center, Building 1222. Phillips retired on February 28, as Chief, Flight Dynamics and Control Division, with more than 38 years service. Cost will be $5.50 per person including gift. Contributions for gift only are welcome. Please send cash or check to Brenda Spencer, M/S 152, by April 25.

A retirement dinner will be held honoring **Bernard Ellis** on Wednesday, April 25, in the Chesapeake Room, Fort Monroe Officers' Club. A cash bar will open at 6:30 p.m. The cost will be $7 per person or $13 per couple. For reservations or contributions toward a gift, please contact Mary Morgan Cox, Mail Stop 451, ext. 3467, or Mary Harris, M/S 438, ext. 4656.

Clarence T. Brown, Systems Engineering Division, will be honored with a retirement party on Friday, April 20, at the Activities Center, Building 1222. A cash bar cocktail hour will begin at 6:30 p.m. with dinner at 7:30 p.m. Cost of the dinner will be $7 per person, which includes gift contribution, or $12.50 per couple. Contributions for gift only are welcome. Please make checks payable to Virginia Vohringer, Mail Stop 430, by April 13.

James F. McNulty, Systems Engineering Division, will be honored with a retirement party on Wednesday, May 2, at the Activities Center, Building 1222. A cash bar cocktail hour will begin at 6:30 p.m., with dinner at 7:30 p.m. Cost of the dinner will be $7 per person, which includes gift contribution, or $12.50 per couple. Contributions for gift only are welcome. Please make checks payable to Faith Allen, Mail Stop 432, by April 25.

1979 Basketball Association Standings

Listed below are the final standings for the 1979 NASA Basketball Association, which is sponsored by the Langley Activities Association. A tournament between the top four teams in each league is being played this week.

'A' League

	W	L	Pct.
1) Stars	15	3	.833
2) Risk	13	5	.722
3) J-Rocks	9	9	.500
4) ACD	8	10	.444
5) Scalers	6	12	.333
6) Knads	6	12	.333
7) Ballers	6	12	.333

'B' League

	W	L	Pct.
1) Alchemists	13	5	.722
2) Born Losers	13	5	.722
3) CBA	13	5	.722
4) ISI	8	10	.444
5) Rehabs	7	11	.388
6) Shooters	5	13	.277
7) Klate Holt No. 1	4	14	.222

'C' League

	W	L	Pct.
1) Hoop Troop	15	3	.833
2) Net Nuts	12	6	.666
3) Projects	12	6	.666
4) Dribblers	11	7	.611
5) Klate Holt No. 2	7	11	.388
6) Hookers	6	12	.333
7) Half Aces	6	12	.333
8) Gougers	3	15	.200

Key Positions

George F. Palko has been selected Head, Work Control Office, Operations Support Division.

Harris B. Pate, Jr., has been selected Head, Photographic Branch, Scientific and Technical Information Programs Division.

Happenings

NASA GIFT SHOP. Kites, Max Factor make-up, Weller tools, Star Wars models, watch batteries, NFL football magnets, pencil sharpeners, and Hitachi cassette decks are now on sale at the NASA Gift Shop. Special orders are being taken for Hitachi TV and Hi-Fi sets (rated No. 1 by Consumers Research). Employees who volunteer for preschool teaching, either in Sunday School or neighborhood schools, may special order Crayola crayons and materials at wholesale prices. Volunteers are needed to initiate and coordinate the technical book sales that the LAA previously handled.

EASTER EGG HUNT. The LAA will sponsor an Easter Egg Hunt on Sunday, April 8, at 2 p.m., at the Activities Center. Cartoons will be shown, and there will be three prize eggs for each age group. Children should bring their own baskets.

WOMEN'S TEAM TENNIS. Women interested in team tennis should contact JoAnne Re, 851-5225, by Monday, April 16. Membership in the Langley Tennis Club and the Peninsula Tennis Patrons Association will be required.

TIDEWATER DINNER THEATER. Currently playing at the Tidewater Dinner Theater is "Mr. Roberts" starring Richard Salzberg as Lt. Roberts, Scott Brown as Ensign Pulver, Allen Sader as the Captain and Dan Smith as Doc. "Mr. Roberts" will run through April 22. The tickets are now $12.50 (including gratuity) and are available from the Activities Office, ext. 3139.

VARIETY SHOW AND DANCE. On Saturday, April 28, from 9 p.m. to 1 a.m., the LAA will sponsor a Country Western-Bluegrass Variety Show and Dance, featuring Bob Watson and the Westernairs, and the Fun Time Cloggers. The cost is $3 per person including setups. Tickets are on sale at the Activities Office, or you can buy them at the door. Only 300 tickets will be sold, so get your ticket early.

TOASTMASTERS. You are invited to join the TAC AIR TOASTMASTERS to develop the arts of giving speeches, evaluating speeches and chairing an organization or committee. TAC AIR meets every second and fourth Wednesdays of the month at the Langley Officers' Club, at 7:15 p.m. Call Bob Lee, ext. 2486; Bob Miserentino, ext. 2817; Jim Moss, ext. 3770; Jim Shipp, ext. 2592; or Gayle Wilson, ext. 3551.

Mobile Cardiac Unit Fund Drive

The Hampton Roads Jaycees and the Hampton Medical Society Auxiliary are conducting a campaign to raise $200,000 by May 31 toward the purchase of advanced life support rescue equipment for the city of Hampton.

The equipment to be purchased will provide Mobile Cardiac Units which can react to cardiac emergencies as well as shock and trauma casualties of accidents, drownings, electrocutions and other life threatening emergencies. Approximately 30 additional individuals, including volunteers, will be trained to man the equipment.

Currently, emergency medical services are furnished by four volunteer rescue squads with 10 basic life support ambulances. The system is supplemented with paid personnel to insure coverage on a 24-hour, seven day per week basis. These personnel responded to an estimated 10,000 emergency calls in 1978.

The need for more advanced services was recognized in 1977, and the first Mobile Cardiac Unit was authorized. Thirteen Paramedic/Firefighters were trained to man the unit which became operational in May 1978. The Cardiac Unit supports over 125,000 citizens, plus visitors covering a 56 square mile area which is totally inadequate for the needs of the community.

Each year 1.5 million Americans suffer heart attacks and 700,000 die as a result. Approximately 350,000 victims die before they reach a hospital. The American Heart Association estimates that a 50 percent reduction of pre-hospital deaths can be achieved in communities which are equipped to handle such emergencies.

If anyone desires to make a tax-deductible contribution to the fund, it can be sent to the Mobile Cardiac Unit Fund, P.O. Box 9384, Hampton, VA 23670. If you desire further information or would like to assist in the effort, please contact Charles E. Cockrell at 826-9626.

HAPPY HOUR. The next Happy Hour is scheduled for Friday, April 13, beginning at 4 p.m., in the Activities Center.

Job Openings

79-31 – AST, Data Analysis; Supervisory Mathematician; GS-1520-13 or 14; Office of Director for Electronics; Analysis and Computation Division; Programing Techniques Branch; Closes April 10, 1979.

79-32 – Program Analyst; GS-0345-9, Permanent-Part-time position, not to exceed 32 hours per week; Office of Director for Management Operations; Programs and Resources Division; Institutional Programs Branch; Closes April 13, 1979.

79-33 – AST, Sensors and Transducers; Electronics Engineer; GS-855-9; Office of Director for Electronics; Instrument Research Division; Measurements Physics Branch; Closes April 13, 1979.

79-34 – Clerk-Stenographer; GS-312-4 or 5; Office of Director for Space; Space Systems Division; Vehicle Analysis Branch; Closes April 13, 1979.

79-35 – Clerk (Typing); GS-301-4 or 5; Office of Director for Space; Marine and Applications Technology Division; Marine Environments Branch; Closes April 13, 1979.

LAA Travel

Bus transportation arrangements from Hampton to Dulles Airport and return are being made for the London Holiday Charter departing from Dulles on May 31 and returning on June 8. The package price of this charter is $573. LAA has 16 spaces left in their allotment for the trip.

Other discounted tours this year include a stay in Las Vegas, May 3 to May 6, package prices from $284; Hawaii, October 3 to October 11, prices from $589; on the return trip from Hawaii, an optional two-night stay in San Francisco, $89; Hawaii, December 31 to January 14. The islands of Hawaii (Hilo and Kona), Maui and Oahu will be visited.

Planned cruises from Norfolk include: Bermuda, June 13 to June 20, and September 11 to September 18; Caribbean, December 14 to December 22. Package prices from $440 (all inclusive).

A $75 deposit is required to reserve a space for any trip. Call the LAA office, ext. 3139; Ernie Greene, 2312, home 838-0567; or Herb Boulter, 3234, home 838-4773, for the desired brochures.

swap and shop

FOR SALE

Articles

Singer sewing machine, portable, straight needle, several attachments, EC, warranty good through April 17. Call A. Schy, 826-0288.

Wards Western Field double side room tent, 9'x15' with 7' head room, all poles and ground covers, VGC, $75. Call 723-5525 after 4 p.m.

Sewing machine, Singer Golden Touch and Sew zig-zag, w/built-in buttonholer, decorative stitch discs, EC, $200/OBO. Call Wainwright, ext. 3188, or 877-3985 (after 5:30 p.m.)

MOVING! Household items priced to sell quickly: washing machine, $50; 5' walnut coffee table, $20; walnut lamp table, $8; dark brown/rust tweed hide-a-bed davenport, $125; Early American davenport and matching chair, $150; complete bedroom set, $235 (walnut finish); color TV, $100; set of 4 TV trays, $2.50; and ironing board, $4. Call 826-8738 day or evening.

Vehicles

1970 Plymouth station wagon, driven daily to work, but needs mechanical, body and interior work, $100, or best offer. Call A Schy, 826-0288.

1970 T-Bird, AM/FM stereo radio, PB, PW, PS, Michelin radials, GC, no. 7 inspection, $1500 or best offer. Call 827-6704 after 4:30 p.m. or weekends.

1966 Buick Electra 225; AT, AC, PS, PB, PW, trailer hitch, good mechanical condition, $275. Call Moore, 2885, or 596-3932.

1972 Cox Cadet 220 Tent Camper, sleeps five, $490. Call 851-4540 after 5 p.m.

Real Estate

3 BR, 2 BA brick split level in Riverdale, eat-in Kit, F/PL in LR, w/w carpets (2 new); central A/C and gas heat; stove, most drapes, washer/dryer HU; new HW htr; blue fixtures in main BA, assume for $5,500 or $52,500. Call 838-0017 for appointment.

House for sale in Warwick-on-the-James: Lovely, well-kept 3 BR, LR, DR, 1½ BA, brick rancher, 2-car attached garage and breezeway on large landscaped corner lot. Owner can finance @ 8 3/4%, $62,345. Call 595-1325.

Condominium: 2 BR w/screened backporch, fenced backyard, carpet throughout, paneled dining room, garbage disposal, dishwasher, refrig. and stove, humidifier and storm windows and doors, very low utility bills. Assume 7½% FHA loan with $9,000 equity in Denbigh area (hookups for washer and dryer). Call 898-4727 after 5 p.m.

FOR RENT

Beach cottage right on white sand dune beach, shallow beach is excellent for children, summer $160/wk., also available spring and fall weekends. Call Jim Martin, 893-4241 or 827-3911.

WANTED

Car pooler(s) from Hilton Village to East area, 8—4:30 shift. Call Lyon, 595-0864.

To join a carpool from the Ivy Farms area to the West area, 8 a.m. shift. Call Andy Wright, ext. 4666.

LOST

Oscilloscope: Tektronix Model 317, inventory number 114080. Call Jordan, 3234.

Brain Teaser Answer

The "brain teaser" which appeared in the last issue of the *Langley Researcher* was submitted by Richard Booth, Instrument Research Division.

The results are:

- The probability of having coronary artery disease is 4 percent.
- The probability that your test will be normal if you have coronary artery disease is 37.5 percent.
- The probability of an abnormal test if you do not have coronary artery disease is 7.8 percent.

Submitting correct answers were: David Schryer and William S. Chapin, Instrument Research Division; C. Kearney Barton, Acoustics and Noise Reduction Division; Davis H. Crawford, Space Systems Division; and Al Wenzel, ICASE.

cafeteria menu

WEEK OF APRIL 9

MONDAY: Corn Chowder; Clam Strips; Chicken Chow Mein; Broiled Beef Liver. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Braised Beef & Vegetables; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Enchiladas; Beef Pot Pie. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Meat Loaf; Baked Tuna & Noodle Casserole. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Savory Baked Chicken; Swiss Steak. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF APRIL 16

MONDAY: Vegetable Soup; Spaghetti Dinner; Teriyaki Baked Chicken; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Special Seafood Platter; Roast Beef au jus; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Pepper Steak; Baked Virginia Ham. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Special Broiled 10 oz. Strip Loin Steak; Braised Chicken Livers; Franks, Bacon & Cheese. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Old Fashioned Bean Soup; Fish Dinner; Country Style Steak; Chicken & Dumplings. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 8 **April 20, 1979**

Langley Honors Secretaries

Langley secretaries, in cooperation with National Secretaries Week, will be honored with a special breakfast at 8:30, April 24, in the Activities Center, Building 1222.

The theme for the ceremony will be "Hats Off to You, Secretaries," featuring a special presentation focusing on the various "hats" worn by a busy secretary.

The guest speaker at the breakfast will be Betty Ricks, Assistant Professor, Department of Business Education/Office Administration, at Old Dominion University. Ricks' speech, entitled "What is Your T.Q.?," will focus on work attitudes and relationships of secretaries and supervisors.

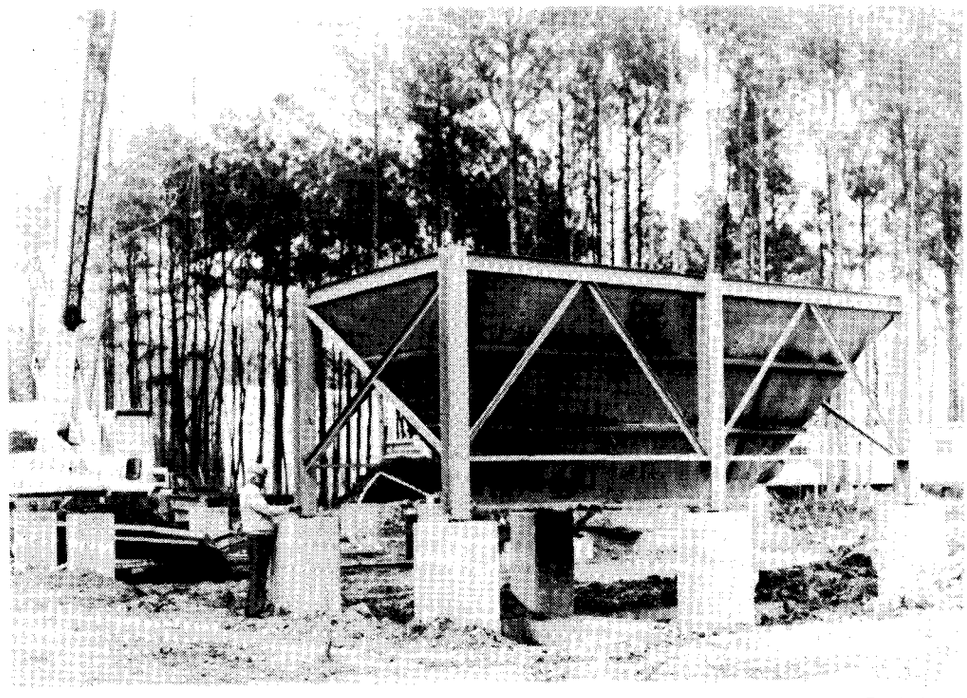
Ricks, who has been at Old Dominion since 1977, has previously held the positions of Attendance Director, Department Chairman and teacher at Great Bridge High School in Chesapeake and Supervisor of Business Education, and Supervisor of Distributive Education and Industrial Cooperative Training for the Portsmouth Public Schools.

The author of several publications, she has also been involved in research sponsored by the Business Education Service, Virginia State Department of Education. She also serves on numerous university and community committees.

Ricks received her bachelor's degree from the College of William and Mary in Norfolk and her master's and education degrees from Virginia Polytechnic Institute and State University.

The menu for the second annual breakfast will include sausage, scrambled eggs, hash browns, English and blueberry muffins, orange and tomato juice and sweet rolls.

The Secretaries' Day Program is being coordinated by the Training and Educational Services Branch, Personnel Division.



– photo by Fred Jones

Alfred C. Watkins, Chief Inspector for Project RECOUP, checks the installation of the first of two electrostatic precipitators at the job site. Precipitators are designed to remove particulate matter from boiler flue gas so that air pollutant emissions are in compliance with air-quality standards. The precipitators, being installed by Riggins Co. for the prime contractor, J. M. Kenith, are due for completion in about three months.

Federal Women's Program Seminar

The Federal Women's Program Advisory Committee will sponsor a seminar entitled "Self Presentation and Image" on Monday, April 23, in the Activities Center, Building 1222, from 9:30 to 11:30 a.m. Pamela Noel, a consultant for Update Services, will be the workshop instructor.

The seminar will address issues for people in managerial, professional, or administrative positions. Special attention will be directed to the importance of personal image development, as well as wardrobe selection for career advancement. Other topics to be discussed include changing roles, business structure, a career strategy plan, and the image of success.

Noel has conducted seminars and workshops for professionals both here and on the West Coast. She has served as counselor and coordinator of career guidance programs for college and high school out-reach programs, in-service training in counseling skills, and values clarification for counselors. Noel has also coordinated and led workshops for universities and colleges on varying interests including nontraditional careers for women and self-exploration through film. She earned her master of arts degree from California State College and recently published "Cornucopia," in *Anthology of Modern Poetry*.

All NASA employees are invited to attend as the presentation will interest both men and women.

Langley Researcher P. 2 Apr. 20, 1979

– *photo by Fred Jones*

Members of the 100th Scout Launch Celebration Planning Committee are finalizing plans for special activities commemorating the 100th Scout launch. Seated from left are: Sharon Padula, Acoustics and Noise Reduction Division; Molly Coburn, Scout Project Office; and Jean Drummond, Public Affairs Office. Standing from left are: Gary Price, Office of Public Services; Abraham Leiss, Scout Project Office; Roland English, Office of Director for Projects; Frank Lafurno, Langley Federal Credit Union; William Herring, Honeywell, Inc.; Keith Wible, Wallops Flight Center; Joe Talbot, Scout Project Office; and Ben Smith, Office of Community & Educational Services. Not pictured: Herb Boulter, Instrument Research Division; Duane McSmith, retiree; Joyce Milliner, Wallops Flight Center; Harold Mehrens, Office of Community & Educational Services; Ed Russell, Vought Corporation; and Duke Reiber, Office of Public Services. Leiss holds a one-quarter inch scale model of the United Kingdom spacecraft scheduled for launch on board the Scout vehicle on May 24 from Wallops Flight Center.

Langley to Celebrate 100th Scout Launch

On July 1, 1960, the first Scout vehicle was launched by the Scout Project Office. Nineteen years and 98 launches later, the Scout Project Office is preparing to launch the 100th Scout vehicle. The launch is scheduled for 7 p.m., on May 24, from Wallops Island. Over the years the Scout launch vehicle has achieved a 95 percent successful launch record.

To commemorate the occasion of the 100th Scout launch and Scout's successful record, Langley has arranged bus transportation to and from Wallops Flight Center for employees, retirees, contractor personnel, families and guests interested in viewing the launch. Organizations and school science groups are also encouraged to take part in the planned celebration. An announcement giving the itinerary, cost and a reservation form has been distributed.

Langley's special guests for the launch will be Mrs. H. J. E. Reid and Mrs. Floyd Thompson. Dr. Reid was Director of Langley from 1926 to 1960; Dr. Thompson was Director from 1960 to 1968. Both of the former Directors took an active part in the successful Scout program.

The 100th launch will be the last Scout launch from Wallops Island. Future launches are planned from the Western Test Range and Kenya, Africa.

McCluskey Speaks at Retirement Symposium

A symposium on the proposed merger of the Civil Service and Social Security retirement systems will be held tomorrow in the Activities Center, Building 1222, at 10 a.m. The symposium is sponsored by the American Federal Government Employees (AFGE) Local 2755 and is open to all Langley employees and retirees, regardless of membership or non-membership in the union.

Ronald P. McCluskey, Staff Director and Legal Counselor for the House of Representatives' Subcommittee on Compensation and Employee Benefits, will explain the proposed merger and the actions a person can take to properly express his views on the subject.

A native of Boston, Massachusetts, McCluskey received a bachelor of arts degree from the University of Texas at El Paso in 1970, attended the University of San Diego from 1970 to 1971, and received his J.D. degree from Texas Tech University Law School in 1973. He served in the U.S. Army from 1962 to 1965.

McCluskey is a member of the Texas Criminal Lawyers Association, Texas Bar Association, U.S. Army Court of Military Appeals, U.S. Army Court of Military Review, National American Bar Association, and the American Legion.

Coffee will be served at 9 a.m., and other refreshments will be available at the snack bar.

Cortright Named President of Lockheed

Edgar M. Cortright, former Langley Director, was recently named president of the Lockheed-California Co., in Burbank.

Cortright headed Langley from 1968 to 1975. He left NASA to become vice president and technical director for Owens-Illinois Inc. He went to Lockheed in October 1978 as corporate senior vice president for science and engineering.

He and his wife now live in Northridge, Cal.

Daylight Savings Time

Daylight Savings Time begins on Sunday, April 29, at 2 a.m. Remember to turn your clock forward one hour before retiring on Saturday, April 28.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Maurice Parker
Editorial Assistant . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Langley Researcher p. 3 Apr. 20, 1979

Francis Rogallo Speaker at AIAA Meeting

The American Institute of Aeronautics and Astronautics (AIAA), Hampton Roads Section, will meet on Wednesday, April 25, in the Activities Center, Building 1222. A social will begin at 4:15 p.m. and at 4:45 p.m. Francis M. Rogallo, designer of the Rogallo wing, will give a lecture entitled, "From Kites to Hang Gliding."

Rogallo will discuss the flexible wing concept which came to national attention in the 1950's when it was utilized by NACA, NASA and DOD in research applications as a lift augmentation device for both men (parasails) and machines (parawings).

He will show slides and movies that describe government sponsored flying machines which evolved from the earlier work and which have inspired amateur birdmen in the U.S. and abroad to build inexpensive gliders.

Rogallo joined the Langley Research Center in 1936 and planned and supervised theoretical and experimental aerodynamic research and aeroplane development until his recent retirement.

Rogallo and his wife conceived and developed flexible wings during the late 1940's as part of a lifelong effort to create aircraft which would be safer, simpler, and less expensive than those available. Because of the Rogallo's persistent efforts, government and industry became interested in the concept, and in July 1963 the Rogallos gave the government a royalty free right to use their patents.

For reservations please contact Al Taylor, ext. 3877, or Buddy Cary, ext. 4536, by April 24.

Key Positions

Alfred J. Meintel, Jr., has been selected Head, Flight Management Branch, Flight Dynamics and Control Division.

Barbara G. Newton has been selected Head, General Files and Mail Section, Administrative Services Branch, Management Support Division.

Janet W. Campbell has been named Head, Marine Environments Branch, Marine and Applications Technology Division.

Employee Gift Shop Operations Evaluated

The NASA Exchange Gift Shop opened in July 1978 to provide Langley employees with a variety of convenience and gift items for sale at reasonable prices.

In order to evaluate Gift Shop operations, information must be obtained about the services being provided. The Langley Activities Association representatives will distribute questionnaires next week to a random sample of employees. Questionnaires will also be available at the Gift Shop if anyone is interested in submitting comments.

The Gift Shop is located in the Cafeteria Building 1213 and is open Monday through Friday, from 11 a.m. to 2 p.m., for convenient shopping during lunch hours.

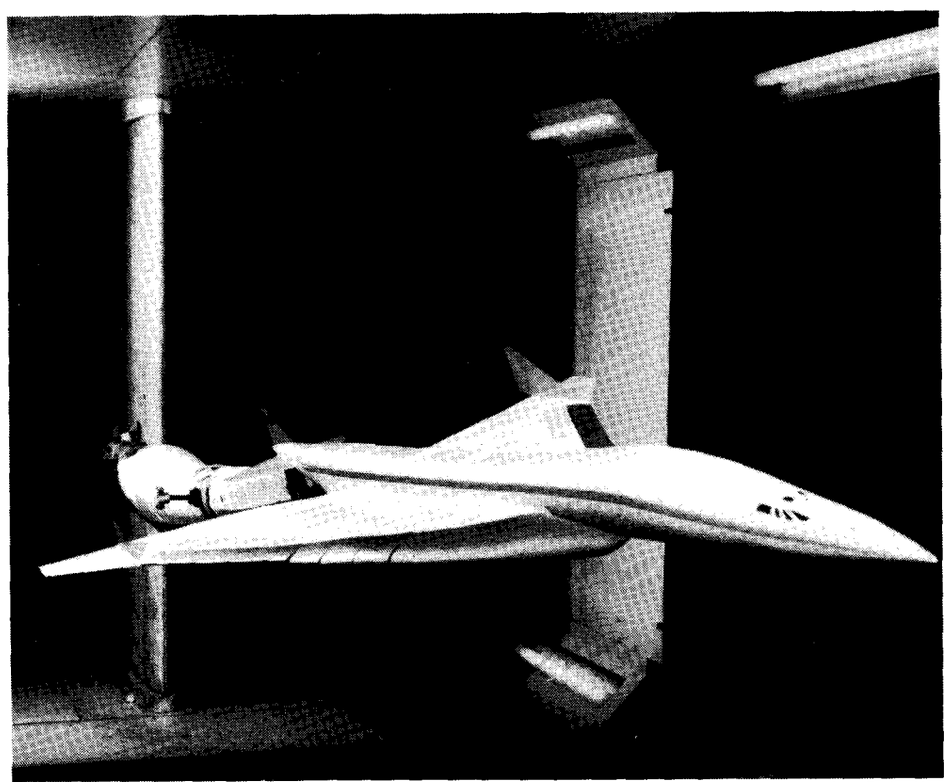
Safety Reminder

Langley experiences an increase in vehicle and pedestrian traffic in the spring due to the warm weather and more contractor activities.

Accordingly, it is important to re-emphasize at this time the need for cooperation in vehicle operations and pedestrian conduct.

Employees and contractor personnel are reminded that the Center maximum speed limit is 25 mph. Pedestrian crosswalks are clearly marked and crosswalk signs are installed for added awareness. Vehicle operators are urged to approach crossings with caution, taking into consideration the weather, road conditions and visibility.

Pedestrians should use marked crosswalks and always stop and look in both directions, assuring that they can safely cross the street without disrupting the normal traffic flow, before they enter the crosswalks.



– photo by Bob Nye

A swept-wing aerodynamic technology (SWAT) model of a supersonic aircraft is being tested in the 7x10 Foot High-Speed Wind Tunnel. The model's wing tips can be lowered to determine what effects the downward inclination of an aircraft wing from true horizontal (called geometric anhedral) has on the lateral stability of an aircraft in flight. The model's wing leading edge is segmented to determine the best leading edge contour for improved efficiency at subsonic speeds (less than the speed of sound). These areas of research have applications for future commercial and military aircraft. The model is approximately 9.5 feet long, weighs about 200 pounds and is made of cast aluminum.

Personal Opinions

Why do you ride in a car pool?

Prentiss Childs

Scientific and Technical Information Division

"I have been in a car pool for nearly 20 years. I had the luxury of driving alone for a few months once, but then I got the chance to join a car pool again. I see three advantages of being in a car pool. You save in your expenses, car wear and energy; you learn a lot about people; and car pools help some people save leave. Most important to me is relating to people and learning to be more considerate and less selfish."

Herbert Cunningham

Structures and Dynamics Division

"I find car pools convenient and I ride with very congenial people. It saves quite a bit of money compared to driving by myself every day. There are two members working in the West Area and four of us in the East Area. Whenever a West Area person drives, his car is driven by one of us over to the East Area. Then in the afternoon, the West Area person takes over his car when we pick him up."

Nancy Holt

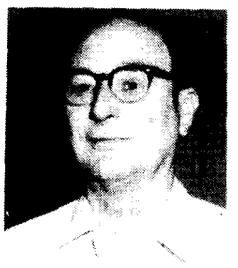
Atmospheric and Environmental Sciences Division

"I've been in a car pool since I first started working here. I find it very convenient and I don't have to drive as often. It also saves money. I wouldn't think of not being in one. Occasionally, I have to drive in alone because of an appointment, but as a rule, I don't find car pooling to be a problem or an inconvenience. It has worked out fine."

James Bailey

Fabrication Division

"I had always driven by myself until about three weeks ago. I joined a car pool because of the rising cost of gasoline. I have found it beneficial to me because I am saving gas and money. There are five in the car pool and we live in the same area."



John Tribble

Fabrication Division

"I find it convenient. There are no parking problems, and it doesn't tie up the car all week. I have been riding in a car pool since 1946. There are only three people in the car pool now; the others have retired. I work on the 7 to 3:30 shift and there are not many people in the Denbigh Area working on that shift."

Charles Wilson

Marine and Applications Technology Division

"I ride in a car pool primarily because I live in Portsmouth. There is also a great deal of expense involved in driving alone. There are three of us in our car pool. We find it convenient. There is less wear on the car; with gasoline prices steadily increasing, car pooling is almost a necessity today."

Joe Chambers

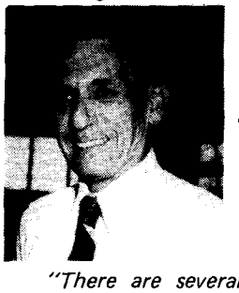
Flight Mechanics Division

"I ride in a car pool because of the convenient schedules of the co-workers in the East Area and because of the co-workers with the same traffic routes coming to the same building and location. There is a personal savings and also an energy savings involved in being in a car pool."

Roy Henley

Operations Support Division

"I ride in a car pool mainly to cut down on the number of times I have to drive during the week. I've been in a car pool for 10 or 12 years. I like to be with someone when I come to work each day. Granted, it is sometimes a nuisance when there are things I have to do and I don't have my car at work. I don't mind making changes during these times. I am sure that 95 percent of the time I participate in the car pool. There are five of us in our car pool so I only have to drive once a week, normally. Car pools save money and energy. I am in favor of them. It's true you have to change some habits and you have to work together."



John McGehee

Structures and Dynamics Division

"There are several reasons why I ride in a car pool. My wife needs to use the car sometimes and on the days I'm not driving, she can use it. With the gas prices going up, car pools save fuel. There are only two in my car pool and sometimes it is inconvenient. The other person is a division chief and he often doesn't leave until 5 p.m. We are compatible and it works out all right."

Travel Accident Insurance Reminder

Employees are reminded that the Travel Accident Insurance expires on midnight, April 20. A NEBA representative will be in the West Cafeteria from 11 a.m. to 1 p.m. next week to accept premium payments for the new year. If you prefer, you may mail your check to NEBA, Mail Stop 136.

Thanks

Walt Kabana thanks all who attended or in anyway contributed toward his retirement party on March 29. He adds, "The presence of so many friends indeed made it a very special occasion. The tributes, plaques, and gifts received carry special memories and will always be treasured."

"I would like to thank my many friends who made my retirement dinner such an enjoyable affair. It was so nice to see you and to do a little reminiscing together. The dinner was great and I would like to thank Myrtie Ballard and Jack Fowler for planning such a nice dinner. Thanks for the gift and the mementos. I shall cherish them as long as I live for they will remind me of many happy friendships of the past years."

Charlie L. "Pete" White

"I wish to thank all of my friends who honored me at a luncheon on April 6, the day I retired from Langley. The attendance, honors, gifts, and fellowship were almost overwhelming and are much appreciated. I hope to become a high school teacher on the Peninsula and will continue to live here. My wife, Betty, and I will be pleased to have friends and acquaintances from 35 years at Langley come to visit us."

Robert "Boz" Boswinkle

Gus Guastaferro and his wife, Eleanor, would like to thank their Langley friends (NASA and Credit Union) for the outstanding reception given in their honor on March 27. We will always remember our 16 years at Langley as rich in the pleasure of many friendships formed and retained."

Retirement Parties

James F. McNulty, Systems Engineering Division, will be honored with a retirement party on Wednesday, May 2, at the Activities Center, Building 1222. A cash bar cocktail hour will begin at 6:30 p.m., with dinner at 7:30 p.m. Cost of the dinner will be $7 per person, which includes gift contribution, or $12.50 per couple. Contributions for gift only are welcome. Please make checks payable to Faith Allen, Mail Stop 432, by April 25.

Frank S. Kawalkiewicz, Acquisition Division, will be honored with a retirement social (picnic) on Friday, May 4, at 5 p.m., on the Activities Center grounds. Cost will be $5 per person including gift. Contributions for gift only are welcome. Please make checks payable to Jim Taylor, Mail Stop 126, by April 30.

William Hewitt Phillips will be honored with a retirement social (hors de'oeuvres and cash bar) on Friday, May 4, at 7 p.m., in the Activities Center, Building 1222. Phillips retired on February 28, as Chief, Flight Dynamics and Control Division, with more than 38 years service. Cost will be $5.50 per person including gift. Contributions for gift only are welcome. Please send cash or check to Brenda Spencer, M/S 152, by April 25.

Former Employee Weds in Balloon

Pamela Melrose, a former Langley employee and a 1977 graduate of the Langley Apprentice Program, exchanged marriage vows with Thaddeus Burr, last month in a unique setting. The ceremony was performed in a hot-air balloon over Crystal Lake, near Ellington, Connecticut.

The only hitch came at the end of the flight when wind prevented the pilot, James Isler, from bringing the balloon down on his planned landing spot. The balloon landed in a tree instead.

The couple, both mechanical engineers from East Longmeadow, Massachusetts, took another flight later in the day; this flight was on an airliner to Miami for their honeymoon.

Scout Launch Vehicle Featured in Lecture

The Scout launch vehicle will be featured in a special lecture program entitled "Scout--Story of the Nation's Most Successful Launch Vehicle," at 2 p.m. every Monday through Friday during May, at the Langley Visitor Center.

The lecture will include a history and development of the launch vehicle, which has achieved a 95 percent successful launch record, and will give an overview of some of the payloads aboard the Scout vehicle.

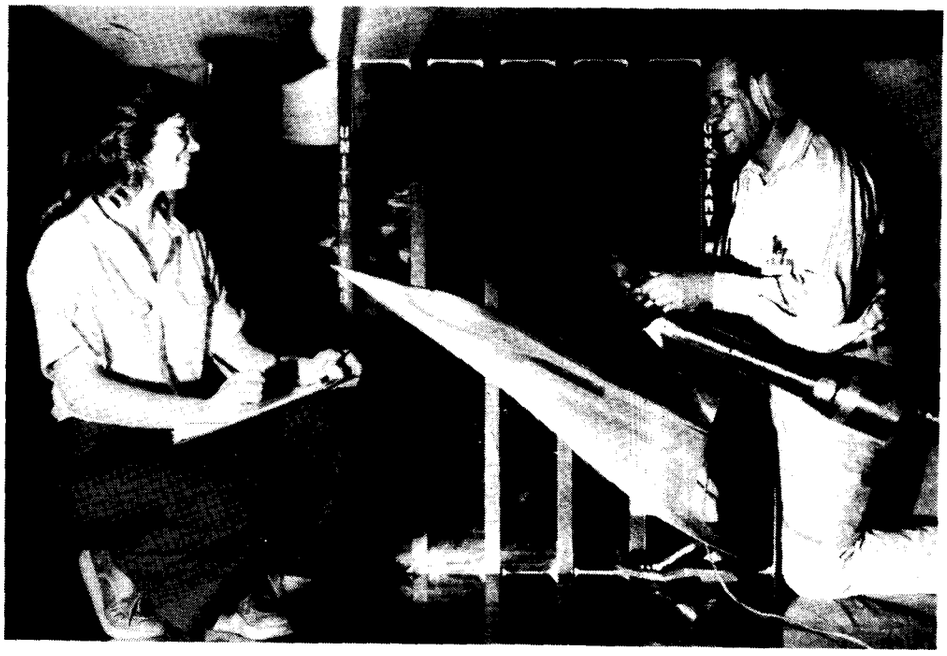
The lecture is in observance of the Scout's 100th launch which is scheduled for May 24 from Wallops Flight Center. The payload will be the UK-6 satellite, which will conduct studies in the field of high energy astrophysics. Quasars, radio galaxies, supernovae and pulsars are the best examples of high energy sources.

The first Scout launch was conducted in July 1960. The standard Scout launch vehicle is a solid propellant, four-stage booster system. The vehicle is managed at Langley and Vought Corp., Dallas, is the primary contractor.

Aerospace Penpoints
by Wesley Berryman

TECHNOLOGY
is not magic, but it can help solve some of society's problems. It's not just about good guys and bad guys, but about good technology and bad technology...
We want a computer age with room for feelings. We want machines, but not the kind that run us. We want technology, but we want to be in charge of it.

Donald P. Hearth
Director
Langley Research Center
May 1978



– photo by Bob Nye

Researchers at Langley are investigating a new test technique to eliminate interference by the wind tunnel model support arm. In conventional models, the support arm (sting) is mounted in the center of the model producing a change in the flow characteristics of the model. Using this new technique (called a Metric Half Span Model) the upper half of the model is used for support and the lower half contains the instrumentation for measurements. Researchers double the measurements from the lower half to get the full measurements of the model. Shown with the model in the Unitary Plan Wind Tunnel are Lindy Phillips, HSAD, and Lawrence Parker, OSD.

'Spring Thing' Festival Planned for May

Newport News' Third Annual Salute to Spring, the "Spring Thing" festival, will be held Saturday, May 19, from 10 a.m. to 11 p.m., and Sunday, May 20, from 12 to 6 p.m., on Washington Avenue between 26th and 28th Streets. The weekend of fun will include a grand parade; a variety of sporting events, carrying out the "All Sorts of Sports" theme; music and entertainment, featuring the Bruce Hornsby Band; international foods; and arts and crafts for the entire community.

In conjunction with the festival, a 10,000-meter "Run for the Arts" will be sponsored to raise money for the Peninsula Council of the Arts. The run, scheduled for 1 p.m., on Sunday, will start and finish at 26th Street and Washington Avenue. Joggers and runners from across the state are expected to take the 6.2-mile running tour of historic downtown Newport News. The race is open to all ages and the fee is $5 before May 10, $6 afterwards. Prizes will be awarded to the top finishers in five age categories for men and three for women.

The "Spring Thing" festival is sponsored by the Newport News Progress Committee, the Peninsula Council of the Arts and the City of Newport News. Entry forms for the "Run for the Arts" can be obtained from Rene Bowditch, 244-9111, ext. 260.

Dog Training Classes

New classes in kindergarten puppy training (KPT), basic and advanced dog obedience, will begin on Thursday, May 3. Registration will be held from 7 to 7:30 p.m. at the Hampton Armory, North King Street, with the first KPT and basic class immediately following, from 7:30 to 8:30 p.m. The remaining classes will be held outside at the regular training area on Gregg Road (behind Activities grounds and adjacent to the water tower) at Langley.

All puppies and dogs are required to have shots and to be free of worms. Please bring your dog's shot record. Each dog will be fitted with a special training collar; six-foot leads are required and will be available at the registration.

The James-York Dog Training Association, in cooperation with the Hampton Recreation Department, will sponsor a basic dog obedience program for children 10 through 16 years of age as part of the Recreation Department's summer recreation program. The minimum age for the dog will be six months, and the class will be limited to 10 trainees and their pets. For further information, call Barbara Foy, 851-3256.

For information on the new classes starting May 3, call 874-5706 or Doris Bryan, 898-6273 after 5.

Recent Retirees

James D. Holt, Flight Dynamics and Control Division, and **Allen L. Fox**, Instrument Research Division, retired on March 23.

Royce H. Sproull, Terminal Configured Vehicle Programs Office; **Thomas Vranas**, Instrument Research Division; **Robert W. Boswinkle**, Office of Director for Aeronautics; **Clarence T. Brown, Jr.**, Systems Engineering Division; and **William L. Ervi, Jr.**, Office of Director for Systems Engineering and Operations, retired on April 6.

James F. McNulty and **John W. Wilkey, Jr.**, Systems Engineering Division, retired on April 12 and April 17, respectively.

Retiring from Langley today is **Frances D. Keeter**, Personnel Division.

Payroll Deduction Savings Plan

Saving money regularly is not the easiest thing in the world to do, but there are ways to save that are simple, convenient, and completely automatic.

One of the best ways to save money is to set up a Payroll Deduction Savings Plan at the Langley Federal Credit Union (LFCU). A specified amount is automatically deducted from each paycheck and transferred immediately to your share account.

Payroll Deduction is easy to start. Just stop by any one of LFCU's three offices, fill out a brief authorization form, and then watch your share account grow.

Payroll Deduction . . . it makes saving regularly much easier.

Happenings

NEEDLECRAFT SHOW. The Sixth Annual Golden Thimble Needlecraft Guild Show will be held May 6, from 12 p.m. to 5 p.m., in the Old Hampton Community Center, 201 W. Lincoln Street, Hampton. A nominal entry fee will be charged for non-members. Classes of needlework to be judged include canvass work, quilting, hand smocking, knitting, crochet, embroidery and group entries. There will be a separate competition for junior needle workers, ages 6–12. Interested persons may get a copy of show rules and procedures by calling 851-9211 or 898-5273.

SLOW PITCH UMPIRES. Anyone interested in umpiring NASA slow pitch softball games during summer months, please call Jim Taylor, ext. 2001, or Tom Norum, ext. 3094, for details.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Tuesday, April 24, at 7:30 p.m., in the Activities Center, Building 1222.

AAUW BOOK SALE. The Hampton Branch of the American Association of University Women (AAUW) will hold its annual used book sale at the Coliseum Mall Community Room, next to the Peninsula Chamber of Commerce, Thursday, April 26, from 10 a.m. to 6 p.m.; Friday, April 27, 10 a.m. to 9 p.m.; and Saturday, April 28, 10 a.m. to 2 p.m. Proceeds will be donated to the Scholarship Fund.

THE MAX FACTOR MAKEUP has arrived at the Employer Gift Shop. A representative will give free demonstrations and samples during lunch hours on April 25, 26, and 27.

HAPPY HOUR will be held on April 27, from 4 to 6:30 p.m., in the Activities Center.

A CANOE TRIP, including two nights of camping in a state park, is planned for May 25 through 27. Approximately 29 miles of the James River will be traveled. The group will leave the Robert Hall Village Shopping Center in Newport News at 12 p.m. Friday and return there by 6 p.m. Sunday. Camping will be in the Buchanan-Glasgow, Virginia area. The cost of the trip is $42 and covers bus transportation, canoe paddle and life jacket. Individual must furnish own food and camping equipment. The trip is open to Langley employees and contractors, their families and friends. Make checks payable to Richard Bennett and send to him at M/S 397. For further information, call Bennett on 599-6293.

Langley Activities Association presents

Country Western-Bluegrass VARIETY SHOW & DANCE

Featuring

Bob Watson and The Westernairs and The FUN TIME Cloggers

Sat., April 28, '79 · 9 p.m. 'til 1 a.m.

$3 per person Set-ups included...

Advanced Tickets on sale at the Activities Office April 13, or you can buy them at the door...

NAGS WORKSHOP. The National Association of Government Secretaries (NAGS), Hampton Roads Branch, will have a Workshop on Stress Management at the Holiday Inn, Mercury Blvd., on April 28, 9 a.m. to 4 p.m. The workshop is for members only; the only cost will be lunch. The course will be taught by Dr. J. R. Tyler, Professor at Thomas Nelson Community College. Training certificates will be issued by Thomas Nelson. Registration is necessary and should be made with either Reachie Hall, ext. 2150, or Shirley Davis, ext. 2759.

SCALE MODEL CONTEST. The Tidewater Chapter of the International Plastic Modelers Society will sponsor a contest for plastic scale models of aircraft, armor, cars and dioramas on Saturday, May 12, from 9 a.m. to 4:30 p.m., in the Activities Center, Building 1222. Thirteen categories, including junior and senior classes, will be judged and prizes will be awarded at 4 p.m. The entrance fee is 25 cents. Entry forms are available at local hobby shops. For additional information, call Odis Pendergraft, ext. 2673, or Roland Frederick, ext. 2721.

Energy Saving Tip

Don't use hot water unnecessarily. Rinse dishes and operate the garbage disposal with cold water. You'll save energy and the cost of heating the water.

swap and shop

FOR SALE

Articles

Woman's golf cart and bag, model-clubster, with seat, EC, $30. Call Butler, 596-3394.

Garden Compost: Horse manure and shavings partly decomposed, $10 per pick-up load, U Haul it. Call 851-6640.

Barrel table and chair set: consists of round table with white formica top with a beer barrel base; 4 beer barrel chairs with black naugahyde covering. All barrels are made of wood. Excellent condition, $200. Call 868-9110 after 5 p.m.

Vehicles

1978 31' Pacearrow motor home, 5,988 miles, like new, sleeps 4, Microwave oven, large refrigerator, 40-channel CB, roof antenna, 2 roof airs, 2 awnings, 6.5 K.W. Gen., list price, $32,500, will sell for $23,500. Call 826-1081, Hpt.

Lighting "70," 12' fiberglass boat, motor and trailer. Call Buckley, 898-9143.

1973 Mercury Capri, bronze, about 57,000 miles, has 2600cc engine, 4-speed transmission, radial tires, AM-FM radio, carburetor recently rebuilt, clutch recently replaced, new muffler, recently inspected, body has small dent, otherwise no rust, $1200. Call Tom Bunkley, 3325.

Animals

Dachshund, miniature wirehaired, 9 lb. female, obedience trained, 2½ yrs. old, excellent companion for mature person, $150. Call Abbott, 4641 or 596-0159.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 br, washer, dryer, dishwasher, fp, 1/2 block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate, $375/wk, winter rate, $350/mo. Call G. O. Kent, 420-8391, Va. Beach, work, Ext. 3095.

Cottage for rent: Kitty Hawk, North Carolina — 3 BR, 2 BA, AC and heat, TV hookup, screened porch and sun deck, outside shower, sleeps 6, nicely furnished. Sunday to Sunday rentals: $300 in season, $200 off season. Call: 868-7112 or 874-2953.

Cottage for rent: Outer Banks of North Carolina — Fully equipped 3 BR cottage, sleeps 8 adults; everything included but food and linens; dishwasher; short walk to ocean; approx. 1/4 mile to fishing pier. Off season rates $150/wk, in season rates $200. For information, call Culotta, 723-6142; for reservations, call 919-995-5252.

Townhouse, Courthouse Green: 3 BR, 1½ BA, fully equipped, eat-in-kit., CA, w/w carpet, util. rm., patio, avail. May 15, $260/mo. Call 599-4321.

WANTED

Additional driver for car pool from Seaford to West area on 8—4:30 shift. Call Boyden, 3711 or 898-5833.

To join car pool from Marlbank to West area, 8 a.m. shift. Call Elliott Schoonover, ext. 3711.

LOST

4'x4' Supersonic tunnel run log book, year 1948, needed for historical record. If found please return to Tracy Wilson, Mail Stop 267.

Pair of reading glasses, black plastic frames, in black case with gold trim. Please call ext. 2861.

Job Openings

The following Merit Promotion Announcements are currently open:

79-36 — Secretary (Stenography); GS-318-6 or 7; Office of Director for Systems Engineering and Operations; Closes April 20, 1979.

79-37 — Supervisory Engineering Technician; GS-802-10 or 11; Operations Support Division; Laboratories Operations Branch; Technical Support Section B; Closes April 27, 1979.

79-38 — Public Information Specialist; GS-1081-11; Office of the Director; Office of External Affairs; Office of Public Affairs; Closes May 4, 1979--Nationwide.

cafeteria menu

WEEK OF APRIL 23

MONDAY: Corn Chowder; Savory Baked Chicken; Braised Beef & Vegetables; Clam Strips. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Broiled Beef Liver. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Pot Pie; Meat Loaf. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Steak Teriyaki; Baked Tuna & Noodle Casserole. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Chicken Chow Mein; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF APRIL 30

MONDAY: Vegetable Soup; Spaghetti Dinner; Crab Cutlets; Teriyaki Baked Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Roast Beef au jus; Baked Virginia Ham; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Pepper Steak; Spanish Omelette. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers Over Rice; Beef Balls Stroganoff Over Noodles; Frank, Bacon & Cheese. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Old Fashioned Bean Soup; Fish Dinner; Country Style Steak; Chicken Pot Pie. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 9

May 4, 1979

Alaska Pipeline Discussed in Next Colloquium

The next lecture in the Langley Colloquium Series will feature Edward L. Patton, former Chairman and Chief Executive Officer, Alyeska Pipeline Service Company, who will speak on the "Trans Alaska Oil Pipeline." The talk will be held on Monday, May 14, in the Activities Center (Building 1222) at 2 p.m., followed by a brief question and answer session. At 3 p.m., the speaker will move to the adjoining Langley Room for an informal discussion.

Patton will address the major factors in the design of the pipeline system, including route selection, geotechnical and thermal influences, selection of materials, and value location. He will review construction accomplishments and the performance of the system since June 1977. Patton will make use of 35 mm slides during his presentation.

A native of Newport News, Virginia, Patton graduated from the Georgia Institute of Technology with a bachelor of science degree in chemical engineering. He held a number of management positions with Exxon and was an advisor for the company's refining operations in the Mediterranean, the Middle East, and the Far East. He also served in the U.S. Navy, including duty as commanding officer of several antisubmarine and escort vessels.

Before joining Alyeska in 1970, Patton directed construction and operation of the refining facility for Exxon's chief domestic affiliate in California. He served as President of Alyeska from its formation in August 1970, until he became Chairman and Chief Executive Officer in 1976. He retired in October 1978 and now resides in Bellevue, Washington.

Langley employees attending the colloquium are to charge their time to Job Order A1980.

Carter Advocates U.S. Leadership in Space

On March 27, President Carter sent a message to Congress on "Federal Government's Policy on Science and Technology," celebrating the centennial of the births of Albert Einstein and Thomas Alva Edison. In this message the President reiterated elements of his space policy. A portion of his message, entitled "Expanding the Beneficial Use of Space," is of interest to NASA employees and is printed below.

Expanding the Beneficial Use of Space

"Two decades ago mankind entered the space age. In that short time we have witnessed remarkable accomplishments—evidence of this country's progress in science and technology. Americans have explored the moon. Space probes are examining the planets of our solar system, as recently highlighted by the historic encounter of the Voyager I spacecraft with Jupiter. Satellites are indispensable components of our communications networks, weather forecasts and international security systems.

"With the advent of the Space Shuttle, we are entering a new era. The Space Shuttle—our national space transportation system for the coming decades—will increase the flexibility of space operations, reduce costs, improve national security, and make possible new cooperative activities with other nations. To meet the challenges ahead, I have established a National Space Policy that sets the direction of our space activities over the coming years. We will emphasize applications not only by the National Aeronautics and Space Administration, but also by other Federal agencies, foreign governments, and the private sector. The policy stresses the use of space technologies to meet human needs here on earth. The new technologies of the space age can further revolutionize our communication and possibly can provide new energy supply. They can improve our ability to manage wisely our renewable and nonrenewable resources, and monitor our environment. Assessment and forecasting of crop conditions and yields, and extension of communications to remote areas are examples. I am committed to the continuity of remote sensing data over the coming decade and I expect to propose additional initiatives in remote sensing of the earth's ocean, land resources, and environment in future years.

"My space policy also encourages continued scientific investigation of the universe. We will conduct a vigorous program of exploration to understand the origin and evolution of the solar system. The space telescope—to be launched and serviced by the Space Shuttle—and free-flying satellites will usher in a new

Continued on page 2.

– photo by Bob Nye

British scientists visited Langley April 4 through 11 to complete preflight testing of the low-energy x-ray experiment prior to installation on the UK-6 satellite. The UK-6 satellite is the payload scheduled for launch aboard the 100th Scout vehicle on May 24 from Wallops Island. The x-ray experiment is designed to collect low energy (0.1 to 2.0 KeV) x-rays by means of an array of four grazing incidence paraboloidal reflecting mirrors, mounted in two pairs on opposite sides of the spacecraft body and viewing in a forward direction along the spin axis. Shown removing the experiment from Langley's thermal-vacuum facility are UK-6 scientists Julian Osborne and John Zarneck, Mullard Space Science Laboratory (MSSL), University College, London; Chris Goodau, Birmingham University (B.U.); and John Holmes, MSSL. Other UK-6 personnel participating but not shown are Mike Cruise and Fred Little, MSSL; Dave Campbell, B.U.; and George Spalding, Appleton Laboratories, Science Research Council.

1979 Savings Bond Campaign Launched

The annual U.S. Savings Bond Campaign will be conducted May 7 through June 8. Center Director Don Hearth has appointed Bill Piland, Space Systems Division, as this year's Chairman. As last year, Directors, Division Chiefs, and Project/Program Managers will serve as campaign chairmen for their respective organizations.

Langley's rate of participation increased during last year's campaign from 83.3 percent to 86.1 percent but we remained "second" among the NASA Centers. This year the goal of Langley's campaign is to be "number one."

Ed Howe, Chief, Financial Management Division (FMD), is the Center's Savings Bond Coordinator and Joyce Fly, Payroll Section. FMD, will maintain and update campaign records.

Again, the Langley Activities Association will donate two Series E $25 savings bonds to Langley's campaign. A drawing from the names of new subscribers and another from names of subscribers who increase their level of savings will determine the winners of the bonds.

More information on the 1979 U.S. Savings Bond Campaign will follow in the next issue of the *Langley Researcher*.

Recent Retirees

John P. Gapcynski, Atmospheric and Environmental Sciences Division, and **Brady D. Wooddell**, Fabrication Division, retired from Langley on April 20.

Retiring today are **Willie T. Scott**, Plant Engineering Division; **Frank S. Kawalkiewicz**, Acquisition Division; and **William H. Young, Sr.**, Fabrication Division.

Carter

Continued from page 1.

era of astronomy. From the clear environment of space, these new eyes will allow us to explore the distant galaxies and other astronomical phenomena—quasars, pulsars, and black holes. They will vastly expand our knowledge and understanding of the universe.

"It is important that we maintain our world leadership in space. My policy is designed to encourage further advances in our use and exploration of space. We will provide adequate resources to maintain that leadership."

Bus Service Available from Gloucester

Daily commuter bus service is now available from Gloucester Court House to the NASA West Area, with intermediate stops in Gloucester County. The Greyhound-type bus is scheduled to arrive and depart points in the West Area at times convenient for the 8 a.m. to 4:30 p.m. work shift. Schedule and fare information are stated below:

6:45 a.m.	Gloucester Court House at Murphy's sign	$10.50
6:55	White Marsh at Rich's sign	$10.00
7:00	Ordinary at restaurant	$ 9.50
7:05	Hayes at rescue squad lot	$ 9.00
7:10	Gloucester Point at Nick's Steak House	$ 8.50

Fares represent prices for tickets good for 10 one-way trips. Trips do not have to be taken consecutively. For additional information, please call Graham, ext. 2866.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Klineberg Appointed Lewis Deputy Director

Dr. John M. Klineberg, Deputy Associate Administrator of NASA's Office of Aeronautics and Space Technology (OAST), has been appointed Deputy Director of Lewis Research Center, effective July 1. He replaces Dr. Bernard Lubarsky who left Lewis in January.

Klineberg began his NASA career as a researcher at the Ames Research Center in 1970. He joined NASA Headquarters in 1974 as Head, OAST Aerodynamics and Vehicle Systems Division and in 1976, he was appointed to the OAST Aircraft Energy Efficiency Office. He assumed his present position in February 1978.

Herbert Ribner Returns to Langley

Herbert S. Ribner, who was employed at Langley from 1940 to 1949 and from 1975 to 1976, has returned as a Distinguished Research Associate. His time will be divided between the Acoustics and Noise Reduction Division and the Institute for Aerospace Studies, University of Toronto, where he is a professor in aeroacoustics.

Thanks

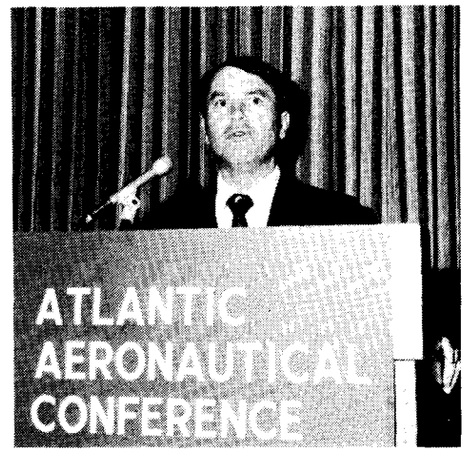
"Skinny" Watkins, Operations Support Division, expresses his thanks to the many Langley friends who sent him cards and flowers during his recent hospitalization and recuperation.

William L. Ervi, Jr., would like to thank all his friends and co-workers for the wonderful retirement party and gifts given to him on Friday, April 6, at the Langley Officers' Club.

Robert Parker writes, "Thanks to all my friends who honored me at a retirement party on April 6. Your fellowship, personal comments, gifts and good were all appreciated. I'll always have fond memories of my NACA/NASA career and of the many fine people I was privileged to work with."

Retirement Party

John W. (Jack) Wilkey, JED, who retired on April 17, will be the guest of honor at a retirement dinner on Wednesday, May 16, at the Activities Center. A cash bar will open at 6:30 p.m. with dinner at 7:30 p.m. The cost will be $7.50 per person or $14 per couple. For reservations or contributions toward a gift, contact G. Egan or Ann Bristow, ext. 4621, Mail Stop 433, by May 11.



Roy Harris, Chief, High-Speed Aerodynamics Division, welcomes delegates to the Atlantic Aeronautical Conference in Williamsburg on March 26. The conference was hosted by the American Institute of Aeronautics and Astronautics. Representatives from the leading aeronautical professional societies of the United States, Great Britain, France, Canada and Germany participated in the three-day conference. On the last day, the delegates toured Langley's major facilities. Harris served as the U.S. Chairman for the event.

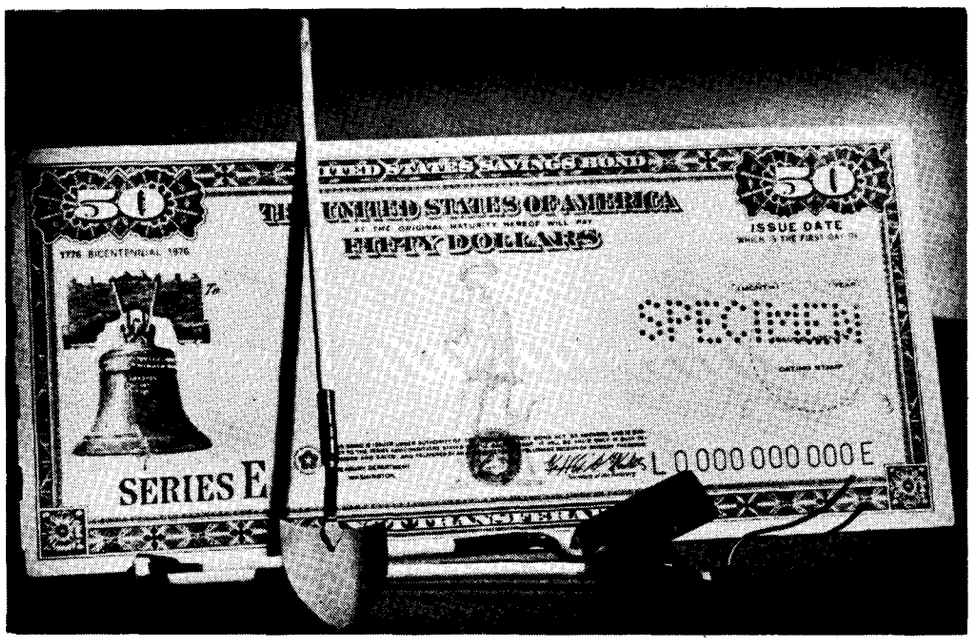
LAA Travel

There is still time to join your friends on the London Holiday Tour, May 31 through June 8. Bus transportation arrangements are being made for the bus to leave the Riverdale Shopping Center in Hampton for Dulles Airport, May 31, and return to the same location June 8.

Other LAA discounted tours for 1979, departing from Patrick Henry Airport include: Las Vegas, October 18 through 21; Hawaii, Waikiki, October 3 through 11, with an optional two-night stay in San Francisco on the return trip; and Hawaii, Hilo, Lona, Maui and Waikiki, December 31 through January 14. There are only 50 seats available on each of the two Hawaii tours. Early reservations are recommended to insure space. Cruise directly from Norfolk to Bermuda, September 11 through 18 or to the Caribbean, December 14 through 22.

Call the Activities Association Office, ext. 3139; Ernie Greene, 2312, home 838-0567; or Herb Boulter, 3234, home 838-4773, for a brochure and reservation form on the distination of your choice.

The perfect tool for green-up time.



Because money grows in Savings Bonds.

Don Hewes, Flight Dynamics and Control Division, shows the control box of his low-cost autopilot, which is installed in his BD4 experimental, home-built airplane. The autopilot, which weighs about two pounds, can recover the plane from a steep spiral in eight to 10 seconds and maintain a heading setting indefinitely with an accuracy of plus or minus one degree in normal flying conditions and two to three degrees in rough turbulence.

Hewes Develops Low-cost Autopilot

Donald E. Hewes, Flight Dynamics and Control Division, has developed and installed the first low-cost autopilot on a home-built airplane. The system, which weighs about two pounds, includes a wing leveler system developed by Doug Garner, Flight Electronics Division, and a heading system designed by Hewes.

Hewes said he took Garner's plans of circuitry and details of the electro-fluidic rate sensor wing leveler system, which Garner presented to home airplane builders at Oshkosh '77, the annual convention of the Experimental Aircraft Association, and made them operational to his own plane.

Hewes developed the sizing and location of the tabs on his plane so that they work as a roll control system independent of the ailerons. Hewes, who developed the system as a hobby, said that the wing leveler is developed to the point that it would recover the plane from a steep spiral in eight to 10 seconds.

The wing leveler will keep the plane level but will not maintain a constant heading, so Hewes said he modified the autopilot to include an inexpensive heading device.

The heading system, which connects to Garner's wing leveler system, consists of a photo sensor positioned over a compass. The sensor picks up light reflecting from the reference marks on the compass face to hold the plane on course. If the plane drifts off course, the sensor sends a signal to the servo, which turns the tab to the desired position to reattain the original course.

Hewes said his original heading system was quite limited and a light turbulence would upset the reading. The system was improved to maintain a heading setting indefinitely with an accuracy of plus or minus one degree in normal flying conditions and plus or minus two to three degrees in rough turbulence. The basic working model of the system, which costs about $100, took six months to build.

Both Garner and Hewes have written several articles describing details of the system. Hewes said he has had approximately 100 inquiries about the system and is now working on a booklet outlining construction details of the system which he plans to publish.

Hewes' autopilot is installed in his BD4 airplane, which is certified under the experimental category. The plane has a 150 Lycoming engine and cruises at 150 mph. The plane has flown numerous cross-country trips with the autopilot installed.

Speakers Bureau

John Samos spoke on the Tech House to District 11 Extension Homemakers in Williamsburg on April 5 and to the Cosmopolitan Club of Norfolk on April 12.

Bob Hilton spoke about the Space Shuttle at Huntington Intermediate School on April 4 and to Cub Scout Pack 43 in Crittenden on April 30.

Cary Spitzer spoke on Viking to the Order of the Daedalians at the Langley Officers' Club on April 5 and at the Norfolk Detention Home on April 18.

Lee Foster spoke at Jack Jouett Middle School in Charlottesville on April 6 about Scout.

Leonard Clark spoke to the Cosmopolitan Club on April 5 about the Terminal Configured Vehicle Program.

Sheila Long spoke to the Daughters of the American Revolution on April 10 on "Applications of NASA Environmental Research to Daily Living." She spoke about spinoffs to the Southside Lions Club in Chesapeake on April 26.

Ira Abbott spoke at the Delaware Valley Annual Regional Safety and Fire Conference on April 11 about the Tech House.

Jack VanNess spoke to the Kiwanis Club of Ocean View on April 11 and to the Williamsburg Rotary Club on April 26 about the Jupiter Encounter.

Anna Plott and **Lahoma Hart** spoke to the Pembroke High School Steno II Class on April 12 on "Secretarial Practices and Training at Langley."

Dan Somers spoke about model airplane airfoils to the Tidewater Model Soaring Society on April 17.

Dr. John Duberg gave an overview of Langley's research programs to the Hampton-Newport News Rotary Club on April 18.

Irv Hamlet spoke on the Tech House to the Refrigeration Service Engineering Society on April 20.

George Ashby spoke to the Peninsula Shrine Club on April 20 about the Space Shuttle.

Barbara Hogge and Director Don Hearth lead the way through the breakfast line.

Paul Holloway and Jean LaNeave seem pleased with the breakfast menu.

Betty Joyner and Bob Bower enjoy a brief chat during activities.

Hats Off to Secretaries

Oran Nicks and Bill Williams welcome the guest speaker, Betty Ricks, to Langley.

Approximately 265 secretaries and supervisors attended the second annual Secretaries Breakfast on April 24, in the Activities Center.

In a special presentation entitled "Hats Off to You, Secretaries," secretaries modeled the various "hats" worn by them throughout their busy day. The "hats" represented a housewife, cook and mother; listener, receptionist; leader; catcher, director, delegator; telephone operator, communicator; organizer; trainer; typist; proofreader, editor; entertainer; mechanic; fireman; and nurse.

Betty Ricks, Assistant Professor, Old Dominion University, spoke to the group about their work attitudes and relationships.

Nancy Rodgers, wearing the hat of an entertainer, represents the secretary as a one-person entertainment committee, planning luncheons, dinners, and office parties, often at the last minute.

Betty Hughes, wearing the hat of a fireman, represents the secretary dealing with short fuses and recognizing smoldering fires before they burst into flames.

Dollie McCown, pushing a wheel, represents the secretary as a mechanic, keeping the office wheels turning.

Nurse Margaret Hunt attends to the needs of others, trying to alleviate causes which may often increase tempers . . . and raise blood pressures.

– photos by Bob Nye

Four Langley Men Inducted Into Virginia Aviation Hall of Fame

Four men who served at the Langley Research Center were among the eight first inductees into the Virginia Aviation Hall of Fame.

The Virginia Aeronautical Historical Society inducted from Langley Mel. N. Gough, Col. Carl F. Greene, Dr. Henry J. E. Reid and Gene Roche.

Gough was recognized as an outstanding test pilot and Chief of Langley Lab from 1943 to 1958 and active in research programs since 1926. Gough came to Langley in 1926 as a junior mechanical engineer in the old propeller research tunnel.

He transferred to the Flight Research Division in 1929 as an experimental engineer-test pilot and was chief of the Flight Research Division in 1943. He left Langley in 1958 to become director of NASA Activities at the Atlantic Missile Range, Cape Canaveral, Fla.

Dr. Henry J. E. Reid, was recognized as the past director of Langley Lab of the National Advisory Committee for Aeronautics. He directed research becoming the basis for sophisticated present systems.

Reid came to Langley in 1921. In 1926, he became Engineer-in-Charge. Subsequently the NACA changed the title to director. He held this position until 1960.

Four years after Dr. Reid assumed direction of Langley, he teamed with one of his staff members to develop an instrument known as the NACA V-G Recorder, which supplied data on two details of aircraft operation--velocities and inertial loads. The device had earned a reputation for providing a precise record of the speeds and inertial loads imposed by gusts and other vicissitudes of flight.

Under his direction, the Langley Research Center was awarded four Collier Trophy Awards for cowling research, supersonic flight research, development of transonic wind tunnels, and the NACA area rule.

Gene Roche served at Langley in the Air Corps Liaison Office. He was known for designing of light aircraft, notably the Aeronca.

Roche worked for the government from 1917 to 1960. He worked in Washington and in Dayton, Ohio, at McCook Field for the Air Service. In 1928 McCook Field was abandoned and the service was moved to Wright and Patterson Fields. He came to Langley in 1939 to work in the Air Corps Liaison Office.

Roche assisted in and designed many planes such as the USAC-1, CO-2 biplane, CO-6 and the first target gliders for the Air Service.

His research included wing tip flutter dumpers, missile designs, and study of the coefficients of friction of different metals operating on wood, sand, marsh grass, mud, and concrete. His study on friction provided a new concept in the operation of an Air Force in which no runways needed to be built.

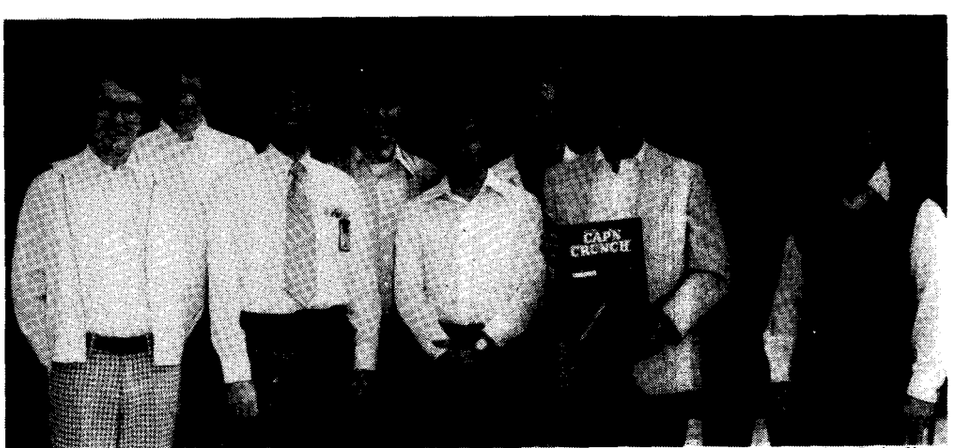
Roche functioned alone as the first civilian in the Liaison Office at Langley. His office was in his automobile and briefcase. It was not until June, 1939, that Roche received assistance in operating the Liaison Office.

Major Carl F. Greene, later promoted to the rank of Colonel, was the man sent to assist Roche. Greene is recognized for his initiating and directing pressure cabin and tricycle landing gear development at Langley.

Greene took special interest in structural research and other projects beyond liaison duties. He assisted in expanding the liaison facilities, was involved in ditching loads test, and he started a school on engine cooling for engineers in the airplane and engine industry.

Greene is noted for his "Downhill Take-Off System" developed while at Wright Field, and the detachable pod airplane for the delivery of military supplies at high efficiency and rapid turn-around time.

Greene received the Collier Trophy Award for high altitude flights in the forerunner of all later pressurized cabin airplanes, a Lockheed C-35. He died in 1945 while at Langley.



– photo by Bob Nye

HOOP TROOP. The 1979 "C" League Basketball Champions from left are: Norm Knight, Gary Farley, Mark Shuart, Bryan Piece, Bill Greene, Dave Gibson, John Kennedy, Mike Nemeth and Jim Rogers: Not pictured: Keith Brown, Harris Hamilton and John Wilson. The champs completed the regular season with a 15-3 record; tourney record was 2-0.

Histories Published by NASA

Two books have been published by NASA and can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

"The Partnership: A History of the Apollo-Soyuz Test Project" is the official NASA history detailing the international cooperative effort of two major spacefaring nations, the United States and the Soviet Union, and their collaborative mission to rendezvous and dock manned spacecraft in Earth orbit.

"Moonport: A History of Apollo Launch Facilities and Operations" is a publication in the NASA history series that tells of the Apollo launch facilities and operations at the Kennedy Space Center.

When ordering, please specify:

"The Partnership: A History of the Apollo-Soyuz Test Project" (NASA SP-4209), by Edward Clinton Ezell and Linda Neumann Ezell. Paperbound. 580 pp. Price $8.30.

"Moonport: A History of Apollo Launch Facilities and Operations" (NASA SP-4204), by Charles D. Benson and William Barnaby Faherty. Paperbound. 656 pp. Price $8.

Happenings

LAA CONCESSION CENTER, located on the Activities Picnic Grounds, will open on Monday, May 14. Weekday hours will be from 11 a.m. to 1 p.m., Saturday from 11 a.m. to 7 p.m. and Sunday from 12 to 6 p.m. Hamburgers, hot dogs, barbecue, chips, nabs, candy, and beverages will be sold. Also available for sale will be golf balls and tennis balls.

BINGO is cancelled for May 24 due to a scheduled AIAA conference in the Activities Center.

TENNIS CLUB. The Langley Tennis Club's annual membership drive is currently underway. A number of ladder tournaments are planned for the season which will continue throughout the summer. Langley and contractor personnel desiring membership should contact Bill Weaver, ext. 2977.

HAPPY HOUR will be held on Friday, May 11, from 4 to 6:30 p.m. in the Activities Center.

THE ACTIVITIES ASSOCIATION OFFICE will be closed from 8 a.m. to 12:30 p.m. during the week of May 7–11. However, a part-time employee will be in the office from 12:30 to 4:30 p.m.

TIDEWATER DINNER THEATER. Currently playing at the Tidewater Dinner Theater is "The Lady Who Cried Fox," which will run through May 20. Performances are nightly, Tuesday through Sunday. The tickets are $12.50 (including gratuity) and are available from the Activities Office, ext. 3139.

Directory Call Notice

This call notice is to remind all offices that any changes in the Organizational Listing or the Service Directory Listing for inclusion in the July 1979 issue are due at Mail Stop 196 by **May 25, 1979.**

The furnishing of accurate information for the Alphabetical Personnel Section of the Directory is the responsibility of each individual employee. Langley Form 133 entitled, "NIPPS–Telephone Directory Transcript," (Change Notice) is provided in the back of the Langley Telephone Directory for reporting change in mail stop, building number, room number, and telephone number. These changes must be submitted no later than **May 25, 1979,** for inclusion in the July issue.

If these runners look cold and tired, you're absolutely right! These 14 men and women participated in the Langley Runners' Club Handicap 10 miler on February 17. Braving the arctic-like cold (-25° F wind chill) were, standing from left: Bill Witte, Bob Smith, Sonny Wood, Mel Anderson, Lucy Parks, Ted Creel, Don Humes, Dee Bryant, Earl Dunham, Wayne Richardson, Bob Thomas, Ernie Anglin, Jim Usry, and kneeling, George Boyles. Official winners were Ernie Anglin (93:49) and Lucy Parks (104:16).

Job Openings

The following Merit Promotion Announcements are currently open:

79-40 – Supervisory Engineering Technician; GS-802-10 or 11; Operations Support Division; Mechanical Support and Utilities Operations Branch; Mechanical Equipment Support Section; Closes May 11, 1979.

79-41 – Quality Assurance Specialist; GS-1910-9 or 10; Office of Director for Systems Engineering and Operations; Systems Safety, Quality and Reliability Office; Systems Assurance Unit; Closes May 11, 1979.

79-42 – AST, Structural Mechanics; Supervisory Aerospace Engineer; GS-861-13 or 14; Office of Director for Structures; Structures and Dynamics Division; Structural Mechanics Branch; Closes May 11, 1979.

79-43 – Library Technician (Typing); GS-1411-4 or 5; Management Support Division; Administrative Services Branch; Special Documentation Section; Closes May 11, 1979.

79-44 – AST, Quality Assurance; Aerospace Engineer; GS-861-11 or 12; Office of Director for Systems Engineering and Operations; Systems Safety, Quality and Reliability Office, Systems Assurance Unit; Closes May 11, 1979.

LAA Requires Written Reservation Requests

All reservations for the Langley Activities Association building and grounds should be submitted in writing and sent through internal mail distribution to the Manager/Bookkeeper, Sue Juanarena at Mail Stop 496. No telephone or in-person reservations will be accepted. Reservations can be submitted 60 days in advance, and should be reconfirmed 14 days prior to the reserved date. Events will be scheduled on a first-come, first-serve basis. The following information is required when submitting a request:

- Date of and reason for reservation (give one or two alternate dates)
- Duration of the function
- Approximate attendance
- Services to be furnished by the Association
- Facilities to be used
- Application should be signed by the person assuming responsibility for the group

swap and shop

FOR SALE

Articles

Polaroid Camera: 450 Land Camera, EC, $40. Light Fixtures: Early American Wagon Wheel Light Fixture (has three glass globes (made of wood and copper), EC, $25; Early American Lantern-type, copper colored, EC, $15. Both fixtures are ideal for either kitchen or den. Call 868-9110 after 5 p.m.

Craftsman lawn tractor, 10 H.P., 36" cut, used only one season, like new, $725. Call 898-7072.

Two portable typewriters, each with carrying case: Underwood Deluxe, w/new ribbon; Smith-Corona Super Silent. Each $40. Call A. Barka, 2786 or 220-0635 p.m.

Bancroft tennis rackets, two aluminum enforcers, 4 3/4"M (one used), and one Superwinner, 4 3/4"M (used), best offers. Call Jim Daus, 3344.

Windows--one double window, rough-in size 6'4" wide x 4'1" high, includes pair of white enamel triple-track storm windows to fit one single Anderson double-pane glass, vinyl-clad window, rough-in size 3'1½" wide x 3'5" high. Call Price, 877-7912 or ext. 2537 office.

European Health Spa Membership, gold 6-month, regularly $198, your price $150. Call Wayne Leonard, 2042 or 851-9093.

Stock seat for Yamaha 650 motorcycle, mint condition, $40. Call Youngblood, 877-1224.

Vehicles

1974 Nova 4 Dr, AT, PS, AC, 45,000 miles, $1,950. Call 877-2210 after 5 p.m.

Chris Craft, 28' Cabin Cruiser, VGC, sleeps 4, galley, stand-up head, engines and trans. in like new cond., kept under cover. Call 838-0173 after 4:30 p.m.

Camping Trailer--'73 Travel Mate hard top, model FSS, sleeps 6, swing-out kit., 115VAC-12VDC converter, battery, privacy curtains, porta-potti, 18' living area when open, tows with compact car, EC, many extras, $1,195. Call 877-0438.

1972 Buick Electra--4 DR. Hdtp., A/C, power-seats/window/locks, tilt wheel, AM-FM stereo, cruise control, EC, $1200. Call Credeur--868-7347 after 5:30 p.m.

Real Estate

House--Riverdale, 3 BR, 1½ BA, L-shaped brick rancher w/attached gar., country kit., FP, CA/Gas heat, w/w carpet, drapes, 6 SW, separate detached 16' to 20' workshop, new aluminum gutters, new HWH, fenced by, convenient to bases and schools in quiet neighborhood, $24,000 assumption, balance $28,000 w/monthly payments, $292 including taxes. Call 838-4177 for appt.

FOR RENT

Beach Cottage right on shallow beach w/white sand dunes, sleeps 11, $160/wk. Call James A. Martin 693-4241 or 827-3911.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, $150/wk. Weekends also available. Call Fogle, 2025.

Sandbridge: New cottage w/living-kit-din-area, 4 BR, washer, dryer, dishwasher, fp, 1/2 block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate, $375/wk, winter rate, $350/mo. Call G. O. Kent, 420-8391, Va. Beach, work Ext. 3095.

Newly-renovated brick/alum. house--downtown Hampton, 6 mi. from LAFB (on bus line), LR, DR, eat-in kit. w/refrig. and elec. stove, 2 BR, carpeted den, utility rm. w/d hook-ups, central heat and air, venetian blinds, large closets, off-street parking, yard, $235/mo. Call 723-0977 after 5 p.m. No pets.

Rent a comfortable cottage: Enjoy fishing and/or relaxing on the Outer Banks of North Carolina; off-season rates, $150/wk., in-season, $200/wk., sun roof; outdoor shower, fully equipped kit., has dishwasher, 3 BR, sleeps 8 adults, everything included except food and linens, short walk to ocean, approx. 1/4 mi. to fishing pier. For information, call Culotta, 723-6142, for reservations call 919-995-5252.

LOST

Set of keys containing a 4-way pocket screwdriver found in Bldg. 583; and single car key found in parking lot of Bldg. 1195C. Call Security, 2452.

WANTED

To join car pool (as a driver or paying passenger) from Portsmouth (Churchland Area) to West Area on 8 a.m. shift. Call Hill, 3711, or 484-1528.

FOUND

Voit basketball (brown) in parking lot adjacent to Activities tennis courts on Wednesday a.m., 18 of April. Car drove away (turquoise) and the basketball was left behind or fell out. Call 851-5225.

One pair prescription glasses in black case, in Riverdale area. Call Ferrell at 827-2016.

cafeteria menu

WEEK OF MAY 7

MONDAY: Corn Chowder; Chicken Chow Mein; Broiled Beef Liver; Clam Strips. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Braised Beef & Vegetables. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Pot Pie; Beef Enchiladas. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Glased Ham Loaf. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Steak Teriyaki; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF MAY 14

MONDAY: Vegetable Soup; Spaghetti Dinner; Savory Baked Chicken; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; ***Special*** Seafood Platter; Beef Balls Stroganoff; Baked Virginia Ham. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Franks, Bacon & Cheese; Pepper Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers Over Rice; Roast Beef Au Jus; Meat Loaf. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Pot Pie; Steak Smothered W/Onions. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

Energy Saving Tip

On cooler nights, add a blanket instead of turning up the thermostat in your home. You'll save energy and heating costs, even if you turn on an electric blanket.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 10 May 18, 1979

A Note from Your U.S. Savings Bond Chairman

Within the next two weeks, you will be asked to either join the U.S. Savings Bond Program or to increase your payroll savings. Please let me share a few thoughts that I have about the program.

I know that there are many of us looking for any possible way to hold on to every dollar we can during these tough economic times. Everybody wants our money--the grocer, utility companies, creditors, and that service station that raises prices almost daily. The list goes on and on. Everytime we turn around we feel "ripped-off" by somebody, and let me tell you, I am getting tired of it like everyone else. But there is one thing that I am not going to let happen. I am not going to "rip-off" myself. I am going to "pay me first," and that is where U.S. Savings Bonds come in handy.

I find it very difficult to save. My family wants or needs new things; I like to eat--too much; and my hobbies are expensive. If a dollar gets in my hand or checkbook, it doesn't stay there very long. Bonds help me accumulate some savings. The money never reaches my hand or checkbook. The bonds that come in the mail have built into a neat little pile at home. Bonds make me feel good in that, like a security blanket, they are there if I ever need them. Sure, I come close to cashing-in one or two on occasion to satisfy some whim, but I seldom do. I need them right where they are to assure myself that I am "paying me first." I know I might be able to get higher interest with some other forms of savings. But would I save? I doubt it. It is so easy with the Savings Bond Program.

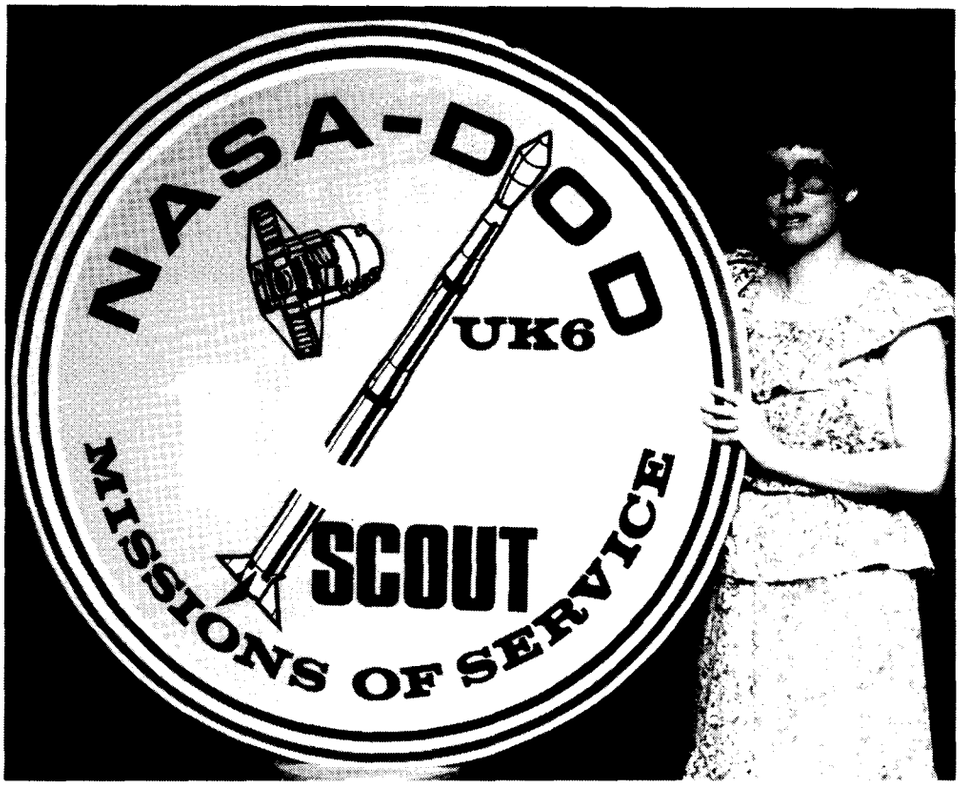
While I am doing these great things for myself, I also feel a little pride in what I am doing for my country. There are not many ways in which one can show patriotism. I like being a citizen of this country. If Uncle Sam wants to borrow my money and it does the country some good, then that's fine. There is no more sound an institution than the U.S. Government. Let's face it, if it fails we are all in big trouble. My money is safe while I am "paying me first."

Let me really get down to a point that has bothered me. I have heard the talk about canceling bonds or not signing-up for the savings plan because of what's being done to the Federal employees. I have given the subject some serious thought, and have reached this conclusion: BALONEY! In the first place, the Government has been good to us. Among other things, surveys report that most of our salaries are higher than comparable outside employment would offer, and we enjoy working at one of the most highly respected research institutions in the world. I am happy and proud to be a Government employee. As for changing the retirement system, limiting future pay raises, and charging for parking on Federal installations, it has not happened yet.

Continued on page 2.

– photo by Bill Hunt, Wyle Laboratories

The volcanic veil of the La Soufriere eruption on April 17 is shown rising high into the atmosphere. The volcanic eruption is providing the opportunity for scientists for the first time to track and measure volcanic emission flows in the stratosphere on a global scale by the NASA Stratospheric Aerosol and Gas Experiment (SAGE) satellite. SAGE provides scientists with information to help answer questions about the effects of aerosols and ozone on climate and environmental quality. This photo was taken at 5:03 p.m. local time (4:03 EST), 60 miles southeast of the volcano at 10,500 feet altitude. See story on page 4.



– photo by Bob Nye

Julie Lloyd, Scout Project Office, displays the four-foot diameter decal which will appear on the heatshield of the 100th Scout vehicle. The UK-6 payload, scheduled for launch aboard the Scout on May 24 from Wallops, will conduct studies in the field of high energy astrophysics, such as quasars, radio galaxies, supernovae and pulsars.

Researchers Present Papers at Symposium

Eight Langley researchers presented papers at a symposium on Environmental and Climatic Impact of Coal Utilization held in Williamsburg from April 17–19. The symposium was sponsored by NASA, Electric Power Research Institute, Institute for Atmospheric Optics and Remote Sensing, (IFAORS), National Oceanic and Atmospheric Administration, and Virginia State Air Pollution Control Board.

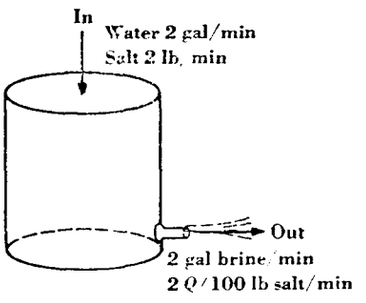
About 70 people from various universities, industrial laboratories, and government organizations participated in the symposium. Presenting papers from Langley were:

Dr. Robert C. Harriss, Dr. Gerald L. Gregory, and Wesley R. Cofer, III, Marine and Applications Technology Division; Dr. Jag J. Singh, Dr. George M. Wood, Jr., Paul R. Yeager, David R. Schryer, and Dr. Robert S. Rogowski, Instrument Research Division.

The symposium was organized by Singh and Dr. Adorsh Deepak, IFAORS.

Brain Teaser

A tank contains initially 100 gal. of brine holding 150 lb. of dissolved salt in solution. Salt water containing 1 lb. of salt per gallon enters the tank at the rate of 2 gal/min, and the brine flows out at the same rate. If the mixture is kept uniform by stirring, find the amount of salt in the tank at the end of 1 hr.



Anderson Elected College Trustee

Dr. Alvin F. Anderson, Head of the Office of Research Grants and University Affairs, has been elected to serve on the Board of Trustees, Saint Paul's College in Lawrenceville, Virginia. Saint Paul's College is affiliated with the Episcopal Church of America, and is a four-year, accredited, degree-granting institution.

Saint Paul's College President, Dr. James A. Russell, said in his congratulatory letter to Anderson, "I was personally pleased with your election, and I will be very happy to work with you."

Anderson is currently serving as Assistant Director of Development for Federal Programs at Hampton Institute, under the Intergovernmental Personnel Act.

Energy Saving Tip

Keeping the refrigerator and freezer too cold wastes energy. Check the manuals for the correct temperatures and adjust the appliances' thermostats accordingly. Generally, temperatures in the refrigerator should be 38 to 40 degrees, and zero to five degrees in the freezer.

Bonds

Continued from page 1.

But, I *won't* cancel my bonds in protest. If I did, I would hurt myself the most because I wouldn't be "paying me first."

Some of you may be able to relate to my personal situation, and if you feel as I do, sign up for the U.S. Savings Bond Program or increase your allotment. Make yourself feel good. Support your country and yourself.

Bill Piland

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Langley Supports Small Businesses

President Carter recently proclaimed the week of May 13–19 as Small Business Week. Of the 14 million businesses in the United States, more than 13 million of them are small, including some three million farms. Together they provide employment for over half the business labor force and account for more than 48 percent of the gross business product.

At Langley, small businesses are strongly supported. In 1978, small firms were awarded over $48 million in contracts. Joseph F. Braig, Small and Minority Business Staff Specialist, Acquisition Division, said "In the first six months of 1979, more than $27 million in contracts were awarded to small businesses. Langley can also be proud of the fact that, to date, over $10 million of awards toward the construction of the National Transonic Facility have been made to small business firms." The goal for fiscal year 1979 is $50 million.

Under these contracts, small firms provide services such as base maintenance, warehousing, transportation, security guards, ground maintenance, custodial, data management, pressure testing, and research and development.

In conjunction with Small Business Week, Langley participated in the National Contract Management Association Mid-Atlantic Region Symposium held at the Cavalier Hotel in Virginia Beach from May 9–11. Approximately 300 people representing government and private sectors attended the seminar.

Key Positions

Richard B. Rountree has been named Head, Structural and Architectural Section, Construction Engineering Branch, Plant Engineering Division.

William E. Howell has been selected Head, Avionics Technology Research Branch, Flight Electronics Division.

Fred B. Beck has been named Assistant Head, Electromagnetics Research Branch, Flight Electronics Division.

Susan J. Voigt has been selected Head, Programing Techniques Branch, Analysis and Computation Division.

Overspending Spells Trouble

Today people are spending cash and exercising credit privileges extravagantly, hoping to beat inflation. Consumer spending, prompted by fears of inflation rather than by true product demand, only adds fuel to the inflationary fires: it drives prices still higher. For the economy and the individual, buy-now-pay-later tactics spell serious trouble. The result could mean a full-fledged recession.

To make certain you do not overspend and end up heavily in debt, the Langley Federal Credit Union recommends the following limitations on spending practices:

- Your monthly payments for short-term debt should not consume more than 20 percent of your monthly pay check after taxes.
- If you are part of a two-income family, make sure you could meet your financial obligations should one income be cutback or eliminated altogether.
- It is recommended that a cash reserve, sufficient to meet your family's normal expenses for six months, be maintained in your share account.

Aerospace Penpoints
by Wesley Berryman

IDEAS are like seeds, apparently insignificant when first held in the hand!... once firmly planted, they can grow and flower into almost anything at all, a cornstalk or a giant redwood – or a flight across the ocean...

Whatever a man imagines, he can attain...

– Charles A. Lindbergh

Activities Celebrating 100th Scout Launch

As of *Researcher* press time, 860 people have signed up for bus transportation to Wallops for the 100th Scout launch on May 24.

A schedule of planned events is printed below:

SCHEDULE OF EVENTS

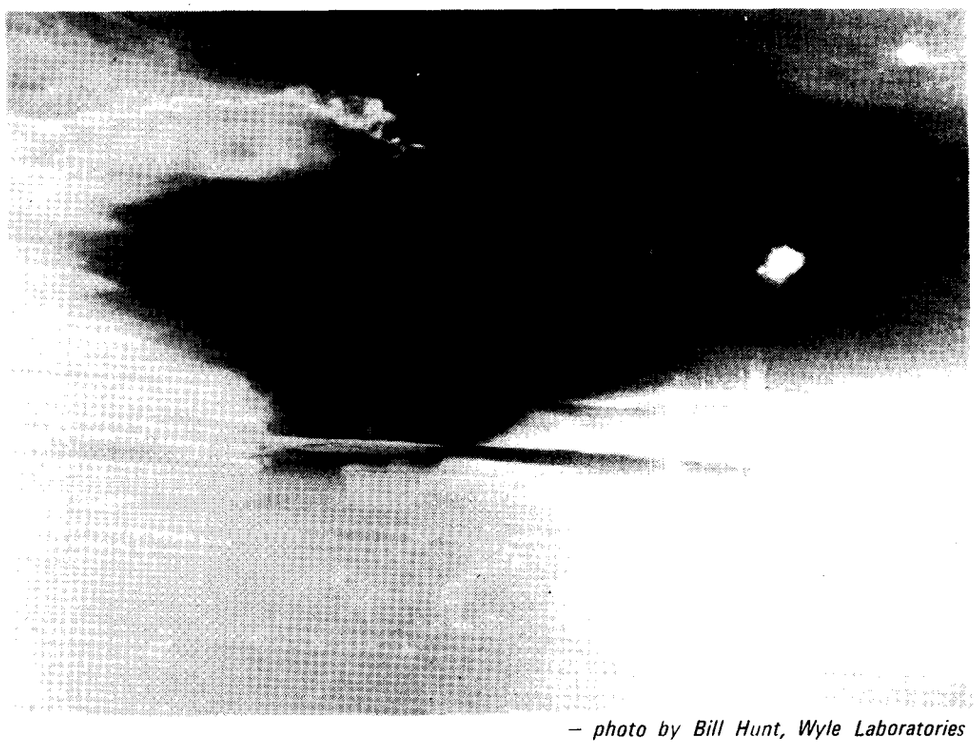
1:30–1:45	Receive Boxed Dinners
1:45–2:00	Load Buses
2:00	Buses Depart– NASA Building 1244
5:00	Approx. Arrival Time at NASA Wallops Gate
5:00–5:30	Tour of Wallops Island
5:30	Depart Buses
5:45–6:00	Eat Boxed Dinners (Drinks for sale in area)
6:00–7:00	S-198 Count Down
7:00	Scout Launch
7:00–7:30	Scout Count Up
7:30–7:45	Load Buses
7:50	Start Tour of Wallops Station
8:00	Depart Wallops Station for Langley
11:00	Arrive NASA– Building 1244

If you are going to drive your car to the launch, it has been suggested that you plan to arrive at Wallops Flight Center no later than 5 p.m. There will be parking facilities available at the Center and bus transportation to the viewing site.

The only seating provided for observers at the viewing site is the surrounding grassy areas. It would, therefore, be wise to take an air pillow or a substitute.

The launch next Thursday will be the last Scout launch from Wallops. This is a good opportunity for you and your family and friends to take part in an evening of planned activities commemorating the 100th Scout launch. If you plan to attend, please send your reservation form and check to Ann Suit, Mail Stop 154, by 4:30 p.m. today. The cost of the bus trip and boxed dinner is $10 per person.

Langley Satellite Tracks, Studies New Volcanic Eruption



– photo by Bill Hunt, Wyle Laboratories

This photo of the La Soufriere volcanic eruption was taken at 5:10 p.m. local time (4:10 EST) April 17, 40 miles southeast of the volcano at 10,500 feet altitude.

The volcano, La Soufriere, on the island of St. Vincent in the Caribbean, is providing scientists with the opportunity, for the first time, to measure and track volcanic emission flows in the stratosphere by satellite on a global scale.

Researchers at Langley, through the use of the Stratospheric Aerosol and Gas (SAGE) Experiment satellite and ground truth experiments, are tracking the material spewed into the stratosphere by La Soufriere which erupted April 13, 14 and 17, 1979, ejecting ash and volcanic gases into the surrounding atmosphere.

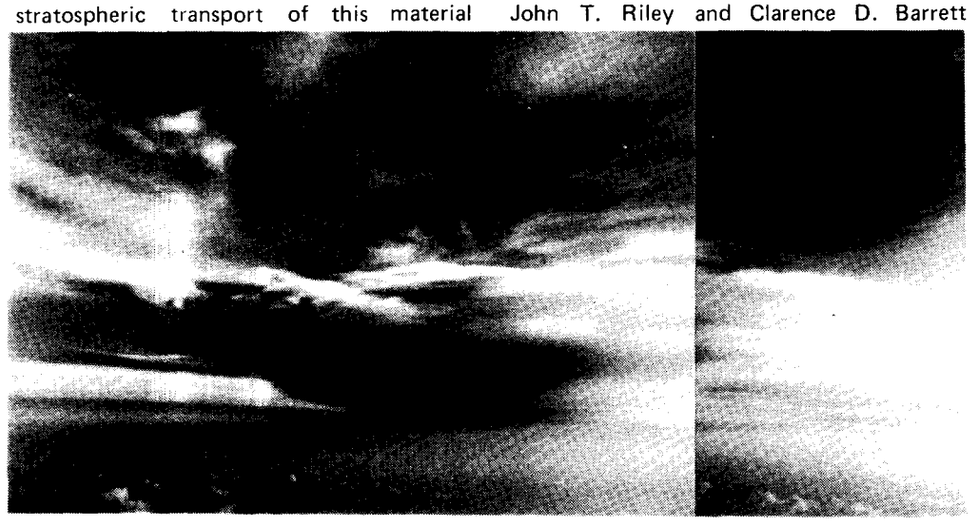
As much as an inch of dust was deposited on neighboring islands.

The volcanic eruption may provide a rare opportunity for scientists to study the long-term global distribution throughout the stratosphere of aerosols from a single point source, according to SAGE experiment scientist Dr. M. Patrick McCormick, Instrument Research Division. This will depend on the exact magnitude of La Soufriere's perturbation on the total aerosol loading in the stratosphere, he added.

These data may allow scientists, therefore, the ability to check predicted versus actual radiative disruptions to surface and stratospheric temperatures. They offer the opportunity to study the stratospheric transport of this material and the formation of aerosols through various gas-to-particle conversion processes.

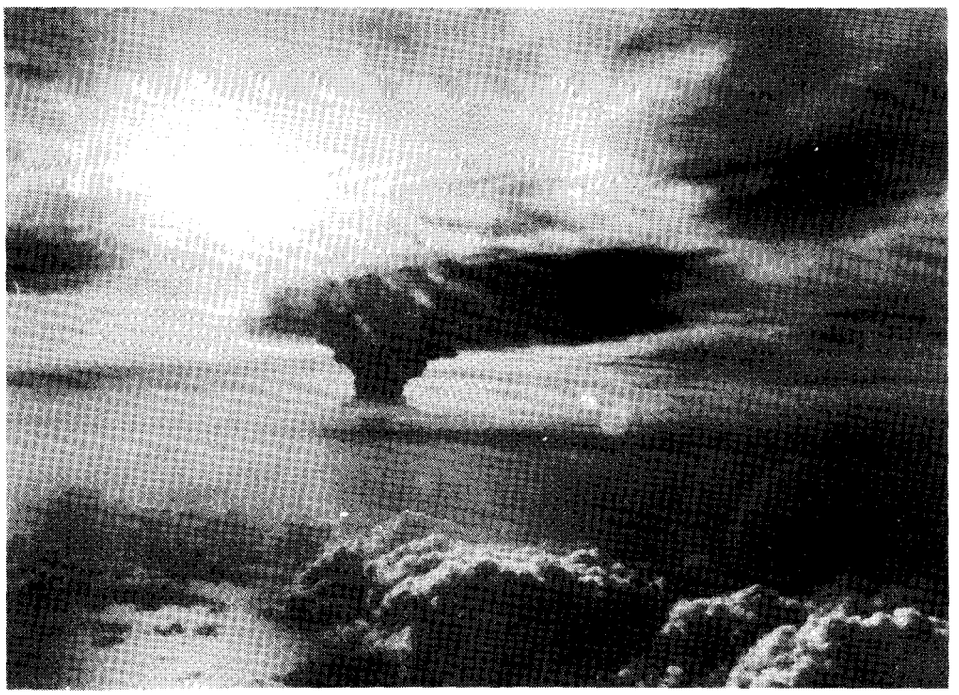
Researchers are now directing SAGE data processing to the volcanic eruption and are checking a band between six and 20 degrees North latitude around the Earth measuring the spreading volcanic veil. Other latitudes will be studied as the veil expands toward the poles. McCormick noted that they are coordinating their studies with the scientific community and have alerted a number of researchers throughout the world to put their groundbased and balloon-borne instruments into use in an attempt to provide more data on the volcanic layer.

Langley researchers aboard the Wallops Flight Center's P-3 aircraft were working on SAGE ground truth experiments in Brazil at the time of the first two days of volcanic activity. On their return trip to the U.S., they stopped in Barbados, where they received word of the volcanic eruption. The researchers were William H. Fuller, Jr., Bill R. Rouse, and David C. Woods, Instrument Research Division; Samuel Sokol, Flight Electronics Division; and William H. Hunt and Forrest C. Diehl, Langley contractor employees from Wyle Laboratores. The flight crew consisted of John T. Riley and Clarence D. Barrett



– photo by Bill Hunt, Wyle Laboratories

This combination of photos of the La Soufriere volcanic eruption was taken at 5:54 p.m. local time (4:04 EST) April 17, 70 miles north of the volcano at 18,600 feet altitude.



– photo by Bill Hunt, Wyle Laboratories

This photo was taken at 5:04 p.m. local time (4:04 EST), 60 miles southeast of the volcano at 10,500 feet altitude.

from Wallops and Robert L. Snell, Jr., Bobby C. Easley and Edward D. Leinberger, Wallops contractor employees from Lockheed Aircraft.

was the first time that such measurements were made under a fresh volcanic plume.

Sulfur gases were detected by the researchers aboard the plane and oxygen masks were donned. The aircraft immediately returned to Barbados, continuing to take data. Another flight mission was planned on April 18 and the aircraft lidar detected the stratospheric aerosol layer moving both east and southwest from St. Vincent. Data from this mission showed that material from the volcanic eruption definitely penetrated the tropopause, the boundary between the upper troposphere and lower stratosphere, and entered the stratosphere. This information was reported to the SAGE satellite research team at Langley the following morning, April 19.

McCormick said that SAGE passed the area on April 23 and 24 and that data from a real-time SAGE pass at 15 degrees North, 57 degrees West, on April

A measurement mission to the St. Vincent's area was planned for April 17, just before Sunset. As the aircraft approached the area at approximately 5 p.m. local time (4 p.m. EST), La Soufriere erupted, sending a large visible plume of material high into the troposphere, appearing to top off at 50,000 feet and move eastward. The cloud looked like a nuclear explosion cloud or a thundercloud with an anvil blowing off to the east.

Researchers aboard the plane took 8-mm. movies and pictures of these events, and made measurements of the plume's aerosol size distribution and concentration and lidar measurements of the aerosol layer. Because of surrounding water vapor clouds and the large amount of dust present, the lidar data taken during the eruption were not easy to interpret in real time and are undergoing analysis at Langley. Lidar measures the concentration and latitude of the aerosol layer by laser light backscattering. This 23, one week after the eruption, showed that SAGE detected the volcanic aerosol layer in the stratosphere. The complete data sets from these days are now being scrutinized in an attempt to determine the magnitude and extent of this event in the total stratospheric aerosol loading, McCormick said.

SAGE, launched February 18, from Wallops, maps vertical profiles of ozone, aerosols, nitrogen dioxide and molecular extinction in the stratosphere around the globe. This information provides scientists with information to help answer questions about the effects of aerosols and ozone on climate and environmental quality.

The aerosol layer acts like a filter by reducing the amount of Sunlight that reaches the Earth's surface and the amount of reflected Sunlight that eventually escapes to space. Aerosols, small solid particles or liquid droplets suspended in the surrounding air, are typically less than one millionth of a meter in diameter.

According to SAGE science team member Theordore J. Pepin, Department of Physics and Astronomy, University of Wyoming, Laramie, many questions remain on what effects the ash and volcanic gases will have on the stratosphere. He said that in the coming months these data will help answer some of those questions.

Pepin said that the emissions could increase the concentration of the Earth's aerosol layer, but the magnitude of this ejection is not certain. If there is a large increase in the aerosol concentration, it could possible affect the Earth's climate with important implications for agriculture.

Thanks

Frank S. Kawalkiewicz writes: "I want to thank all of my co-workers (friends) who contributed to and honored me with a picnic party upon my retirement on May 4. It was a wonderful party and one that I will long remember. Thanks again for the outstanding gifts and the winged NACA plaque which I will treasure along with memories of you great people."

Personnel Profiles

By Allan C. Hanrahan

"The Sun came up upon the left,
Out of the sea came he!
And he shone bright, and on the right
Went down into the sea."

—Coleridge—

These lines from "The Rime of the Ancient Mariner" seem an appropriate beginning for this introduction to **FRED C. WILSON** and **J. ROBERT PADELT**.

Now, neither Fred--at age fifty-nine, nor Bob--at age fifty, is "ancient" but both spend many of their off-duty hours as mariners trying to see that the Sun will shine bright for Sunday sailors and others of that ilk hereabouts during these sunny days of May.

As high officers in the Coast Guard Auxiliary, Fred and Bob endeavor to promote safety in boating. This is one of the major aims of the Coast Guard Auxiliary, a voluntary association of yacht and motorboat sailors and owners. Founded in 1939 it is the "only boating organization sanctioned by the Congress and the U.S. Coast Guard," according to Fred Wilson, Rear Commodore of the Central Area of the Fifth Coast Guard District Auxiliary. Each of the Areas is made up of Divisions which themselves are comprised of from five to nine Flotellas.

As a further explanation of the Auxiliary, Fred explained: "It is to aid the coast guard and foster better understanding of the same, and to aid in the safety of boating."

There are presently three programs in existence directed toward these goals. First, there is the public education program. Second, there is the courtesy marine examination, which is free to boaters and is to determine if federal and state requirements are being met and to ascertain if all required equipment for safe boating is present. However, this examination is for the boater, with no reports filed. Third, there is the operational support furnished by the Auxiliarists in search and rescue operations. Using their own vessels they go out on coast guard orders with the coast guard furnishing liability protection and, sometimes, reimbursement for expenses.

Another activity of the Auxiliary is AIM, the "Academy Introduction Mission" wherein a high school junior is selected to attend the Coast Guard Academy for a visit to investigate it as a possible career. The last two young men so sponsored have opted to make the coast guard their career.

Fred Wilson's present career is that of an Engineering Technician at the Landing Loads Track. When questioned as to the why and wherefore of his nine-year involvement with the Auxiliary, he probably spoke for Bob Padelt also when he answered, "I just liked what I saw them doing."

And his wife, Edna, evidently shares that viewpoint because he said of her: "She is my backbone" (where the Auxiliary is concerned).

A native of Glassport, Pennsylvania, he joined the Army Air Corps in 1939. At Pearl Harbor on December 7, 1941, he is a charter member and was secretary for three years of the Pearl Harbor Survivors Association. He retired from the Air Force in 1962 with the rank of Chief Warrant Officer and came to work at the Center late in 1963. He now serves in Technical Support Section A of the Operations Support Division as does Bob Padelt, and they also both enjoy the leisure activities of boating and fishing (naturally).

J. Robert Padelt, Division Captain, and a five-year member of the Auxiliary, is practically a Peninsula native, having been brought here by his parents from Battle Creek, Michigan, when he was one-year old.

A product of Hampton High School, class of forty-seven, he came to work at the Center soon after graduation although he had worked here part-time and summers since 1944. Also an Engineering Technician, he works at the Acoustics and Noise Reduction building.

Bob and his wife, Opal, have three children: Barbara, age twenty-three; Donald, age twenty-one; and Albert, age nineteen. Bob also has a stepson, Fred, age twenty-seven, and a stepdaughter, Carla, age twenty-four.

Asked if he had any other interests or hobbies, Bob answered that other than boating and fishing the Coast Guard Auxiliary was "just about it," except for the memberships that he holds in the Hampton Roads Power Squadron, the Boat Owners Association of America, the Lafayette Gun Club, and the National Rifle Association.

So, since these two gentlemen put so much time and effort into promoting boating safety, all you boaters out there please make their efforts--and the efforts of the other Auxiliarists here at the Center--worth while by being just as safe on the water as you can be.

– photo by Bob Nye

Robert J. Padelt and Fred C. Wilson review the navigational charts used by the Coast Guard Auxiliary to determine factors such as water depths, buoy locations, channels, tides and hazardous areas.

Happenings

BINGO is cancelled May 24 due to a scheduled AIAA conference in the Activities Center.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, May 22, at 7:30 p.m., in the Activities Center, Building 1222.

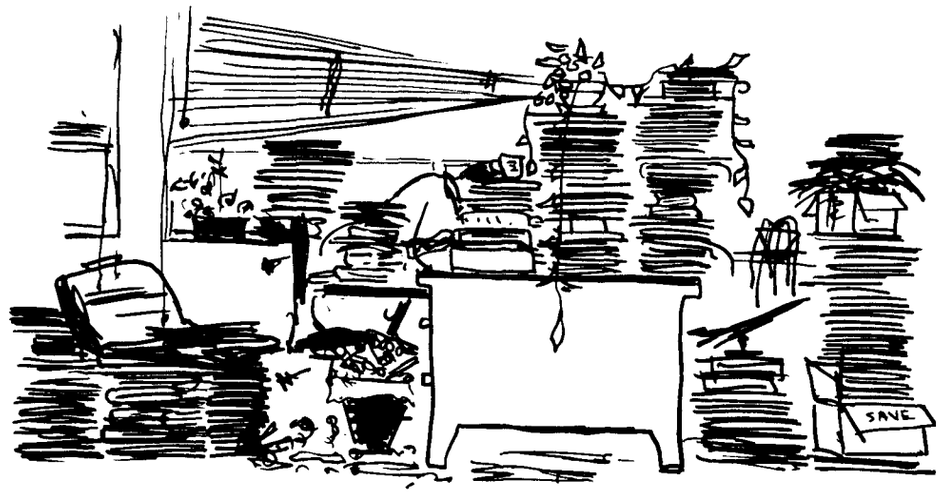
HAPPY HOUR, scheduled for May 25, will be held on the Activities picnic grounds from 4 to 6:30 p.m.

LAA building and grounds reservation requests should be submitted in writing to Sue Juanarena, Manager/Bookkeeper, Mail Stop 496. Reservations can be submitted 60 days in advance, and should be reconfirmed 14 days prior to the reserved date. Complete details concerning the function must be furnished.

TAC AIR TOASTMASTERS CLUB invites you to develop the arts of giving and evaluating speeches, and chairing an organization or committee. TAC AIR meets every second and fourth Wednesdays of the month at the Langley Officers' Club at 7:15 p.m. For more information call Bob Lee, ext. 2486, Bob Miserentino, ext. 2817; Jim Moss, ext. 3770; Jim Shipp, ext. 2592; or Gayle Wilson, ext. 3551.

HONEY BUNCH. The Langley Apicultural Club will hold its May meeting and election of Officers banquet on May 25 at the Langley Officers' Club. Social hour begins at 6 p.m., with dinner at 7 p.m. Homer Powers, State Apiarist, and Frank Fulgham, Eastern Region State Bee Inspector, will give state and local reports. Dr. Richard Fell, Bee Entomologist from VPI & SU, will speak on how bees function as a colony; a discussion period will follow. All persons interested in beekeeping are invited. Cost of dinner is $7.15. Reservations should be sent to Evelyn Goodrich, M/S 186, or Ronnie Henk, M/S 448, by May 21.

AFGE PICNIC. The annual AFGE Local 2755 picnic will be held on the Activities grounds, on June 16, at 3 p.m., for members and immediate family only. Music will be furnished by Tidewater Grass. If reservations are made prior to June 11, the cost of the picnic will be 50 cents for age six and over, and children under six will be free. After June 11, the cost will be 75 cents per person. Tickets can be purchased from stewards or officers.



Does this look familiar to anyone? **—sketch by "Anonymous"**

Question and Answer

Q. Is it NASA policy to sacrifice health standards in order to meet energy reduction goals? I'm concerned about the cut-off of ventilation in Building 1209 in order to save electricity. Even cigarette smokers have begun to complain about the stale air. Is there any truth to the rumor that the solar system functions so poorly that the cut-back was instituted to make the energy totals look good?

A. Ventilation in all Center facilities is maintained at levels to assure a safe and proper environment for occupants. Although ventilation air has been reduced in recent years for energy conservation, the existing lower levels are within standards established by NASA's Facilities Handbook. The handbook states that ventilation shall be in accordance with the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) recommendations. ASHRAE gives as the ventilation requirement 15 cfm (cubic feet per minute) per person which can be reduced to 5 cfm per person with adequate filtering and temperature control. All Center facilities are operated in accordance with this guideline.

There is no variance in the ventilation policy and certainly not at Building 1209 due to the solar collector system. As to the performance of the Building 1209 solar energy system, for the twelve months of FY 78 solar energy provided 57 percent of the thermal energy requirements needed for both heating and cooling. In addition to serving as an important developmental test bed, the solar collector system performance has consistently matched design predictions.

Key Positions

James R. Williams has been named Assistant Head, Programing Techniques Branch, Analysis and Computation Division.

Raymond T. Moore has been designated Acting Head, Contracting Section, Facilities and Materiels Contracting Branch, Acquisiton Division.

Delwin R. Croom has been selected Assistant Head, Low-Speed Aerodynamics Branch, Subsonic-Transonic Aerodynamics Division.

CHENILLE PATCHES commemorating the 100th Scout launch will go on sale next week at the Exchange Gift Shop for $1 each.

Retirement Party

Roy F. (Briss) Brissenden, Aeronautical Systems Division, will be the guest of honor at a retirement dinner on Wednesday, May 30, at the Activities Center. A cash bar will open at 6:30 p.m. with dinner at 7:30 p.m. The cost will be $6.75 per person ($13.50 per couple). For reservations or contributions toward a gift, contact Betty C. Pate, ext. 3216, Mail Stop 249A, by May 23.

swap and shop

FOR SALE

Articles

Chain link fence, new, 4 rolls, 48" high 50' long, 20 posts and misc. hardware, $295 for entire lot; and welded wire fence, white vinyl coated, 48" high 33' long and 5 posts, $20 for lot. Call 723-0870 after 5 p.m. weekdays; anytime Saturday or Sunday.

Starduster M 400 CB antenna, never been assembled, $30. Call Simmons, ext. 3095.

Johnson 6 hp seahorse with 6 gal. tank, EC, used 18 hrs, $225. Mercury 20 hp, extra prop., 6 gal gas tank, EC, used 7 hrs, $425. Call Lambiotte, 596-0980.

Vehicles

1978 Fiat 128, 2 DR Sedan, 4 speed trans., 18,000 miles, GC, $2,900. Call 599-4498.

Pop-up Camper, Jayco, 1971 Jay Eagle, sleeps 8, gas stove, sink, icebox, spare tire, EC. Call 596-0515.

1973 Chrysler New Yorker, 4 DR H/T, PS, PB, AC, AM-FM stereo, 34,000 mi., EC, $1,500. Call 851-2936.

1976 Oldsmobile Cutlass, automatic, AC, PB, PS, AM-FM stereo, tilt wheel, white/white vinyl top, low mileage, one owner, $3,750. Call 723-8367 after 5 p.m.

1979 Trans AM, black, 6,000 mi., AC, PB, AT, $6,700 neg. Call 868-9319 after 6 p.m.

Sailboat, 15 ft. daysailer, $500. Call Joe Drewry, 2977.

1970 SAAB Sonett III, A/C, AM-FM, GC, $1,200. Call Eldred, 3911 or 898-7618.

Chris Craft, 28' Cabin Cruiser, VGC, sleeps 4, galley, stand-up head, engines and trans. in like new cond., kept under cover. Call 838-0173 after 4:30 p.m.

Real Estate

Phoebus/Buckroe area: 2 BR, 1 BA, LR w/Franklin fireplace, DR, kit w/appliances, aluminum siding w/attached carport, aluminum siding shed, landscaped yard, well insulated, some w/w carpeting, hardwood floors, many extras, mint condition, prime location, mid 20's, NO AGENTS. Call 723-5738 after 5 p.m. for appt.

Poquoson, Freemoor estates: choice corner lot, 3 BR, 2 BA, brick rancher, CA/oil heat, att. gar., kit-fr combo, FP in LR, $49,500. Call 868-7491 or 868-8190.

House--Riverdale, 3 BR, 1½ BA, L-shaped brick rancher w/attached gar., country kit., FP, CA/Gas heat, w/w carpet, drapes, 6 SW, separate detached 16' to 20' workshop, new aluminum gutters, new HWH, fenced BY, convenient to bases and schools, in quiet neighborhood, $24,000 assumption, balance $28,000 w/monthly payments, $292 including taxes. Call 838-4177 for appt.

Thanks

Robert W. Mulac writes, "To all of those who wished me well on my recent retirement and to those who organized and attended my retirement luncheon on April 17--thank you very much. I only wish that I might have had the opportunity before my last work day to visit with all of those who so enriched my years at Langley. Stop by sometime, and I'll take your picture with my new WC camera."

FOR RENT

Rent a comfrotable cottage, enjoy fishing and/or relaxing on the Outer Banks of North Carolina, off season rates, $150/wk., in season, $200/wk., sun roof, outdoor shower, fully equipped, kit. has dishwasher, 3 BR, sleeps 8 adults, everything included except food and linens, short walk to ocean, approx. 1/4 mi. to fishing pier. For information, call Culotta, 723-6142, for reservations, call 919-995-5252.

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, 1/2 block from ocean and Backbay (freshwater), AC, electric heat, telephone, 4-car parking, summer rate $375/wk; winter rate $350/mo. Call G. O. Kent, 420-8391 Va. Beach, work—ext. 3095.

WANTED

Person to do yard work, 1 or 2 days per month. Call 868-7491 or 868-8190.

To join or start a carpool from Virginia Beach to West area for either 7:30 or 8 shift. Call B. Jackson, ext. 3631.

Carpooler(s) from Virginia Beach or Norfolk area, 8—4:30 shift. Call Pat Jaudon, ext. 3561 or 420-9256.

To join a carpool (as a driver or an alternate) from Newmarket area to West area on 7:30 shift. Call J. Parker, ext. 3181 or 245-1736 (615 72nd Street).

Driver to join congenial and reliable riding combination to West area, 8 a.m. shift, from Warwick-on-the-James/Hilton Village area. Call Sewall, 3196 or 596-1157.

Additional members to join two person carpool from Kingspoint (or nearby areas) in Williamsburg to West area, 8 a.m. (or 7:30 a.m.) shift. Call Bob Nowak, ext. 3732 or 220-3421.

LOST

One western-style straw hat, "Shepler's" label, lost 5/8/79, between rear of Bldg. 1192E (Scout), and Headquarters. Call Ritchie, ext. 2641.

cafeteria menu

WEEK OF MAY 21

MONDAY: Corn Chowder; Clam Strips; Braised Beef & Vegetables; Pineapple Chicken. Snack Bar: Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Glazed Ham Loaf; Beef Pot Pie. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Steak Teriyaki; Baked Tuna & Noodle Casserole. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Beef Enchiladas; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF MAY 28

MONDAY:
HAVE A SAFE AND HAPPY HOLIDAY!!

TUESDAY: Bull Island Clam Chowder; Crab Cutlets; Roast Beef; Franks, Bacon & Cheese. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Pepper Steak; Baked Virginia Ham. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers Over Rice; Beef Balls Stroganoff; Hot Roast Pork Sandwich. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Country Style Steak; Savory Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

Recent Retiree

Durwood W. Davis, Fabrication Division, and **John Borowski** and **Tom L. Howell**, Plant Engineering Division, retired on May 4.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 11 June 1, 1979

Langley Inventors Honored at Awards Luncheon

Thirty-three Langley inventors were honored for receiving United States patents in 1978, at the annual Inventor's Award Luncheon on May 17.

Awards were presented by Dr. Donald P. Hearth, Langley Director. Guest speaker for the luncheon was Gerald J. Mossinghoff, Deputy General Counsel for NASA.

Inventors who received awards are: Wilbur C. Heier and Melvin H. Lucy, for a molded composite pyrogen igniter for rocket motors; Walt C. Long and Milton L. Williams, for a non-destructive method of applying and removing instrumentation on airfoils; Dr. Willard W. Anderson and Nelson J. Groom, for a magnetic suspension and pointing system.

Donald L. Maiden, for a two dimensional wedge/translating shroud nozzle; Ernest E. Burcher, Dr. Stephen J. Katzberg and William L. Kelly, IV, for a device for measuring the contour of a surface; William J. Debnam, Jr., Dr. Carl L. Fales, Jr., and Dr. Roger A. Breckenridge, for a magnetometer with a miniature transducer and automatic scanning.

Donald E. Barthlome, for a collapsible corrugated horn antenna; David C. Grana and David P. Haynes, for a remote water monitoring system; Richard N. Young, for an independent power generator; Dr. Paul L. Coe, Jr., for a supersonic transport; Leonard M. Weinstein, for a contrast enhancement and small detail blending of photographic images.

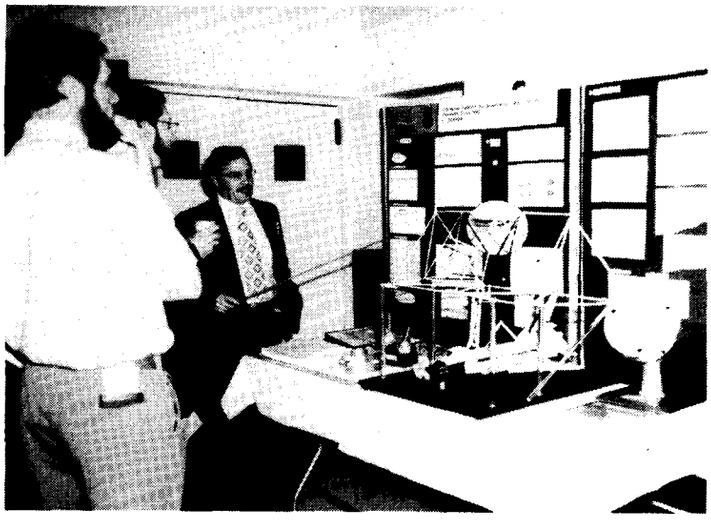
Dr. Vernon L. Bell, for a process for preparing thermoplastic aromatic polymides; Dr. Robert C. Costen, for a smokestack-mounted airfoil; Vernon L. Alley, Jr., and Austin D. McHatton, for a method and apparatus for quantitatively measuring the handle of fabrics and other flexible materials.

Laurence J. Bement, for a totally confined explosive welding; Dr. Nelson W. Jalufka, Dr. Frank Hohl, and Michael D. Williams, for a volumetric direct nuclear pumped laser; Chris Gross, for an electrically scanned pressure sensor module with in situ calibration capability.

Dr. Joseph S. Heyman, for a psuedo continuous wave instrument; David F. Thomas, Jr., and Leon A. Williams, Jr., for a fluid velocity measuring device; Bruce Flagge, for a septic system liquid level control apparatus; and Otto Youngbluth, Jr., for a versatile laser doppler velocimeter burst simulator.

– photo by Bob Nye

Front row, from left: Otto Youngbluth, Donald E. Barthlome, Laurence J. Bement, Dr. Robert C. Costen, Dr. Vernon L. Bell, Austin D. McHatton, Dr. Joseph S. Heyman, Dr. Frank Hohl, and William J. Debnam, Jr. Back row, from left: Wilbur C. Heier, Leon A. Williams, Jr., Walt C. Long, Dr. Paul L. Coe, Jr., Leonard M. Weinstein, Melvin H. Lucy, Dr. Willard W. Anderson, Nelson J. Groom, Dr. Carl L. Fales, Jr., Vernon L. Alley, Jr., Dr. Roger A. Breckenridge, M. David Williams, Chris Gross, and Ernest E. Burcher. Not pictured: Dr. Nelson W. Jalufka, David F. Thomas, Jr., Bruce Flagge, David C. Grana, David P. Haynes, Donald L. Maiden, Dr. Stephen J. Katzberg, W. Lane Kelly, IV, and Richard N. Young.



– photos by Bob Nye

Lloyd S. Keafer (left) and John J. Rehder (right), Space Systems Division, present papers during the recent Conference on Advanced Technology for Future Space Systems. Using the concept of informal poster sessions, twenty-two Langley researchers displayed papers at the conference.

Langley Hosts Future Space Systems Conference

– photo by Bob Nye

John Disher gives keynote address at opening session on May 8.

A conference on Advanced Technology for Future Space Systems was held May 8 through May 10 in the Activities Center. The event was sponsored by the American Institute for Aeronautics and Astronautics and NASA.

The conference was the first major poster session event that Langley has sponsored. Poster sessions are unique in that they allow numerous informal poster presentations to be given simultaneously. During each conference session, there were as many as 36 presentations on the floor at a time.

Topics covered during the three-day conference included transportation systems, space systems, large space systems technology, systems design, structures and materials, information management, propulsion, power, aerothermodynamics, and stability and control.

There were 355 attendees at the conference, including representatives from NASA, private industry, universities, the Netherlands, Canada, Japan and France.

The guest speaker for the opening session was John Disher, Director for Advanced Programs, Office of Space Transportation Systems, NASA Headquarters.

General Chairman for the event was Charles J. Donlan, Consultant and former Langley Deputy Director. Technical Program Co-Chairmen were Beverly Z. Henry, Jr., and W. Ray Hook, Space Systems Division (SSD). Administrative Chairman was Robert L. Wright, SSD.

Proposed OPM Regulations to be Posted

The Civil Service Reform Act of 1978 requires the Office of Personnel Management (OPM), formerly the Civil Service Commission, to issue a significant number of new or changed regulations. Some provisions of the Act have and will become effective before completion of the required public notice and comment procedures. In these cases, OPM will designate its proposed regulations as interim authorities during the comment and consultation period.

To insure that individuals and organizations outside the OPM have the proposed regulations available for comment, a central location for posting notices of the regulations and maintaining the text of the regulations has been designated. Notices for proposed regulations will be posted on the bulletin board in Building 1195C, near the entrance to Room 150. A copy of the proposed regulations will be located in Building 1195C, Room 156.

Comments on proposed regulations should be addressed to the OPM official whose name and mailing address are listed on notice.

Key Positions

Dr. Julius E. Harris has been selected Assistant Head, Fluid Mechanics Branch, High-Speed Aerodynamics Division.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Mr. Explorertron will be appearing at the Scout-O-Rama, June 2, at the Langley Air Force Base. The robot, built by Langley Explorer Scouts with the aid of the Fabrication Division, can walk forward and backward, talk and even dance. Explorertron is shown here with two of the Scouts, Nathan R. Brown (left) and Darrell B. Andregg (right), and three advisors from Langley, David Johnston, Brad Ball and Donald Oliver, all of the Electronics Fabrication Development Branch.

Explorers Display Mr. Explorertron

It's not every day that a person has the opportunity to meet a walking, talking garbage can, but those attending the Scout-O-Rama, June 2, at the Langley Air Force Base may receive this opportunity.

Called Mr. Explorertron, the robot was built by Explorer Scouts at NASA's Langley Research Center. The electronics and electricity Explorer groups are sponsored by NASA-Langley's Electronics Fabrication Development Branch.

Work began on the robot in November 1978 as a joint project of NASA and the Explorers. The two Explorer groups, comprised of 12 through 18 year olds, worked alternating weeks on the robot, building its electronics and wiring. Langley's Fabrication Division shops provided support.

NASA engineers David Johnston, Brad Ball and Donald Oliver, advisors of the groups, agreed that the engineering was more difficult than building the robot. Many hours of their spare time were spent in Johnston's garage working on the project, Ball said.

The making of the robot resembles something from the TV series "Salvage I," in that all the parts were salvaged from discarded materials.

The robot's anatomy includes a fiberglass water tank for the body, blower motors similar to those used in car heaters, FM mobile radios, audio amplifiers, a radio control for a model airplane, a color organ and lawnmower wheels.

The 120 pound, three foot robot runs on eight gel-cell batteries. Eight to sixteen hours are required to charge the batteries for two to three hours of robot operation.

The robot is capable of rolling over most terrain, but runs best on cement. It can turn circles, walk forward and backward, and even dance. It is controlled by a system similar to a radio control for a model airplane.

The human controller, from as far away as a mile, can talk with another person through the robot. A receiver is mounted in the upper portion of the robot and a speaker is mounted in the middle.

There is a possibility that a video system will be installed, which will be helpful in guiding the robot around corners and from distances.

Explorertron, who has received an official NASA identification badge, will be working in the future for the Langley Office of Community and Educational Services.

Langley Employees Presented Awards

Special Achievement Awards have been presented to the following Langley employees:

Joseph D. Brooks, Subsonic-Transonic Aerodynamics Division, "For outstanding performance in the planning and conducting of acoustic and turbulence measurements in the 8-Foot Transonic Pressure Tunnel."

Robert L. Fox, Fabrication Division, "In recognition of outstanding performance of duties relative to electromagnetic development and packaging."

JoAnn H. Woodcock, Materials Division, "For sustained superior performance as secretary of the Materials Application Branch and for carrying extra responsibilities during temporary vacancies in the Materials Division Office and in the Structural Integrity Branch."

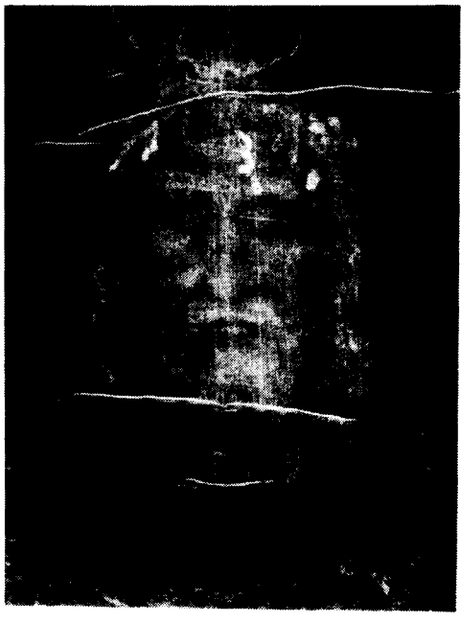
Kenneth V. Haggard, Atmospheric Environmental Sciences Division, "For outstanding contributions to energetics analysis capability for atmospheric dynamics modeling."

William R. Kivett, Acquisition Division, "In recognition of outstanding achievements in the successful negotiation and administration of a large number of complex research and development contracts and grants."

Suggestion Awards have been presented to: Lois D. Collier, Financial Management Division, "additional information on the Weekly Open Purchase Order Report;" Cora B. LaPrade, Financial Management Division, "compiling information for workload report;" John S. Hunt, Operations Support Division, "method of running test instrumentation tubing through pressurized vessel at 8–Foot Transonic Pressure Tunnel;" and Donald R. Beasley, "temperature monitoring unit with digital readout in degrees Fahrenheit for monitoring spindle temperature."

An **Honorary Suggestion Award** has been presented to Nelson B. Harris, retired, "control depth setting and to promote safety of high-speed wood working machine."

Otterbein and Jackson Discuss Shroud of Turin



Shroud of Turin.

Dr. Adam J. Otterbein, President of the Holy Shroud Guild of America, and Dr. John P. Jackson, Chief Scientist, American Shroud Research Team, will be the guest speakers at the Langley Colloquium on Monday, June 11.

The lecture, entitled "Scientific Investigations of the Shroud of Turin," will be held in the Activities Center at 2 p.m., with a question and answer session following at 3:15 p.m. An informal discussion period will be held from 3:30 to 4 p.m. in the adjoining Langley Room.

Since many of the Langley staff may wish to share this presentation with their families and friends, Otterbein and Jackson will give the same lecture in Ogden Hall, at Hampton Institute on Sunday, June 10, at 8 p.m. This lecture is sponsored solely by the Hampton Institute's Department of Physics and Chemistry and Department of Philosophy and Religion.

The first recorded showing of the linen artifact, now called The Shroud of Turin, was made in 1357 by the de Charney family of Lirey, France. It was claimed to have been the burial cloth of Jesus Christ. The cloth bears the full body image of both the front and back of a man.

Ownership of the cloth passed from the de Charney family to the Royal family Savoy of Italy. The Shroud now resides in a silver case in the Hall of the Swiss of the Royal Palace, which is attached to St. John's Cathedral in Turin, Italy. In recent decades the Shroud has become of increasing interest to members of the world scientific community. Scientists hope to establish through modern scientific techniques answers to questions of the Shroud's origin and history prior to 1357.

Otterbein and Jackson will discuss the known history of the Shroud, review the reasons for its interest and describe the scientific investigations to date. In particular, they will describe the data which was gathered on October 29, 1978, by some 50 American and European scientists.

Otterbein studied at Mount St. Alphonsus Seminary in Esopus, New York, and received his Doctorate in Theology from Cathloc University in Washington, D.C. While a student at the Seminary, Otterbein became interested in the Shroud. When he returned to the Seminary as a faculty member, Otterbein founded the Holy Shroud Guild of America. Under the direction of Cardinal Spellman, he established a center for the Guild at the Seminary. Otterbein is presently with the Holy Family Retreat in Hampton.

Jackson is Professor, Department of Physics, at the U.S. Air Force Academy, Colorado Springs, Colorado. He holds the rank of Captain in the U.S. Air Force.

Langley employees attending the colloquium are to charge their time to Job Order A1980.

Savings Bond Drive Ends June 8

The U.S. Department of the Treasury has announced an increase in the interest rate of savings bonds from 6 percent to 6.5 percent. This increase is effective June 1, 1979, and will apply to newly purchased bonds and to bonds previously issued and currently held.

The Langley U.S. Savings Bond Campaign will end June 8. Hopefully each employee has been contacted by a canvasser to buy bonds or increase her or his savings allotment. If you have not already done so, please complete Form 1192 and send it in today. Uncle Sam and the Langley campaign are waiting for your support. Your future won't wait.

As of May 21, the rate of participation by organization is as follows:

Organization	Percent of Participation
Office of the Director	
Director's Office	100
Office of Research Grants and University Affairs	100
Office of Equal Opportunity Programs	50
Office of External Affairs	93
Structures Directorate	
Director's Office	100
Materials Division	97
Acoustics and Noise Reduction Division	89
Structures and Dynamics Division	93
Space Directorate	
Director's Office	100
Atmospheric Environmental Sciences Division	95
Space Systems Division	80
Marine and Applications Technology Division	83
Electronics Directorate	
Director's Office	100
Analysis and Computation Div.	81
Instrument Research Division	81
Flight Dynamics and Control Division	92
Flight Electronics Division	83
Terminal Configured Vehicle Program Office	83
Systems Engineering and Operations Directorate	
Director's Office	83
Systems Safety, Quality, and Reliability Office	96
National Transonic Facility Project Office	95
Fabrication Division	80
Operations Support Division	68
Systems Engineering Division	91
Plant Engineering Division	71
Research Facilities and Engineering Division	92
Aeronautics Directorate	
Director's Office	100
Aeronautical Systems Division	100
Flight Mechanics Division	76

Thanks

Mercedes F. Hobbs writes, "I would like to express my appreciation to all my friends for their gifts, flowers, cards and well wishes during my two recent hospitalizations and convalescence. Most of all my sincere thanks for their prayers without which I would not be here today."

John W. Wilkey writes, "I wish to thank all of my friends for the wonderful retirement dinner and remembrances given to me on May 16. Your kind thoughts and well wishes will long be cherished. I hope to see you again soon."

Bonds

Organization	Percent of Participation
High-Speed Aerodynamics Division	82
Subsonic-Transonic Aerodynamics Division	79
Projects Directorate	
Director's Office	100
Project Management Systems Division	82
Scout Project Office	94
Long Duration Exposure Facilities Project Office	100
NASA/Army Rotor Systems Research Aircraft Project Office	100
Aircraft Energy Efficiency Project Office	88
ERBE Project Office	100
LSST Project Office	67
Management Operations	
Director's Office	100
Office of Chief Counsel	80
Office of Patent Counsel	100
Office of Occupational Health Services	100
Office of Technology Utilization and Applications Programs	83
Industry Relations Office	100
Financial Management Div.	81
Management Support Div.	100
Personnel Division	93
Business Data Systems Div.	100
Procurement Division	84
Programs and Resources Div.	94
Scientific and Technical Information Programs Div.	73

Mutch Appointed to Headquarters Post

Dr. Thomas A. Mutch has been named NASA's Associate Administrator for Space Science effective July 1.

Mutch, Professor of Geological Sciences at Brown University, Providence, RI, has been a major contributor to NASA science programs since 1969. He was a member of the Lunar Science Review Board from 1969 to 1973, leader of the Lander Imaging Science Team for the Viking Project from 1969 to 1977, Chairman of several NASA committees planning the post-Viking exploration of Mars, co-chairman of the Second International Colloquium on Mars held at the California Institute of Technology in January, and a Scientific investigator.

He received the NASA Medal for Exceptional Scientific Achievement in 1977 and NASA Group Achievement Awards for lunar science, Viking science, and the Viking Undergraduate Intern Program.

Haise Leaves NASA

Astronaut Fred W. Haise, Jr., will leave NASA at the end of June to become Vice President for Space Programs at Grumman Aerospace Corporation, Bethpage, NY.

Haise began his NASA career as a research pilot in 1959 and was one of the 19 astronauts selected by NASA in April 1966.

He was the lunar module pilot for Apollo 13, backup lunar module pilot for the Apollo 8 and 11 missions, and backup spacecraft commander for Apollo 16.

From April 1973 to January 1976, Haise was the technical assistant to the manager of the Space Shuttle Orbiter Project. He was commander of one of the two two-man crews which piloted the Space Shuttle Enterprise on test flights in 1977 and was named in March 1978 to command one of the early Space Shuttle orbital flights.

– photo by Bob Nye

Doris B. Vandeveer, Subsonic-Transonic Aerodynamics Division (STAD), receives a Special Achievement Award from Percy J. Bobbitt, Chief STAD, for "performing administrative and secretarial duties in an outstanding manner over a long period of time."

Vietnam Veterans Remembered This Week

This week is the first observance of Vietnam Veterans Week, honoring the men and women who served their country in the military services between August 4, 1964, and May 7, 1975.

Remembering Vietnam is difficult without remembering the trauma it brought to America. The Civil War may have been more divisive, the War of 1812 was probably as unpopular, but America's Vietnam experience was also the longest wartime period in our history.

The height of the Vietnam conflict was almost 10 years ago, 10 years of the healing passage of time, of national maturing and of coming to terms with the experience.

President Carter has issued a proclamation that states: "It is important that we remember those who answered their Nation's call in that war with the full measure of their valor and loyalty, that we pay full tribute at last to all Americans who served in our armed forces in Southeast Asia .... The honor of those who died there is not tarnished by our uncertainty at the moment of their sacrifice . . ."

A joint resolution of Congress reminds us that veterans who served during the Vietnam period "performed such service under the most trying conditions because of lack of domestic support for the conflict and because of the nature of the conflict itself . . ."

The Vietnam Veterans who work at Langley--more than 10 percent of the total work force--don't see themselves as being different from most of their co-workers. They accepted their traditional responsibility, did their military duty and fulfilled their obligation to the best of their abilities.

Now they are back at work, continuing former careers or making new beginnings, and whether they are managers, engineers or technicians, they can be proud of their contributions to the nation.

Among the Vietnam Veterans who work at Langley are these:

Roger Amick, James Arbuckle, Douglas Auvil, Beulah Baker, Harold Beazley, James Bell, Robert Berry, Richard Booth, Robert Bryant, Roosevelt Bryant, Leon Bynes, Carl Calfee, Harold Carney, Dewitt Carter, Bobby Cherry, Ricky Clark, Vincent Cowling, Edward Crum;

James Dieudonne, Dwight Elliott, Robert Fults, Robert Gates, George Geiger, Wayne Gerdes, Ng Ging, William Goad, Joseph Goodwin, David Gordinier, Manford Groves, Alton Grimes, Robert Harris, Roland Hatten, Charlie Hayes, John Hefner, William Hollingsworth, Morris Hood;

Jesse James, William Jones, Arthur Keith, Elijah Kent, Edward Kist, John Kovtum, Berkley Langford, Thomas Lash, Elbert Lee, Mark Lindsey, William Loudermilk, William Lovisz, Robert Lutinski, Timothy Marshall, Rex Meadors, James Meyers, Woodrow Midgette, Edward Modlin, Michael Moore, Dennis Mowrey;

Raymond Parker, Burnett Peters, Paul Pfeffer, David Pierpont, Barry Price, Howard Puckett, Lawrence Reed, Phillip Robinson, Walter Rogers, Vincent Rowland, Fred Rudolph, John Samos, Robert Sanders, Charles Schlosshan, Edward Self, Dean Sparks, James Starnes;

Edward Taylor, George Trombley, Peter Vasquez, Daniel Vigliotti, Thomas Vranas, Brian Webber, Wayne Wells, William Williams, and George Willis.

Sjoberg Retires from NASA

Sigurd A. Sjoberg retired from NASA on May 18 with 37 years service. He had been Deputy Director of Johnson Space Center since 1972.

He will join the OAO Corporation as Director and General Manager of Houston Operations. The corporation is an engineering and computer software firm with headquarters in Beltsville, Maryland.

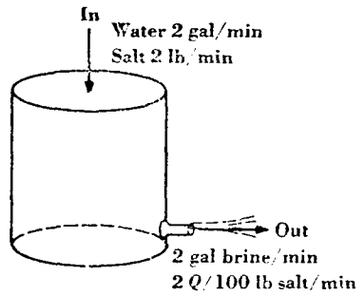
Sjoberg was Director of Flight Operations on April 13, 1970, when an explosion blew a hole in the rear part of the Apollo 13 spacecraft as it was en route to the moon. After aborting a moon landing, the Apollo 13 crew, working with hundreds of people on Earth, returned home safely.

President Richard M. Nixon presented Sjoberg with NASA's Distinguished Service Medal after the abortive Apollo 13 mission.

Sjoberg was among one of the first groups from Hampton to transfer to Houston to form the Manned Spacecraft Center.

Brain Teaser Answer

The "brain teaser" which appeared in the last issue of the *Langley Researcher* was submitted by Nicholas A. Kepics, Operations Support Division.



The solution is:

If Q represents the amount of salt in the tank at the end of t min, we have

$$\frac{dQ}{dt} = \text{rate of gain} - \text{rate of loss.}$$

Evidently the rate of gain is 2 lb/min, and as each gallon of brine in the tank contains Q/100 lb of salt, the rate of loss is 2Q/100 lb/min. Hence, the equation is

$$\frac{dQ}{dt} = 2 - \frac{2Q}{100}, \text{ or}$$

$$\frac{dQ}{Q - 100} = \frac{-2\,dt}{100}$$

Corresponding values of Q and t are

Q	150	Q_{60}
t	0	60

Solving equation under conditions shown above, we get Q_{60} = 115.1 lb of salt in tank at the end of one hour.

Submitting correct answers were: Irby Jones, Sharon Crockett, and Doyle Swafford, Systems Engineering Division; C. Kearney Barton, Acoustics and Noise Reduction Division; David R. Schryer and C. Norwood Robeson, Jr., Instrument Research Division; Davis H. Crawford, Space Systems Division.

Recent Retirees

Retiring from Langley on May 18 were **Mercer W. Christian, Jr.**, Fabrication Division; **Roy F. Brissenden**, Aeronautical Systems Division; and **Howard R. Williams, Jr.**, Operations Support Division.

Happenings

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley on Wednesday, June 6, from 9:30 a.m. to 3:30 p.m. in the Activities Center, Building 1222. For information or an appointment, call the Dispensary, extension 3976.

KARATE CLASS. The Langley Karate Club will have an organizational meeting Wednesday, May 30, and Monday, June 4, at 5 p.m. on the Activities Center picnic grounds. All interested persons are invited to attend. For further information, contact Rich Booth, ext. 3446; Gus Dovi, 838-1010, ext. 28; or Ivan Clark, ext. 3661.

HAPPY HOUR will be held on Friday, June 8, in the Activities Center, from 4 to 6:30 p.m.

TIDEWATER DINNER THEATER. Tickets are on sale at the Activities Office for the musical "Fiddler on the Roof," starring Hank Mauro as Tevye, Sylvia Neff as Golde, Anne Kiss as Matchmaker Yente, Dan Smith as Lazar, and Diane Wayrick as Tzeitel. The play, which will run through July 15, has won unqualified superlatives from critics and audiences all over America and in 21 foreign countries.

THE PENINSULA LITERACY COUNCIL, a United Way Agency, is sponsoring a free workshop to qualify instructors to teach American adults to read. Since one in five American adults is unable to read, the need for teachers is urgent. The workshop will be held June 11, 12, 18, and 19 at the First United Methodist Church in Hilton Village, Newport News. For details call 838-5300.

ASEE Sponsors Summer Lecture Series

Each summer, the American Society of Engineering Education (ASEE) Summer Faculty Fellowship sponsors a lecture series for its participants and any other interested employees at Langley. Below is a list of lectures that will be held in June. All lectures will be held in Building 1212, Room 200, from 10:30 to 11:30 a.m., except June 26, which will be held from 10:30 a.m. to 12:30 p.m.

June 6: Dr. R. R. Myers, Kent State University, Kent, Ohio, "Relaxation During the Formation of Polymer Films"

June 12: Dr. T. Davis, University of Cincinnati, Cincinnati, Ohio, "Numerical Methods for Coordinate Generation Based on Schwartz-Christoffel Transformations"

June 14: Dr. R. Gerkin, Union Carbide Corp., S. Charleston, West Virginia, "Reaction Injection Molded Polyurethane: Automotive Applications"

June 19: Dr. R. Page, Rutgers University, Piscataway, N.J., "Turbulent Bluff Body Wakes"

June 21: Dr. T. Embleton, National Research Council, Ottawa, Canada, "Wave Phenomena in Outdoor Sound Propagation"

June 26: Dr. R. F. Brodkey, Ohio State University, Columbus, Ohio, "Coherent Structures in Turbulent Flows"

June 28: Dr. R. Ash, Jet Propulsion Lab, Pasadena, California, "In Situ Propellant Production for Early Planetary Return Mission"

LAA Travel '79

Why worry about gas availability this year? Take a vacation by air from Patrick Henry Airport or Cruise directly from Norfolk. Group discounts prevail on either.

Destinations include: Hawaii, Waikiki: October 3–11, eight days and seven nights, choice of three hotels, priced from $589 per person; Las Vegas: October 18–21, four days and three nights, choice of hotels, priced from $284 per person; Hawaii: December 31–January 14, 14 days and 13 nights, three Islands, prime time to visit Hawaii; cruise to nowhere the weekend of October 12–15. This cruise sails from Norfolk, Friday, October 12 at 5 p.m. and returns Monday, October 15 at 8 a.m., priced from $215 per person; or cruise to four ports-of-call in the Caribbean December 14–22.

There are only 50 seats available on each of the two Hawaii tours. Early reservations are recommended to insure space.

Call the Activities Association office, ext. 3139; Ernie Greene, ext. 2312, home 838-0567; or Herb Boulter, ext. 3234, home 838-4773, for a color brochure to the destination of your choice.

7th Intercenter Running Competition Results

Langley has continued to increase its participation in the semi-annual Intercenter running competitions. In the spring event held the first two weeks of April, Langley finished fifth in the 2-mile run and fourth in the 10,000 meter (6.2 miles) race, among the 10 Centers competing.

In the 2-mile run, Langley was preceded, in order, by Ames, Headquarters, Dryden and Johnson. In this event, we had 58 men and seven women of the 633 total entrants NASA-wide.

In the 10,000 meter race, we fell behind Ames, Johnson and Dryden. Forty-one men and two women, of the total 337, participated in the race.

All runners helped earn points for Langley by their participation. In addition, those who finished in the top 10 in their age group added bonus points to our score. They are:

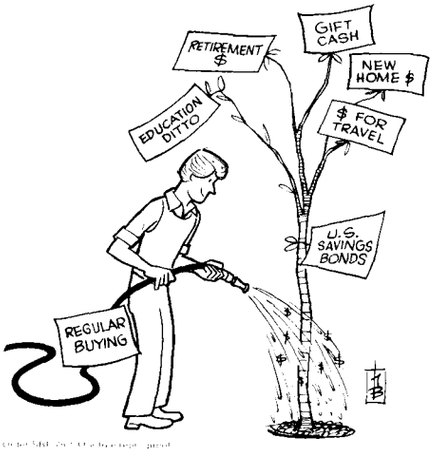
2 mile: Bill Willshire, ninth, Earl Dunham, second; Rich Booth, sixth; Bruce Holmes, tenth; John Hoppe, seventh; Don Humes, first; Al Graham, seventh; Eddie Williams, fourth; and Chuck Engle, retired, eighth.

10,000 meter: Bill Willshire, eighth; John Hoppe, fourth; Jim Fields, ninth; Eddie Williams, fifth; Don Humes, second; Al Graham, fourth; and Chuck Engle, eighth.

The next Intercenter meet will be in October; however, there will be Langley events in June and August.

For information on future events, call Don Humes, ext. 3781.

Money Grows



in U.S. Savings Bonds

swap and shop

FOR SALE

Articles

Antique round oak table w/5 leaves, VGC, $200. Call Wainwright, ext. 3188 or 877-3985 after 5 p.m.

Two 120w Sansui speakers, never used, cost over $200 each, but selling for $100 each; 15'' cone-type woofer--6'' horn-type tweeter--17½"x26"Hx11"D. Call 838-0017.

Deluxe baby buggy, Italian made Perago, has pram and stroller attachments, EC, $75; and golf clubs, men's 4 woods and 5 irons, $10. Call 595-8309.

Ski boots, Nordica Alpina, size 9M, used 12 days, VGC, $10. Call Tynan, 3704 or 898-5015.

Vehicles

1977 Pontiac Firebird Formula, P/S, P/B, P/W, P/L, tilt wheel, AM/FM stereo, 305 engine, EC, $5,500 or best offer. Call A. Schy, 826-0288.

1973 Mercury Marquis, A/T, A/C, P/B, P/S, AM/FM stereo, cruise control, tilt steering wheel, P/W, all in working order and EC, almost new tires and brakes, just inspected, one owner, blue book priced. Call 596-0667.

1971 Ford pick-up Custom 250 w/shell, good tires, new tuneup, new inspection, new brakes, $1,450. Call 877-2210 after 5 p.m.

Sailboat--Ranger 26, equipped for cruising and rowing, three jibs and new spinnaker, ten horsepower Evinrude engine, depth sounder and log; and Boat--Sportyak dinghy, GC. Call 898-5707 after 5:30 p.m.

OPEN HOUSE: Chris Craft 28', EC, can be seen at slip No. 89, Keffer Marina, June 2, 3, 9 and 10, 2—6 p.m., price negotiable. For more info call 838-0173 after 5 p.m.

FOR RENT

Sandbridge: New cottage w/living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, 1/2 block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4 car parking, summer rate, $375/wk; winter rate, $350/mo. Call G. O. Kent, 420-8391, Virginia Beach; work, ext. 3095.

WANTED

To ride or join carpool from Menchville Rd. to West area for either 7 a.m. or 7:30 a.m. shift. Call Wilson, ext. 2546.

To join or start a carpool from Gloucester to East area for 7 a.m. to 3:30 p.m. shift. Call G. Nuttall, ext. 2631.

Retirement Parties

Frank H. Watkins, Operations Support Division, will be honored with a retirement luncheon on June 28, at 11:30 a.m., in the Activities Center, Building 1222. The cost of the luncheon will be $5 per person and includes $1 for gift. Make reservations or contributions toward a gift to Donald Coffey, Mail Stop 188D, by June 21.

Walter H. Lee, recently retired from the Publications Branch, Scientific and Technical Information Programs Division, will be honored with a luncheon on Wednesday, June 13, at 11:45 a.m., in the Activities Center. Lunch will include Smoked Baked Ham and Seafood Casserole. Cost per person will be $5.25. Reservations for the luncheon (or contributions) may be forwarded to Betty Hughes, Mail Stop 180A, by June 8.

Thanks

"Viola and I would like to express our sincere thanks to all who took part in my retirement party on May 4. The gifts and mementos of the work at Langley are especially appreciated. I hope to remain active in research work here, and we will look forward to continued friendship with all of you. Thank you again."

Hewitt Phillips

FOUND

White nylon jacket left in Bldg. 1219, Conference Room 225. Call Mary Mesic, ext. 3395.

cafeteria menu

WEEK OF JUNE 4

MONDAY: Corn Chowder; Chicken Chow Mein; Broiled Beef Liver; Clam Strips. Snack Bar: Beef Burger; Hot Dog; Fish Sandwich; Quarter-pound Frank; Ham & Cheese Club; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Braised Beef & Vegetables. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Pot Pie; Beef Enchiladas. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Glazed Ham Loaf. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Ham & Lima Bean Soup; Fish Dinner; Steak Teriyaki; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF JUNE 11

MONDAY: Vegetable Soup; Spaghetti Dinner; Savory Baked Chicken; Crab Cutlets. Snack Bar: Hot Dog; Beef Burger; Fish Sandwich; Quarter-pound Frank; Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; SPECIAL Seafood Platter; Beef Balls Stroganoff; Baked Virginia Ham. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Franks, Bacon & Cheese; Pepper Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Roast Beef Au Jus; Meat Loaf. Snack Bar: Grilled Cheese; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Pot Pie; Steak Smothered w/Onions. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

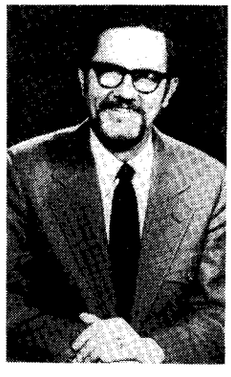
Langley Research Center

NASA

Langley Researcher

SPECIAL ISSUE

June 1, 1979



Director's Comments

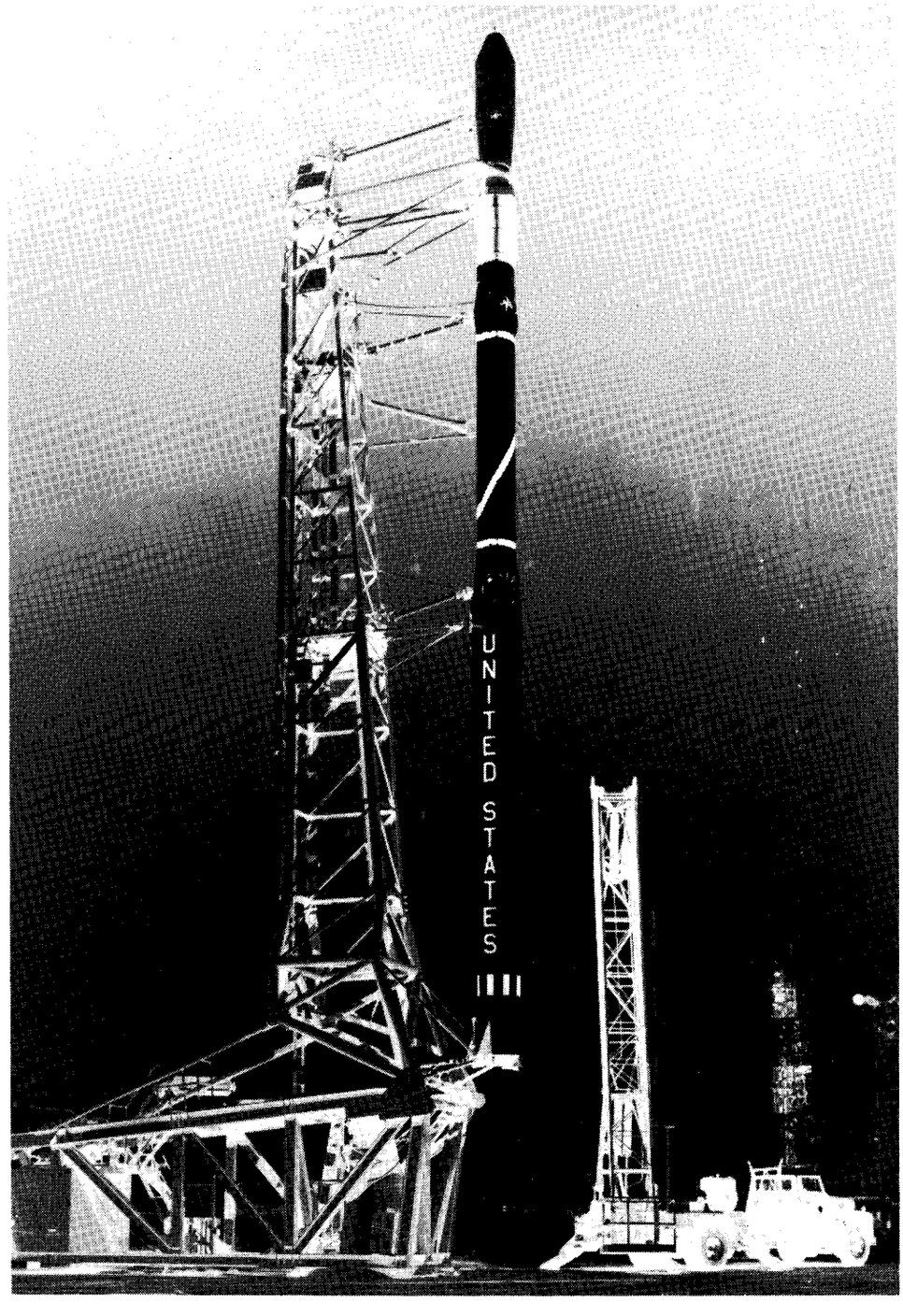
It was almost 19 years ago when the first Scout launched a radiation experiment into space. If all goes as planned, the 100th Scout launch will be within the next week--from Wallops Island just like the first Scout launch.

These past 19 years and 99 launches have been remarkable--Scout has had a 95 percent success record for its operational missions and 44 of the last 45 launches have been successful. There have been 38 launches from Wallops, 53 from the Western Test Range, and 8 from overseas launch sites. Our orbital customers have included NASA (25), the U.S. Air Force (20), the U. S. Navy (14), and other countries (21).

On the occasion of the 100th launch, I congratulate everyone previously and presently associated with Scout. I know Henry Reid, Floyd Thompson, and Ed Cortright would agree that the Scout team has been, and is, one of Langley's finest. By the Scout team, I include the supporting personel from Wallops and WTR and a super group of contractors--Vought, Honeywell, Thiokol, United Technology, and all of their suppliers.

All of us at Langley are particularly proud of Langley's Scout Project Office. Over the past 19 years, there have been five Scout Project Managers. In the early years, they were Bill Stoney, George Rupp, and Gene Schult. Bud English was Project Manager for 11 years and Lee Foster for the past 3 years. Thanks to

Continued on page 3.



SCOUT LAUNCH VEHICLE

Scout, NASA's Successful 'Poor Man's Rocket'

The planned June 2 launch of a British satellite will mark the 100th flight of NASA's Scout launch vehicle. The launch is scheduled for 7 p.m. at NASA's Wallops Flight Center.

Since 1960, Scouts have been among the busiest of the space agency's stable of launch vehicles. Called the "poor man's rocket" because it is relatively inexpensive when compared with other space launch vehicles, Scouts have sent into orbit English, German, Italian, French, Dutch and European Space Organization (ESRO) satellites.

To date, Scout has launched 99 payloads: 7 probe, 12 reentry and 80 orbital missions: 25 missions for NASA, 34 for the Department of Defense (DOD), and 21 for international users.

The availability of three launch sites, Wallops Flight Center, Vandenberg Air Force Base and Ngwana Bay, Kenya, Africa, allows Scout payloads to be launched over a wide range of orbital inclinations—more than any other launch vehicle.

Through its history, the Scout program has faced a series of highs and lows. The Scout story began in 1957 when researchers at NASA's Langley Research Center recognized the need to extend the capabilities of research rockets. Scout evolved from design studies into a four-stage, solid propellant vehicle capable of placing 130-pound payloads into a 300-mile orbit. Development of the vehicle was begun in mid-1958.

The first launch took place July 1, 1960, from Wallops Flight Center, just 20 months after program go-ahead. Success was limited at first; after the 23rd Scout launch, operational success rate was 60 percent.

After the failure of launch 23, in September 1963, a vehicle recertification plan was initiated which included the return, reinspection, refurbishment and recertification of vehicles stored in the field; review and revision of procedures and in-plant and field processing to minimize field handling; and ad-hoc management reviews to recommend methods for improving Scout reliability.

Fifteen of the 16 recertified vehicles were successful and continuation of the program resulted in a world record of 37 consecutive successful launches. The Scout has developed into the nation's most successful launch vehicle with a 95 percent success record.

Through its 20-year history, the Scout program has been involved in many NASA "firsts." One of the most internationally recognized projects involving Scout was the San Marco Project, which brought many firsts for the Scout program.

The San Marco 1 launch, on December 15, 1964, from Wallops Flight Center, was the first time in the NASA international cooperative program that a satellite launch was conducted by a team of foreign engineers and technicians.

The San Marco Project brought with it two other firsts: the first satellite launched from an ocean-going platform, April 26, 1967, and the first U.S. satellite launched from the platform, December 12, 1970.

One of the major highlights of the project occurred January 20, 1966, when 22 members of Italy's San Marco Project and Langley's Scout Project Office were received by Pope Paul VI in Rome.

"We praise the example of international cooperation for the progress of science and the peaceful uses of energy," Pope Paul said before bestowing his blessing. "You are discovering the laws the Lord of Creation established and employing the forces He placed in nature."

The Scout vehicle has taken its place in NASA launch vehicle history with the variety of payloads it has placed into space and the versatility of being launched from various sites.

There is one distinction, however, Scout can claim with few challenges from other launch vehicles, the launching of the first frogs into space.

Two male bullfrogs (Rana Catesbiana), aboard the Orbiting Frog Otolith spacecraft, were launched November 9, 1970, from Wallops Flight Center. Data from the experiment

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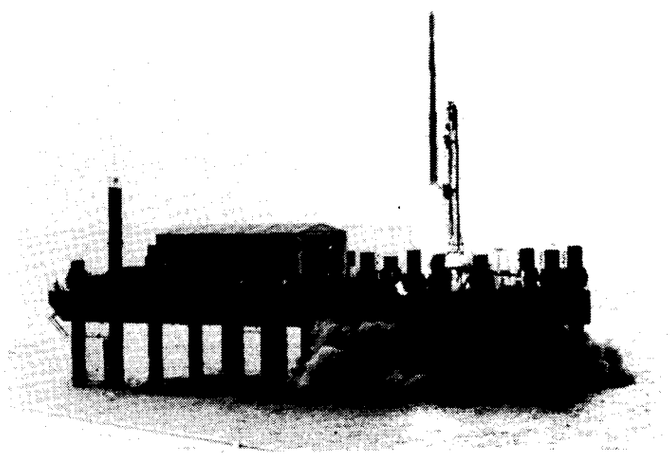
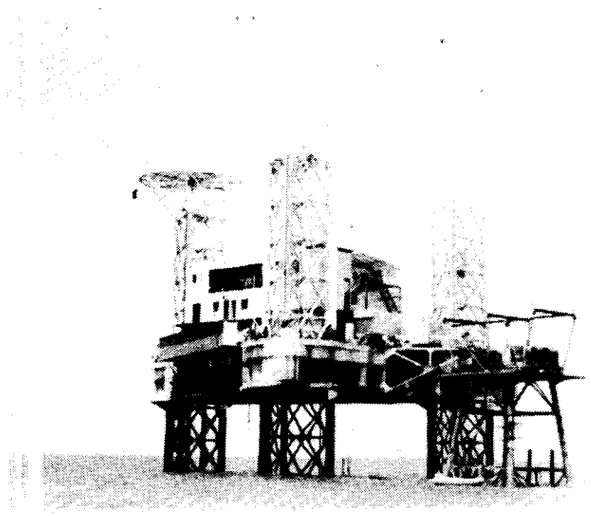
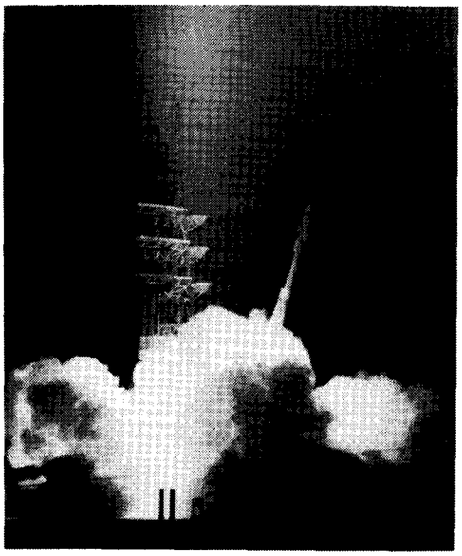




The Italian facility consists of the San Marco launch platform and the Santa Rita control platform, located in the Indian Ocean off the coast of Kenya, Africa. The San Marco platform, about the size of a football field, is equipped with a full launch complex including the launcher and an air-conditioned checkout shed which houses the Scout prior to launch. A large pit in the platform, open to the sea, absorbs the rocket exhaust during liftoff. The smaller Santa Rita platform, a converted "Texas tower" oil rig, houses the launch control and communications equipment and is the nerve center for the launch. The two platforms are located 500 meters (1,650 feet) apart and connected by a network of cables.



First Scout launch, July 1, 1960.

Scout Highlights

1958

May: Development of the Scout launch vehicle begins.

1960

April 14: First test model is launched from Wallops Island in test of one and three stages. Third stage fails to fire.

July 1: First test launch of the completely assembled unit. The rocket is destroyed before the fourth stage firing because radar equipment detected rocket veering off course. Later analysis found the radar was tracking abnormally and rocket was on course.

Oct. 4: First successful flight is launched at 10:22 a.m. from Wallops. Launch opens the way for using Scout vehicles for certain orbital or space probe missions and shows that, because Scout is a solid-fuel rocket, it can be launched from a variety of sites.

1961

Feb. 16: Explorer 9 launch. First satellite launched into orbit from site other than Cape Canaveral or Western Test Range and first satellite launched into orbit by rocket fueled solely by solid propellants.

1963

Dec. 19: First flight of refurbished and factory-recertified vehicle.

1964

Nov. 21: Launch of Explorers 14 and 15 from Vandenberg Air Force Base. First NASA dual launch.

Dec. 15: Italy enters the international space club with launch of San Marco I from Wallops. First time in NASA international cooperative program that a satellite launch is conducted by a team of foreign nationals.

1965

Aug. 10: Tenth consecutive successful launch, establishing new high in reliability for NASA research rockets. Scout was first ever to fly after being airlifted fully fueled and ready to go, instead of being assembled at launch site. Also made first use of course-changing capability.

Oct. 28: Honor Awards Program, Group Achievement Award, Scout Project Office: "For sustained cooperative effort which led to a spectacular series of Scout launch vehicle successes. For individual excellence in the performance of duties which contributed immeasurably to the Scout Reliability Improvement Program, which produced a versatile launch vehicle of better than ninety percent reliability."

Dec. 12: First air transport from Wallops to Western Test Range. First launch using new standard launch complex.

1966

Jan. 20: Twenty-two members of San Marco Project and Scout Project Office, 10 Americans and 12 Italians, meet with Pope Paul VI in Rome.

1967

April 26: San Marco B is first satellite launched from ocean-going platform, in Indian Ocean off coast of Kenya, Africa.

1969

Oct. 1: First reimbursable International Scout: ESRO-1B.

1970

Nov. 9: First payload with frogs aboard: Orbiting Frog Otolith.

Dec. 12: First American satellite launched by International Agency (from San Marco platform).

1972

Nov. 15: Sets NASA record for continuous successful launches: 26.

1974

July 16: First German reimbursable: AEROS-B.

Oct. 15: First Multi National Scout Launch—British Spacecraft, Italian Launch Team, NASA Vehicle

1975

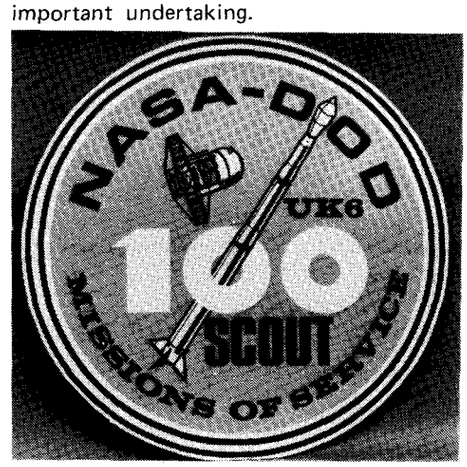
Oct. 11: 37 Successful Consecutive Launches

Comments

Continued from page 1.

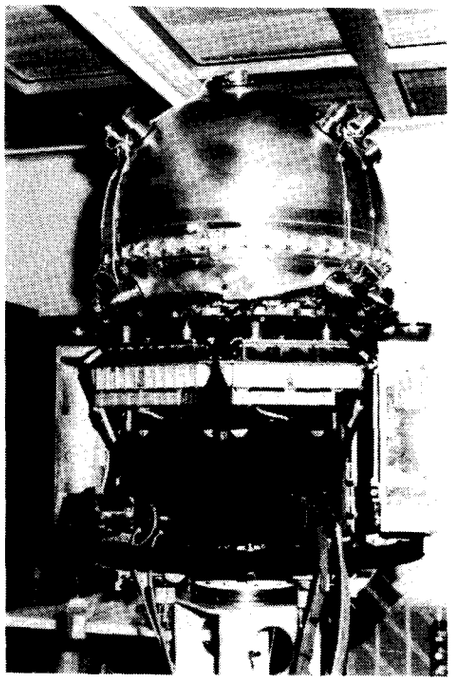
all of you and all of the other Langley Scouts.

When the 100th Scout launches the United Kingdom's High Energy Astrophysics Spacecraft next week, we should all pause to reflect on the remarkable achievements of the Scout launch vehicle and all of the people that have made its success possible. Its record of reliability and low cost will go down in the history of expendable launch vehicles. Scout will probably be phased out when the Shuttle becomes fully operational. We should not be sad but proud. Proud to have been associated---either directly or indirectly---with a wonderful and important undertaking.



Decal commemorating 100 Scout missions.

United Kingdom Satellite Studies High-Energy Astrophysics



UK-6 satellite.

The United Kingdom satellite, called UK-6, will conduct scientific studies in the field of high-energy astrophysics.

Information gained from the mission should provide a better understanding of astrophysical phenomena that involve large energy densities and their high-energy products, such as quasars, radio galaxies, supernovae and pulsars.

UK-6 studies of the charge and energy spectra of cosmic radiation can give an insight into the conditions of the source and the processes of nucleosynthesis that have occurred in high-energy objects. This information is important to scientists because cosmic rays are the only sample of matter available from outside the solar system.

The British satellite will carry three primary science instruments: a cosmic ray detector for Bristol University; and two X-ray astronomy experiments, one for Leicester University College of London's Mullard Space Science Laboratory. Two technological experiments for the Royal Aircraft Establishment, Farnborough, England, are also on board. These experiments will investigate the performance in orbit of new types of solar cells and of metal oxide semi-conductor devices in a space environment.

The UK-6 spacecraft, a cylindrical structure, is 130.8 centimeters (51.5 inches) high; 69.6 cm (27.4 in.) in diameter; and weighs 154 kilograms (339.5 pounds). Its main structure is made of aluminum alloy.

The Scout vehicle will place the satellite into an easterly, 625-kilometer (337-mile) circular orbit at an inclination of 55 degrees. The satellite is designed to operate for approximately two years. UK-6 will become Ariel 6 when it reaches orbit.

The UK-6 program is being conducted on a cost reimbursable basis between NASA and the United Kingdom's Science Research Council. The Council's Appleton Laboratory, Slough, England, is responsible for management of the program and for post-launch operations.

The four-stage, solid fueled, Scout-D launch vehicle, number S-198, is being prepared for launch by technicians from Langley and the Vought Corporation of Dallas, manufacturers of the Scout.

The UK-6 satellite was designed, built and tested by Marconi Space and Defence Systems, Ltd., of Portsmouth, England, for the Ministry of Defense, Procurement Executive, in London. Technical advice during spacecraft development has been provided by the Royal Aircraft Establishment.

Scout

Continued from page 2.

provided information about the adaptibility of the vestibule in the inner ear (which controls balance) to a sustained weightless environment, as well as response to acceleration.

The frogs' oneway trip into space produced information about the disorientation that has occurred in man and animals in previous space flights. The frogs were chosen for the experiment since their inner ear structure is similar to man's.

National Aeronautics and
Space Administration

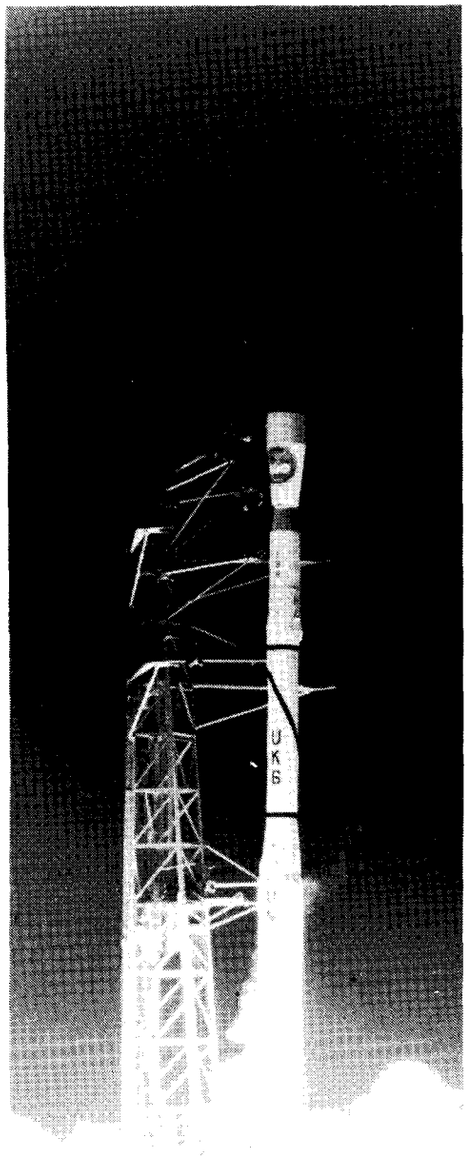
Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 12

June 15, 1979



Despite an overcast sky, the 23-ton Scout rocket carrying the British satellite lifts off from Pad Three at the Wallops Island launch complex.

United Kingdom Satellite Launched Successfully

Approximately 900 people were at Wallops Flight Center Saturday, June 2, to witness the launch of a United Kingdom satellite into earth orbit. The successful launch, which marked the 100th flight of a Scout vehicle, occurred at 7:26 p.m.

A four-stage solid propellant vehicle placed the UK-6 satellite into an easterly near-circular earth orbit. Preliminary orbital elements are: apogee 654 kilometers (406 miles), perigee 600 kilometers (373 miles), inclination 55 degrees and period 97 minutes. Once in orbit UK-6 became Ariel 6.

Ariel 6, designed to operate for approximately two years, will be conducting scientific studies in the field of high-energy astrophysics. Information gained from the mission should provide a better understanding of astrophysical phenomena that involve large energy densities and their high-energy products, such as quasars, radio galaxies, supernovae and pulsars.

Three experiments on board the 339-pound satellite will examine cosmic rays and X-rays emitted throughout the universe. Two technological experiments, also on board, will investigate the performance in orbit of new types of solar cells and of metal oxide semi-conductor devices in a space environment.

Langley Savings Bond Campaign Ends

The Langley U.S. Savings Bond Campaign officially ended June 8. At the conclusion of the campaign, the rate of participation of employees was 83.6 percent, up from 81.9 percent at the start of the campaign. In addition, 34 employees increased their payroll savings allotment.

Although the goal of greater than 90 percent participation was not achieved, the Center will still be flying the Minute Man Flag next year. The Chairman of the campaign, Bill Piland, wishes to thank everyone who worked to make the campaign a success. The following organizations reached 100 percent participation:

Director's Office

Office of Research Grants and University Affairs

Office of Director for Structures

Office of Director for Space

Office of Director for Electronics

Office of Director for Systems Engineering and Operations

National Transonic Facility Project Office

Office of Director for Aeronautics

Aeronautical Systems Division

Office of Director for Projects

Scout Project Office

Long Duration Exposure Facility Project Office

NASA/Army Rotor Systems Research Aircraft Project Office

Earth Radiation Budget Experiment Project Office

Office of Director for Management Operations

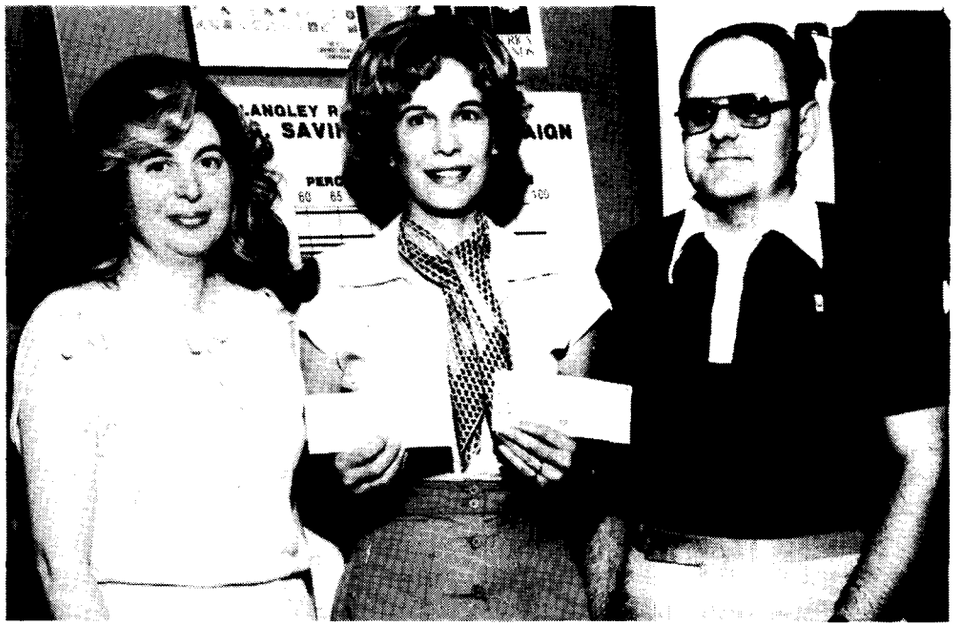
Office of Patent Counsel

Office of Occupational Health Services

Industry Relations Office

Management Support Division

Business Data Systems Division



– photo by Bill Salyer

LAA SAVINGS BOND WINNERS. Priscilla V. Balanis, Office of Director, and J. David Dearing, Scout Project Office, each won a Series E $25 Savings Bond in a drawing sponsored by the Langley Activities Association. Balanis was the winner in the increased participation category and Dearing's name was drawn from new participants' names. Presenting the bonds is Margaret W. Hunt, Secretary of the Langley Activities Association.

Glaude, Hixon Set Parachute Record

A Langley employee and a Fort Monroe officer have broken a Virginia parachute record they set only eight months ago.

Philip Glaude, Fabrication Division, and Maj. Gen. Robert C. Hixon, Chief of Staff for the Army Training and Doctrine Command at Fort Monroe, broke their previous record of 31,000, with a jump of 32,300 feet.

The two men made the jump from an Army U-21, twin-engine turboprop aircraft, at 9:30 p.m., June 6, over Fort Eustis.

Glaude and Hixon took off from Langley Air Force Base and made the jump into calm 25 mph upper winds. After a two and one-half minute free fall, they opened their parachutes at 3,000 feet altitude and landed approximately 500 feet from their target. During the jump, the men tested a new oxygen system for the Army.

The jump was the third attempt at the night-time record jump by the two men. The first attempt, in January, was aborted because of weather conditions and the second attempt, in February, was spoiled by airplane problems.

Gift Shop Closes

The Exchange Committee has voted to close the Gift Shop on June 29. The following schedule will be in effect:

- All postage stamps will be sold without new replacements.
- The last request for photo processing will be June 18.
- No repairs will be made this month.
- No new Max Factor make-up will be received.
- No new books will be added to inventory.
- Special orders that have not been paid will not be ordered.
- Plans to obtain prescription eyeglasses have been terminated.
- Consigned inventory will be removed during the month. If you plan to obtain a specific item, let the Gift Shop know your preference.

Notice

The location and time for the June 26 and June 28 ASEE lectures have been changed to Building 1209, Room 180, from 10 a.m. to 12 p.m.

Langley Employees Bloodmobile Support

Three hundred twelve Langley employees donated blood on June 6 when the Red Cross Bloodmobile visited the Center.

Achieving gallon status were:

7 gallons: Harry Heyson, Carroll Williams and William G. Chapin.

6 gallons: Brickey Hughes and Eugene Hall.

4 gallons: Harry Carlson.

3 gallons: John P. Stack, Rodney Russell and William M. Hollingsworth, Jr.

2 gallons: Mark S. Lindsey, Andrew Forbes, Charles Sheet, Charles Spear, Samuel McPherson, Hugh Gentry, Jack Spears, Sam Ailor and Alexander Wilkowski III.

1 gallon: John T. Barclay, Ricky Clark, David Terray, William P. Gilbert, Robert Sleeper and William J. Leath, Jr.

Donating blood for the first time were:

Phillip Brown, John Cline, Alton Barnes, Tracy Bridges, Paul W. Kidder, Paul Holloway, Tommy Augustson, Wesley R. Goodman, Dana Smith, Joel Everhart, Julie Richards, Robert Wilson, Geoffrey Bland, Kelli Key, Catherine Bigelow, Patrick C. Murphy, Thomas Moul and Kumar Dilip.

The Bloodmobile visit was coordinated by Scotty McArthur, Office of Occupational Health Services.

Energy Saving Tip

Consider planting leafy trees on the south and west sides of your home. As they grow their leaves will help shield your home from the hot summer sun and will reduce the power demand on your air conditioning equipment. In winter months, when leaves are gone, your home will benefit from the sun's rays, thereby lowering your heating bill.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Visitor Center Presents Science Fiction Exhibit

The Visitor Center is presenting "Kelly Freas: A One-Man Science Fiction Art Show," during June and July. On exhibit are 40 of Freas' paintings, which are generally space related.

Freas, who lives in Virginia Beach, has won the World Science Fiction Convention's Hugo award for Best Professional Artist ten times, more Hugos than any other artist. He has been named Dean of Science Fiction Artists, a lifetime title, by the Eastern Science Fiction Association.

Freas' illustrations have shaped science fiction readers' views of other worlds for the last 25 years. A recently published sampling of his work and anecdote of his career, "Frank Kelly Freas: The Art of Science Fiction," has received considerable critical acclaim.

Mad Magazine readers will remember Freas for his interpretations of Alfred E. Newman, the imp on the cover of the magazine. Freas was also chosen by the NASA Skylab One astronauts to design the project uniform patch and by the rock group Queen to paint its latest album cover.

Kelly and Polly Freas are currently co-editing the new "Starblaze" series of large-sized paperbacks from Donning Company in Norfolk, Virginia.

A native of upstate New York, Freas grew up in southern Ontario, Canada. He did commercial artwork through high school and college, studying at Cathloic University, Washington, D.C., Georgetown University, the Art Institute of Pittsburgh and other institutions.

He began his professional career with a Pittsburgh advertising agency, but soon followed his love for science fiction to a free-lance career in illustration, beginning with his first cover painting for the November 1950 issue of "Weird Tales."

– photo by Bill Salyer

Shown are four of the 40 science fiction prints and paintings by Kelly Freas now on exhibit at the Langley Visitor Center. Freas is a ten-time winner of the Science Fiction Association's Hugo Award for Best Professional Artist and has been named the Dean of Science Fiction Artists by the Eastern Science Fiction Association. The exhibit will continue through July.

Recent Retirees

Seymour Salmirs, Terminal Configured Vehicle Programs Office, and **Edward C. Lingenfelser, Jr.**, Research Facilities Engineering Division, retired on June 1.

David B. Ahearn, Acquisition Division, retired on June 2.

Joseph J. Evans, Sr., Fabrication Division, retired on June 7.

George D. Sands Retires From Langley

Dr. George D. Sands, Chief, Scientific and Technical Information Programs Division, retires tomorrow with 25 years of government service.

Joining the Langley staff in 1962, Sands conducted research on space-stable polymers. From 1970 to 1976, Sands served as Associate Project Scientist for Project Viking. During mission operations in the summer of 1976, he served as "The Voice of Viking." He was appointed to his last position in 1976.

Prior to coming to Langley, Sands was a physical chemist at the U.S. Army Transportation Training Command, Ft. Eustis. He also served as Associate Professor of Chemistry at the College of William and Mary and a senior research chemist in the Physical and Chemical Research Laboratory of the Firestone Tire and Rubber Company, Akron, Ohio.

A native of Norfolk, Sands earned a bachelor of science degree in chemistry from the College of William and Mary, a master of science degree in chemistry from the University of Richmond, and a Ph.D. in physical chemistry from the University of Illinois.

Gera and Patton Receive Award

Two Langley employees, Joe Gera, Flight Dynamics and Control Division, and Jim Patton, Flight Mechanics Division, are members of a NASA/FAA/SSA team which received the Soaring Society of America Tuntland Award for 1978.

The Tuntland Award, given by the Soaring Society of America for the best report discussing the results of soaring flight tests, was awarded for the report "Flight Evaluation of Sailplane Handling Qualities," (NASA CR-2960) by Dr. A. E. Bennet, Jr., Mississippi State University.

Gera and Patton were two of seven pilots who flew six different sailplanes over a period of six consecutive days for a total of 98 flights in 80 flight hours without any mechanical or safety problems. Gera also served as technical monitor for the project.

Carnival Queen Candidates

One of these lovely ladies will be crowned Queen of the 1979 Carnival. She will preside over the carnival scheduled for August 24 and 25. You can cast your vote when you buy a carnival ticket.

The Queen will receive a $100 prize; first and second runners up will receive $25.

Vivian Parrous

Anita Holland

Blanche Johnson

Rhonda Bolt

Kathi Porter

Diane Bresnahan

Janice Holt

Jeanette Parsell

Diana Smith

Lucy Watkins

Donna Cross

Peggy Harmon

Charlotte Meyers

Nancy Brown

Frances DeMarco

Pat Jones

Donna Diggs

Darlene "Dee" Atkinson

Janis Yates

Sheryl Klutz

Pam Jenkins

Christie Murphy

Sheila Mayberry

- photos by Bob Nye

Runners' Club Event

The Langley Runners' Club will hold its next event on Thursday, June 21, beginning at 5 p.m. at the Activities Center. The afternoon's activities will consist of four races and two field events. The race schedule is as follows:

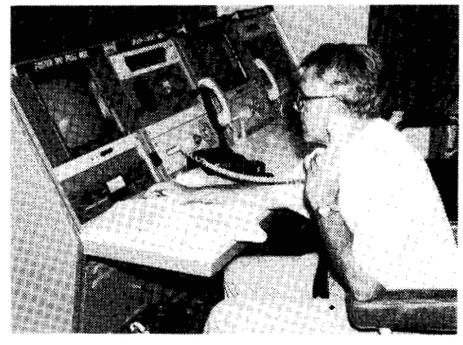
5:15–5000 meters	6:30–440 yards
6:00– 100 yards	7:00– 1 mile

The two field events (long jump, shot put) will be scored in connection with the mile run to make up the Langley Triathlon which will determine Langley's "Greatest Athlete." The title will be bestowed on the individual who scores the highest total points in the three events. Those interested in competing in these events must be at the west end of the Activities Center by 5 p.m.

Members of the Langley Runners' Club are invited to bring their families to compete for club awards. For information, call Don Humes, ext. 3781.

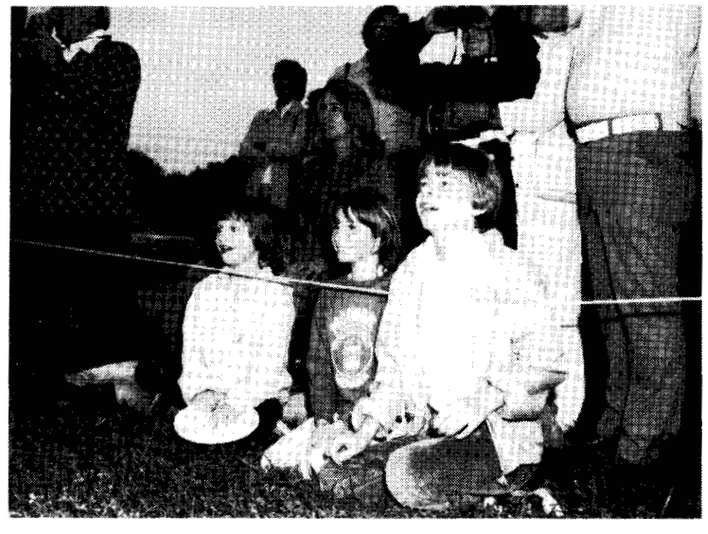
100th Scout Launch Celebrated at Wallops

Mrs. Floyd L. Thompson (second from left) and Mrs. H. J. E. Reid (second from right), wives of former Langley Directors, were Langley's special guests at the Scout launch on June 2. Langley Deputy Director Oran Nicks (left) and Wallops Director Robert L. Krieger (right) welcome Mrs. Thompson and Mrs. Reid to a buffet dinner given in their honor.



Lee Foster, Head of the Scout Project Office, makes final systems checkout prior to launch.

Joyce Milliner, Wallops Public Affairs Officer, conducts pre-launch press briefing at the Range Control Center. Participating in the briefing are Lee Foster, Head, Scout Project Office; J. E. Foster, Program Manager, Science Research Council, Appleton Laboratory, Slough; and Dr. J. L. Culhane, Project Scientist, Mullard Space Science Laboratory at University College, London.



The excitement of the liftoff is expressed on the faces of these children as they watch the Scout vehicle soar into the low-hanging clouds. People came from as far north as Washington, D.C. and as far south as North Carolina to view the last scheduled launch from Wallops Flight Center.

Crowds of people anxiously await the launch of the 100th Scout vehicle.

-photos by Bill Salyer

Seats, ELTs Studied in Future Crash Test

Langley researchers will crash a twin engine pressurized aircraft on June 20 as part of the Federal Aviation Administration/NASA general aviation crash test program.

The crash test will be closed to the public as a safety precaution, since four Falcon air-to-air rocket engines will be used to obtain the aircraft's desired velocity.

The full-scale test of the aircraft, using a swinging pendulum approach, will enable researchers to conduct further studies on the 7,800-pound aircraft's structure, seats, restraints and emergency locator transmitters.

The aircraft will be tested at a speed of 90 mph, a pitch angle of minus 30 degrees and a roll, yaw and angle of attack of zero degrees.

Researchers know that, for occupants to survive an aircraft crash, the fuselage must remain intact. If the cabin remains intact, then attention focuses on the integrity of the seat and restraint systems and on seat designs that, by controlled stroking, or manner of movement, can increase the probability of survival and lessen the probability of injury.

In the upcoming test, the aircraft will be equipped with three modified standard seats and three test seats: a very rigid seat, a rocker motion load limiting seat and a ceiling mounted (wire bending) load limiting seat.

The first seat will be used to test rails that attach the seat to the cabin floor, and the other two seats will be tested to determine their effects on the force load mannequins receive in the crash.

The ceiling mounted seat, weighing about 20 pounds, is similar in design to a troop seat designed for Army helicopters. Two load limiters--with one-tenth-inch diameter wire located inside the seat back and attached to the cabin ceiling--limit both vertical and forward loads. Two additional load limiters, attached diagonally between the seat pan at the front and the floor at the rear, limit the forward loads.

The load limiters are designed to reduce the impact load transmitted to a passenger to a value that is tolerable. The seat pan remains parallel to the floor while stroking and the length of the stroke is approximately 12 inches vertical and seven inches forward. The load limiters provide a nearly constant force during stroking, making it possible to absorb maximum energy at human tolerance levels over a given stroking distance.

During initial dynamic tests of this seat at the FAA's Civil Aeromedical Institute in Oklahoma City in October 1978, dummy pelvis vertical accelerations were reduced up to 50 percent and horizontal pelvis accelerations were reduced up to 40 percent over standard seats.

The rocker motion seat, weighing about 40 pounds, uses a rocker swing stroke to change the attitude of the occupant from an upright seated position to a semi-supine position. This action theoretically redistributes vertical impact forces on the seat pan traveling up the spine to a larger area on the seat back perpendicular to the spine.

The load limiters are located at the bottom of the legs and parallel to the floor from front to back.

Researchers will also conduct tests on two different types of emergency locator transmitters (ELTs).

Each ELT is equipped with a sensor that, upon impact, activates a transmitter. Acting as a locator for downed aircraft, the transmitter sends a signal on the air emergency frequency.

In the past, however, hard landings or door slammings caused numerous transmitter false alarms. Researchers are investigating the structural mounting, location, and orientation in the aircraft of the ELTs to alleviate false alarms and make the system more reliable.

One of the ELTs on the test plane will be mounted with an external antenna on the tail and the other will be mounted with the complete system in the aircraft's cabin. The ELTs' activation will be monitored by the researchers during the crash test.

Batteries for ELTs normally, after activation, have an operating capacity of 48 hours, therefore, the plane needs to be located quickly. When a plane is overdue at its destination, aircraft operators in the area are asked to turn to the emergency frequency to help locate the lost and possibly downed aircraft.

In the future, NASA will have a satellite that will continuously monitor the emergency frequency. In order for this concept to function efficiently, however, the ELT's performance must be made reliable and free from false alarms.

– photo by Bill Salyer

The "Jolly Roger," NASA crash test aircraft number 17, is being prepared for its June 20 crash at the Langley Impact Dynamics Research Facility. The test will include studies on the aircraft's structure, seats, restraints and emergency locator transmitters.

Happenings

HONEY BUNCH. The Langley Apicultural Club will hold a Kids' Night on June 18, from 7 to 9:30 p.m., in the Activities Center, Building 1222. The program includes a film and slide presentation, an observation hive of honey bees, a fashion show of protective bee equipment, a bee-pert panel and honey tasting. Scout troops, Sunday School groups, neighborhood kids and all others interested in learning about honey bees are welcome.

NAGS. The National Association of Government Secretaries, Hampton Roads Branch, will hold a dinner meeting on June 19, at Captain George's Restaurant, 2710 W. Mercury Blvd. Registration is at 6:15 p.m. with dinner at 6:30. James O. Joyner, Jr., will give a color slide presentation on Egypt, Israel, and Greece. Reservations are required and may be made through June 15 with Reachie Hall, ext. 2150, or 826-7495; or Shirley Davis, ext. 2759, or 838-7435.

WOMEN AND ALCOHOL, a one-day seminar sponsored by the Women's Center, Old Dominion University and the Tidewater Council on Alcoholism, will be presented on Friday, June 22, at the Sheraton Inn, Military Circle, Norfolk, from 9 a.m. to 4:15 p.m. Among the issues the workshop will explain are stereotypes and stigmas regarding women and alcohol, the extent of the problem, and the double standard as it relates to women's drinking practices and changing lifestyles. Registration is from 8:30 to 9 a.m. The fee of $12.50 includes lunch and materials. Call 489-6388 for more information.

TIDEWATER DINNER THEATER. "Fiddler on the Roof," the musical which won unqualified superlatives from critics around the world, is being performed at the Tidewater Dinner Theater in Norfolk until July 15. Hank Mauro plays the starring role of Tevye, a milkman beset by poverty, a shrewish wife, three dowery-less daughters, a lame horse and other misfortunes that never quite daunt him. Tickets for the production are on sale at the Activities Office.

HAPPY HOUR. The Langley Activities Association invites you to the Happy Hour at the Activities Center on Friday, June 22, from 4 to 6:30 p.m.

BINGO. Every Thursday evening the LAA sponsors BINGO. The first game starts at 7:30 p.m. in the Activities Center, Building 1222. Bring your family and friends and get in on the cash prizes.

Summer Faculty Fellowship Programs Begin

On Monday, June 4, 60 college and university professors arrived at the Center to participate in three summer faculty fellowship programs.

Two of the programs are sponsored jointly by NASA and the American Society of Engineering Education (ASEE). The ASEE Design Program consists of 21 professors who form an Engineering Systems Design Team to conduct a study entitled, "The Impact of Avionics Development on the Future Civil Aircraft." Dr. Griffith J. McRee, Old Dominion University, is the project director.

The ASEE Research Program includes 28 professors assigned to various research divisions throughout the Center.

The third program is the Langley Research Center–Hampton Institute Summer Research Fellowship Program. This program was developed through a cooperative agreement between the Center and Hampton Institute and brings 11 professors to the Center for research assignments throughout the Center.

The ASEE Design participants and their home institutions are as follows: Dr. Patricia A. Carlson, Rose-Hulman Institute of Technology; Dr. Yearn H. Choi, Old Dominion University; Dr. John B. Crittenden, VPI & SU; Dr. Robert M. Eastman, University of Missouri; Dr. Jerry W. Gravander, Clarkson College of Technology; Dr. Andrew Hargrove, Hampton Institute; Dr. Alvin E. Keaton, New Mexico State University; Dr. Siew T. Koay, University of Arkansas; John R. Krobock, Arizona State University; Dr. Russell E. Lueg, University of Alabama; Dr. Heinz C. Luegenbiehl, Rose-Hulman Institute of Technology; Dr. Griffith J. McRee, Old Dominion University; Dr. Manindra Mohapatra, Old Dominion University; Dr. Barry A. Pasternack, California State University; Dr. Darrell D. Penrod, Auburn University; Dr. Allen L. Rakow, Cooper Union School of Engineering; Dr. Ram B. Ram, SUNY at Oneonta; Dr. David K. Robertson, Montclair State College; Dr. Theodore J. Sheskin, Cleveland State University; Dr. Avtar K. Trehan, Hampton Institute; and Robert T. Waugaman, Grove City College.

The ASEE Research participants, with their home institutions and division assignments, are as follows: Jeanette Adams, Texas A & M University, MATD; Bassem F. Armaly, University of Missouri-Rolla, SSD; Joseph W. Bursik, Rensselaer Polytechnic Institute, STAD; Wallace Chinitz, Cooper Union School of Engineering, HSAD; Alvin J. Darby, University of D.C., IRD; Victor E. Delnore, Rutgers University, FED; Michael L. Doria, Valparaiso University, STAD; Wade C. Driscoll, Youngstown State University, ACD; Bruce H. Edwards, University of Florida, ACD; Henry F. Faery, U.S. Military Academy, FltMD; Helen M. Gager, Sweet Briar College, MD; Carl H. Gerhold, Texas A & M University, ANRD; Myron Ginsberg, Southern Methodist University, FDCD; Joseph H. Goldberg, Villanova University, FltMD; Warren J. Guy, Lafayette College, FDCD; Jesse W. Hughes, Hampton Institute, FMD; George E. Ioup, University of New Orleans, FED; Richard Jenson, Texas A & M University, STAD; Narayan Joshi, Coppin State College, IRD; Osama A. Kandil, Old Dominion University, SDD; Stephen F. Lin, North Carolina Central University, AESD; William E. McBride, Western Illinois University, SDD; James T. Moore, University College at Oneonta, AESD; Robert A. Orwoll, College of William and Mary, MD; James E. Smith, Old Dominion University, MATD; John A. Thomchick, Old Dominion University, SSD; William K. Van Moorhem, University of Utah, ANRD; and Elias G. Abu-Saba, North Carolina A & T University, FDCD.

The Hampton Institute Summer Research Fellows, with home institutions and division assignments, are as follows: Dr. John W. Bales, Tuskegee Institute, FDCD; Dr. Sandra J. DeLoatch, Norfolk State College, ACD; Dr. John A. Dyer, Southern University, ACD; Dr. Tommie A. Hill, Prairie View A & M University, MATD; Dr. Arthur M. Jones, Morehouse College, MD; Dr. Lawrence F. Koons, Tuskegee Institute, SSD; Dr. Nathaniel N. Matthews, LeMoyne-Owen College, IRD; Dr. Shekhar Munavalli, Livingston College, MATD; Dr. Shien-Sen Perng, Howard University, MATD; Dr. Robert Reiss, Howard University, MD; and Dr. John F. Wiggs, Bennett College, FltMD.

Key Position

Barry N. Hogge has been selected Supervisory Engineering Technician, Operations Support Division, Laboratories Operations Branch, Technical Support Section B.

swap and shop

FOR SALE

Articles

Air conditioner, Sears, 2 yrs. old, 115V, 11,000 BTU, high eff., EC, $200. Call 596-0764.

8 HP Wizzard tiller, EC, $275. Call A. J. Lambiotte, 596-0980.

Car radio, with speaker, AM, $20. Call W. Rew, ext. 2620 or 898-4454 after 5 p.m.

Vehicles

Bicycle, boy's 10-speed, rugged, Bridgeport, Kabuki, GC, $50. 898-4100.

Sailboat--Ranger 26, equipped for cruising and racing, three jibs and new spinnaker, ten horsepower Evinrude engine, depth sounder and log. Call 898-5707.

1977 Plymouth Volare premiere wagon, AT, 6 cyl., PS, PB, AC, cruise control, 60/40 seats, rear window defroster, luggage rack, new radial tires, AM-FM-CB radio, good gas mileage, EC. Call Joe Heyman, Gloucester, 693-4521, after 6.

1976 Suzuki motorcycle, GT250, 5800 miles, 53 mpg, must sell, need money for college, $575. Call 877-1706.

1972 Fiat Spider, 124S conv. coupe, new brakes, suspension, engine overhauled, EC, $2,495. Call Conway, 898-4359.

Chris Craft, 28' Cabin Cruiser, VGC, sleeps 4, galley, stand-up head, engines and trans. in like new cond., kept under cover. Call 838-0173 after 4:30 p.m.

FOR RENT

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to sport fishing center and charter boats, $150/wk. Weekends also available. Call Fogle, 2025.

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, fireplace, 1/2 block from Ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk; winter rate, $350/mo. Call Kent, 420-8391 Va. Beach, work ext. 3095.

House—Beechwood, rancher, 3 BR, 2 BA, LR, DR, eat-in kit., den w/fp, fenced-in yard w/patio, available August 20, $350/mo. Call Wilhite, 3911, or 874-9017.

WANTED

Additional members to join two-person carpool from Norfolk to West Area on 7:30 a.m. shift. Call Ed Hudgins, ext. 3072.

FOUND

Louisville Slugger baseball glove on field opposite side door of Bldg. 1230. If you can identify it you may call Ext. 2466 or pick up in Bldg. 1230, room 261. Contact: Al Darby.

Aerospace Penpoints by Wesley Berryman

"It is difficult to say what is impossible: The dreams of yesterday are the hopes of today, And the realities of tomorrow."

ROBERT GODDARD

cafeteria menu

WEEK OF JUNE 18

MONDAY: Corn Chowder; Clam Croquettes; Steak Teriyaki; Pineapple Chicken. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Irish Omelette. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Baked Tuna-Noodle Casserole; Glazed Ham Loaf. Snack Bar: Tuna Salad; Ham & Cheese Club; Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Braised Beef & Vegetables; Quiche Lorraine. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Yankee Pot Roast; Savory Baked Chicken. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF JUNE 25

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Teriyaki Baked Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Hot Roast Beef Sandwich; Fried Filet of Fish; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Salisbury Steak; Broiled Beef Liver. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Pepper Steak; Franks, Bacon & Cheese. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Barbecued Ham Steak; Chicken & Dumplings. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 13

June 29, 1979

Choir of St. John's College Visits Langley

The internationally famed Choir of St. John's College, Cambridge, England, toured the Langley Visitor Center and the Tech House on Tuesday, June 19. By command of Her Royal Majesty Queen Elizabeth II and under the patronage of Peter Jay, British Ambassador to the United States, the choir is on a two-week concert tour in North America.

The choir, directed by Dr. George Guest, also toured St. John's Episcopal Church in Hampton, Fort Monroe, the Norfolk Naval Base, Williamsburg and Jamestown. The choristers presented a concert Monday, June 18, at the Christ and St. Luke's Episcopal Church in Norfolk. While in the Tidewater area, choir members were overnight guests in the homes of local residents.

The Choir of St. John's College consists of boys between the ages of seven and 13. They are elected after a voice trial and become boarders at St. John's College School where they receive musical training. The school, maintained at a high academic level, exists primarily to educate the choristers.

The choir sings the daily services in the college chapel during the school term. During the summer, the choir is in constant demand throughout Great Britain, Europe, and North and South America. The boys have worked extensively with both the Academy of Saint-Martin-in-the-Fields and the English Chamber Orchestra.

St. John's College, one of the most ancient of the colleges that make up the University of Cambridge, received its charter as a college in 1511.

– photo by Bob Nye

The Choir of St. John's College, Cambridge, England, and their chaperones, visited the Hampton Roads area June 18 and 19. One of the most famous choirs in the world, the choristers have performed in most European countries, Australia and the United States.

– photo by Ben Smith

During the Annual Conference of the National Consortium for Black Professional Development, Anthony Watson of Cleveland, Ohio, Lolita Smith and Edward Allen of Chicago, Illinois, were presented NASA Certificates of Outstanding Achievement as winners of the 4th Annual National Student Science and Engineering Competition. In conjunction with the competition, Langley sponsored a seminar for high school juniors and seniors interested in science and engineering careers. Langley employees who spoke to the group during the seminar are: Sam Scott, Jim Harris, Rosa Webster, Gordon Bullock, and Dave Woods.

Hawkins Speaks at AIAA Awards Banquet

Dr. Willis M. Hawkins, Senior Vice President of Aircraft and member of the Board of Directors of Lockheed Corporation, was the guest speaker at the awards banquet for the Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA) on Thursday, May 24.

During his 37-year career with Lockheed, Hawkins has held many responsible positions, including vice president of the corporation. He also served as Assistant Secretary of the Army for Research for nearly three years and has received many awards.

In his talk, Hawkins discussed some perspectives on the air transport industry with particular emphasis on effects of the energy crunch on the future development of aeronautics.

Distinguished service awards were presented to H. Wayne Leonard, Office of Director for Structures, and Allan H. Taylor, Kentron International.

Twenty-five-year membership pins were presented to Patrick J. Johnston, High-Speed Aerodynamics Division (HSAD), John G. Allen, Rockwell, International, and Ralph W. Stone, Jr., Langley retiree.

Forty-year pins were presented to John P. Reeder, Terminal Configured Vehicle Programs Office, and Donald D. Baals, Paul S. Baker, John V. Becker, E. M. Lester, Eugene E. Lundquist, Charles H. McLellan, Lindsey I. Turner, Jr., and Charles H. Zimmerman, Langley retirees.

New officers for the Hampton Roads Section, AIAA, are Allan H. Taylor, Chairman; A. M. Cary, Jr., HSAD, Vice Chairman; Wallace C. Sawyer, HSAD, Secretary; and Bobby L. Berrier, HSAD, Treasurer.

Center will Remain Open July 5 and 6

Because only about 40 percent of the Langley staff plan to take leave on July 5 and 6, it will not be feasible to close Center facilities. The two days are now considered regular work shift days with all facilities open.

Kapryan Retires

Dr. Walter J. Kapryan, Director of Shuttle Operations at the Kennedy Space Center Since 1969, retired from NASA on June 1, after nearly 32 years of government service.

During his career, Kapryan made many major contributions to the success of the manned flight programs, including the transition of the Kennedy Space Center from Apollo to the Shuttle era.

Kapryan was assigned to Langley from September 1947 to March 1959.

George F. Page has been appointed to succeed Kapryan.

Langley Participates in 'Small Business Day'

Langley will be one of several federal agencies and prime contractors in the Tidewater area sponsoring and participating in "Small Business Day," July 7, at the Hampton Coliseum.

The program, which begins at 9 a.m. and ends at 4:30 p.m., includes seminar discussions concerning the acquisition of capital for business developments, the role of the Small Business Administration, how to find and exploit business opportunities with the Government, how to bid for Government work and, for construction firms, how to develop bonding power.

Participating agencies will also have representatives available to discuss specific needs.

The registration fee is $10 per person, which includes morning coffee and doughnuts, buffet lunch and admission to the workshops and exhibit area.

Joseph F. Braig, Small Business and Minority Business Staff Specialist, Acquisition Division, is Langley's coordinator for the seminar.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Discrimination Act Signed by Carter

President Carter has signed into law the Pregnancy Discrimination Act. The Act is an amendment to Title VII of the Civil Rights Act of 1964 which prohibits discrimination in employment on the basis of sex. The Pregnancy Discrimination Act makes it clear that "because of sex" or "on the basis of sex," as used in Title VII, includes "because of or on the basis of pregnancy, childbirth or related medical conditions."

The basic principle of the Act is that women affected by pregnancy and related conditions must be treated the same as other applicants and employees on the basis of their ability or inability to work. A woman is therefore protected against such practices as being fired, or refused a position or promotion, merely because she is pregnant or has had an abortion. She usually cannot be forced to go on leave as long as she can still work. If other employees who take disability leave are entitled to obtain their original positions when they are able to work again, so are women who have been unable to work because of pregnancy.

If an employee or applicant for employment at the Langley Research Center has questions or concerns related to the implementation of the Act, the Equal Opportunity Programs Office can assist you. You may direct your inquiries to Janet McKenzie, Mail Stop 178, or call on extension 3487.

Credit Union Offers Money Orders

Republic Money Orders are now on sale at the Langley Federal Credit Union. They may be purchased for any amount up to $500 for 40 cents per money order. The cost is very low when compared to the cost of Postal Money Orders, which ranges from 55 cents for a maximum of $10, to $1.10 for a maximum of $400.

Money orders are particularly useful when a certified payment is required. Sold by credit unions, banks and retail stores throughout the United States, Republic Money Orders are guaranteed by Republic Money Orders, Inc., of Dallas, a division of the Republic of Texas Corporation.

Civil Service Reform Act Details Available

Are you interested in knowing the details on the new Civil Service Reform Act?

The Training and Educational Services Branch, Personnel Division, now has video tapes and manuals available for Langley employees in the Learning Center, Building 1195, Room 139. The tapes provide an overview of the major highlights of the reform bill and answer some pressing questions being asked by members of the work force.

The topics covered are:

- "Orientation To Civil Service Reform: A Discussion Of The Highlights"
- "Launching Civil Service Reform: The Senior Executive Service"
- "Launching Civil Service Reform: A New Framework For Federal Personnel Management"
- "Launching Civil Service Reform: Performance Appraisal"
- "Launching Civil Service Reform: Merit Pay"
- "Launching Civil Service Reform: Workforce Discipline"
- "Launching Civil Service Reform: Labor Management Relations"

These tapes may be viewed in the Learning Center. Call ext. 2611 for an appointment.

Fuqua to Speak at Scout Celebration

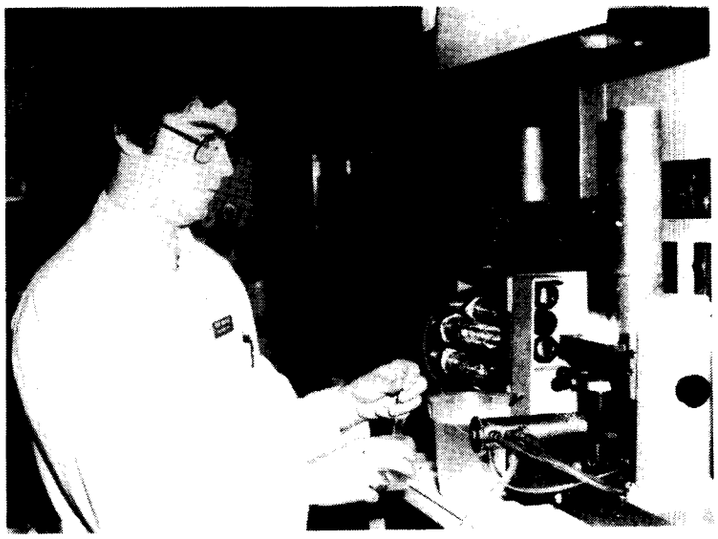
U.S. Rep. Don Fuqua, Chairman, Space Science and Applications, Subcommittee of the Science and Technology Committee, will be the guest speaker at a banquet commemorating the 100th launch of a Scout vehicle, on Friday, July 27, at the Quality Inn/Fort Magruder, in Williamsburg. Dr. Robert A. Frosch, NASA Administrator, will introduce Fuqua.

The Scout celebration will begin with a reception at 6:30 p.m. and dinner will be served at 7:30 p.m. The cost will be $15 per person and dress will be semiformal.

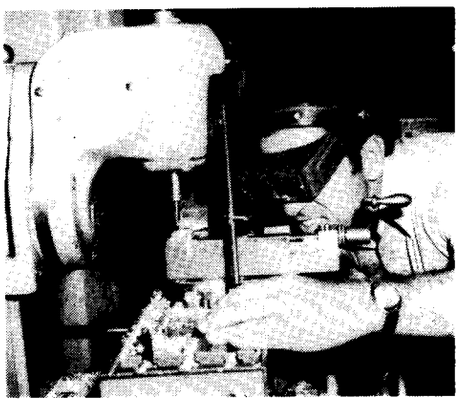
Because seating is limited, reservations must be submitted to Mary Coburn, Mail Stop 158A, by July 16.

– photo by Bob Nye

Joseph A. Shortal is presented the first hard-bound copy of the book he wrote on the early history of the Wallops Flight Center. Robert L. Krieger, Wallops Director, presented the book, entitled "A New Dimension, Wallops Island Flight Test Range: The First Fifteen Years," in a special ceremony at Langley on June 19. Shortal, who retired from Langley in 1963 after nearly 35 years of service to NASA and NACA, began writing the book in 1965.



People at Work



Clockwise are: Frank A. Williams, Publications Branch, STIPD, mounts a printing plate on an offset press; Charles W. "Skip" Watson, Jr., Graphics Branch, STIPD, prepares a standard slide according to Langley procedures; Carmen E. Batten, Environmental Chemistry Branch, MATD, measures the reflectance of soot particles, collected from aircraft fuels, to determine their optical properties; Robert J. Swaim, Facilities Electronics Unit, FD, and Robert L. Fox, Communications Systems Unit, FD, use an induction welding gun to join thermal plastics (Swaim and Fox, along with Dr. John D. Buckley, FD, have applied for a patent on the gun); Billy B. Dancy, Instrument Development Section, FD, cuts an accelerometer mount on a milling machine; and Eddy Winstead, Bionetics Corporation, analyzes various metals on an atomic absorption spectrophotometer--the tests are performed in Langley's Water Laboratory.

– photos by Bob Nye

Personnel Profiles

By Allan C. Hanrahan

Good Morning, America, How Are You?

It is Six-thirty-five and the aluminum-sided bus, looking silvery in the morning light, is carefully maneuvered out of the Newton bus compound at Bellamy, Virginia, a few miles west of historic Gloucester County Court House.

The guiding hands on the steering wheel belong to **A. BRUCE GRAHAM**, himself the guiding force responsible for the commuter bus, which a few minutes later has already stopped for three passengers, among them Jean Cridlin of the Marine and Applications Technology Division:

". . . Certainly, as far as I'm concerned, it's a money saver . . I'd like to see more ride it so we can keep it . . . Riding it when you want, that's the beauty part of it . . . Well, I just think it's super! . . ."

It is around Six-fifty a.m. when Bruce, a twenty-eight-year-old product of Mechanicsville, Virginia, wheels the bus up to the Murphy's sign at Gloucester Court House, where anywhere from eight to a dozen people step aboard, among them Bette L. (Jeanie) Duncan of Programs and Resources Division:

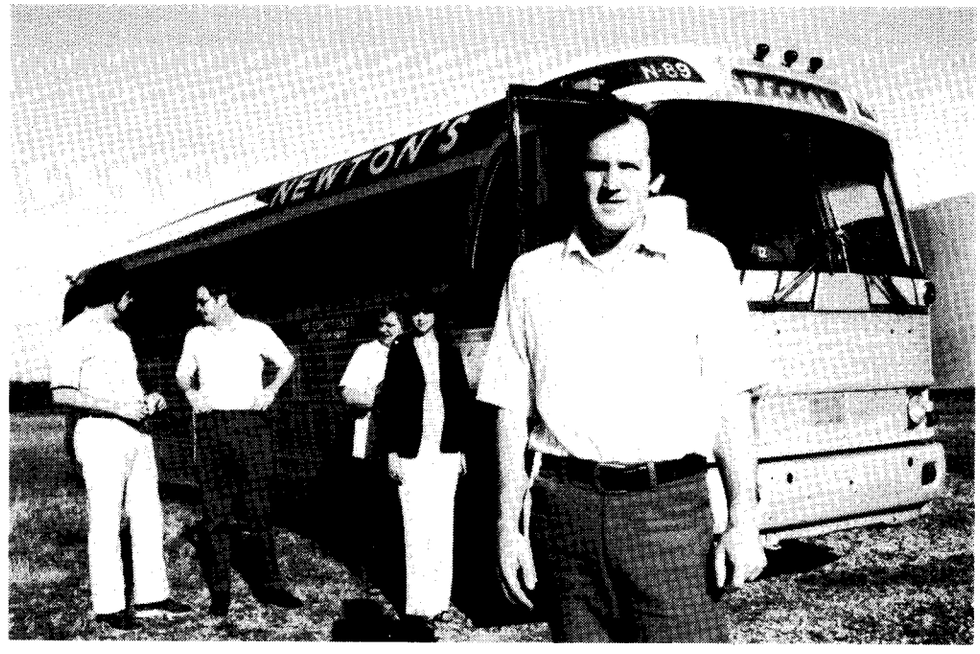
". . . In effect, I reclaim two hours each day; time to read or whatever because I'm not having to drive . . . We have some good conversations--stimulating conversations . . . But we need more riders . . . After all, you only pay when you ride . . ."

The driver, who holds a B.S. degree in Aerospace Engineering from VPI&SU (class of Seventy-three), a M.S. degree in Aerospace Engineering from George Washington University, and a chauffeur's license from the State of Virginia, drives past Short Lane and points the conveyance toward its rendezvous with the Rich's sign at White Marsh.

"Sometimes I look in the mirror," related Bruce, *"and half the people are asleep; some are reading the paper or talking with one another."*

One of those Bruce sees is James M. (Jim) Hoell, Jr., of the Instrument Research Division:

". . . Well, it obviously saves money . . I can pretty much relax, read the paper, even sleep if I want . . . And safer; you're in a bigger vehicle, of course . . . It's very convenient the way it's handled; (Bruce) lets you off at your building . . . I'd hate to see them discontinue it . . ."



– photo by Bob Nye

A. Bruce Graham, Army Structures Laboratory, waits for passengers to board Gloucester commuter bus for journey home.

Up to four people board at White Marsh and Bruce swings the bus back on to Route 17--Historyland Highway--and picks up passengers as the bus continues on down the roll call of old Gloucester place names: Ordinary, Hayes, Abingdon Church, and Gloucester Point.

Rolling over the arching George P. Coleman Memorial Bridge the passengers are treated to a panoramic view of portions of the York and Gloucester counties, as well as the lower reaches of the York River, before they descend down to the history-laden Yorktown side where a passenger or two are received aboard.

It is now approximately Seven-twenty, Route 17 has become the George Washington Memorial Highway and Bruce has one more stop to make, Edgehill, where a few people embark. One of them is Dr. Stephen J. Katzberg of the Flight Electronics Division:

"I think it's a real good idea . . I ride it primarily because it's a lot more pleasant way to get to work . . I've been real satisfied with it . . . Very convenient . . ."

With Edgehill the last scheduled stop Bruce drives the bus past Grafton and Tabb, headed for the Center where he has worked since last August as an Aerospace Engineer for the Army Structures Lab.

Turning off of Route 17, onto Route 134, the bus is soon crossing Wythe Creek into Hampton where Bruce and his wife Roban (Roberta Ann) lived before moving to Gloucester in January, into a house Bruce had partially built himself.

A Hampton school teacher, Roban did ride the bus herself but with school out for the summer she now remains at home, awaiting the birth of their first child due the latter part of June.

It is approximately Seven-forty a.m. when the bus completes its thirty-three-mile journey to the Center and a few minutes later has finished wending its way around the West Area, disembarking the twenty or so passengers who average riding it each day. But the bus will hold thirty-nine people and unless the average increases by four or five each trip the existence of the bus service is tenuous, according to Bruce.

Later in the day, at approximately Four-forty-five p.m., the bus will have completed its Center circuit and clear the Wythe Creek Road gate, heading for home with its passengers: some asleep, others reading the paper or talking with one another . . .

Allegheny Provides Flights from Patrick Henry

The Allegheny Commuter air carrier is now providing frequent daily flights from Patrick Henry International Airport to Washington National Airport, Baltimore-Washington International Airport and the Philadelphia International Airport. The schedule is listed below.

PATRICK HENRY SCHEDULE

To Washington National

Flight	Leave	Arrive	Stops	Freq.
604	6:45 am	7:45 am	0	Exc. Sun.
624	9:20 am	10:59 am	1	Daily
608	11:05 am	12:05 pm	0	Exc. Sun.
648	11:05 am	12:05 pm	0	Sun. Only
616	1:15 pm	2:55 pm	1	Daily
649	6:00 pm	7:00 pm	0	Sat. Only
622	6:15 pm	7:15 pm	0	Exc. Sat.

From Washington National

605	7:59 am	8:59 am	0	Exc. Sun.
603	9:50 am	10:50 am	0	Exc. Sun.
647	9:50 am	10:50 am	0	Sun. Only
615	11:10 am	12:50 pm	1	Daily
616	3:55 pm	4:55 pm	0	Daily
623	9:00 pm	10:00 pm	0	Exc. Sat.

To Baltimore (BWI)

602	7:20 am	8:19 am	0	Exc. Sat. & Sun.
624	9:20 a.m.	10:25 am	0	Daily
616	1:15 pm	2:20 pm	0	Daily
630	3:30 pm	4:30 pm	0	Exc. Sat. & Sun.
649	6:00 pm	7:45 pm	1	Sat. Only
622	6:15 pm	8:00 pm	1	Exc. Sat.
600	7:35 pm	8:35 pm	0	Exc. Sat. & Sun.

From Baltimore (BWI)

615	11:45 am	12:50 pm	0	Daily
636	2:05 pm	3:05 pm	0	Exc. Sat. & Sun.
616	2:35 pm	4:55 pm	1	Daily
614	6:20 pm	7:20 pm	0	Exc. Sat. & Sun.
623	8:25 pm	10:00 pm	1	Exc. Sat.
600	9:40 pm	10:40 pm	0	Exc. Sat. & Sun.

To Philadelphia International

642	10:30 am	11:45 am	0	Exc. Sun.
628	5:05 pm	6:20 pm	0	Exc. Sat.

From Philadelphia International

641	8:45 am	9:55 am	0	Exc. Sun.
619	3:35 pm	4:50 pm	0	Daily

– photo by Bob Nye

Director Donald P. Hearth (center) reviews the new Langley Master Plan with Kenneth W. Cogan, Vice President, Forrest Coile and Associates; Rufus C. Phillips III, President, Airways Engineering Corp.; Forrest W. Coile, President, Forrest Coile and Associates; and Oran W. Nicks, Deputy Director. Cogan, Phillips and Coile represent the architect-engineer firms contracted to prepare the plan. The master plan is a statistical and graphic record of Langley's past development and proposed development necessary to satisfy future demands. Future development plans are projected into three, five and beyond five year programs. The new master plan also includes plans for site development after demolition of the old model Shop and Building 1195, widening of Ames Road, new street names in some areas and revision of the proposed loop road near the new Gate 5.

ASEE Sponsors Lecture Series in July

The American Society of Engineering Education (ASEE) Summer Faculty Fellowship will continue to sponsor the lecture series in July. Below is a list of the lectures which will be held in Building 1212, Room 200, from 10:30 to 11:30 a.m.

July 12: Dr. L. Meirovitch, VPI&SU, Blacksburg, "Control of Flexible Spacecraft"

July 20: Dr. E. Reshotko, Case Western Reserve University, Cleveland, Ohio, "Recent Developments in the Study of Transition"

July 24: Dr. A. Mielnicke, Ray Herrick Laboratory, W. Layfayette, Indiana, "Acoustic Research in Poland"

July 26: Dr. Z. Lavan, Illinois Institute of Technology, Chicago, Illinois, "Desaccant Solar Air Conditioning"

In Memoriam

Sandra J. Blow, 42, died of a heart attack on Sunday, June 17, at her home in Norfolk. Employed at Langley for 20 years, she was a Technical Information Specialist in the Technical Library Branch, Management Support Division. Blow received a bachelor of science degree in chemistry from Ohio State University in June 1958.

Her co-workers always found her to be very generous in sharing information on Langley programs. Blow will be well remembered by her friends for her fairness, kindness and laughter.

Happenings

PICNIC. The annual Fourth of July picnic will *not* be held this year. However, the Concession Stand and picnic grounds will be open.

HAPPY HOUR. Our next Happy Hour is scheduled for Friday, July 6, from 4 to 6:30 p.m. at the Activities Center.

DINING CLUB. The International Dining Club, Ltd. is offering membership to NASA employees for only $18, a savings of $11.95. The club has special savings, two-for-the price of one. Membership entitles you to fine dining at 21 restaurants, and special entertainment, including seven concerts, six cruises, 25 plays and 34 sports events. Call the Activities Office, ext. 3139, for more information.

FOOTBALL TICKETS. Orders are now being taken for season tickets to the William & Mary home football games. The price is $17.50. For further information, call the Activities Office, ext. 3139. The 1979 home schedule is as follows: September 15, COLGATE, 1:30 p.m.; October 6, JAMES MADISON, 1:30 p.m.; October 20, RUTGERS, 2 p.m.; November 17, RICHMOND, 1:30 p.m.; and November 24, EAST CAROLINA, 1:30.

Recent Retirees

Philip E. Weatherwax, Management Support Division, retired on June 15.

Retiring today are **Winfrey E. Arnold, Jr.**, Fabrication Division; **Frank H. Watkins**, Operations Support Division; **Sue W. Souders**, High-Speed Aerodynamics Division; **Carleton L. Holleman**, Operations Support Division; **Daniel P. Hutts, Jr.**, Fabrication Division; and **William L. Fox**, Operations Support Division.

Retirement Party

Sue W. Souders, High-Speed Aerodynamics Division, will be honored with a retirement luncheon at the Activities Center, Building 1222, on Tuesday, July 17, at 11:30 a.m. Cost will be $6 per person or $11 per couple (includes gift). Donations of $1 for gift only are welcome. For reservations, send cash or check to Brenda N. Steele, M/S 168, ext. 3772, by July 6.

– photo by Don Ward

The six-man team pictured here represented the Langley Runners' Club in the Elizabeth River Run held May 12 in Norfolk. In addition to this team, many individual runners from Langley were among the 2,264 who completed the 10,000 meters (6.2 miles). The team placed 2nd of 16 in the business category, losing only to the Richmond Athletic Attic. Three other categories existed for military, track clubs, and church or fraternity teams. Overall the Langley team finished 6th of 81. The runners, from left are: Front row—Don Humes, Rich Booth, Joe Drozdowski; Second row—Al Graham, Earl Dunham, John Hoppe. Congratulations on the fine finish!

Carnival Planned for August 24-25

The Langley Activities Association is making plans for the 1979 Carnival, to be held on the picnic grounds August 24 and 25. Grand prizes this year will include a microwave oven and $1,200 cash on Friday, and a cruise for two plus $200 and a $500 cash prize on Saturday. Other prizes will be given away every half-hour during the carnival.

For the second year, the Activities Association is sponsoring a Carnival Queen contest. You can vote for your favorite candidate when you purchase a $1 carnival ticket.

The Activities Association needs many workers to help with carnival activities. If you would like to volunteer, please contact one of the following chairmen.

Finance Committee—Frances Hartman, ext. 4156

Food and Beverages—Ross Phillips, ext. 2417

Booths and Grounds Operation—Billy Holliday, ext. 3561

Children's Booths, Games and Rides—Dana Morris, ext. 3274

Special Events—John Arrington, ext. 4195

Publicity—Margaret Hunt, ext. 3511

Bingo—Gene Hicks, ext. 3737

Raffle—Ross Phillips, ext. 2417

Casino—Ernie Greene, ext. 2312

Training Notice

Starting with the fall semester, Old Dominion University will offer a Mechanical Engineering Degree Program for those students who can only attend classes in the evening. For addition information, contact John Covington, Training and Educational Services Branch, extension 2611.

swap and shop

FOR SALE

Articles

Air conditioner, 11,000 BTU, 115V, GC, $50. Call 569-0764.

Pool table, 8' w/man-made bed, que sticks and one set of balls, $125. Call 595-7501.

Living room sofa & chair with 2 end tables, coffee table, 2 book cases, and desk to match; one-of-a-kind hand carved coffee table (original); round coffee table with 2 sets of detachable legs (1 short, 1 long); dinette set with 6 chairs; two adjustable bed frames, 1 with headboard; antique plant stand with brass top; ironing board; wicker pet bed; eight boxes ceramic tiles & 10 wire screens for tile; ski boots with rack, size 9½; VW engine; and radial tires (2 snow). Call 723-8992 between 6 p.m. and 9 p.m.

Wedding gown, size 7, worn once, beautiful lace, $50. Call 596-8770 after 6 p.m.

Traverse rods, assorted sizes at ½ Sears' catalog price. Child's backpack and frame, $10. Call Youngblood, 877-1224.

Vehicles

1973 Ford LTD Country Squire wagon, Brougham interior, AM/FM stereo radio, AC, one owner, $1250. Call 868-6930.

1972 Dodge Coronet, PS, PB, AT, GC, $700. Call Dick Powell, ext. 3911, or 220-2653.

Hobie 12-foot Mono-Cat sailboat w/blue deck and white sail, VGC, complete with instructions. Call Comer, 877-1669 or 877-7331 after 5 p.m.

Bicycle, boy's 10-speed, rugged, Bridgeport, Kabuki, GC, $50. 898-4100.

FOR RENT

Sandbridge: New cottage w/living-kit-din-area, 4 BR, washer, dryer, dishwasher, fireplace, ½ block from ocean and backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk, winter rate $350/mo. Call G. O. Kent, 420-8391 Va. Beach, work—ext. 3095.

Wintergreen condominium—2 BR, completely furnished including linens, golf, tennis, swimming, trails, on Blue Ridge Parkway, 180 miles from Newport News, summer rates, $50 per day, $300 per week. Call Ladson, 877-3632.

House—York County, Brick, 3 BR, 2 BA, LR, DR, den w/fp, CA/heat, ½-acre wooded lot w/fenced bk. yard, $385/mo. Available August. Call 898-7053.

WANTED

People interested in taking TNCC, 2-quarter class in Applied Business Statistics, BUAD 254 and 255, possibly on Center, call Fran Sabo, ext. 3611.

Organist needed, Asbury United Methodist Church, Denbigh—Newport News, VA. Call 877-7490 or 877-7343.

To join carpool from Southampton to West Area on 8 a.m. shift. Call Lazenby, 2664.

To join or start a carpool from Grafton, Dare area to East area for 8 a.m. to 4:30 p.m. shift. Call F. W. Cazier, Jr., 2661.

Key Positions

The following Langley employees have been selected for key positions:

Ray V. Hook, Deputy Manager for Energy Efficient Transport Technology in the Aircraft Energy Efficient Project Office (ACEE), Office of Director for Projects; **James H. Starnes, Jr.**, Assistant Head, Structural Mechanics Branch, Structures and Dynamics Division;

Dr. Jeremiah F. Creedon, Assistant Head, Avionics Technology Research Branch, Flight Electronics Division; and **Robert F. Graham**, Supervisory Engineering Technician, Mechanical Equipment Support Section, Mechanical Support and Utilities Operations Branch, Operations Support Division.

James W. Mayo has been selected Acting Head, Aeronautical Systems Engineering Branch, Systems Engineering Division.

cafeteria menu

WEEK OF JULY 2

MONDAY: Ham & Lima Bean Soup; Broiled 10 oz. Strip Loin Steak; Fried Filet of Fish; Baked Tuna & Noodle Casserole. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Chicken & Spanish Rice. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Holiday
Have a Happy
4th of July
☆★☆★☆★☆

THURSDAY: Corn Chowder; Veal Parmesan; Quiche Lorraine; Yankee Pot Roast. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Teriyaki Baked Chicken; Glazed Ham Loaf. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; deluxe Sub; BBQ Pork.

WEEK OF JULY 9

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Pineapple Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Barbecued Ham Steak; Franks, Bacon & Cheese. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Beef Balls Stroganoff Over Noodles; Salisbury Steak. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Roast Beef au jus; Braised Chicken Livers Over Rice; Meatloaf. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory Baked Chicken; Country Style Steak. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 14

July 13, 1979

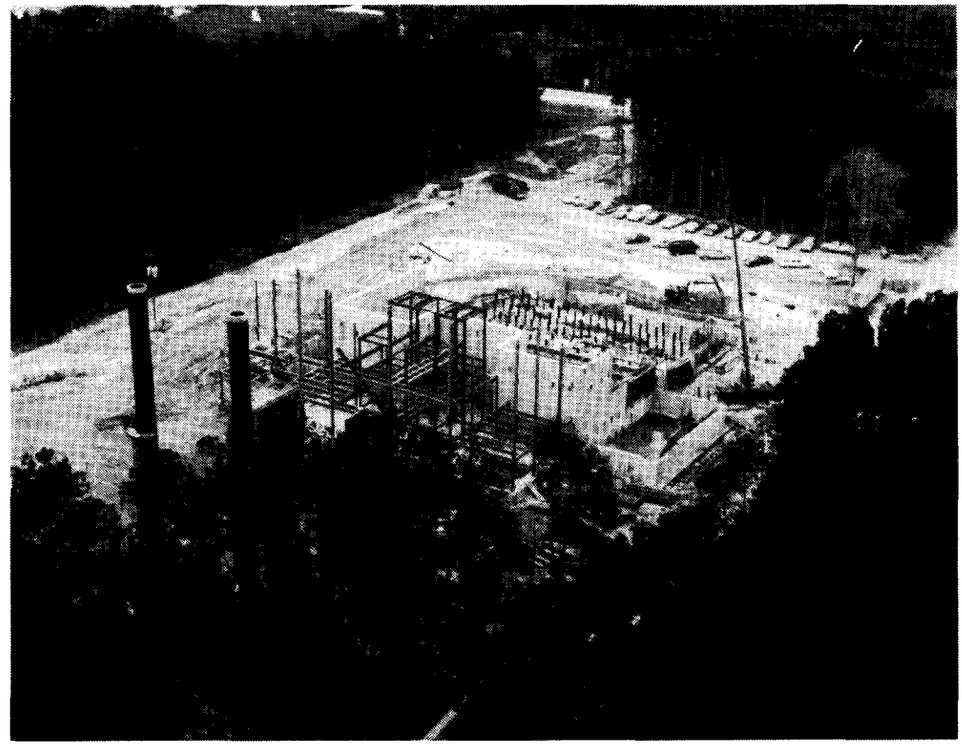
'Energy from the Oceans' Discussed in Next Colloquium

John R. Justus will speak on "Energy from the Oceans" at the July 23 colloquium. The lecture will be held in the Activities Center, Building 1222, beginning at 2 p.m., followed by a brief question and answer session. At 3 p.m., the speaker will move to the adjoining Langley Room for an informal discussion.

Justus is Science Policy Analyst for Earth Science and Ocean Affairs at the Science Policy Research Division of the Congressional Research Services, Library of Congress in Washington, D.C. He has published many articles about energy from the oceans.

The Langley Colloquium Series has featured a number of folks on alternate energy sources in the past, but none on this subject.

Langley employees attending the colloquium are to charge their time to Job Order A1980.



This bird's-eye view of the Refuse-Fired Steam Generating Facility shows the major concrete walls around the refuse pit nearing completion. Stacks and electrostatic precipitators are in the foreground and structural and boiler steel are being erected in the boiler room. Foundation walls for the tipping floor are under construction. In the background, the scale foundation is completed. *The project is on schedule for a June 1980 completion.*

Langley Visitor Center Schedules Special Programs

The Langley Visitor Center has several special programs, focusing on the Voyager 2 encounter with Jupiter, the 10th Anniversary of the Apollo 11 flight and a science fiction art exhibit, during July.

The Voyager program consists of a presentation at 2 p.m. every Monday through Friday and a display of photos of Jupiter and its satellites taken by Voyagers 1 and 2.

Each presentation includes photos of Jupiter and a basic review of Voyager's 1 and 2 mission purpose, a description of the Voyager spacecraft and early results from Voyager 1.

Films on the Apollo 7 through 17 missions will be presented July 16 through 26 in commemoration of the 10th Anniversary of the Apollo 11 Lunar Landing. The films will be shown periodically during the day on the respective dates indicated below.

July 16: Apollo 7
July 17: Apollo 8
July 18: Apollo 9
July 19: Apollo 10
July 20: Apollo 11 and Moonwalk
July 21: Apollo 12
July 22: Apollo 13
July 23: Apollo 14
July 24: Apollo 15
July 25: Apollo 16
July 26: Apollo 17

Also continuing through July is "Kelly Freas: A One-Man Science Fiction Art Show." The exhibit includes 40 selected paintings by Freas, Dean of Science Fiction Artists and winner of 10 Hugo Awards for Best Professional Artists.

– photo by Bill Salyer

Teachers from 17 Peninsula area schools attended an Aerospace and Earth Science Workshop, sponsored by Hampton Institute and Langley, June 11 through 15. The workshop included presentations on rockets, the Space Shuttle, energy research, aeronautics, marine environment monitoring, application satellite systems, the moon, stars, meteorites and planetary exploration. The workshop participants received, from Hampton Institute, credit applicable toward their teacher certificates.

Attention Technical Monitors

Langley Research Center Technical Monitors are requested to contact Acquisition Division personnel Michael F. Cavelli, ext. 3572; William R. Kivett, ext. 3476; or Richard T. Bright, ext. 2464, prior to preparing Justifications for Noncompetitive Procurement (JNCP) and Justifications for Acceptance of Unsolicited Proposals (JAUP) for research and development contracts.

Recent review by NASA Headquarters of JNCPs and JAUPs, submitted in support of Determination and Findings for authority to negotiate contracts under 10 U.S. Code 2304(a)(11) (Research and Development), has resulted in Headquarters requesting the information in more detail.

Considerable more information on the history of the program and more detail on the reasons set forth in substantiation of why the acquisition should be noncompetitive is required.

Failure to submit the necessary information will result in delays in the early stages of the acquisition cycle.

LAA Sponsors Employees' Night

In past years, the Langley Activities Association (LAA) has sponsored an employees' night at the War Memorial Stadium. This year, the LAA has reserved the stadium on Thursday, August 9, for a game between the Peninsula Pilots and Winston-Salem.

We are also planning to pay tribute to Herb Boulter during the evening. Herb has been instrumental in the functions of the Activities Association for the past 20 years, and we want to show him our appreciation on this occasion. Therefore, we are designating August 9 as "A Tribute to Herb Boulter Night."

Tickets are **FREE** to employees, retirees, contractor personnel and members of their families. They can be picked up at the Activities Office (Building 1222) or at the stadium on August 9.

The game begins at 8 p.m. with pre-game entertainment provided by the Hampton Lions Club Jug Band beginning at 7 p.m. There will also be drawings for door prizes.

Notice to Employees

The Personnel Division has been advised that some Langley employees have been contacted at the Center by outside insurance companies. This Center is not sponsoring these calls. Personnel prefers that this type of contact be made after working hours; however, if employees do participate in such insurance planning during working hours, time will be charged to annual leave.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Question and Answer

Q. Several months ago, the *Researcher* ran a special energy issue commenting on Langley's drive to conserve energy. With the present gasoline shortage, car pooling or use of bus transportation is an immediate conservation.

Has Langley considered the possibility of permitting individuals to advance or retard their work shifts to facilitate car pooling? The approval would ultimately depend on the change being satisfactory from an operational standpoint.

I live in Mathews and a shift change would enable me, and several others that I know of, to take advantage of the new Gloucester bus service.

A. William L. Simkins, Management Analysis Branch, Management Support Division, responds:

"This Center supports car pooling and other forms of mass transportation which contribute to energy conservation. Efforts to more actively encourage and assist employees in finding alternatives to driving alone are currently under way.

"In the meantime, your supervisor can authorize a change from one standard shift to another. Additionally, the Chief of the Personnel Division can approve nonstandard shifts. This information is given in detail in Langley Management Manual Instruction 3610.1, Hours of Duty. Although this instruction was not written with car pooling in mind, supervisors are encouraged to take advantage of the leeway it affords to promote this worthwhile activity."

Docent Program to Expand

From time to time you may notice an individual wearing a bright red blazer in the vicinity of Building 1202. This individual is a member of a group known as the Langley Docents.

Docents are volunteer lecturers and tour guides at the Langley Visitor Center. Since last fall, the volunteers have donated approximately 300 hours to guide thousands of school children and adults through the Visitor Center and Technology Utilization House.

The Docent Program has proven so successful, it is time to expand. Retired Langley employees, spouses of employees, and friends interested in volunteering for this program should contact Renee Benton, Langley Docent Coordinator, ext. 3966.

Langley Notes

Charles R. Schilling, Plant Engineering Division, has been installed Treasurer of the Tidewater Chapter, American Institute of Plant Engineers.... **Agnes Dunkley**, Office of External Affairs, and **Albert H. Lindler**, Flight Electronics Division, were married June 24.... **Russell V. Parrish**, Analysis and Computation Division, has been named to the Gloucester County School Board .... **Danny R. Hoad**, Subsonic-Transonic Aerodynamics Division, has done an outstanding job as President of the Richneck Little League .... **Mary W. Jackson**, Subsonic-Transonic Aerodynamics Division, has been elected National Financial Secretary of the Continental Societies, Inc., an international organization established more than 26 years ago to improve welfare of disadvantaged youth in the areas of health, education, employment and recreation.

Scout Reservations Due Monday

Monday, July 16, is the deadline for turning in reservations for the Scout reception and dinner to be held July 27 at the Quality Inn/Fort Magruder in Williamsburg.

The 100th Scout Launch Celebration will begin with a reception at 6:30 p.m. and dinner will be served at 7:30 p.m. The cost will be $15 per person and dress will be semiformal.

Checks should be mailed to Mary Coburn, Mail Stop 158A.

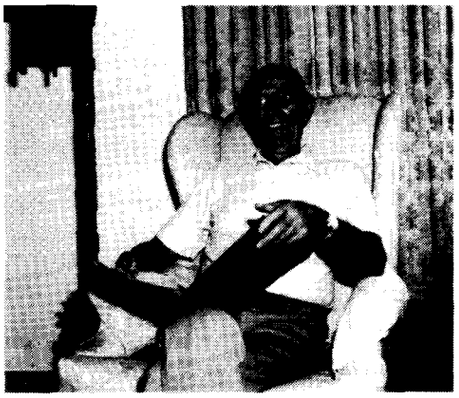
Correction

The first key position listed in the June 29 issue of the *Langley Researcher* should have read, "**Ray V. Hood**, Deputy Manager for Energy Efficient Transport Technology in the Aircraft Energy Efficiency Project Office (ACEE), Office of Director for Projects."

— photo by Bob Nye

The National Bureau of Standards' Interagency Precision Measuring Test Equipment (PMTE) Group recently visited Langley to review the Center's instrumentation and calibration programs and to see how the programs are conducted. The group, composed of representatives from the National Bureau of Standards, Department of Defense, Department of Transportation, Department of Energy and NASA, plans, coordinates and recommends policy for the management and use of PMTE by departments and agencies of the Federal government. Seated, from left are Jack Vogt, PMTE Project Manager, Kathy Leedy and Ken Edinger, National Bureau of Standards. Standing are Ken Galliher, Department of Energy; Howard Edwards, Chief, Instrument Research Division (IRD); Phil Bowen and Richard Kee, Department of Transportation; and Fred Kern, IRD.

Retirees Corner



'Toe Pullin'

"Get on for Miller School" were the words George M. Dudley, a Langley retiree, heard one September morn in 1922. Dudley was on his way to the Miller School, located about five miles from where the Walton family story was filmed, in Albemarle County.

The live-in school, now over 100 years old and maintained by Samuel Miller's endowment, was established for boys and girls to receive academic and manual training. Dudley remarked, "Miller School had both academic and technical training in those early days far superior to any I have known of even to this day."

Some of the technical training that Dudley received during his four years at the school included cabinet making; machine shop; foundry; drafting; agriculture; civil engineering; and steam engineering, such as operating steam boilers and engines. The training he received there led him to an apprenticeship at the Newport News Shipbuilding and Dry Dock Company, and later to a modelmaking career at Langley.

Dudley remembered many unique experiences of his childhood days at the Miller School. Since he retired from Langley's Fabrication Division in 1972, Dudley has written a book entitled "Toe Pullin" in which he recollects these experiences. The book has been turned over to the school and some of the chapters have appeared in Albemarle County publications. The Daily Press has also written feature stories about Dudley's book. Dudley hopes to get the book published in the future.

In one chapter of the book, Dudley discusses the term "toe pulling," a game he thoroughly enjoyed playing in those days. The toe pulling game was used mostly on boys that snored, but, Dudley added, "it worked good on anyone when you wanted to cut down his ego and remove some of his superiority. The next day he wouldn't walk quite as tall and I would walk a little taller."

Dudley explained the rules of the game. "When the victim is asleep, you work the covers loose from the foot of the bed, fasten a slip knot around the toe next to the big toe. Then with the other end of the string rolled up in a ball, get in your bed and begin to work the victim over by pulling intermittently. You could practically get a solo out of him by working that string taut and slacking off. He would grunt and groan like a hog trying to get out of a mud hole. When you give the string a sharp tug, the victim would holler and wake up half a dozen others. He would come out of that bed with the covers flying."

Dudley noted, "It was always nice to have another person awake to enjoy this midnight opera. It was too good to be wasted on one person."

Dudley worked the toe pulling to a fine art. He did not invent the torture, but he did enjoy its benefits.

Note to retirees: The Langley Researcher staff welcomes information and photographs on your activities. Contact the Researcher Editor, ext. 2934 or Mail Stop 115A, if you want a story printed in the paper.

Training Notice

Langley employees who have received advanced degrees in Fiscal Year 1979 and have not notified the Training and Educational Services Branch, are urged to report this information to Frank Owens, extension 2611.

Recent Retirees

William C. Edwards, Analysis and Computation Division, and **Junie H. Upton**, Operations Support Division, retired June 29.

LAA Travel '79

There are three tours that offer group rates and depart from Patrick Henry Airport this fall and winter. They are:

Hawaii Waikiki, October 3–11, eight days and seven nights, with a three day, two night stay in San Francisco on the return flight as an option; Las Vegas, October 18–21, four days and three nights, choice of accommodations at some of Las Vegas' best hotels; Hawaii, Hilo, Kona, Maui and Honolulu, December 31–January 14, 14 days and 13 nights.

You may cruise from Norfolk to Bermuda, September 11–18 or spend a weekend October 12–15 cruising to nowhere. You may prefer the Caribbean cruise which makes four ports-of-call, December 14–22.

Please call the Activities Association Office, ext. 3139, for brochures and reservation forms. For further details, call Ernie Greene, ext. 2312, home 838-0567; or Herb Boulter, ext. 3234, home 838-4773. If you are interested in a Scandinavia tour in 1980, please call Ernie Greene, ext. 2312, or send your name and address to him at Mail Stop 157A.

Aerospace Penpoints
by Wesley Berryman

"Tranquility Base here:
The Eagle has landed."

"That's one small step for
a man, one giant leap
for mankind."

Neil Armstrong
July 20, 1969

Front row, from left: Axel T. Mattson; Donald P. Hearth; Abe Silverstein; Mrs. Silverstein; Mark R. Nichols; Mrs. Nichols; Joseph A. Shortal; and Mrs. Shortal. Row two: J. Cabell Messick; Mrs. Messick; Herbert Wilson, Jr.; Mrs. Wilson; T. Aubrey Harris; Mrs. Harris; Hartley A. Soule; and Mrs. Soule. Row three: Mrs. Cushman; Ralph Cushman; Robert O. Schade; Mrs. Schade; Frank Lofurno; and Mrs. Lofurno. Row four: I. Edward Garrick; Mrs. Davis; Don D. Davis, Jr.; Samuel Katzoff; Mrs. Floyd Thompson; Ralph W. May; and Mrs. May. Row five: John W. Paulson, Sr.; Mrs. Paulson; H. Clyde McLemore; Mrs. Nelson; William J. Nelson; Mrs. Butler; T. Melvin Butler; Blake W. Corson; and Mrs. Corson. Row six: Mrs. John Stack; Eugene R. Guryansky; Mrs. Guryansky; Oran W. Nicks; Mrs. Nicks; Herbert Roehm; William H. Phillips; and Mrs. Phillips. Row seven: Henry A. Fedziuk; Mrs. John P. Reeder; Donald D. Baals; Mrs. Baals; Laurence K. Loftin, Jr.; John V. Becker; Mrs. Becker; and Ray W. Hooker. Row eight: Arthur W. Carter, Charles H. Zimmerman; Joseph R. Chambers; Mrs. Chambers; William P. Gilbert; Mrs. Gilbert; Roland E. Olson; and Mrs. Olson. Row nine: Charles A. Hulcher; John C. Houbolt; Howard B. Edwards; John P. Campbell; Mrs. Campbell; Mrs. Johnson; and Joseph L. Johnson, Jr.

Full-Scale Tunnel Ceremony Held at Langley

A ceremony commemorating nearly five decades of aeronautical research was held on Thursday, June 28, in the Full-Scale Tunnel. Approximately 70 Langley employees and retirees attended the reunion.

Axel Mattson served as Master of Ceremonies and Director Don Hearth introduced the guest speaker, Dr. Abe Silverstein.

Silverstein, retired Director of the Lewis Research Center, worked at Langley from June 1929 to October 1943. He helped design and later was placed in charge of the Full-Scale Wind Tunnel. As Head of the Full-Scale Wind Tunnel, Silverstein directed aerodynamic research which led to increased high-speed performance of most World War II combat aircraft.

The history of the Full-Scale Wind Tunnel was presented by Joseph R. Chambers, Head, Dynamic Stability Branch, Flight Mechanics Division.

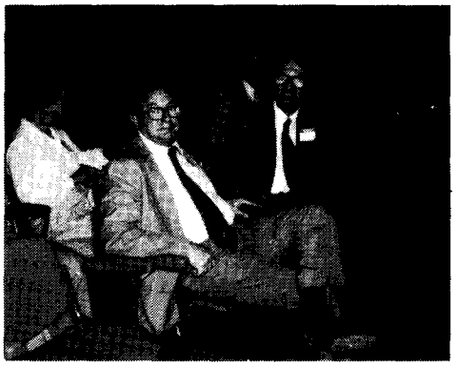
Ralph "Mike" Cushman (right) NASA Headquarters, expounds the importance of following Washington management instructions to Oran Nicks and Ray Hooker.

– photos by Bob Nye, Bill Salyer and Harry Broskie

Discussing early aerodynamic research are (from left) Bill Nelson, Mark Nichols, Larry Loftin, Arthur Carter and Ralph May.

Mrs. John P. Reeder (center), formerly Frances Winder and Silverstein's secretary, chats with Abe and his wife, Marion.

Melvin Butler, Vice Mayor of the City of Hampton, and John Becker, discuss politics.



Abe Silverstein and Director Don Hearth talk over reunion activities.

– photo by Bill Salyer

Twenty-one of 50 NASA Science Fair Award winners in Langley's five-state region attended the Awards Program on June 12 in the Langley Activities Center. NASA gives awards in each state and regional science fair for entries related to NASA research. Shown above, from left to right, first row: Russell Payton, Colonial Beach, Va.; Timothy Motestein, Appomattox, Va.; Tom Sivik, Colonial Beach, Va.; Sherry Perdue, Salem, Va.; Charles Ferree, Columbia, S.C.; Stanley Boinovich, Keyser, W. Va.; Darrin Smith, Ft. Ashby, W. Va.; and Glenn Colby, Colonial Beach, Va.; second row: Steve Colby, Colonial Beach, Va.; Nelson Daniel, Jr., Roanoke, Va.; Robert Lindamood, Dublin, Va.; Douglas Hopkins, Colonial Beach, Va.; Donald Buchanan, Weirton, W. Va.; Bruce Bunk, Newport News, Va.; Carl Hall, Beckley, W. Va.; Michael McGinn, Woodbridge, Va.; and Glenn Hrinda, Hampton, Va.; third row: Doug Olson, Portsmouth, Va.; Scott Handley, St. Albans, W. Va.; Bob Williams, Weirton, W. Va.; and William Daffan, Nokesville, Va.

Langley Employees Receive Awards

Certificates of Recognition for inventions have been presented to the following:

Anne K. St. Clair and Terry L. St. Clair, for "Crystalline Polyimides;" L. Robert Jackson, John P. Weidner, William J. Small, and James A. Martin, for "Small Air Breathing Launch Vehicle;" Thomas G. Campbell, for "Microstrip Backfire Antenna;" Robert S. Rogowski and Edward R. Long, Jr., for "A Method for Aerosol Analysis by Thermoluminescence;" Robert C. Costen, for "Vortex Generator Controlling the Dispersion of Effluents in a Flowing Liquid;" Carmen E. Batten, for "Visible and Infrared Polarization Ratio Spectroreflectometer;" John M. Franke, for "Laser Doppler Velocity Simulator;" Joseph S. Heyman, for "A Solid State Insensitive Ultrasonic Transducer;" Robert Miserentino and Bruce Flagge, for "Displacement Probes with Self-contained Exiting Medium;" Chris Gross, for "An Electrically Scanned Pressure Sensor Module with In Situ Calibration Capability;" and Harold G. Bush, for "Lightweight Structural Columns."

Special Achievement Awards have been presented to the following:

William J. Boyer, "For superior performance in the planning and implementation of the LSST Program and outstanding leadership of the systems design and integration activities of the Large Space Systems Technology Program."

Samuel M. Dollyhigh, "For advancing the state of supersonic wing design within both NASA and industry."

Alfred C. Watkins, "In recognition of significant contribution made to Langley Research Center construction projects."

Carl A. Trexler, "For the creation of a computer software system for the analysis and display of hypersonic engine test data which has made a significant contribution to NASA's hypersonic program."

Edmund J. Conway, "For outstanding performance in chairing the Physics and Chemistry Experiments working group leading to the selection and approval of exceptional space experiments."

John R. Leaman, Jr., "For sustained superior performance over an extended period and for engineering excellence in the design of rehabilitation and modifications and new construction projects for Langley Research Center research and institutional facilities."

Roosevelt Bryant, Jr., "For superior performance in printed circuit fabrication."

Suggestion Awards have been presented to: Roger K. Amick and Michael E. Tall, "tool for disassembling of cluster joints;" Norma G. Vest, "a form to record and control distribution of computer reports;" Edward A. Crossley, "replacement of light aircraft crash safety instrumentation batteries;" and Norman L. McRae, "pulsing device for laser plume studies."

Happenings

HONEY BUNCH. The Langley Apiculture Club will meet from 7 to 9 p.m. on Monday, July 16, in the Hampton Room of the Activities Center, Building 1222. Show and tell is on the program agenda and everyone is invited to bring interesting items related to beekeeping. Items we can look forward to seeing include a honey frame display case, straw skep and candle molds.

NAGS. The National Association of Government Secretaries, Hampton Roads Branch, will have a dinner meeting on July 17, at Captain George's Restaurant, 2710 W. Mercury Blvd., with registration at 6:15 p.m., dinner at 6:30 p.m. Axel Mattson, Chairman of the Virginia State Air Pollution Control Board, will speak on "Air in Virginia—Good or Bad?" Reservations are required and may be made through July 13 with Reachie Hall, ext. 2150 or 826-7495; or Shirley Davis, ext. 2759 or 838-7435.

A MAX FACTOR representative will be at the Gift Shop, Building 1213, on July 19 and 20 to give free samples and makeup demonstrations. There will also be special purchase offers--with a regular purchase.

– photo by Bill Salyer

Langley Research Center was visited by engineers from the People's Republic of China on June 12 after they made presentations at the AIAA 14th Thermophysics Conference, June 4–6, in Orlando, Fla. The group's United States visit also included stops at Kennedy Space Center, Goddard Space Flight Center and Old Dominion University. Pictured from left to right: Jiang Gui-qing, engineer, Peking Institute of Aerodynamics; Min Gui-rong, Vice-Director, Institute of Spacecraft Systems Engineering, National Academy of Space Technology of China (NASTC); Jing Zhao-qian, engineer, NASTC; and Hou Zeng-qi, engineer, NASTC. Walter B. Olstad (center), Chief, Space Systems Division, accompanied the men on their tour of Langley facilities.

Speakers Bureau

Lester Rose spoke about the Tech House to the Fork of the River Ruritan Club on May 1.

Dr. George Sands spoke to the Southampton County Department of Social Services about Viking on May 1.

Jim Harris spoke at Huntington Intermediate School on May 8 about "Computer Science Career Preparation."

James Arrington spoke at the Virginia Academy of Science's annual meeting at the University of Richmond about Space Shuttle on May 10.

Lenwood Clark spoke on "Space Shuttle Payloads" to the Southside Lions Club on May 10.

Axel Mattson spoke on the "History of NASA" to TAC Officers, Langley, on May 10.

Dick Yenni spoke to the Booker T. Washington School for Career Day on May 14.

Ira Abbott spoke about the Tech House to the Middle Plantation Club in Williamsburg on May 15 and to the National Environmental Health Association Annual Educational Conference in Charleston, SC, on June 27.

Eloise McGehee spoke to the National Association of Government Secretaries about "Career Development" on May 15; she spoke on "Federal Employment of Secretarial Personnel" to the Future Business Leaders of America at Menchville High School on May 17.

Bob Mack spoke on "Results of Voyager Jupiter Probe" to the Virginia Association of Astronomical Societies on May 19.

Ann St. Clair and **Sharon Padula** spoke at Thomas Nelson Community College on May 22 about "Women in Professional Government Jobs."

David Throckmorton spoke about Space Shuttle at a joint meeting of the Carolina Section of the American Institute of Aeronautics and Astronautics and the Eastern Carolina Section of the American Society of Mechanical Engineers on May 23.

Walt Hoggard spoke at Christopher Newport College on "Safety, A Professional Career" on June 7.

John Samos spoke on "Medical Benefits" to the Society of Medical Dental Material Consultants" on June 21.

Duke Reiber spoke about Viking to the Civitan Club on June 27.

Cary Spitzer spoke to the Newport News Kiwanis Club on "Viking—Jupiter Encounter" on June 28.

Energy Saving Tip

Save gasoline by shopping as close to home as possible. Also, remember to combine errands for a more efficient use of energy and of your time.

Key Positions

William F. Cuddihy has been designated Acting Head, Space Systems Engineering Branch, Systems Engineering Division.

swap and shop

FOR SALE

Articles

Ping pong table, $25; *swivel rocker* (yellow-gold), $25; facial sauna, $5; playpen, $25; stroller, $10; high chair, $10; infant car seat, $5; toddler car seat, $5; walker, $3; tub, $2; jumper, $2; infaseat, $1. Call 874-6467 after 5 p.m.

Vehicles

Boat—15 ft. Deadrise, white cedar, bottom covered with glass, EC, $600. *Call* 868-9583.

1977 Chapparal motor boat, 165 h/p, 18' long, inboard/outboard, Mercruiser, EC, has been kept in dry storage since new, $4,800. Call 868-7112 or 874-2953.

1970 Honda 350 "Super-lite," on/off road, w/battery charger, classic with only 6,000 miles, will sacrifice for $700 or best offer. Call 898-4505 after 5:30 p.m.

1974 Plymouth, 4-door hardtop, clean, GC, $750 or best offer. Call 898-4505 after 5:30 p.m.

1966 Luhrs, 28' Sport Fisherman w/flying bridge, cabin w/head, dinette table alcohol stove, sink, cabinets, refrigerator, etc., VGC, 440 Chrysler fresh-water cooled engine, ship/shore radio, depth finder, auto. anchor., engine just overhauled w/all new parts. Call 898-4505 after 5:30 p.m.

Chris Craft, 28' Cabin Cruiser, sleeps 4; stand-up head, engines and trans. in good cond., kept under cover. Call 838-0173 or 722-0710 after 5 p.m.

Animals

Scottish Terrier puppies, excellent champion bloodline, 2 female/1 male, all black, 8 wks. old on July 21, AKC, shots, wormed, $215. Call 874-2165.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, ½ block from ocean and Backbay (freshwater), AC, electric heat, telephone, 4-car parking, summer rate, $375/wk, winter rate, $350/mo. Call G. O. Kent, 420-8391 Virginia Beach; work ext. 3095.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, $150/wk. Weekends also available. Call 826-6177 after 6 p.m.

Beechwood: Brick house, 3 BR, 2 BA, LR, DR, den w/fp, w/fenced back yard, $350/mo., available August. Call Wilhite, ext. 3911 or 874-9017.

WANTED

Person interested in forming carpool from Williamsburg to West area on 7:00 a.m. shift. Call Bill Garrison, ext. 4272.

To join or start a carpool from Newport News Menchville Road, Jenkins school area to West area for 8 a.m. to 4:30 p.m. shift. Call C. Eckstrom, ext. 2012 or 877-4889.

LOST

In vicinity of Activities Bldg. at "Shroud of Turin" lecture June 11 a pocket knife with green handle. Sentimental value, liberal reward. Call Abbott, 596-0630.

Vivien E. Lewis, Aircraft Energy Efficiency (ACEE) Project Office, received a Special Achievement Award for "superior performance and exceptional effort in support of the ACEE Composites Program Special Review during the period October 1, 1978, to March 31, 1979."

cafeteria menu

WEEK OF JULY 16

MONDAY: Ham & Lima Bean Soup; Clam Strips; Broiled Beef Liver; Hot Roast Pork Sandwich. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Quiche Lorrain. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: *Corn Chowder; Roast Turkey* Dinner; Beef Enchiladas; Braised Beef & Vegetables. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Vegetable Beef Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; Yankee Pot Roast. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Turkey Noodle Soup; Fish Dinner; Glazed Ham Loaf; Pineapple Chicken. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

WEEK OF JULY 23

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Savory Baked Chicken; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Roast Beef au jus; Fried Filet of Fish; Salisbury Steak. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Barbecued Ham Steak; Meatloaf. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Sauerbraten; Braised Chicken Livers Over Rice; Beef Balls Stroganoff. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Swiss Steak; Chicken & Spanish Rice. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

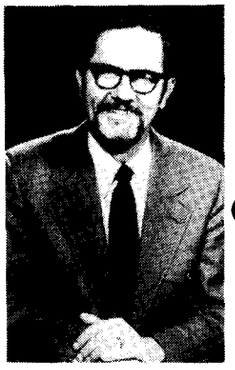
Langley Research Center

NASA

Langley Researcher

SPECIAL ISSUE

July 20, 1979



Director's Comments

July 20--a day that will go down in the history of space as one of the most important and noteworthy dates on the calendar. Two events, separated by seven years, occurred on that day, of which most Americans continue to be proud. Langley had a great deal to do with both the first manned landing on the Moon in 1969 and the first unmanned landing on Mars in 1976.

From the beginnings of the manned space program, Mercury (which was done here at Langley), to the Lunar Orbiter reconnaissance project (managed by Langley), to the technical contributions made by Langley to Gemini and Apollo, we have played a major role in the U.S. manned space program and lunar exploration. We should not forget that this is part of the Langley tradition. It continues today as we support shuttle and advance the technology for future space transportation systems.

Viking resulted in more knowledge about Mars than had been gathered during the entire previous century. Langley's performance in the management of this project was clearly the single most important reason for Viking's success. Langley is no longer directly involved in the management of planetary exploration projects. However, the Viking experiences at Langley have enhanced our ability to perform well on those space efforts which represent our future in space projects--ERBS, ALSO, the Nimbus G experiments, etc. In a sense, Langley continues to contribute to planetary exploration through one of its "alumni" (Gus Guastaferro) who is now serving as Director of Planetary Programs in NASA Headquarters. It is interesting to note that Gus is in the same position held earlier by Ed Cortright, Oran Nicks, Tom Young, and myself.

As we look to the future of Langley's space research, we should recognize our past efforts in space and the relationship between the past and the future. I'm convinced that our future contributions to space will be as great as our past contributions to space. While they may be less spectacular, they will be equally important.

July 20--a date of which Langley should be proud, today and in the future.

Apollo 11 Took First Americans to the Moon

As almost everyone knows by now, today is the tenth anniversary of man's first landing on the Moon. Millions of words have been written about the Apollo 11 mission, but no words are more dramatic than those spoken by the men who participated in that first lunar landing.

The terse shorthand of spaceflight communications almost belies the drama of Apollo 11--the landing was successful, but it wasn't easy.

At 1:46 p.m. that day, the lunar module, Eagle, undocked from the command module, Columbia. "The Eagle has wings," Commander Neil Armstrong reported to Mission Control. Armstrong and Lunar Module Pilot Edwin (Buzz) Aldrin were heading for touchdown on the Moon.

At 3:08 p.m., flying feet first and face down, Armstrong and Aldrin fired Eagle's descent engine for the first time. Less than an hour later, Armstrong throttled the engine to slow the Eagle for landing.

Then the problems began.

Aldrin, closely watching digital indicators for altitude, speed and inclination, reported, "Hang tight; we're go; 2,000 feet."

Telemetry showed the altitude steadily dropping when Aldrin suddenly reported that Eagle's computer was signaling overload alarms. Quick assessment by ground controllers indicated spurious signals from the computer, and CAPCOM (Capsule Communicator) Charles Duke radioed: "Eagle, looking great. You're go."

After a short period of silence, Aldrin began reading the all-important numbers.

ALDRIN: 35 degrees . . . 750 (altitude), coming down at 23 (feet per second) . . . 600 feet, down at 19 . . . 540 feet, down at 15 . . . 400 feet, down at 9 . . . 8 forward . . . 330, 3½ down . . . .

Then, between 300 and 200 feet altitude, Eagle's speed shot up unexpectedly. The reason was what Armstrong saw from his tiny window; not the smooth target area in the Sea of Tranquility, but a crater the size of a football field, covered with boulders. The Eagle was four miles short of its target point.

Armstrong quickly took manual control of the Eagle, increased its speed and flew over the boulder field, tensely searching for a smoother spot. That maneuver used extra fuel, especially precious to Eagle, a quarter-million miles from home.

The low-key litany of numbers continued.

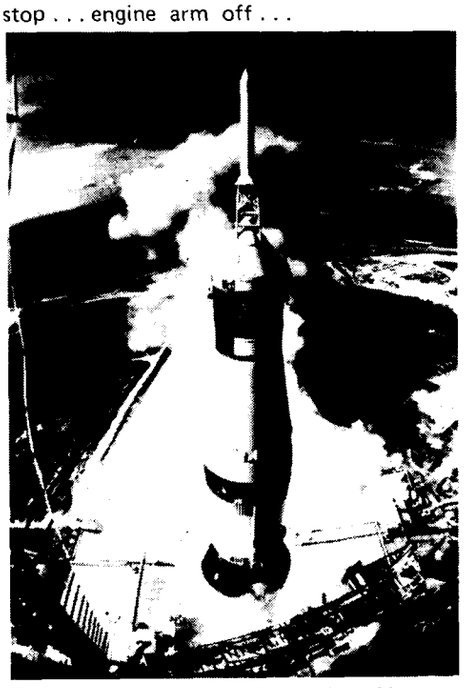
ALDRIN: Down at 2½, 19 forward . . . 3½ down, 220 feet . . . 11 forward, coming down nicely; 200 feet, 4½ down . . . 160, 6½ down . . . 9 forward . . . 100 feet . . . got the shadow out there . . . 75 feet, things looking good . . .

CAPCOM: Sixty seconds (of fuel usage remaining).

ALDRIN: Light's on (fuel warning light). Down 2½, forward, forward. Good. Forty feet, down 2½. Picking up some dust. Thirty feet, 2½ down. Faint shadow. Four forward . . . four forward, drifting to the right a little . . .

CAPCOM: Thirty seconds.

ALDRIN: Forward, drifting right. Contact light. Okay, engine stop . . . engine arm off . . .



The huge, 363-foot tall Apollo 11 space vehicle is launched from Pad A, Launch Complex 39, Kennedy Space Center, at 9:32 a.m. (EDT), July 16, 1969. Aboard the spacecraft were Astronauts Neil A. Armstrong, commander; Michael Collins, command module pilot; and Edwin E. Aldrin, lunar module pilot.

CAPCOM: We copy you down, Eagle.

ARMSTRONG: Houston, Tranquility Base here. The Eagle has landed.

CAPCOM: Roger, Tranquility, we copy you on the ground. You got a bunch of guys about to turn blue; we're breathing again. Thanks a lot.

The time was 4:17 p.m. EDT, Sunday, July 20, 1969. Man had made it to the Moon--with 13 seconds of fuel usage remaining.

That night, about 6½ hours after landing, Armstrong squeezed through Eagle's hatch and asked Aldrin:

ARMSTRONG (on the porch): How am I doing?

ALDRIN: You're doing fine . . .

ARMSTRONG: Okay, Houston, I'm on the porch.

CAPCOM (Bruce McCandless): Roger, Neil . . .

ALDRIN: Okay, right now, Neil . . . . Did you get the MESA out ?

(The Modular Equipment Stowage Assembly contained a TV camera. Armstrong released the MESA by pulling a lanyard.)

ARMSTRONG: I'm going to pull it now . . . . Houston, the MESA came down all right.

CAPCOM: Roger, we copy, and we're standing by for your TV . . . .

(At 10:54 p.m. a fuzzy black-and-white picture flashed onto TV screens in Mission Control--and around the world.)

CAPCOM: Man, we're getting a picture on the TV.

ALDRIN: Oh, you got a good picture, huh?

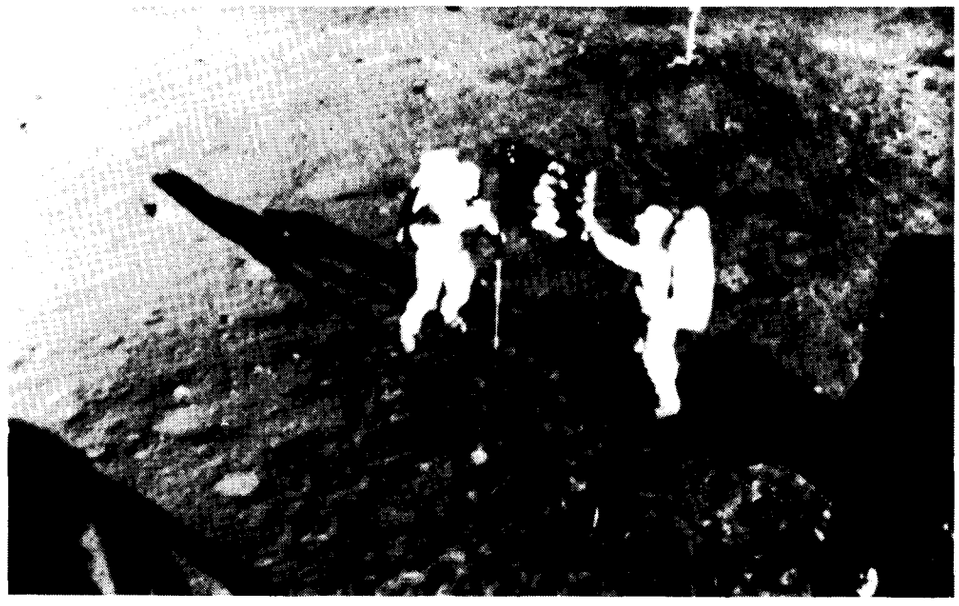
CAPCOM: There's a great deal of contrast in it, and currently it's upside down on our monitor, but we can make out a fair amount of detail . . . . Okay, Neil, we can see you coming down the ladder now.

ARMSTRONG: Okay, I just checked. Getting back up to that first step, Buzz, it's not even collapsed too far, but it's adequate to get back up.

CAPCOM: Roger, we copy.

ARMSTRONG: It takes a pretty good little jump . . . . I'm at the foot of the ladder. The LM footpads are only depressed in the surface about one or two inches. Although the surface appears to be very, very fine grained, as you get close to it, it's almost like a powder. Now and then it's very fine. I'm going to step off the LM now . . . . . That's one small step for a man; one giant leap for mankind.

The time was 10:56 p.m. EDT.



The deployment of the flag of the United States on the surface of the Moon is captured on film during the historic Apollo 11 lunar landing mission. Neil A. Armstrong, Apollo 11 commander is at left, and Edwin E. Aldrin, lunar module pilot, is on the right.

Langley's Work Instrumental in Apollo Program

". . . . A trip to the Moon, a manned landing and return to Earth." The story of Apollo 11.

When Apollo 11 splashed down in the Pacific Ocean southwest of Honolulu on July 24, 1969, the United States had met President John F. Kennedy's goal, set May 25, 1961, of landing a man on the moon and returning him safely to Earth before the decade was out.

Years of research and development, planning and training by NASA, universities and industry went into achieving the goal met by Apollo 11.

While much of the attention focused on the Kennedy, Johnson and Marshall Centers during the Apollo program, Langley played an important role in achieving the lunar landing goal.

The work at Langley involving the Apollo program might be seen as a smorgasbord of research, focusing on various aspects of the mission from launch to splashdown.

Research was conducted, using a one-tenth scale model (36 feet high) of the Saturn 5 launch vehicle, to improve the technology of dynamic models, provide structural dynamic data to evaluate analytical procedures and provide preliminary and trend data on the Saturn 5 configuration before tests were conducted on a full-size vehicle.

Simulators played a big role in Langley's Apollo work. Various simulators designed at the Center enabled researchers to study aspects of a mission flight from launch to splashdown. Some of the simulators used in the program were the Apollo High Abort simulator, the Lunar Orbiter and Landing Approach (LOLA) simulator, the Lunar Landing Research Facility, the Lunar Gravity simulator and the Rendezvous and Docking simulator.

An early part of Langley's Apollo work was study of the spacecraft's re-entry into Earth's atmosphere and landing. Several studies involved in these areas included investigations of water- and Earth-landing characteristics, using a one-fourth scale Apollo spacecraft model and Project FIRE, which provided researchers with data on re-entry vehicle heating.

Langley's work during the Apollo era expanded into may more fields. There was research on navigation and guidance, effects of space flight on humans, the Lunar Orbiter project that mapped the Moon's surface, and initial responsibility for planning and contracting for a world-wide network to track manned spacecraft, to name a few more.

The work of Langley's researchers, while not always documented and in the limelight of the Apollo program, was instrumental in achieving the goal of putting a man on the Moon and returning him safely to Earth.

Langley Engineers Determined How Man Should Reach the Moon

President John F. Kennedy set this nation a challenging goal in 1961--to land a man on the Moon by the end of the decade. But he didn't state how the goal was to be achieved. That task was left in NASA's hands.

For several years NASA had made detailed studies of the requirements for rocketing men to the Moon and returning them safely to Earth. Three concepts were considered to accomplish the mission. They were:

- Direct flight of a large spacecraft from Earth to the Moon and back;
- Launching two separate sections of a spacecraft from Earth to orbit; joining them and sending them as a single unit to land on and take off from the Moon;
- Launching the whole spacecraft from Earth to lunar orbit and landing one section of the craft on the Moon while the other section waited in orbit for the landing craft to return.

The latter method, called Lunar Orbit Rendezvous (LOR), was selected after careful study. Even through all three methods would have accomplished the purpose and each had its good and bad points, the LOR method reduced significantly the rocket power required for getting a spacecraft to the Moon and back. It was the quickest, cheapest and most reliable way to meet Kennedy's mandate.

The selection of the Lunar Orbit Rendezvous concept can be attributed to a group of Langley engineers, headed by Dr. John C. Houbolt, now Chief Aeronautical Scientist to the Director for Aeronautics. Working closely with Houbolt were John D. Bird, Roy F. Brissenden, Clarence E. Brown, John A. Dodgen, John M. Eggleston, Max C. Kurbjun, William D. Mace, William H. Michael, Jr., Manuel J. Queijo, Ralph W. Stone, Jr., and Arthur W. Vogeley.

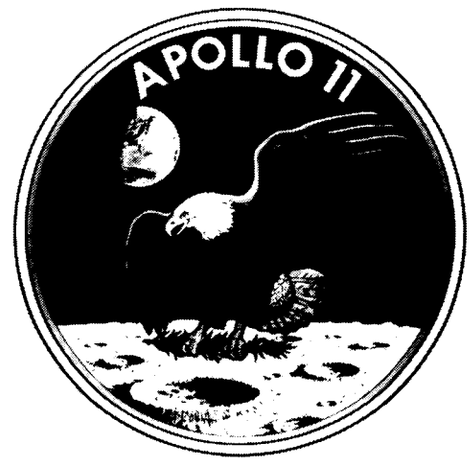
Although NASA Headquarters, Marshall Center and the Space Task Group (now called Johnson Space Center) favored the other two modes, Houbolt and his team of engineers believed that the LOR method was the best. They did not invent the LOR concept, but they thought they were the first to recognize LOR's fundamental significance and advantages. The group of engineers fostered the idea, nurtured it and then fought for it.

Houbolt recently recalled the events. "Quite early in our deliberations," he said, "we considered how Lunar Orbit Rendezvous might be used in a manned lunar-landing mission, and soon found that it offered tremendous gains . . . Almost spontaneously it became clear that LOR offered a chain reaction simplification on all back effects: development, testing, manufacturing, erection, count-down, flight operations, etc. . . . All would be simplified. The thought struck my mind. 'This is fantastic. If there is any idea we have to push, it is this one!'"

And push he did. Houbolt made many presentations at NASA management meetings on the research findings of the team's rendezvous studies. All their findings on LOR were documented in a proposal and an evaluation with regard to other Moon-landing schemes, and the proposal was distributed within various NASA groups. At the same time, Houbolt submitted his own minority report to the NASA Associate Administrator, describing the advantages of LOR.

The Langley proposal and Houbolt's minority report were studied and evaluated by NASA centers. Houbolt comments, "The reception of our LOR proposal was discouraging and distressing. No one was much interested. Some discounted it or just laughed at it. Others were favorably impressed at first, but after sleeping on it would say it was 'too far fetched.' The main objection seemed to center on the task of having astronauts perform a rendezvous maneuver some 240,000 miles from Earth. This never bothered us. Our research and simulator studies had convinced us that Lunar Orbit Rendezvous would be a simple, safe, reliable operation."

The more Houbolt and his team talked, the more people listened. Finally, the LOR scheme became more appealing, and NASA was at last convinced that LOR was the best method. In July 1962, NASA announced that it had chosen Lunar Orbit Rendezvous as the way to perform the manned lunar-landing mission.



The emblem of the Apollo 11 astronauts.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

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Students Participate in Langley Career Program

For the eighth consecutive year, gifted high school students from the Peninsula and Norfolk are participating in an eight-week Summer Career Exploration Program sponsored by Langley's Office of Education and Community Services.

The program provides students, through the Hampton City Schools Gifted Students Program, an opportunity to work with NASA sponsors in areas related to potential career fields. After an intensive selection process, students are assigned to sponsors in the areas of science, computers, engineering or mathematics, depending on student interests.

Throughout the program, students are exposed to several scientific and technical work environments to enable them to see how research techniques and scientific concepts studied in the classroom are applied in work situations.

For the first time in the program, the students are paid $2.50 an hour while they receive on-the-job training. Students are assisting professionals and technicians in the fields of computer science, wind tunnel research, energy efficient research, environmental engineering, architecture, and other areas.

The students will participate in a seminar on August 10 where they will share their experiences at Langley with representatives from the Hampton School Board and other guests. Awards and certificates will be presented at the conclusion of the seminar. The program will be held in Building 1212, Room 200, at 1:30 p.m.

– photo by Bob Nye

Twenty-three area high school students are participating in the Summer Career Exploration Program. Since the program began, it has been very successful due to the excellent efforts and achievements by the students and the excellent cooperation and contributions by Langley personnel. Participating in the program are, front row, left to right: Joseph Wilson, Phoebus High School; Donald Musselman, Jr., Hampton High School; Todd Kaylor, Gloucester High School; Guy Levy, York High School; Oliver Griswold, St. Paul's High School, New Hampshire; Ezra Suber, Phoebus High School; Jeff Raney, Hampton Roads Academy; and Harold E. Mehrens, Head, Office of Education and Community Services. Second row. from left: Nedra Harkavy, Director, Hampton City Schools Gifted Students Program and Coordinator of the Summer Career Exploration Program; Helen Anastasio, Phoebus High School; Alison Davis and Joan Taylor, Hampton High School; Shelly Rollo, Tabb High School; Terri Lazarus, John Coleman and Calvin Thomas, Phoebus High School; and Timothy Hester, Assistant Coordinator of the program. Third row, from left: Clinton Heerin, Poquoson High School; Daniel Benson, Warwick High School; Roger Johnson, Bethel High School; Claude Bowen and Allen Crane, Phoebus High School; Casey Farina, Hampton Roads Academy; Scott Fulghum, Lake Taylor High School, Norfolk; and Davis Townsend, Bethel High School. Not pictured: Kay Young, Menchville High School.

— *photo by Bob Nye*

James L. Thomas (left), Subsonic-Transonic Aerodynamics Division, explains V/STOL Wind Tunnel operations to students working at Langley under the Summer Employment Program.

Langley Supports Federal Summer Employment Program

This summer, Langley has hosted 68 students under temporary appointments as prescribed by the President's 1979 Federal Summer Employment Program.

The purpose of the program is to provide students with the opportunity to enrich career goals, earn money and assist in advancing Langley's missions. Employing college students in career-related fields during the summer most often attracts them into full-time Government work after graduation. It also helps the Center to meet long-range staffing needs in career occupations.

The Summer Employment Program, under the direction of the Staffing and Special Programs Branch, Personnel Division, is comprised of the following:

A Regular Summer Program consists of 48 engineering, professional administrative and clerical positions. These positions, filled from the Summer Employment Examination Roster, are staffed by undergraduate and graduate students at the GS-5 and below grade level.

The Summer Youth Employment Program includes 15 clerical and mathematical aids. These students are referred to the Center by the Virginia Employment Commission and the positions are filled on the basis of economic need.

Under a Hampton Institute grant, five engineering students are employed at Langley this summer. The program, which works in conjunction with George Washington's 3-2 Program, allows each student to study at Hampton Institute for three years and to transfer to George Washington to complete the next two years in an appropriate engineering discipline.

Langley Notes

Louise H. Williams, Projects Management Systems Division, was recently elected to the Board of Directors and appointed Director of the Legislative/Governmental Information Committee of the International Society of Parametric Analysts.

Credit Union Advises- Save Now, Buy Later

There are two kinds of people in the world today, the "savers" and the "borrowers." If you consider yourself one of the "savers," you can earn dividends on your money rather than pay interest for the use of credit.

The Langley Federal Credit Union (LFCU) offers a way to help you plan ahead and save for definite goals instead of indulging in the "buy now--pay later" method. It is called payroll deduction.

Payroll deduction is a free service that will pay dividends higher than most passbook-type accounts on the Peninsula. For the past four quarters, LFCU has paid a 7 percent dividend, the highest figure authorized by law.

Visit one of LFCU's offices and complete a deduction authorization for an automatic biweekly credit to shares. Nothing encourages regular saving like watching the share account grow.

ASEE Faculty Makes Final Presentations

The American Society of Engineering Education (ASEE) Summer Faculty Fellowship participants will make presentations on their summer research assignments on July 31, August 2 and August 7. The lectures will be held in Building 1212, Room 200, from 10:30 a.m. to 12:30 p.m.

The ASEE Design Team will make a final presentation on August 10 in the Activities Center (Building 1222), at 9 a.m. This year's study is entitled, "Avionics Technology: Its Impact on the Civil Aircraft Transport System."

All interested personnel are invited to attend the presentations.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

ODU Faculty to Visit Langley

Representatives from The School of Engineering, Old Dominion University, will present information on their Graduate and Continuing Education Programs to all interested employees and contractors on Wednesday, August 1, 1979, beginning at 1:30 p.m. in Building 1212, room 200. Dr. John Weiss, Dean of Engineering, Dr. Gene Goglia, Department Chairman of Mechanical Engineering, Dr. Stan Liberty, Department Chairman of Engineering Electronics, and Dr. William Drewry, Department Chairman of Civil Engineering, will participate in the program. A question and answer period will follow.

Employees attending the meeting should charge their time to Job Order 1619.

Happenings

BINGO, scheduled for August 9, has been cancelled due to employees' night at the War Memorial Stadium.

HAPPY HOUR will be held August 3, from 4 to 6:30 p.m., in the Activities Center.

HMS PINAFORE, by Gilbert and Sullivan, will be presented by Light Opera of Virginia on August 11, 17, and 18, in the Warwick High School Auditorium, at 8 p.m. Discount tickets are available to NASA employees and their families. Call Burt Lightner, ext. 3951, for information and tickets.

TOASTMASTERS. You are invited to join TAC Air Toastmasters Club to develop the arts of giving speeches, evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesdays of the month at the Langley Officers' Club, at 7:15 p.m. For further information, call Bob Lee, ext. 2486.

SCI-CON I, a Science Fiction/"Star Trek" Convention, will be held October 12–14, at the Hampton Holiday Inn. Guests include David Gerrold, creator of "Star Trek's Tribbles;" Kelly Freas, science fiction artist; and Dr. Jean Lorrah, "Star Trek" author. Tentatively scheduled is an appearance by NASA's Jesco von Puttkamer, technical adviser to "Star Trek: The Motion Picture." For further information, call Charlotte Yielding, ext. 3561 or Mail Stop 463.

Satellite Photographs Featured at Visitor Center

Uses of photographs from Earth-orbiting satellites will be featured in a special lecture presentation, entitled "Photographing Earth from Space," at 2 p.m. every Monday through Saturday during August, at the Langley Visitor Center.

The lecture will focus on the many uses of photography from Earth-orbiting satellites, such as Landsat, high altitude aircraft and photographs taken from the Apollo and Skylab missions. Group presentations are available by calling ext. 2855.

Photographs from Earth-orbiting satellites offer several advantages to scientists, engineers, planners and others. Planners can use photographs for interregional comparisons of such activities as urban growth and land use patterns.

Photographs may be useful in the agriculture field for inventory of crops and detecting crop growing conditions and diseased crops.

Environmentalists and geologists may also use photographs to detect geological faults, assist in exploration of new oil and mineral resources, monitor floods, detect water pollution and in assessing fire damage to forests.

The Visitor Center is open Monday through Saturday from 8:30 a.m. to 4:30 p.m. and Sunday from noon to 4:30 p.m.

Thanks

The family of **George E. Sweet** wishes to thank all those who donated blood in his name at the Bloodmobile on June 6. "This is truly the gift of life and we will always be grateful to those who gave of themselves."

Job Opening

The following Merit Promotion Announcement is currently open:

79-61 AST, Technical Management; GS-801-13; Office of the Director; Closes August 3, 1979.

– photo by Brian Phillips

Eight of Langley's Docents and the Langley Docent Coordinator recently visited NASA Headquarters, the National Air and Space Museum, and the House of Representatives in Washington, DC. During their visit the Honorable Paul S. Trible, Jr., escorted the group on a tour of the House of Representatives. Shown in the photo, first row, from left, are: Louise Caplan, Betty Gibbs, Laura Press, Congressman Paul S. Trible, Jr., Fran Lanning and Peggy Hewes; second row are: Renee Benton, Langley Docent Coordinator, David Hillerson, Fred Eichenbrenner and Lloyd Fisher.

swap and shop

FOR SALE

Articles

7 ft. Frederick-Willys pool table, EC, complete w/accessories: 5 cue sticks with rack, 1 set of balls, counter, triangle and chalks, $150; "N" Gauge 4'x8' wooden framed train board complete with mountainous terrain, tunnels and lakes, trees, buildings, people, trestle bridge, ski lift, and 3 prs. of switches, 2 train sets, $75; and energy efficient lawn sweeper, EC, w/new bag, $15. Call Don Hewes, ext. 4591 or 596-4742.

Scanner radio, Bearcat IV, 4 bands, 8 channels, new condition w/crystals and manual, $75. Call 596-4292 after 6 p.m.

Miscellaneous MGB parts/accessories—syncrometer, repair manual, oil filters, spark plugs, radiator hose, $15. Call 850-0355.

Football tickets: two tickets to the VPI&SU vs W&M (9—22), Fla. St. (9—27), and VMI (11—17) football games in Blacksburg. Price is $9 each. Call Tom Moore, 898-7313.

Vehicles

Sailboat: 18 ft. Hampton I design, fiberglass, 2 suits sails, A-1 trailer, EC, $2,100. Call 722-6976.

Chris Craft, 28' cabin cruiser, sleeps 4; stand-up head, engines and trans. in good cond., kept under cover. Call 838-0173 or 722-0710 after 5 p.m.

Real Estate

Large, wooded, waterfront lots for sale in Poquoson, city water, city sewage. Call 826-3053.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, fp, ½ block from ocean and Backbay (freshwater), AC, electric heat, telephone, 4-car parking, summer rate $375/wk., winter rate, $350/mo. Call G. O. Kent, 420-8391 Va. Beach; work, ext. 3095.

Houses for rent--Poquoson, 3 BR, $430/mo.; waterfront 4 BR, $500/mo., both new. Call 868-9370.

WANTED

To join carpool from Glen Gardens Apartments to West area on any shift. Call D. Jones, ext. 3095 or 2086.

Key Positions

Ramon P. Barr has been selected Supervisory Engineering Technician of the Technical Support Section "B," Laboratories Operations Branch, Operations Support Division.

Richard T. Bright, II has been designated Head, Research and Development Contracting Branch, Acquisition Division. He will also serve as the Acting Head, Acquisition Research and Management Office.

Retirement Parties

William L. Fox, Carleton L. Holleman and **Howard R. Williams**, Operations Support Division, will be honored with a retirement party on Saturday, August 11, in the Activities Center, Building 1222. A social hour will begin at 5:30 p.m. with free beer and a cash bar. Dinner will be served at 7 p.m. The cost will be $6.50 per person. For reservations, please send remittance to Meredith Ballard or Jack Fowler, Mail Stop 166A, by August 6.

Edwin T. Kruszewski, Structures and Dynamics Division, will be honored with a retirement luncheon at 11:30 a.m., on Thursday, August 2, in the Activities Center, Building 1222. The cost of the luncheon including gift is $6.75; contributions for the gift only are welcome. Please make checks payable to James E. Gardner, Mail Stop 244, by July 30.

cafeteria menu

WEEK OF JULY 30

MONDAY: Corn Chowder; Country Style Steak; Stuffed Peppers; Teriyaki Baked Chicken. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Glazed Ham Loaf; Baked Tuna & Noodle Casserole. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Chicken & Dumplings; Yankee Pot Roast. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF AUGUST 6

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Pineapple Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Beef Balls Stroganoff; Fried Filet of Fish; Sauerbraten. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Salisbury Steak; Franks, Bacon & Cheese. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Roast Beef; Braised Chicken Livers Over Rice; Meat Loaf. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory Baked Chicken; Steak Teriyaki. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
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Langley Research Center

NASA

Langley Researcher

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TCV Tests Algorithm in Denver Experiments

Langley researchers recently conducted a series of flight experiments with a new airborne system aboard the B-737 Terminal Configured Vehicle (TCV) aircraft at Denver's Stapleton International Airport.

The airborne system being tested saves fuel by helping air traffic controllers regulate the flow of aircraft into busy airports.

The Denver flight experiments tested a new arithmetic system, developed by Langley's Flight Systems Branch (FLTMD) in support of the TCV program, for use in an airplane operating in a Time Based Metering/Local Flow Management air traffic control environment. Time Based Metering/Local Flow Management is a system of matching the traffic demand on an airport with its capacity, using time control.

The TCV airplane is an advanced technology research aircraft designed to develop, evaluate and demonstrate new concepts of airborne systems and operational flight procedures to improve the capacity and efficiency of air terminal areas, improve approach and landing abilities in bad weather and reduce the exposure of communities to aircraft noise.

Time Based Metering/Local Flow Management matches the arrival flow of aircraft into a terminal area to the airport's acceptance rate, which results in fleet fuel savings. It also allows an aircraft to descend in an idle thrust configuration, which results in single airplane fuel savings.

In present local flow management procedures, air traffic controllers must deliver an airplane to a metering fix (a predetermined point in space) by speed control and radar vectors. The pilots, using only "rules of thumb," are responsible for arriving at the metering fix at a specified speed and altitude. The TCV Time Based Metering airborne calculations, however, provide all guidance--time, speed and altitude--in the cockpit. This reduces the workload for both controllers and pilots, since the controller becomes a traffic monitor and guidance to fly the descent is presented directly to the pilot.

– photo by Harry Fuller

The NASA Terminal Configured Vehicle is shown at the Stapleton International Airport, Denver, before flight testing of a new airborne algorithm, developed by Langley researchers, for use in airplane operating in a Time Based Metering/Local Flow Management air traffic control environment.

In the Denver flight experiments, through use of the TBM calculations, the TCV aircraft was able to reach its metering fix with a time error of ±4 seconds. During present flow management procedures, using radar vectors, this time error is about ±2 minutes.

Jack Reeder, Head of the TCV program office, and Charles Knox, FLTMD, chief experimenter for the tests, both said they think the Denver tests, conducted by NASA, the Federal Aviation Administration and the Denver Air Route Traffic Control Center, went well.

Reeder said he feels the FAA and NASA learned a great deal about TBM. He also noted that the test established a good working relationship with the air traffic controllers, which will be beneficial in future experiments.

Knox said he is very pleased with the test. He said the TCV researchers were able to gather data to improve the system, and the experimental flight showed that the TCV, using TBM/LFM, works well in traffic and is compatible with today's air traffic control procedures.

The two men also noted that the FAA, pilots, manufacturers and air traffic control representatives who observed the flight tests were very interested and enthusiastic about the concept.

Shortal Discusses Aerodynamic Research

Joseph A. Shortal, who retired from Langley in 1963 after nearly 35 years of service, will be the guest speaker at the colloquium on Monday, August 13.

His lecture, entitled "High-Speed Aerodynamic Research – Rocket-Propelled Models," will be given in the Activities Center, Building 1222, at 2 p.m., followed by a brief question and answer session. At 3 p.m., the speaker will move to the adjoining Langley Room for an informal discussion.

In 1945, the National Advisory Committee for Aeronautics (NACA) added a new dimension to its capability for aerodynamic research at high speeds when it authorized Langley to develop Wallops Island as a site for research with rocket-propelled models. The Center needed a place to conduct research through the speed of sound and into the supersonic range, with continuous determination of flow phenomena at all speeds. Transonic wind tunnels had not yet been developed, and supersonic wind tunnels were far from adequate to explore the many aerodynamic problems that required immediate consideration.

An important result of the programs carried out at Wallops was preparation of NACA to become the nucleus of the National Aeronautics and Space Administration (NASA). The knowledge stimulated and developed by this program, coupled with NACA research of man-carrying aircraft at the Dryden Flight Research Center in California, were prime factors that prepared NACA for its subsequent responsibility.

Shortal will discuss some of the novel approaches that were taken during the late 1940's to solve high-speed aerodynamic problems, which included transonic drag rise, transonic stability and control and high-speed heat transfer. Among the techniques to be discussed are the bomb drop, the testing of models mounted on wing upper surfaces and rocket-propelled models.

At the time of Shortal's retirement, he was chief of the Applied Materials

and Physics Division, formerly the Pilotless Aircraft Research Division. He directed research in launch vehicle design and operation, space vehicle concepts, high-speed aerodynamics, intercontinental missiles and satellites, upper atmosphere density and radiation, solid-fuel rockets, space stations and payload technology.

He was also Assistant Chief, Applied Materials and Physics Division; Assistant Chief, Stability Research Division; and Head, Free-Flight Tunnel. He was coordinator of Personal Aircraft Research and was responsible for a project to demonstrate that a light airplane could be silenced. The "quiet" airplane was demonstrated at a Langley public inspection in 1947.

Shortal received a bachelor of science degree in mechanical engineering from Texas A & M College in 1929. The author of more thatn 40 technical publications, he recently completed a book on the early history of Wallops, entitled "A New Dimension, Wallops Island Flight Test Range: The First Fifteen Years."

Langley employees attending the colloquium are to charge their time to Job Order A1980.

Color Photography of Sun Featured in Book

An outstanding collection of color photography of the Sun's ever-changing features is contained in "A New Sun: The Solar Results from Skylab," a new NASA publication.

The text explains the importance of Skylab photographs in advancing our understanding of solar astrophysics.

The 198-page hard-cover book is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for $10.50 The document number is NASA SP-402.

Trible Addresses Joint Aviation Meeting

Congressman Paul S. Trible, Jr., Representative from Virginia's First District and member of the House Armed Services Committee, will speak on "The Future of Army Aviation," at a joint meeting of the Hampton Roads Chapter of the American Helicopter Society and the David E. Condon Chapter of the Army Aviation Association of America on August 24.

The meeting will be held at the Fort Eustis Officers' Club. A social (cash bar) will begin at 6:30 p.m. and dinner at $11 per person will be served at 8 p.m.

For reservations, call Trish Williams, 878-2704 or 878-2822, by August 21.

Aerospace Penpoints
by Wesley Berryman

"I know of only one bird - the parrot - that talks; and it can't fly very high!"

Wilbur Wright
(in declining to make a speech in 1908)

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

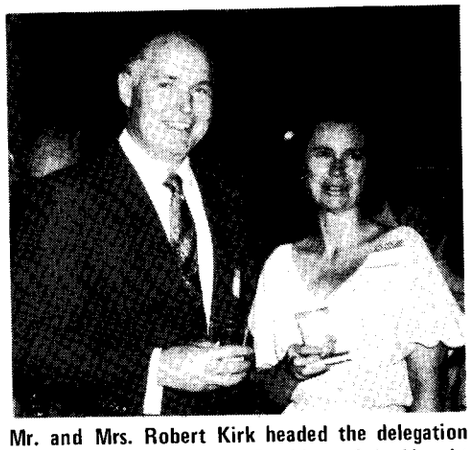
Scout Vehicle Saluted at Banquet

At a banquet at Fort Magruder in Williamsburg on July 27, Langley Director Don Hearth, Dr. Robert Frosch, NASA Administrator, and U.S. Rep. Don Fuqua, Chairman, House Committee on Science and Technology, praised the Scout launch vehicle for its capabilities and successful record. In a keynote address, Fuqua hailed Scout as both a pioneer and a workhorse in a space age now barely 20 years old. He said Scout exemplifies the nation's efforts to develop its leadership in "another of the indefinable realms in which we have always excelled."

Lee R. Foster, Jr., Head of the Scout Project Office, and Mrs. Foster enjoy the reception held prior to the banquet. Former Heads of the Scout Office attending the celebration were Roland English, Eugene Schult, Col. George Rupp and William Stoney.

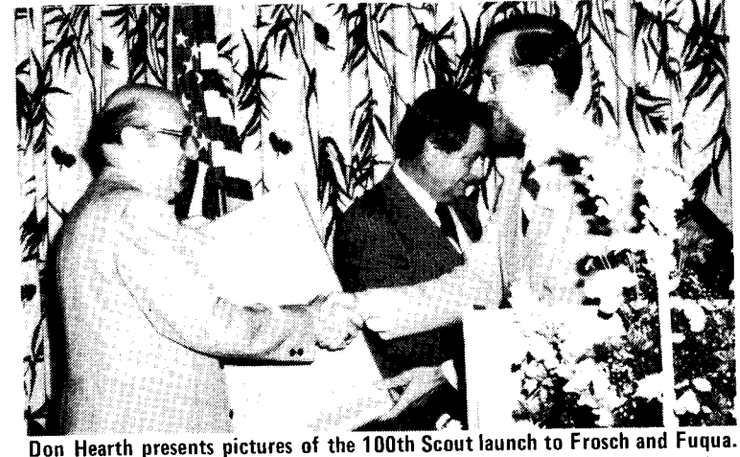
Langley Deputy Director Oran Nicks greets Congressman Paul S. Trible, Jr., Representative from Virginia's First District, and Mrs. Trible at the banquet commemorating the 100th Scout launch. Unable to attend the event, Virginia Governor John Dalton and former Congressman Thomas N. Downing sent congratulatory messages expressing pride in Scout.

Approximately 400 people, some from Italy and Great Britain, joined in a toast to the Scout launch vehicle and its 100 missions. Pictured from left are Col. George Rupp, Martin Marietta; Professor Michele Sirinian, Centro Ricerche Aerospaziali (CRA), Italy; Virginia Senator Herbert Bateman; Abe Leiss, Assistant Head, Scout Project Office; and Professor Luigi Broglio, CRA. Representatives from Great Britain were Lewes Addison and Peter Barker, Science Research Council's Appleton Laboratory. Also attending from CRA, Italy, was Dr. Gianfranco Manarini.



Mr. and Mrs. Robert Kirk headed the delegation from Dallas, Texas. Kirk is President of the Vought Corporation, the prime contractor for Scout since 1960.

Mrs. Edwin Russell; Dalton Stickley, Hercules, Incorporated; and Edwin Russell and Milton Green, Vought Corporation, discuss the Scout program's history and its 95 percent success record.



Don Hearth presents pictures of the 100th Scout launch to Frosch and Fuqua. Mrs. Floyd Thompson and Mrs. H. J. E. Reid, special guests for the evening, also received pictures.

– photos by Bill Salyer

Personnel Profiles

by Allan C. Hanrahan

"It is not always what you write, but how you write it!"
Wesley Berryman

Like almost everything else, the Greeks have a word for it: *Kalligraphia – "fair or elegant writing."* We know it as calligraphy--also defined as ornamental or elegant writing.

The lines at the head of this column, as well as the "Aerospace Penpoints," which appear in every other issue of the *Langley Researcher*, are fine examples and are the product of the talented pen of our guest this issue, **WESLEY T. BERRYMAN, Jr.,**, an advocate and promoter, as well as student and teacher of calligraphy--an art form that is in the midst of a raging renaissance after having been almost killed off twice. First, the printing press adversely affected the art although, as Berryman points out, "The type face was done by calligraphy."

Later, "The printing itself deteriorated," continued Berryman, "as penmanship deteriorated. The typewriter contributed to it (the eclipse of calligraphy), and the ball-point pen contributed to it," although not to the extent the printing press and typewriter did.

(The ball-point pen is mentioned because calligraphy is executed with a turkey or goose quill or broad-edged pen and much of the beauty and appeal of the writing is the controlled variation in the width of the line.)

But the art never completely died out and a revival began in England at the turn of the century. A society of calligraphy was formed in the early Twenties while all the while interest flickered in the U.S. Around 1973 the status and popularity of calligraphy in this country surged to unprecedented heights and Wesley Berryman, a Visual Information Specialist in the Graphics Branch of the Scientific and Technical Information Programs Division, is in the forefront of the movement locally. This is appropriate in a way because Wesley is one of those rare folks who is a "local"--a native of Newport News, born August 12, 1920 (birthday coming up!).

"I've been interested in lettering all my life," Wesley tells us, and after graduating from Newport News High School in 1937 he served a Newport News Shipbuilding apprenticeship in painting and decorating.

"I worked in the sign and poster shop in the Newport News Shipyard until I was drafted--in 1944. I packed my pens and brushes and went off to war."

Arriving in Italy the day before Christmas Eve, 1944, Wesley spent the next eighteen months in a replacement training company, subject to be transferred to the frontline at any time. Fortunately for him his lettering and artistic abilities were recognized and he spent most of his tour working on Army newspapers and in public relations work.

After the Army Wesley attended the University of Georgia, graduating in 1949 with a Bachelor of Fine Arts degree, with his major being commercial art. But his interest in lettering never waned: "I made money on the side making signs and posters while going to school at Georgia," he related.

After college came a stint with an advertising art agency in Richmond before he arrived here at the Center where his aptitude and interest in calligraphy"...just developed," as he put it and now we are all beneficiaries of his talent: in the "Aerospace Penpoints" that appear in the *Langley Researcher*, the Bicentennial posters that were so well-received, the many invitations, certificates, and awards that he has hand-lettered for presentation to various recipients, and the myriad other works he has produced, among which are the logos for the Langley Federal Credit Union and Hampton Roads Chapter of the Virginia Credit Union League.

It should be pointed out here that Wesley's artistic endeavors and interests are not limited to calligraphy but extend to illustrating, designing, and painting and although of the latter he has "....not done any painting in recent years," he said, he did add later: "I'd like to eventually get back to painting." A number of his works adorn the walls of his home.

In his home abounds the materials and space necessary for him to enjoy his art and many textbooks on art are in evidence; for example, "Writing, Illuminating and Lettering," by Edward Johnston--a book that Wesley says is "the Bible" of calligraphy. And he knows something of the textbooks on that subject, having been asked by Thomas Nelson Community College to teach a beginning course, which he has been doing this year. He wants to teach an advanced course because as he says, "In every class there is one or two who want to go on."

Continued on page 5.

Gossomer Condor Film Shown Next Week

For the benefit of all employees and contractors, the Langley Visitor Center will show the 1979 Academy Award winning film, "The Flight of the Gossomer Condor," at 12 p.m., August 13–17, in the Visitor Center Theater. The movie is approximately 30 minutes long.

Personnel Profiles

Continued from page 4.

"I am working on it this summer (the advanced course) if the interest is there . . . ."

Of teaching he says, "I have learned that the teacher always learns more than the students just by having to prepare. You never reach the point where you can say 'I know it all' because there is so much to learn--so much room in which to grow. It's a real challenge." And because of all the preparation and study "I have refined my style so much," Wesley remarked. "By now I have learned how extensive the subject is," and Wesley indicated this to us by pointing out different styles and alphabets, which ranged from ornate to fairly simple script. But the writing itself is only part of it because as Wesley informs us: ". . . . A piece of calligraphy can be made or broken by the way it is presented." And the many imaginative and creative examples he pointed out were indeed impressive and interesting.

Frankly, once Wesley begins discussing calligraphy it is not the easiest task in the world to get him to talk about himself, but we did learn that he and his family (wife, Lois, a sports fan and native of North Carolina, and their daughter, Janis, a rising sophomore at the University of Virginia) are members of First United Methodist Church in Newport News and the logo for that church's newsletter was designed by Wesley, as was the logo for the Peninsula Tennis Patrons Association--he being an avid tennis player himself.

In addition to being a member of the Virginia Museum of Fine Arts, Wesley is a member of the Society of Scribes, Ltd. in New York City and the Western American Branch of the Society for Italic Handwriting--further indication of the commitment he has made to the art of beautiful handwriting.

Singh Elected to Explorers Club

Dr. Jag J. Singh, Instrument Research Division, has been elected a member of The Explorers Club, an international organization comprised of men of impressive achievements in diverse fields of exploration.

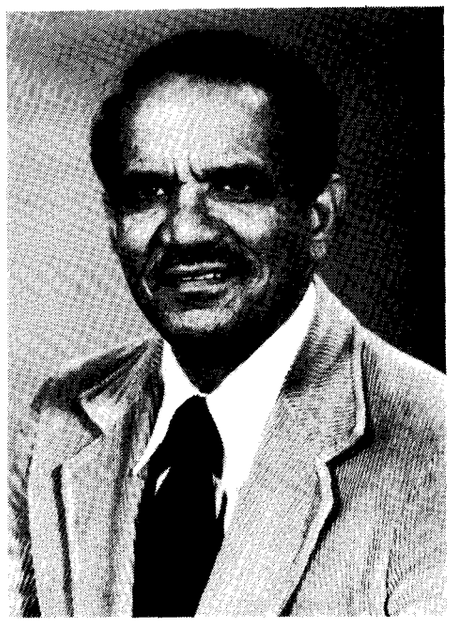
Selected because of his work in "environmental and optical research relevant to NASA missions," Singh's distinguished scientific career has earned him the special designation of "fellow" in the club.

As a staff scientist, Singh gives technical advice to the Chief of the Instrument Research Division on all instrumentation problems encountered in the division. He also selects and demonstrates new theoretical concepts for more accurate measurements in Langley laboratories and acts as general technical consultant to senior Langley managers in mathematical and radiation physics.

The Yorktown resident began his NASA career in 1964 when he came to Langley from the College of William and Mary, where he was an associate professor of physics. He has specialized in atomic and molecular spectroscopy, materials research (solid state physics), nuclear and radiation physics and acoustics.

Singh, 53, was born in India, where he received a bachelor's degree in physics and mathematics. He then attended Liverpool University in England, where he received a doctorate in 1956. Seeking a country more oriented toward scientific research, he came to the United States shortly thereafter and became a U.S. citizen in 1971.

The Explorers Club, founded in 1904, has an international membership of about 2,700 explorers, scientists and others noted for their contributions to world knowledge. Notable members include Neil Armstrong, Sir Edmund Hillary, Thor Heyerdahl, James Fowler, Russell Train, John Glenn, the Duke of



Edinburgh, and several Nobel laureates. Its headquarters are in New York City and it maintains a well-known club in London.

Membership is by invitation only. Singh, who is a member of several purely scientific societies, accepted membership in the widely divergent Explorers Club, in part, to learn what ideas an accomplished mountain climber, for example, might propose in solving energy problems.

The club's activities have expanded from its original emphasis on geographical exploration. Present horizons include discoveries in both field and laboratory, research into mankind's past and the challenges of space. Its goal, however, remains unchanged: "Opening new frontiers, pursuing knowledge for the benefit of mankind . . . and encouraging and stimulating both independent and institutional exploration."

GWU Offers Course on Wind Tunnel Research

The George Washington University will offer a new course on Wind Tunnel Research Techniques for the 1979 Fall Semester at Langley. The objective of the course is to familiarize students with wind tunnel facilities from subsonic to hypersonic and the specialized research equipment and research techniques used in the various facilities. Emphasis will be on Langley's wind tunnels but limited time will also be given to facilities of other NASA Centers and other organizations.

The course is available to both degree and non-degree students and may be taken on a Pass-Fail basis by non-degree students if desired.

For more information on the course, call Professor John P. Campbell, George Washington University, extension 2219.

Happenings

"HMS PINAFORE," by Gilbert and Sullivan, will be presented by Light Opera of Virginia on August 11, 17, and 18, in the Warwick High School Auditorium, at 8 p.m. Discount tickets are available to NASA employees and their families. Call Burt Lightner, ext. 3951, for information and tickets.

HAPPY HOUR will be held on August 17, from 4 to 6:30 p.m. at the Activities Center.

NAGS. David Schryer, an astrologer and Langley chemist, will be the guest speaker at the National Association of Government Secretaries meeting on August 21, at 6:30 p.m., at Captain George's Restaurant. Reservations are required and may be made with Reachie Hall, ext. 4156, or Shirley Davis, ext. 2759.

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley on Wednesday, August 15, from 9:30 a.m. to 3:30 p.m. in the Activities Center, Building 1222. For information or an appointment, call the Dispensary, extension 3976.

ISPA. The International Society of Parametric Analysts, a non-profit professional organization, is comprised of representatives from the United States industrial, government and military organizations as well as four international groups. The organization provides members the opportunity to learn about new techniques and developments in the area of parametric analysis and to estimate costs for program, projects and associated equipment. For further information about ISPA, call Louise Williams, ext. 3741.

BOWLING. The NASA Tenpin Bowling Conference will hold an organizational meeting for team captains and league officers in the Hampton Room of the Activities Center, Tuesday, August 14, at 4:15 p.m. All teams from last season wanting to bowl this season must be represented. New teams or individuals wishing to join the conference should contact Bill Goad, ext. 3234, or Stuart Johnson, ext. 2764.

A DISCO CRUISE aboard the "Spirit of Norfolk" will be sponsored by the Class of '70 from Huntington High School on Saturday, September 1. The cruise will leave the Dunmore Docks (next to Omni) at 10:45 p.m. and return at 1:45 a.m. The cost of the cruise will be $10 per person. For tickets, call Lucy Sledge, 827-8042, after 5 p.m.

HONEY BUNCH. The Langley Apicultural Club will meet on Monday, August 20, from 7 to 9:30 p.m., in Building 1209, room 185. The program will include a film entitled "Modern Bee Breeding." The meeting is open to all interested persons.

THE VIRGINIA SHAKESPEARE FESTIVAL will continue through August 19, in the Phi Beta Kappa Memorial Hall, College of William and Mary. During the final week of performances, Langley employees can purchase $4, $5, or $6 tickets at a discount price of $4 each by showing Langley badge at the box office. Shakespeare's plays include "Mid Summer Night's Dream," "Macbeth," and "Much Ado About Nothing." For a schedule of performances and reservations, call 253-4272.

Runners' Club Carnival Events

The Langley Runners' Club will sponsor three events during the weekend of the carnival, August 24 and 25. Two of the events are open to anyone who wants to compete.

The first of the open events is the popular 2-mile mixed relay to be held at 6 p.m. on Friday. Each relay team consists of one man and one woman who must each run one mile. Ribbons will be awarded to the top three teams in both the open and the husband/wife categories.

The second open event, a 5-mile race, will take place at 11 a.m. on Saturday. In this event, ribbons will be awarded to the top three places for both men and women in the following age categories: 19 and under, 20–29, 30–39, 40–49, 50–59, 60 and over.

At 1 p.m. on Saturday, a rematch will take place to determine the Directorate mile-relay champion. The relay will feature four-member teams picked by each Directorate. Anyone interested in participating in this event should call one of the following:

Projects: Sonny Wood, 3741
Space: Don Humes, 3781
Systems: Ernie Burt, 3095
Aeronautics: Chuck McClinton, 2803
Management: Howard Puckett, 3617
Structures: Mel Anderson, 3054
Electronics: Larry Rowell, 2289
Contractors: Larry Becker, 2991

Carnival Prize List

Friday, August 24, 1979

5:00	10-speed Bike
5:30	Hot-air Popcorn Popper
6;00	Black & White T.V.
6:30	Kodak Tele-Electric Camera
7:00	Toaster Oven/Broiler
7:30	2-Handheld Computer Games
8:00	Sunbeam Food Processor
8:30	Panasonic AM/FM Cassette
9:00	Litton Microwave Oven
9:30	Digital AM/FM Clock Radio
10:00	$1,200.00

Saturday, August 24, 1979

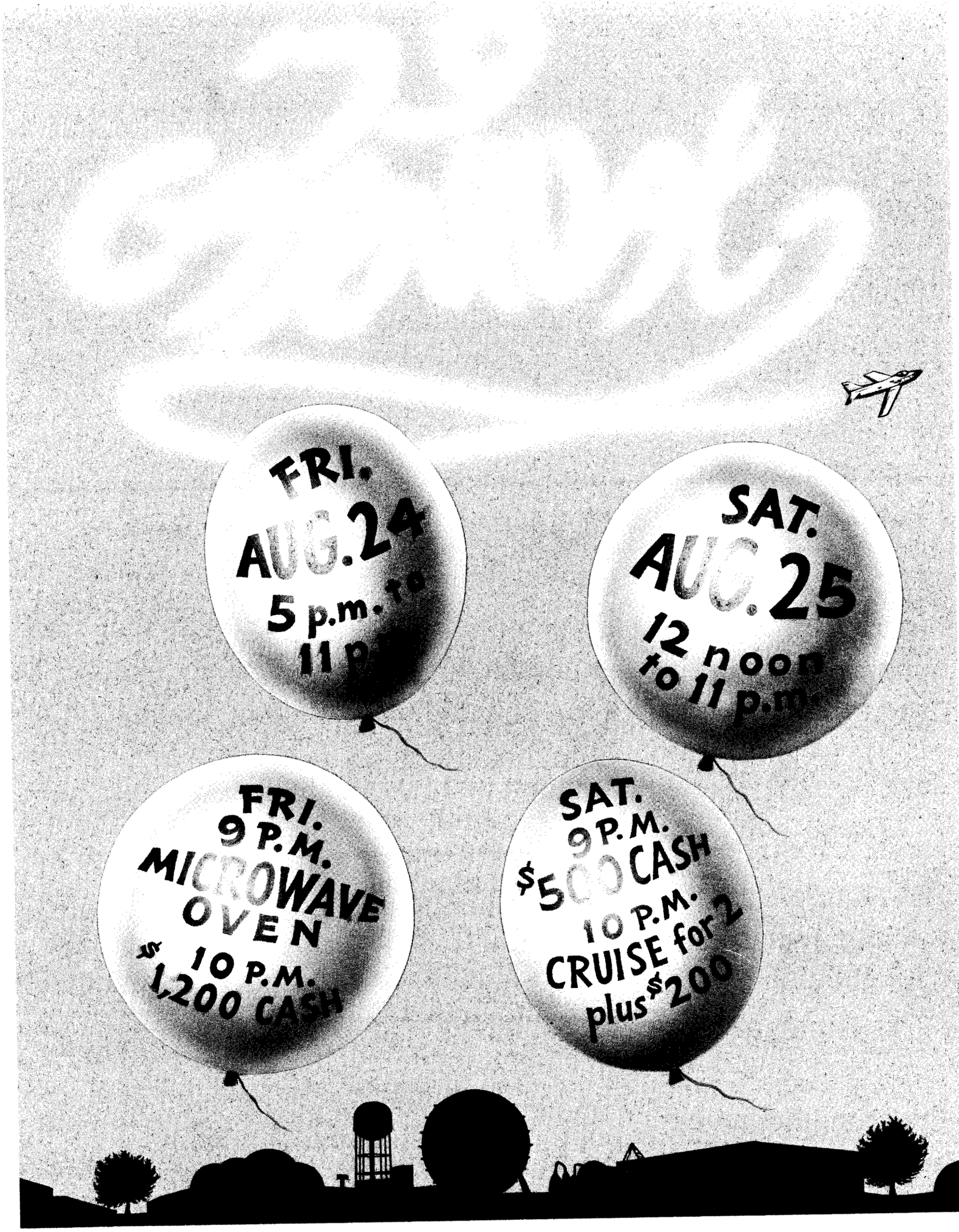
1:00	10-speed Bike
1:30	3-speed "Electrickbroom"
2:00	Black & White T.V.
2:30	Sunbeam Crockpot/Fryer
3:00	Panasonic AM/FM Cassette
3:30	2-Handheld Computer Games
4:00	4 Tidewater Dinner Theatre Tickets
4:30	Corningware Cook's Choice Set
5:00	Family Pass to Busch Gardens
5:30	Hot-air Popcorn Popper
6:00	Sunbeam Electric Mixer
6:30	Electric Ice Cream Machine
7:00	Black & Decker Workbench
7:30	Sunbeam Crock-Master
8:00	Sunbeam Food Processor
8:30	Pair of Binoculars
9:00	$500.00
9:30	Digital AM/FM Clock Radio
10:00	Cruise for Two and $200.00 Spending Money

The following is a schedule of special activities at the carnival:

Friday, August 24: 6 p.m., Carnival Queen will be crowned, 2-Mile Mixed Relay; 8 p.m. Chandra and Company Belly Dancers.

Saturday, August 25: 11 a.m., 5-Mile Run; 1 p.m., 1-Mile Relay for Directorate Teams; 2 and 4 p.m., Sky Divers; 3 p.m., Fun Time Cloggers; 6 p.m., Fred Raines, Folk and Country Musician; 8 p.m., Fell Star Rock Band.

Also on Saturday, eight to ten custom vans from the Blue Water Van Club of Hampton will be on display.


FRI.
AUG. 24
5 p.m. to
11 p.m.
SAT.
AUG. 25
12 noon
to 11 p.m.
FRI.
9 P.M.
MICROWAVE
OVEN
10 P.M.
$1,200 CASH
SAT.
9 P.M.
$500 CASH
10 P.M.
CRUISE for 2
plus $200

swap and shop

FOR SALE

Articles

Clarinet, Buffet quality instrument for the professional musician, beautiful mellow tone, perfect condition, $350; and garden spray, high pressure, stainless steel, 4 gal. can. last a lifetime, new, $50. Call 595-2149.

Vehicles

1978 Chevrolet, Nova, 6 cylinder, AT, PS, AM/FM, 22—23 mpg. Call 826-2563 after 5 p.m.

1976 Plymouth, 4 dr. Fury, AC, PB, PS, EC, good tires, must sell, $600 under blue book or best offer. Call Hudgins, 596-1997.

Boat trailer, galvanized for 18 ft., 1800 pound boat, spare, $350. Call 596-8128.

1977 Chevy pick-up, straight shift, 6 cylinder, 22,000 miles, 4 new tires, heavy duty suspension, AM/FM radio, fiberglass utility box, $3,300. Call 868-6293 after 5:30 p.m.

Chris Craft, 28' cabin cruiser, sleeps 4; stand-up head; engines and trans. in good cond.; kept under cover. Call 838-0173 after 5 p.m.

Real Estate

Large, wooded waterfront lots in Poquoson, 3/4 to 1 acre each. Call 826-3053.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, ½ block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk., winter rate $350/mo. Call G. O. Kent, 420-8391 Va. Beach, work—ext. 3095.

Seaford: 4 BR, 2 BA, brick rancher, fenced-in yard on half-acre lot, refrigerator, washer, dryer, den w/fp, attached garage, CA, gas heat, $395/mo. Call 898-6167.

York Co. Ship Point, on Chisman Creek, 3 BR, 2 BA, central air, mooring with 4 ft. draft, available September 1, $340/mo. Call Anderson, 898-5983.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, $150/wk. Weekends also available. Call Fogle, 2025.

WANTED

Alternate driver from Croaker area of James City County, 8 a.m. shift. Call Bill Lee, 564-3296, or ext. 3853.

LOST

Lost in vicinity of Bldg. 1247B and 1219 (Hdq.) a Sterling Silver Indian Bracelet hand crafted, made in India, sentimental value. Call Evans, ext. 2306.

Kim Regan displays Litton microwave oven to be given away at the carnival on Friday, August 24. Carnival tickets can be purchased from any LAA delegate.

Air Force Closes Gate

The Langley Air Force Base gate located near the golf course will be closed from 11:15 p.m. to 6 a.m. Personnel entering or leaving the base during these hours must use one of the other Air Force gates.

cafeteria menu

WEEK OF AUGUST 13

MONDAY: Ham & Lima Bean Soup; Baked Tuna-Noodle Casserole; Braised Beef & Vegetables; Teriyaki Baked Chicken. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Hot Roast Pork Sandwich. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Enchiladas; Steak Smothered w/Onions. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Yankee Pot Roast; Quiche Lorraine. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese. Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Pineapple Chicken; Stuffed Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF AUGUST 20

MONDAY: Vegetable Soup; Spaghetti Dinner; Crab Cutlets; Chicken Chow Mein Over Rice. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Roast Beef Au Jus; Eggplant Parmesan. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Meatloaf; Spanish Steak. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers Over Rice; Sauerbraten; Beef Balls Stroganoff. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Old Fashioned Bean Soup; Fish Dinner; Salisbury Steak; Savory Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 17

August 24, 1979

Olstad Appointed to Headquarters Post

Dr. Walter B. Olstad, Chief of the Space Systems Division, will become Deputy Associate Administrator of the Office of Aeronautics and Space Technology (OAST), at NASA Headquarters, effective October 1.

In his new position, Olstad will, under the direction of the OAST Associate Administrator, be responsible for the general management and direction of the OAST programs.

Olstad began his NASA career at Langley in June 1954 as an aeronautical research engineer, serving first in the Transonic Tunnels Branch and then in the Reentry Physics Branch. He was named Head, Gas Physics Section in 1966 and Head, Advanced Entry Analysis Branch in 1969. He was appointed to his present position in July 1975.

A native of Greenport, New York, Olstad earned a bachelor of science degree in mechanical engineering from Brown University, Providence, Rhode Island, in 1954; a master of science degree in aerospace engineering from Virginia Polytechnic Institute and State University in 1958; and a doctor of philosophy degree in applied mathematics from Harvard University in 1966.

Olstad has specialized in the fields of aerothermodynamics, radiation heat transfer, applied mathematics, numerical analysis and the management of research and development programs.

The author or coauthor of over 40 technical papers, Olstad is a member of the American Institute of Aeronautics and Astronautics (AIAA) and serves on the AIAA Technical Committee on Space Systems. He is associate editor for the Journal of Spacecraft and Rockets. Olstad served as a visiting professor of mechanical engineering and mechanics at Old Dominion University from September 1978 to May 1979.

Olstad and his wife, the former Helen H. Thompson, presently live in Yorktown with their three children.

– photo by Bob Nye

Over 4,300 people, the largest attendance at War Memorial Stadium since 1969, paid tribute to Herb Boulter during Employees' Night on August 9. Boulter, President of the Langley Activities Association, was presented with a plaque by Langley Director Don Hearth. The inscription read "in recognition for the outstanding contributions, dedication and leadership in the success of the Langley Activities Association." Also pictured are Boulter's son, Bobby, and wife, Mary.

— photo by Bill Salyer

The flying aircraft is being used to make radio frequency field strength measurements of signals from the Emergency Locator Transmitter (ELT) in the 'downed' aircraft. ELTs, normally crash activated, are intended to expedite the location of crashed aircraft. Because there are a number of problems associated with their application in the field, Langley is assisting the FAA and industry in refining the units. Several ELT units have been flown in aircraft during crash tests at the Impact Dynamics Research Facility to evaluate the mounting and activation. Participating in the radio frequency field measurements tests are Phil Brown, Flight Mechanics Division; Sam Sokol and Bob Young, Flight Electronics Division; Dwight McSmith, Dean Sparks and Robert Thomas, Operations Support Division; Huey Carden, Structures and Dynamics Division; Bill Salyer, Scientific and Technical Information Programs Division; and Victor Chregian, Vought Corporation. Dr. Robert Thomson, Structures and Dynamics Division, is chairing a national committee addressing the ELTs' problems.

Cost-of-Living Increases in Annuities

A cost-of-living (COL) increase of 6.9 percent in civil service annuities will be effective September 1, 1979, but an employee does not have to retire before this date to benefit from the increase. Current law guarantees a retiring employee's annuity will not be less than its value at the date of the previous COL increase. Cost-of-living increases occur semiannually--March 1 and September 1--and are equal to percentage rises in the Consumer Price Index.

Employees may question whether any advantages may be gained from a previous COL increase by retiring before the next one. The answer requires calculation of the annuity at the employee's date of separation and comparison with its earlier value. The employee is entitled to the larger of the two results.

In most cases the opportunity to benefit from a previous COL increase will be greater after the September 1979 increase. In the next six months, it is unlikely that many retirement eligibles will realize a growth of more than 6.9 percent in their annuities. In those cases retirement as late as February 29, 1980, would ensure receipt of the September COL increase and the one the current law provides for on March 1, 1980.

In Memoriam

Shelton W. Barnes, 48, died on August 15 in Hampton General Hospital. Employed at Langley for the past 23 years, he was an Electronics Technician in the Operations Support Division. Barnes graduated from the Langley Apprentice School in 1960.

Langley Employees Support Bloodmobile

Two hundred ninety-nine pints of blood were donated at the August 15 visit of the Red Cross Bloodmobile. The next opportunity to donate blood will be on October 17.

Achieving gallon status were:

10 gallons — Billy B. Dancy.

8 gallons — Richard B. Holt.

6 gallons — William J. Debnam and Herbert Leybold.

5 gallons — Charles G. Marple and Thomas M. Desmett.

4 gallons — John F. Bryant, Jr., Wallie Bumgardner and Roger K. Crouch.

3 gallons — Danny Barrows, Richard Chattin, Russell McKean, Rodney D. Russell, Dale W. Dalin, John R. Nayadley and Pendleton Jackson.

2 gallons — Ellewood L. Peele, Jr., Charles E. Jenkins, Herbert Shackelford, Harry F. Benz, Phyllis Karns, Richard Herndon and Seldon B. Gilliland.

1 gallon — Gary W. Grew, Archie L. Johnson, Robert E. Graham, Henry E. Herbert, Earl H. Andrews, Jr., and James F. Kibler.

Donating blood for the first time were Tyrone Ellis, Frank Bower, David Jett, John D. Antinori, Jr., Terry Markham, Hugh McCoy, Morris Holliday, Jesse Ferrell, Carolyn B. Watson and Denise Oka.

NASA Coordinator for the Bloodmobile was Robert L. "Scotty" McArthur.

Carnival Time

Today 5 to 11 p.m.

Saturday 12 to 11 p.m.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

NASA to Recruit Space Shuttle Astronauts

NASA will begin accepting applications for Space Shuttle astronauts on an annual basis. This year, the period for submitting applications by civilians will begin October 1 and end December 1.

Depending on NASA's needs for pilots and mission specialists, a selection will be made from rosters of qualified applicants resulting from this announcement. The rosters will be established annually.

Successful applicants will be asked to report to the Johnson Space Center in mid-1980 for a one-year training and evaluation program as astronaut candidates, after which pilot and mission specialist astronauts will be selected.

Selected applicants will be assigned to the Astronaut Office and placed in responsible technical or scientific positions where they will receive assignments to the Space Shuttle Program and continue work in their scientific or technical fields, where practicable.

Pilot astronauts will control the Space Shuttle during launch, orbital maneuvers and landings and be responsible for maintaining vehicle systems. Mission Specialist astronauts will have the overall responsibility for the coordination, with the Commander and Pilot, of Shuttle operations in areas of crew activity planning, consumables usage and other Shuttle activities affecting experiment operations. Mission specialists will continue in their chosen fields of research and will be able to propose, develop and conduct space experiments.

Pilot applicants must have a bachelor's degree from an accredited institution in engineering, biological or physical science or mathematics.

They must have at least 1,000 hours of "pilot-in-command" time in high performance jet aircraft, must pass a NASA spaceflight physical and be between 64 and 76 inches in height.

Mission specialist applicants, while not required to be pilots, must meet the same educational requirements and have at least three years of relatable experience. An advanced degree may be substituted for experience. Mission Specialist applicants must pass a NASA spaceflight physical and be between 60 and 76 inches in height.

Civilians may obtain application forms and information material by writing to Astronaut (Mission Specialist) Candidate Program or Astronaut (Pilot) Candidate Program, Code AHX, NASA Johnson Space Center, Houston, Texas 77058.

Military personnel should apply through their respective military department, not directly to NASA. Procedures will be promulgated by the service branches.

Current regulations require that preference for appointment to Astronaut Candidate positions be given to U.S. citizens when there is an adequate source of well qualified citizens available. Qualified minority and women applicants are encouraged to apply.

Twenty-seven astronauts are currently available as Space Shuttle crewmen, including 11 scientists. An additional 35 astronaut candidates selected in 1978 are in training to qualify for selection to Space Shuttle crews. The number of new candidates to be selected in 1980 will be based on mission requirements and operational needs.

Traffic Committee Urges Caution

The high frequency of near-miss incidents near the Credit Union at the intersection of Ames and Durand Roads has prompted the Traffic Committee to stress increased motorist awareness.

The committee said numerous vehicles have been identified and reported for failing to yield at the Ames and Moffitt Road intersection, as well as disregarding the 25 MPH speed limit and pedestrian crossing rights.

"Pedestrians are reminded to stop and look before entering marked crosswalks," a committee spokesman said. "Only then are you protected while crossing our streets."

– photo by Bill Salyer

Representatives of the KSSU Operations Group, a conglomerate of European airlines, visited Langley to look at electronic displays. Their visit included a flight on the TCV B-737 airplane, a look at flight simulators, and several briefings. Pictured left to right: Henri Baumann, Swissair (Switzerland); Uto Gunzel, Airbus Industries (France); Tore Hultgren, SAS (Sweden); Sam Morello and Lee Person, Flight Mechanics Division; and Herman A. Mooy, Dutch National Aerospace Lab (Netherlands). Other representatives included: Jacob Teeuw, KLM Royal Dutch airlines; Gilbert Defer, Airbus Industries (France); Jean-Marie Renouard, UTA (France); Rolf Schilling, Swissair (Switzerland); and Jon Ertzgaard, SAS (Sweden).

Tidewater May Benefit From NASA Pollution Research

The search for more efficient pollution sensors by NASA may result in two important by-products for the Tidewater area.

In testing new "remote" sensors along the Virginia coast from North Carolina to Maryland, researchers from Langley and other NASA centers are collecting and analyzing data that will add to knowledge about pollution in the Tidewater metropolitan area.

That knowledge, plus the continuing efforts of local officials and the Virginia Air Pollution Control Board, is expected to make possible the prediction of pollution, which could minimize its effects through pollution alerts, much like storm warnings. A pollution alert might recommend, for example, that elderly people and those with respiratory disease stay indoors until a particularly severe condition is over.

The Langley study of pollution sensors will result in the development of a regional pollution model that could be adapted to study pollution effects of proposed new industries in the Southeastern Virginia area.

The model, which is a sophisticated 3-D pollution map of the area, is necessary to verify readings measured by the experimental sensors.

To help insure that the model is accurate, a giant air bag has been designed and built by Langley to collect and analyze emissions. The transparent, aluminum-framed bag stands seven and one-half feet tall on top of a flatbed truck. It is, as far as Langley researchers know, the first large-scale mobile collector for the study of the photochemistry of emissions.

Last week at the Hampton Roads Bridge Tunnel it gulped--as one observer described it--piped air from one of four huge exhaust fans on top of a tunnel building. Testing air from the tunnel is excellent for determining what auto emissions are typical of the area.

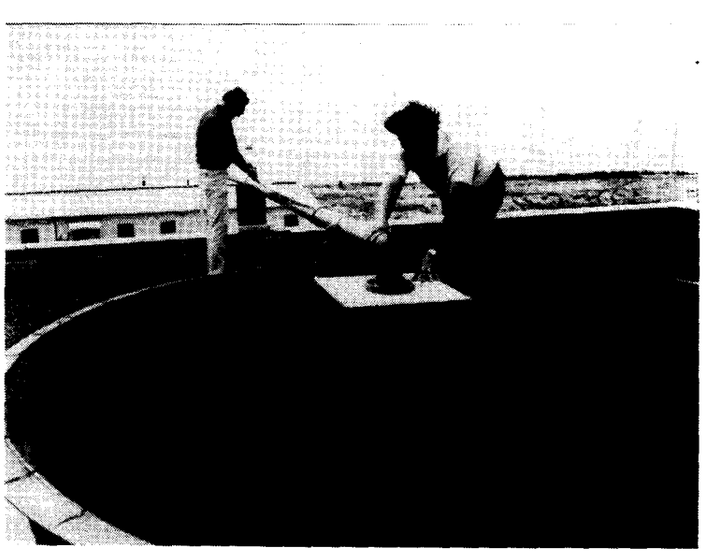
One surprise was the level of nitrogen oxides, four to five times higher than 1972 tests of the Lincoln Tunnel between Manhattan and New Jersey. One possible explanation, at least for part of the difference, is that instruments used even a few years ago were not as accurate as those used today.

This week and next, the Mobile Reaction Chamber, as it is called, and its instrument trailer are testing very different air where Virginia Beach meets the Dismal Swamp. Air from the swamp will reveal the level of natural "background" emissions. After the bag is filled with air to be tested, the truck is moved into the sun, where the gases react photochemically inside the bag for several hours. One or more valves are then opened and air passes through a series of sampling lines to the trailer for analysis.

Of special interest is ozone. As necessary as it is in the stratosphere to protect against the sun's ultraviolet rays, too much ozone at ground level causes health problems and damage to plants and property.

Even the Dismal Swamp produces a limited amount of the hydrocarbons that can combine with oxides of nitrogen and the sun to make ozone. But the primary reason for checking air quality in the swamp is to better measure how much man adds to the chemical soup that we, and those downwind from us, must breathe every day. The last scheduled bag sample will be in the Wards Corner area of Norfolk early in September,

Continued on page 5.



One of four huge exhaust fans provided all the emissions needed--and more--at the Hampton Roads Bridge Tunnel. Air from the tunnel is considered typical of auto emissions in the Tidewater area. The pipe was fitted over the edge of the building and into the bag below for study. Casey Jachimowski checks the pipe, at left, while Randy Cofer positions the inlet platform. Both are from the Environmental Chemistry Branch, MATD, responsible for operation of the Mobile Reaction Chamber.

– photos by Bob Nye

After the "bag" is filled with emissions its cover is removed and the Sun converts them into ozone. Langley researchers are using the newly-developed chamber as part of a program to test new pollution sensors. Connecting a sampling line is Lloyd Spangler, right, a Vought engineering technician, and Randy Cofer.

POLLUTION RESEARCH

Continued from page 4.

where researchers hope to get a good picture of emissions in a typical urban setting, to include industrial emissions.

Helping the bag "fine tune" the model are nine fixed sites strategically positioned along the Virginia coast, provided largely through the efforts of the regional office of the state Air Pollution Control Board in Virginia Beach.

Air samples taken by these more traditional means cannot directly measure ozone production but do add greatly to the mapping of emissions that begin to create ozone two to three hours downwind. Summertime winds in Tidewater generally flow from the southwest, so that emissions from the swamp are blown over Southside and Peninsula cities where a much greater concentration of emissions is added before moving on to the Chesapeake Bay and the Eastern Shore.

Ironically, therefore, residents of the Eastern Shore are more likely to suffer from the effects of ozone than the metropolitan area that created them.

But as important as an eventual model may prove to southeastern Virginia, it would still be just a by-product of other research. A regional pollution model is needed to verify the accuracy of newly developed "remote" sensors, now being tested in aircraft around the Tidewater area. A remote sensor can be carried aloft and aimed at the ground to read the amount of ozone between the aircraft and the ground. Sensors presently in use by the EPA, and others whose business it is to measure pollution, work only by taking in a sample of air at the instrument. In the case of airborne instruments they must actually be flown in a vertical spiral throughout the column of air to be tested.

The advantage of NASA's experimental system is in its simplicity and quickness. A single plane can fly the periphery of the Tidewater region in little more than an hour. The remote sensor, once proved and accepted, could make easy work of model building and make possible, for the first time, the prediction of pollution.

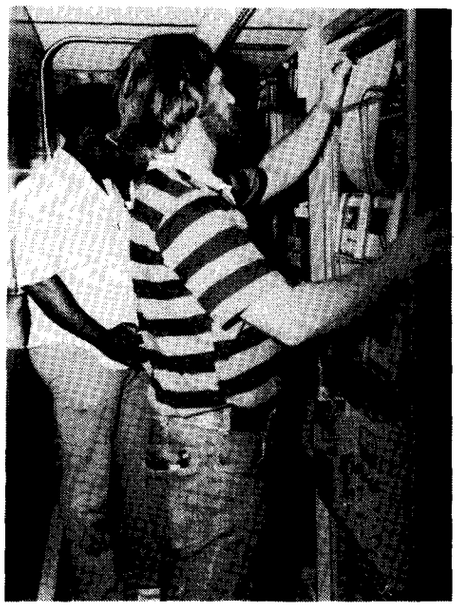
Additional advantages will accrue when and if researchers figure out how to make the remote sensors work from an Earth-orbiting satellite.

The hope is that ozone from an entire region could be measured with one quick reading. The problem is that between the satellite and the Earth is Earth's heavy layer of stratospheric ozone, threatening to add greatly to any readings taken through it.

Perhaps the ultimate solution will be in the development of new sensors based on the knowledge and understanding gained this summer during the remote sensor program in the Southeastern Virginia area.

This summer's overall program is the responsibility of Gerald Gregory and David McDougal, of the Environmental Field Measurements Branch, MATD.

The Mobile Reactor studies associated with the remote sensor program are being coordinated by the Environmental Chemistry Branch, MATD.



– photo by Bob Nye

A trailer filled with state-of-the-art pollution sensors is tied to the bag by a series of sampling lines. George Askew, foreground, monitors an automatic printout that indicates levels of nitrogen oxide, while Fred Rudolph checks other instruments.

Recent Retirees

John N. Daniel, Flight Electronics Division, retired on August 10.

Retiring today are **Ambrose O. Christian**, Operations Support Division, and **Lee E. McDaniel, Jr.**, Fabrication Division.

Question and Answer

Q. I know prices have gone up, but is it really too much to expect lemons for the tea in the cafeteria? The clever plastic imitation that has been substituted may be harmless in spite of its sulfurous taste, but it doesn't taste like lemon in tea.

A. Jay Downing, Manager of the cafeteria, was asked to address this question. He said:

"Several months ago, a box of lemons cost $9.00. The cost today, if lemons are available, is over $30.00.

"The U.S.D.A.'s Food Marketing Alert says that supplies of lemons are less than adequate for market demand. Local produce men say they cannot find an explanation for this, the newest in a long line of shortages which the American consumer is facing with ever-increasing regularity.

"The cafeteria will, when the price of lemons returns to an affordable level, provide fresh lemons instead of bottled lemon juice for iced tea."

LAA Travel

There are still a few spaces available on the one-week (one island) tour to Hawaii departing October 3, or the two-week (three island) tour departing December 31. You may prefer a long weekend in the fun capital of the world, Las Vegas, October 18–21. All tours include round trip transportation from Patrick Henry Airport, deluxe accommodations, transfers, taxes, baggage handling and some sightseeing and escort services.

Cruises from Norfolk include a weekend cruise to nowhere, October 12–15, or to four ports-of-call in the Caribbean, December 15–22.

Stop by the travel booth at the carnival and pick up the brochure of your choice. You could win a free pass on the Norfolk Harbour Cruise, the "Spirit of Norfolk." For additional information, call Ernie Greene, 2312, home 838-0567; or Herb Boulter, 3234, home 838-4773.

– photo by Bob Nye

Howard C. Jones (right), is congratulated by William M. Phillips, Jr., Chief, Fabrication Division, upon receiving a Special Achievement Award for "the excellent and diligent manner of performance during development of the calibration head of the Electronically Scanned Pressure Sensor Modules."

– photo by Fred Jones

James N. Chacamaty (right), Systems Assurance Unit, is presented a Special Achievement Award by E. Barton Geer, Director for Systems Engineering and Operations, "In recognition of consistently demonstrated outstanding technical competence, dedication, and initiative in providing for the quality assurance of flight components for the Space Shuttle program."

LAA Schedules Carnival Events

The following is a revised schedule of special activities at the Carnival.

Friday, August 24:

6 p.m. –	Carnival Queen will be crowned
	2-Mile Mixed Relay Race
7 p.m. –	Martial Arts Demonstration
8 p.m. –	Chandra's Caravan East – Belly Dancers

Saturday, August 25:

11 a.m. –	5-Mile Race
1 p.m. –	1-Mile Relay for Directorate Teams
2 p.m. –	Sky Diving Exhibition by Ft. Monroe Sky Divers Club
3 p.m. –	Fun Time Cloggers
4 p.m. –	Sky Diving Exhibition by Ft. Monroe Sky Divers Club
6 p.m. –	HARVEST – Rock band – Top 40
8 p.m. –	Just A Cut Above – Bluegrass Band

Also on Saturday eight to ten custom vans from the Blue Water Van Club of Hampton will be on display adjacent to the tennis courts.

Energy Saving Tip

Plan to have your oil furnace serviced during the summer. Such service could save 10 percent in fuel consumption during the coming winter.

Key Positions

William M. Moore has been designated Acting Head, Spaceflight Instrumentation Branch, Flight Electronics Division.

William A. Corlett has been designated Head, Unitary Wind Tunnel Section, Supersonic Aerodynamics Branch, High-Speed Aerodynamics Division.

Happenings

TOASTMASTERS. You are invited to join TAC Air Toastmasters Club to develop the arts of giving speeches, evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesdays of the month at the Langley Officers' Club, at 7:15 p.m. For further information, call Bob Lee, ext. 2486.

STATISTICS. Beginning September 26, Thomas Nelson Community College (TNCC) will sponsor BUAD 254-41, Applied Business Statistics. The class will meet every Wednesday during the fall quarter, from 4:40 to 7:30 p.m., in Building 1194C, Room 110. Tuition will be $25.50 made payable to TNCC and the textbook will be "Basic Statistics" by Hamburg at $16.95. This is a required course for all TNCC Business Management, Data Processing Technology and Accounting majors. Call Mary Corbitt, ext. 3672, for more information.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, August 28, at 7:30 p.m., in the Activities Center, Building 1222.

HAPPY HOUR will be held Friday, August 31, from 4 to 6:30 p.m. at the Activities Center.

TIDEWATER DINNER THEATER. "Under the Yum Yum Tree," a comedy about a pair of reluctantly chaste sweethearts sharing the same apartment, is being performed at the Tidewater Dinner Theater in Norfolk until September 9. The play kept Broadway audiences laughing for 22 weeks and was described by the New York critics as ''screamingly funny'' and ''a happy-go-lucky laugh-filled play.'' Tickets for the production are on sale at the Activities Office.

THE VEGETABLE GARDEN CLUB needs donations of vegetables and cut flowers to sell at the carnival and volunteers to work in the booth. Please call Mary Saylor, 827-9040, if you can assist. Donations should be left at the booth on the Activities Center grounds between 3:30 and 5 p.m. today.

Recent Retirees

Edwin T. Kruszewski, Structures and Dynamics Division, and **Louis R. Foster**, Operations Support Division, retired on August 3.

Thanks

Frank H. Watkins thanks the Center personnel and retirees who honored him at his recent retirement luncheon. "I thank all of you for the gifts and mementos I received."

Sue W. Souders writes, "I would like to thank those who contributed in any way to my NASA retirement luncheon on Tuesday, July 17. I shall always cherish the memories and gifts."

Winfrey E. Arnold, Jr., formerly of the Fabrication Division, thanks his many friends and co-workers for the retirement parties and many nice gifts. "The presentations and programs will always be two of the highlights of my life. Thanks again."

"I would like to express my thanks to all those who made the LAA Baseball Night such a great success. It was truly a great honor to be the special guest at such an event.

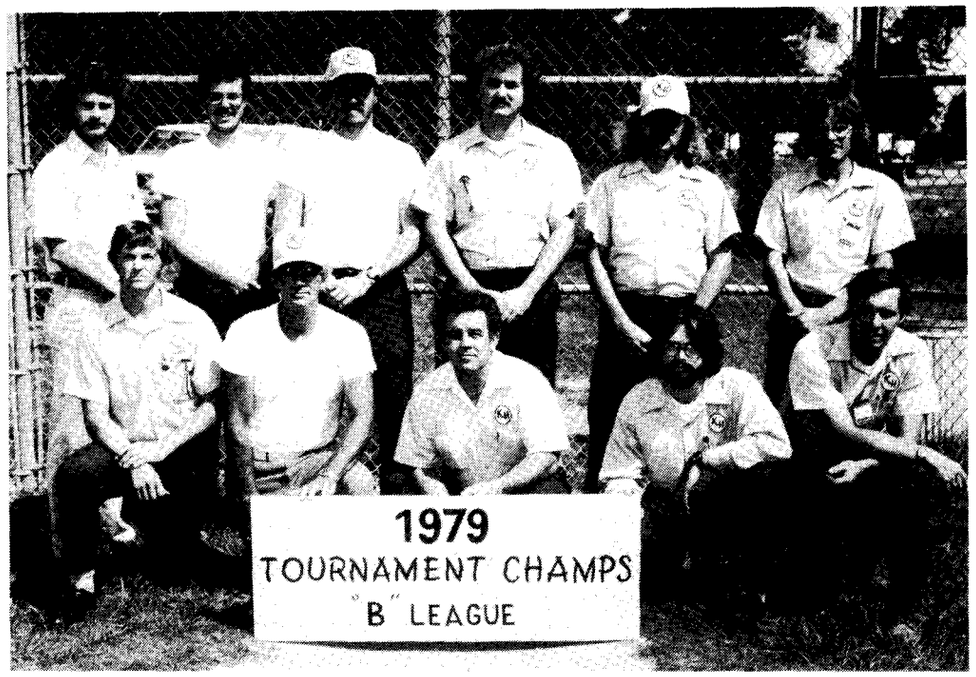
"I also would like to express my appreciation to the people in the Instrument Research Division for the generous gifts, help and prayers during my period of incapacitation."

Herb Boulter

Softball Association Final Standings

A-League:	
Shams	17– 0
Misfits	11– 6
Decibels	8– 9
Charlie Brown All Stars	8– 9
Simulation	6–11
B-League:	
Materials	13– 5
Klate Holt Flyers	12– 6
ISI	12– 6
ACD	5–13
Phantoms	1–17
C-League:	
RCA	10– 7
LSB	8– 9
Ballers	8– 9
HTC	7–10
CDC	4–13

Tournament winners were: A-League, Shams; B-League, Klate Holt Flyers; and C-League, RCA.



The Klate Holt Flyers recently won the 1979 NASA Softball Association "B" League Championship Tournament. The team's overall record for the season was 17–7. Front row, from left, are: Ronnie Diggs, Jim Antinori, Brad Owens, Bob O'Hara and Doug Diggs. Back row, from left, are: Vern Toman, Terry Woods, Tom O'Bryan, Jerry Goens, Al Futrell and Bill Delauder. Not pictured: Bob Warren, Maurice Winn and Steve Crisp.

swap and shop

FOR SALE

Articles

Football Tickets: Two tickets to the VPI vs W&M (9/22) and VMI (11/17) football games in Blacksburg. Price: $9 each. Contact: Tom Moore, 898-7313.

Two United airlines 50 percent discount coupons. Call 596-3240.

Refrigerator, top freezer, 16 cubic ft., Whirlpool, about 10 yrs. old, EC and clean, $195. Call 826-2339.

Traverse rods, asst. sizes, $2.50 ea.; Youth's backpack/frame, $7.50; and Western tack, saddle, breastplate, 2 bridles, 2 pads, girth and cover, bit, $325 or sell separate items. Call Youngblood, 877-1224.

Pollenex deep heat back massager, like new, $22; Lady Schick Facial sauna with beautifying mist, $18; and Clairol 20 instant hairdresser, $10. Call Hall, 3581.

Vehicles

Sailboat, 21 ft. Nomad, can be seen at Sunset Marina, asking $2,900, negotiable. Call Phillips, 722-6160.

Real Estate

York County (Heritage Hamlet): 3 BR brick rancher, .5 acre lot, fenced-in yard, C.A. Call 898-6708.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, ½ block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk, winter rate $350/mo. Call G. O. Kent, 420-8391 Va. Beach, work—ext. 3095.

Beechwood: Brick rancher, 3 BR, 2 BA, den w/fireplace, eat-in kit., fenced yard, $330/mo. Call Wilhite, 874-9017.

WANTED

New members to join carpool from Williamsburg. Call 229-6524 after 6 p.m.

To join carpool from Criston apartment, Village Green area to West Area on 8 a.m. shift. Call Benny Reichman, ext. 3127.

WHERE'S THE MUSIC? Pianist wants to join or form a NASA-based band. If you are involved in musical activities, or want to be, please contact Bram van Leer, ext. 2513, bldg. 1220.

Driver to join congenial and reliable riding combination to West area, 8 a.m. shift, from Warwick-on-the-James and Hilton Village area. Call Sewall, ext. 3196 or 596-1157.

One or two roommates to share an apartment or rental house in vicinity of NASA, contact Bill Olstad, ext. 4534, or 595-4636 after 5.

Melvin L. Watkins, Operations Support Division, was presented a Special Achievement Award for "superior performance in contributing to the successful rehabilitation and modifications to the 1/3 Meter Cryogenic Tunnel."

cafeteria menu

WEEK OF AUGUST 27

MONDAY: Ham & Lima Bean Soup; Quiche Lorraine; Braised Beef & Vegetables; Chicken & Spanish Rice. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Hot Roast Pork Sandwich. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Enchiladas; Swiss Steak. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Yankee Pot Roast; Baked Tuna & Noodle Casserole. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Barbecued Chicken; Stuffed Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF SEPTEMBER 3

MONDAY: HOLIDAY

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Roast Beef au jus; Spaghetti Dinner. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Meat Loaf; Country-style Steak. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Sauerbraten; Beef Balls Stroganoff. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Salisbury Steak; Teriyaki Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 18

September 7, 1979

– photo by Fred Jones

The one-day CFC drive will be held at Langley on Thursday, September 20. Homer G. Morgan (second from right), Acoustics and Noise Reduction Division, will serve as Chairman. James F. Meyers (left), Personnel Division, will be Financial Chairman; John F. Stokes (second from left), Projects Management Systems Division, will be Co-Chairman; and Barbara A. Fryer, Acoustics and Noise Reduction Division, will be Secretary. Jean Drummond (not pictured), Office of Public Affairs, will serve as Publicity Chairman.

Langley CFC Goal Set at $177,500

Langley Director Donald P. Hearth is launching Langley's 1979-80 Combined Federal Campaign (CFC) with a challenging goal of $177,500 and has appointed Homer G. Morgan, Chief, Acoustics and Noise Reduction Division, as Chairman.

John F. Stokes, Chief, Projects Management Systems Division, will serve as Co-Chairman; James F. Meyers, Personnel Division, will be Financial Chairman; Jean W. Drummond, Office of Public Affairs, will be Publicity Chairman; and Barbara A. Fryer, Acoustics and Noise Reduction Division, will serve as Secretary.

A one-day center-wide solicitation will be held on Thursday, September 20, preceded by a kickoff meeting for Division chairmen and "key men" solicitors on Wednesday, September 12, at 2 p.m. in the Activities Center.

Dr. Hearth asks all employees to maintain the Center's tradition of setting the highest standards of citizenship and community support by giving generously to the campaign. Remember that most of the CFC gift is used directly to make the Peninsula a better place to live and raise our families.

President Carter Endorses CFC Drive

President Carter recently issued the following memorandum to all federal employees and military personnel.

"Federal government employees traditionally have responded generously in aiding those less fortunate than ourselves. Particularly noteworthy have been the tremendous compassion and support we have demonstrated through our contributions to the Combined Federal Campaign.

Once again, this yearly opportunity to support the services of voluntary health and welfare agencies, including the United Way, The American Red Cross, National Health Agencies and International Service Agencies, by participating in the Combined Federal Campaign is upon us. These agencies help make our community a better place in which to live; they alleviate pain and suffering, and seek cures from dreaded diseases; they bring hope to those in overseas lands, and reinforce a sense of security in the aged, infirm, and handicapped.

In the spirit of neighborliness, we will continue our tradition of generosity and concern for others through contributions to the Combined Federal Compaign. I am confident of your support."

– photo by Bob Nye

Fred R. Bowen, Jr., Technical Manager for Management Operations, is presented with a certificate of recognition for noteworthy service in public administration by Director Donald Hearth. The certificate was awarded by the William A. Jump Memorial Award Foundation.

Bowen Recognized for Noteworthy Service

Fred W. Bowen, Jr., Technical Manager for Management Operations, has been recognized for noteworthy public administration through an awards program open to all Federal agencies.

Bowen's name was submitted last spring as the NASA nominee for the William A. Jump Memorial Award, presented annually for outstanding service in administration and notable contributions to the efficiency and quality of public service.

While Bowen was not the overall winner, he was judged by the Jump Memorial Foundation to qualify for a certificate of merit for "noteworthy service in public administration."

Bowen has been a NASA employee since 1964. During his career he has served in various technical and management positions at Langley, and was Executive Assistant to the Associate Administrator for Aeronautics and Space Technology at NASA Headquarters from 1972 to 1974. Bowen also worked as technical assistant to the Viking Project Manager at Langley from 1969 to 1972.

The Jump Memorial Award was established in honor of a longtime Budget and Finance Officer of the Department of Agriculture; it is administered and supported through private concerns.

Langley Summer Employees Honored

A Career Planning and Recognition Program was held August 16 at the Activities Center in honor of Langley's summer employees. The program included presentation of outstanding achievement awards by Personnel Officer William L. Williams.

Civil Service application procedures for permanent federal employment and the Center's Cooperative Education Programs were also discussed by various Personnel Division employees.

Honored with outstanding achievement awards were: Richard G. Beale and Lorna D. Phillips, Space Directorate; Linda L. Clark, Projects Directorate; Robert H. Daugherty, Structures Directorate; Karen P. Jeffries and Cheryl L. White, Electronics Directorate; Elisha J. Evans III and Tina Grim, Systems Engineering and Operations Directorate; Marcia Y. Fields, Robert W. Hott and Graylin E. Smith, Management Operations Directorate.

The program ended with remarks by Linda Myers, the Summer Employment Program Counselor. Refreshments were then served in the Langley Room.

Recent Retirees

David F. Thomas, Jr., Marine and Applications Technology Division, retired on August 23.

Erskine C. White, Systems Engineering Division, retired on August 24.

William C. Thompson, Structures and Dynamics Division, retired on August 25.

Willianna W. Smith, Analysis and Computation Division; **Sarah R. Beadles**, Financial Management Division; **Eldon E. Mathauser**, Materials Division; **William K. Hagginbothom, Jr.**, Scout Project Office; **Elmer L. Goyette, Jr., S. Payne Parker, Jr.**, and **Clarence O. Keffer**, Systems Engineering Division; and **Benjamin F. Holloway**, Plant Engineering Division, retired on August 31.

In Memoriam

James R. Bailey, 51, died of a heart attack in Riverside Hospital on August 20. Employed at Langley for almost 19 years, he was a Production Controller in the Fabrication Division.

Olstad Honored

Dr. Walter B. "Walt" Olstad, Chief, Space Systems Division, will be honored with a reception (hors d'oeuvres and cash bar) on Monday, September 24, beginning at 6:30 p.m., in the Activities Center, Building 1222. Cost will be $5.50 per person including gift. Contributions for gift only are welcome. For reservations, contact Joy Rodgers, Mail Stop 367, by Wednesday, September 19.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

CFC Chairman Solicits Langley Support

Every year, the Peninsula Combined Federal Campaign provides an opportunity for the Langley staff and associates to come together in support of the local community. The time to respond to that opportunity is here.

During the past year, needs around us have continued to grow. Since inflation has reduced services that can be provided for each dollar donated, clear alternatives are before us as we approach the campaign. Simply stated, these alternatives are: (1) each of us increases our giving, or (2) charitable services in the community are to be reduced.

Langley has a solid record of achievement in community support, just as in all its activities. Last year, a new plateau of contribution to the Combined Federal Campaign was achieved when we exceeded a very ambitious goal by three percent. This year, the campaign committee has set another challenging goal--$177,500--which is greater than last year's goal, but reflects the staff reduction over the year as well as inflation and an anticipated pay increase in October 1979. This goal can only be met if each of us gives a little more than last year. A "stand pat" philosophy on our part will result in falling short of our goal and in significant reductions in services to the community. Therefore, I am asking that you examine your attitudes and then respond to the needs around us.

My aim in the campaign is to give each member of the Langley community an opportunity to participate. That includes our resident associates from other agencies and universities, our Distinguished Research Associates, and retirees living locally. The important role of this extended family in supporting Langley was illustrated last year by the particularly generous response of Langley retirees to the CFC. Did you know that donations from retirees in 1978–1979 put Langley "over the top," enabling the Center to meet and exceed its goal?

The mechanics of the Langley CFC will be similar to those used in past years. A kickoff meeting for the Division/Project Office chairmen and "key person" solicitors will be held in the Activities Center at 2 p.m. on September 12. One of the "key persons" will contact you on or before September 20, our one-day solicitation, to ask for your contribution. We encourage payroll deductions as the simplest and easiest way to contribute, but cash donations are welcome. Provisions for confidential contributions will also be available.

Please consider the alternatives in advance. As a responsible member of the Langley "family" and this community, I am sure you will want to be a generous participant.

Homer G. Morgan
Chariman, 1980 Combined Federal Campaign

Transpo Spotlights Energy Efficiency

Riding a bicycle and walking aren't the only energy efficient means of getting to work at Langley.

Other alternatives include car pooling, riding a moped or even operating a shuttle bus for convenience and profit.

Those and other aspects of energy efficient transportation will be spotlighted in detail when the Langley Transpo gets underway with two sessions September 20 at the Activities Center.

The program will feature speakers, vehicle displays and demonstrations in two sessions, which run from 10 a.m. to noon and 1 p.m. to 3 p.m.

The speakers will be Joseph Kursch of EASYRIDE, a Peninsula federally-funded transportation organization, who will discuss using a computer to plot the addresses of persons interested in mass transit; Jo-Anne Beal of the Tennessee Valley Authority, who will summarize TVA's experience with van-pooling; and a senior Langley management official, who will describe the Center's efforts to promote more energy efficient transportation.

In addition, the Transpo will feature van, motorcycle, moped and bicycle displays by major dealerships in the area, along with demonstrations of vans. Also on display will be buses of various types.

NASA employees who attend should charge their time to JO A1980. Contract employees are also eligible to attend.

Transpo is sponsored by the Management Operations Directorate and the Office of External Affairs.

Crouch Receives Thompson Fellowship

Dr. Roger K. Crouch, Flight Electronics Division, is the 1979–80 recipient of the Floyd L. Thompson Fellowship.

The Thompson Fellowship Program was established in 1977 to encourage the development of research potential among the Langley Research Center staff. It is named in commemoration of Dr. Floyd L. Thompson, 1898–1976, who was Center Director from 1960 to 1968. Thompson had joined the Langley staff in 1926, and upon retiring in 1968, served as a consultant to the NASA Administrator until January 1973.

Crouch will spend one academic year at the Massachusetts Institute of Technology studying the effects of gravity on semiconductor crystal growth and materials processing in space.

Crouch joined the Langley staff as an aerospace technologist in June 1962. He received a bachelor of science degree in physics in 1962 from Tennessee Technological University, a master of science degree in physics in 1968 and a doctor of philosophy degree in physics in 1971, from Virginia Polytechnic Institute and State University.

The author of over 20 technical publications, Crouch is a member of the American Physical Society.

Behind the Scenes

A look at those people and groups who provide support for Langley's projects and research programs. Photos by Bob Nye.

Photographic Branch

The Photographic Branch, Scientific and Technical Information Programs Division, is responsible for all of Langley's photographic needs, including viewgraphs, slides, photographs, films and charts. The Branch handles nearly every photographic operation known to man, from innumerable little jobs to complex double editing of films.

There are 22 scientific or laboratory photographers who work to provide support to Langley employees. One person not pictured here is Bob Nye, the man behind the camera for most of the photographs used in the *Langley Researcher*. In addition to his assignment as staff photographer for the paper, Nye is a technical and scientific photographer in the laboratory.

Harry Pate is Head of the Photographic Branch. Here he prepares a purchase request for equipment needed in the laboratory.

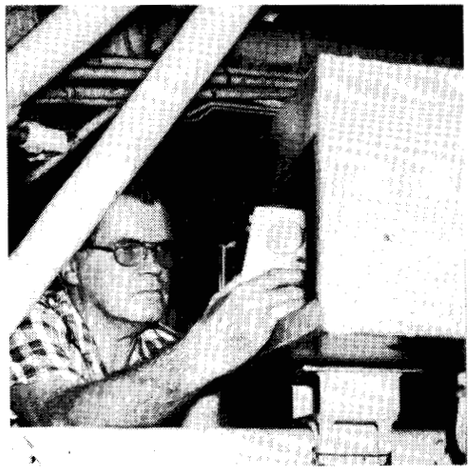
Bill Salyer and Cheryl Davis, a summer employee, prepare a chart to be reproduced into a 35 mm slide by using the Forox slide production machine.

Bill Frazier adjusts the iris on a Brown copy camera lens.

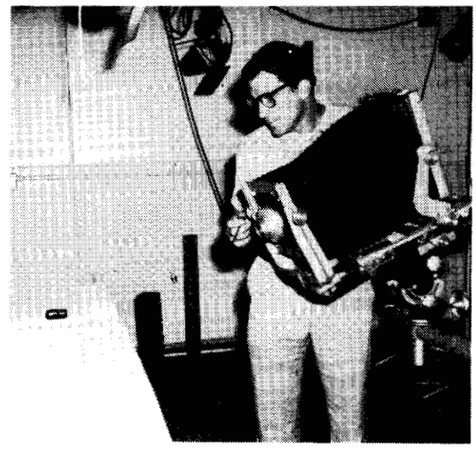
Myrtle Yates, secretary, schedules a photographer to take pictures at a recent Langley symposium.

Bob Hunt, Dennis Carey and Prentiss Childs display the editing machine and sound camera used in making films. The double system, 16 mm editing machine has the capability of editing two sound tracks and one picture roll simultaneously. The Arriflex 16 mm sound camera is used for stage shooting. Film is not only the most affordable way of showing how research money is spent, it is also a very effective way of disseminating scientific information.

Hubert Lloyd and Louise Sykes adjust the Saltzman enlarger which is used to make large charts. The machine will produce enlargements, ranging from 11x14 inches to 30x40 inches.

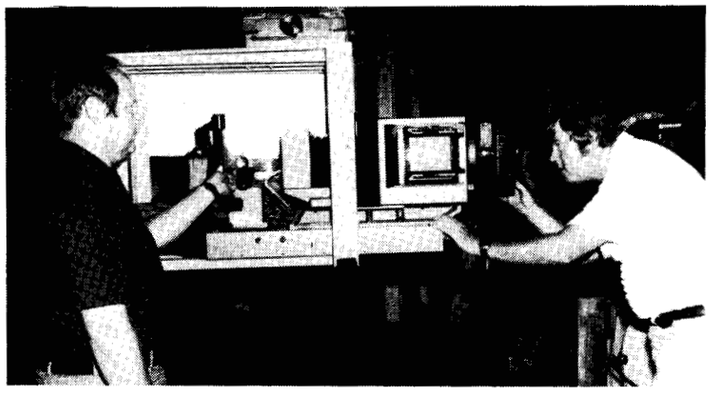


Richard Kennedy mounts a high-speed motion picture camera on a carriage for testing wheels, tires and brakes at the Landing Loads Track.



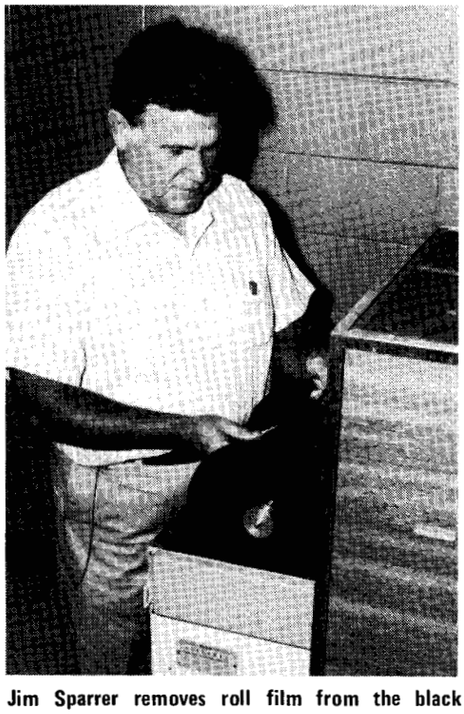
Ronnie Booth adjusts the camera to photograph a composite specimen in the still studio.

The small copy camera is the busiest piece of equipment in the Photo Lab. The camera can make slides and viewgraphs from any type of art work. Fred Jones adjusts the camera to make a viewgraph from a Jupiter photograph.



Don Ward, left, and Alton Moore adjust the knife edge on a schlieren system for checking air flow data on a model in the Mach 8 tunnel.

The 1811 Ektachrome processor processes any reversal-type Ektachrome film, such as slide film, viewgraphs and 35 mm slides. John Cunningham, left, receives film roll as it is released from the processor while Everett Bennick controls the amount of chemicals needed to process the film.



Jim Sparrer removes roll film from the black and white negative processor.

Philip Hazlett used a 4x5 inch negative to produce an 8x10 inch photograph on the color print processor. The processor has the capability of producing prints as small as 2x2 inches and as large as 30x40 inches.

Harry Broskie checks a developed film from a negative processor.

Continued on page 7.

More Than One Kind of Gas is Going Up

Gas usually comes in a tank truck, and now a new kind of truck and a novel type of gas have been placed at the disposal of Langley researchers by Director Donald Hearth.

The GAS is better known as the "Get Away Special," and the means of transportation is NASA's first space truck, the Shuttle Orbiter.

By 1981, individuals, companies, institutions and Federal agencies—NASA included—will be able to take advantage of extra payload space aboard the Shuttle through the Small Self-contained Payloads Program, or the "Get Away Special," as it has come to be known.

Established by the Space Transportation System Operations Directorate at NASA Headquarters, the program will enable researchers to send aloft small experiments when payload space is available after the first four developmental shuttle flights are completed. Dr. Hearth has reserved two spaces in the SSCP program, one for Langley researchers and the other for universities and colleges associated with the Center.

All scientific and engineering research and development experiments that fullfill Langley's roles and missions are eligible for GAS. This does not mean, however, that only sophisticated experiments can fly. Coordinators for Langley's GAS say even simple experiments with off-the-shelf equipment can qualify because they could lead to more sophisticated developments.

One experiment which has already been accepted by NASA was suggested by an elementary school student. The youngster plans to remove a lizard's tail, send the reptile up with the Shuttle, and see if its tail regenerates in space. The experiment is simple, but the rusults should prove fascinating.

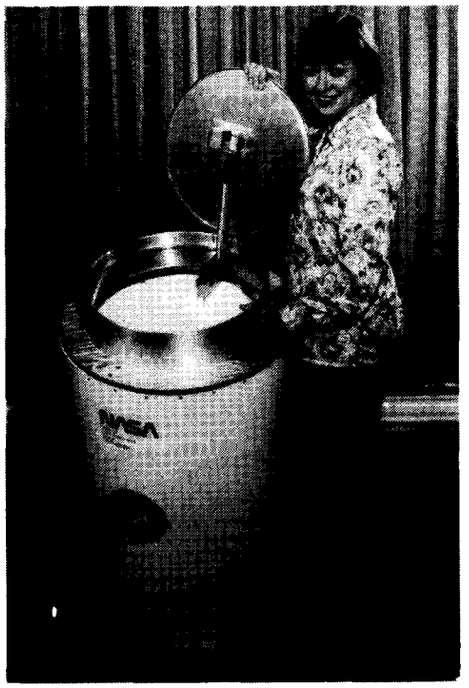
GAS payloads do not have to contain space-qualified components and will not have to be integrated with standard Shuttle operations. But they will have to weigh less than 200 pounds not including the container weight, have a volume of five cubic feet or less, and have their own power supply if necessary. GAS payloads will not be allowed to draw on Shuttle services beyond three on-off controls in the Orbiter aft flight deck.

The Goddard Space Flight Center, mission manager for all GAS payloads, will furnish standard flight containers which provide pressurization, thermal control, venting, experiment mounting plates and command links. At some extra cost a cannister top with a window or a top which can be opened in space while the Orbiter Payload Bay doors are open can be made available. GAS payloads will not be extended into space by the Orbiter's payload boom.

Langley researchers will be responsible for only the experiment development costs; the containers, shuttle integration and flight costs will be paid by the Office of Space Transportation Systems. Experiment development costs can come from a Headquarters Program Office or from the Center Director's discretionary funds.

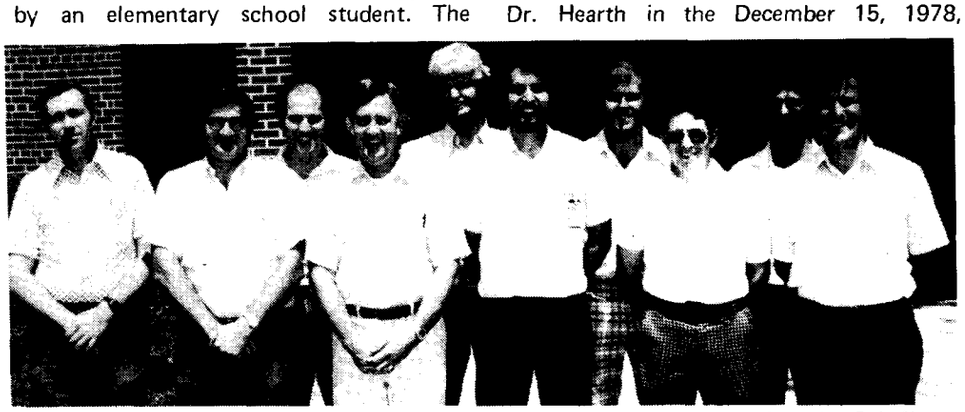
Proposals for use of discretionary funds will have to meet guidelines set by Dr. Hearth in the December 15, 1978, Researcher and in his January 5, 1979, letter to division chiefs.

The Langley GAS program is being coordinated by Frederick O. Allamby of the Space Trasportation System Integration Office in the Projects Directorate. Preliminary requests and questions on GAS should be directed to Allamby or Karen D. Brender of that office.



– photo by Fred Jones

Barbara B. Clark, Projects Management Systems Division, is shown with a mock up of a "Get Away Special," (GAS) cannister. This type of cannister will carry Langley experiments and Langley-associated university experiments in the cargo bay of the Space Shuttle.



– photo by Bob Nye

Pictured above is the 1979 Materials Softball Team. The team finished in first place at the end of the regular season with a 13 - 5 record. Members of the team are: (front row) Jow Woolsey, Jim Kiss, Jerry Deaton, Mark Shuart (coach), Jim Rogers, and Darrel Tenney; (back row) Chuck Zeitman, Dave Tice, John Kennedy (asst. coach), and Dave McColskey. Not pictured: Buddy Poe, Tom Yager, Ed Phillips, Barry Lisagor, Bland Stein.

Happenings

HAPPY HOUR will be held on Friday, September 14, from 4 to 6:30 p.m. in the Activities Center.

HONEY BUNCH. The VPI Extension Service, in cooperation with the Langley Apicultural Club, will be conducting a short course in Basic Beekeeping on September 14 and 15. This course will be conducted by Dr. Richard Fell in Building 1209, Room 180, from 7 to 10 p.m. On September 14 and 9:30 a.m. to 3:30 p.m. on September 15. Colony manipulation at the Club Apiary will be included, weather permitting. The course agenda may be obtained by contacting Rollin Woolley, 727-6403; John Gray, 595-7206; or R. Henk, ext. 4637.

— *photo by Hubert Lloyd*

Janice L. Holt (center), Operations Support Division, was crowned Queen of the 1979 Carnival on Friday, August 24. Blanche M. Johnson (left), Financial Management Division, was first runner up and Diana L. Smith (right), Research Facilities Engineering Division, was second runner up. Janice was crowned by Jesse G. Ross, Chief of the Management Support Division, and presided over the LAA Carnival held at the Activities Center on Friday and Saturday.

Hispanic Heritage Remembered

The week of September 10 has been proclaimed National Hispanic Heritage Week. To commemorate the proud history and contributions of Hispanic-Americans, the second largest ethnic minority group in the United States, a pamphlet entitled "VIVA — A Look at the Hispanic-American" will be displayed on bulletin boards at the Center. Additional copies may be secured from the Office of Equal Opportunity Programs, Building 1153.

NASA, including the Langley Research Center, employs Hispanics in administrative, scientific, and technical disciplines. Participation in such feeder programs as the Cooperative Education Program and Summer Faculty appointments enable the Agency and nation to tap this vital human resource.

Special food dishes will be available at the Cafeteria during the week.

Thanks

Charles Mercer, High Speed Aerodynamics Division, wishes to thank the Center personnel who donated blood in the name of his wife, Peggy, at the bloodmobile on August 15.

Brain Teaser

A telephone number has a strange property:

$$\text{myphone} = (my) \times (hy) \times (p^4)$$

Each letter represents a different digit and neither m nor y is zero or one. Find myphone.

Answers should be submitted to *Langley Researcher*, Mail Stop 115A.

Speakers Bureau

Irv Hamlet spoke about the Tech House and technology utilization to the Portsmouth Rotary Club on July 5.

George Hastings spoke to the James City Ruritan Club about NASA on July 11.

Jim Harris spoke on "How the Computer is Used" at the Newport News Teachers Resource Center on July 11.

Cary Spitzer spoke about Viking and planetary exploration at Virginia Polytechnic Institute and State University on July 18.

Duke Reiber spoke at the Science Museum of Virginia about planetary exploration on July 19.

Joe Drewry spoke to the Virginia Beach Rotary Club on July 26 about "Skylab Re-entry."

Retirement Party

John N. Daniel, Flight Electronics Division, will be honored with a retirement party on Friday, October 5, in the Activities Center, Building 1222. A social hour will begin at 6:30 p.m. with a cash bar. Dinner will be served at 7:40 p.m. The cost of the dinner including gift will be $6.75 per person or $12.50 per couple. Contributions for gift only are welcome. Please make checks payable to Sam Sokol, Mail Stop 488, by September 25.

BEHIND THE SCENES

Continued from page 5.

Barbara Faison and Raymond Dale process black and white contact prints on a vacuum-frame printer.

Beverly Cherry manages the Film Library. The films, which describe NASA research and development programs in space and aeronautics, may be borrowed for showings to education, civic, industrial, professional, youth and similar groups.

Thumbs Up! for the 1980 Combined Federal Campaign

Please give to help the unfortunate, the sick and others in need. Add your personal "Thumbs Up" by contributing to the CFC.

swap and shop

FOR SALE

Articles

Firewood, hardwood, $45 for 1/2 cord., will deliver and stack. Call 595-1029.

Football Tickets: Two tickets to Colt--Tampa Bay game, $10 each. Call Don Simmons, ext. 3095.

Vehicles

1966 Buick Electra 225, AT, AC, PS, PB, PW, good mech. cond., $250. Call 596-3932.

1977 Monza Towne Coupe, EC, AM/FM stereo radio, new tires, 4-speed trans., 4-cyl. engine, Vinyl Landau roof, custom-sport interior. Call 693-5937.

Real Estate

Waterview lot in Poquoson, 1 and 1/4 acres. Call 898-7315.

Lot in York Co. 1/2 acre in Brandywine. Call 826-6327 after 6.

Large, wooded waterfront lots in Poquoson, 3/4 to 1 acre each. Call 826-3053.

FOR RENT

Sandbridge: New cottage with living-kit-din-area, 4 BR, washer, dryer, dishwasher, FP, 1/2 block from ocean and Backbay (fresh water), AC, electric heat, telephone, 4-car parking, summer rate $375/wk., winter rate $350/mo. Call G. O. Kent, 420-8391 Va. Beach, work—ext. 3095.

WANTED

Driver to join congenial and reliable riding combination to West area, 8 a.m. shift, from Warwick-on-the-James and Hilton Village area. Call Sewall, ext. 3196, or 596-1157.

Fifth member for carpool from James-York Plaza in Williamsburg, 8 a.m. shift. A/C, no-smoke, no compacts. Call Watts, ext. 3877.

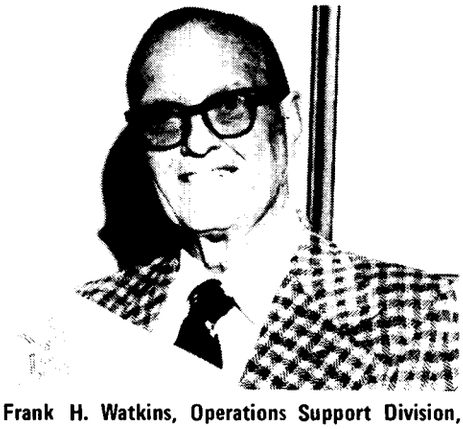
To join riding combination from Smithfield area to West area; any daytime shift. Call H. S. Earl, Jr., ext. 3229.

Good home for lovable male kittens, 3 mos. old. Call McMillan, 868-9545 or ext. 2661.

WHERE'S THE MUSIC? Pianist wants to join or form a NASA-based band. If you are involved in musical activities, or want to be, please contact Bram van Leer, ext. 2513, Bldg. 1220.

FOUND

On NASA tennis court, call ring from John Carroll University, Birmingham. Call Morello, 3621.



Frank H. Watkins, Operations Support Division, received a Special Achievement Award for "sustained superior performance in support of the "Composites for Advanced Space Transportation Systems' Program."

LAA Carnival Grand Prize List

Litton Microwave Oven — George Adamowski, Fabrication Division;

$1,200 Cash — Roger H. Fournier, High-Speed Aerodynamics Division;

$500 Cash — O. Earl Shortt, Operations Support Division; and

Cruise for Two plus $200 Cash — Ronald F. Hoyt, Instrument Research Division.

cafeteria menu

WEEK OF SEPTEMBER 10

MONDAY: Ham & Lima Bean Soup; Pineapple Chicken; Stuffed Peppers; Hot Roast Pork Sandwich. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Corn Chowder; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Beef Enchiladas. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Chicken Chow Mein; Yankee Pot Roast. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF SEPTEMBER 17

MONDAY: Vegetable Soup; Spaghetti Dinner; Savory Baked Chicken; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Sauerbraten; Fried Filet of Fish; Beef Balls Stroganoff Over Noodles. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Eggplant Parmesan; Salisbury Steak. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Roast Beef au jus; Braised Chicken Livers; Meat Loaf. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken & Spanish Rice; Country Style Steak. Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

SPECIAL ISSUE

September 14, 1979

...reaching people who need you...

that's what the CFC is all about.

COMBINED FEDERAL CAMPAIGN

CFC

One Campaign Helps People All Year Long

The Combined Federal Campaign provides an opportunity once a year for civilian and military employees of the government to contribute to many worthy health, welfare and community service organizations. The funds we provide to these agencies permit them to relieve suffering, provide care for the young, aged, homeless and hungry, and bring hope to the depressed. It is the one campaign which helps people all year long.

This year the Peninsula Combined Federal Campaign goal is $632,976. The money will be distributed among the Peninsula United Way (73.4%), Williamsburg United Way (2.4%), National Health Agencies (19%) and International Service Agencies (5.2%). Each of these four organizations distributes its funds directly to subsidiary agencies.

The United Way, an organization dedicated to making humanity more humane, encourages and assists volunteer groups in providing the broad range of social services for the community. It is responsible for social planning for the community and budgeting and allocating funds to its member agencies. The United Way is divided into two entities for the Combined Federal Campaign--the Peninsula United Way, supporting 32 different agencies, and the Williamsburg United Way, supporting 17 agencies.

The National Health Agencies (NHA) are organized to implement nationally recognized health programs of research, education and service within the community. There are 12 agencies that are funded in part by the NHA.

The International Service Agencies are a group of organizations that give direct service programs of health, welfare and humanitarian assistance to people in poor areas of the world. There are seven agencies providing the tools, knowledge and management to millions of needy people to help them build a future for themselves and their children.

Each agency is dedicated to helping people, not only in this area but around the world. A brochure, listing the recipients of our gifts and describing their activities, will be distributed during the one-day solicitation--September 20. Please take the time to study the brochure before making your contribution. Each agency needs your support to provide for the needs of the less fortunate.

Charity begins at home, but must not stop there in this age of interdependence.

One-Day Solicitation September 20

– photo by Bob Nye

Langley Director Don Hearth presents his Combined Federal Campaign contribution to Homer Morgan, Chairman. Please join Dr. Hearth in providing for the needs of our community. Contribute to the CFC on September 20 and help build a stronger society.

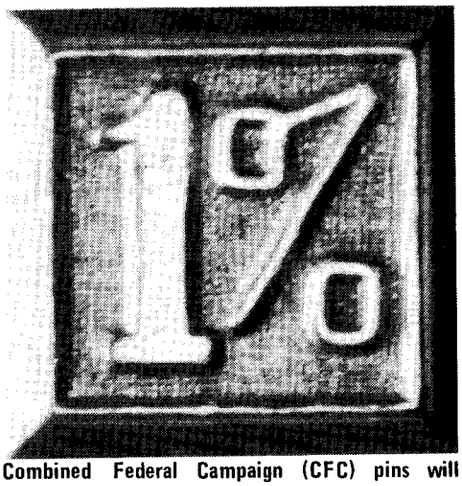
CFC Works for You

When thinking about your contribution to CFC, what might first come to mind are the helping hands offered to the troubled peoples around the world. The "Thumbs Up" poster boy on the cover of this special issue certainly graphically displays this view. Through the International Service Agencies some great work is being done worldwide. What I would like to bring to your attention, however, is that your contribution is of benefit to your local community. While no list of names is readily available, I am certain that many Langley employees, families, friends and neighbors have been helped directly and indirectly by the Peninsula United Fund and the National Health Agencies. Monies that we contribute to these agencies are spent on research, rehabilitation programs, facilities, etc., for agencies such as the American Red Cross, Peninsula Association for Retarded Citizens, Peninsula Mental Health, United Cerebral Palsy, Muscular Dystrophy, etc.

Of all of these agencies, the one that has directly touched most of us is the American Red Cross. Through the Blood Donations Program, 547 units of blood have been replaced for Langley employees and families since January 1, 1979. Of course, Langley employees give generously with blood donations, however, if it were not for the Red Cross serving as the focal point for this program, the benefit to Langley families would not be readily available. While we all hope that we will never have to take advantage of the United Fund and National Health services and facilities, it is reassuring to know that this assistance is available to you if ever needed.

These thoughts are reiterated in the CFC movie that is available for you to see through your Division Chairperson. I encourage you to see this movie and realize that the CFC works for you as you consider your CFC pledge for the 1980 campaign.

John Stokes
Co-Chairman



Combined Federal Campaign (CFC) pins will be available to employees who pledge one percent of their gross salary. CFC dollars are working locally, nationally and internationally. Your support is greatly needed. Give your fair share.

CFC Provides You the Opportunity to Help

"Why should I contribute to the Combined Federal Campaign?" A question that probably all of us ask each year at this time. In my view, the principal reason for contributing to the CFC is that it provides us with the opportunity to help people who need help. Also, the word "combined" is important because through this single donation, we contribute to many different agencies all at one time, and do not have to make separate contributions to different organizations at different times during the year. Of course, if you want all of your donation to go to a single agency, you have that option.

Historically, Langley has been a strong supporter of CFC and I hope this will continue this year. It's not going to be easy because of the effect of inflation. Our goal of $177,500 is realistic, but it will take a major effort by Homer Morgan (Langley's Campaign Chairman) and his team. Most importantly, it will take your generous support.

This year, I have the privilege of being the Co-Chairman (along with Congressman Paul Trible) for the Peninsula Combined Federal Campaign. Langley has always done very well in the past; last year, for example, we led all groups on the Peninsula. I hope we can continue to lead this year--not because the other government installations do poorly--but because we do well.

I urge each of you to support the Combined Federal Campaign through your individual contributions.

Thanks to you it works...

for ALL OF US

Remember When Neighbors Used to Help Their Neighbors--the United Way?

There is a country where they still do. It is your country. It started when we used to help a neighbor put up a barn. Or when times were tough and we gave food to the neighbor whose crops had been wiped out. This helping each other goes right on today, the United Way.

When you give the United Way, you help someone in your own neighborhood. Maybe someone out of work. Through United Way agencies and programs you are helping people with their problems in a thousand different ways.

Many of the people helped by United Way are regular working people. Many times they can and do pay for the services United Way Agencies provide. If they cannot pay the entire cost of the service they need, they can still use the facilities and pay whatever they can afford. A child with birth defects can require years of special training. Many times regular working people like we are cannot afford the financial burden over that long a time. When that or any of many similar situations occur, United Way helps.

United Way seeks continually to coordinate and balance the programs and services of all health and welfare agencies, regardless of how they are financed or the auspices under which they operate. Each United Way organization is autonomous and locally controlled. The funds raised are allocated on the basis of community need to various service agencies. Allocation is done by a committee composed of men and women volunteers from all walks of life.

Services supported by the United Way include family counseling, foster care, adoptions, day care for children, meals on wheels for the homebound, homes for the aging, rehabilitation for the handicapped, the Salvation Army, Boy and Girl Scouting, community centers, boys and girls clubs, visiting nurses, the USO and many, many more.

Government programs could never take care of all of the deserving persons who need assistance. It takes people working together to take care of their own in the local community.

With your pledge, your dollar works more efficiently than in any other method of contributing. Costs are only a fraction of what other charitable drives need because virtually all of United Way's people work without pay.

Millions of men and women of all ages are United Way volunteers. They serve in agency programs and on boards and committees to guide the work and set policies for agencies and United Way organizations.

Then other volunteers take up the commitment in companies and in the community. It is a system by which people help themselves by making services available which would otherwise not exist. It is a system by which people help their neighbors the way we always have in our country. We still do.

Boy Scouting is a part of the lives of more than 1600 boys in the Williamsburg area. By supporting the Greater Williamsburg United Fund, you can help the dedicated volunteers provide educational programs which promote character development, citizenship training and physical and mental fitness.

Contributions to NHA Advance Research

Every year millions of Americans are striken by diseases that kill or leave them permanently disabled. Research has become vitally important to the National Health Agencies (NHA) who participate in the Combined Federal Campaign (CFC).

Only through research, says the NHA, can the causes, treatments and cures for some of these diseases be found. During 1978, the NHA spent more than $1.14 million on research in Virginia. Across the nation the health agencies together spent more than $87 million on research.

Every dollar contributed to the Combined Federal Campaign brings researchers that much closer to finding cures for these diseases.

Research, however, is only one of the many projects supported by CFC dollars. Some contributions are used to provide Americans with improved health care, better facilities and the essential equipment needed to help them live comfortably. Health agencies also provide job training for the handicapped, free transportation to clinics, counseling and many other services for the disabled.

CFC dollars also help the NHA continue its education program for health professionals by providing seminars, lectures and medical literature alerting them to new advancements in their fields. National Health Agencies also educate the public on the importance of annual checkups, good prenatal care and recognizing warning signs that signal something may be wrong.

With the help of individual members of the armed forces and the many civilian Federal employees in this area, the National Health Agencies are better able to serve the Peninsula and Williamsburg. Although all of the agencies conduct separate fund-raising campaigns among the general public, only Federal workers have the privilege of contributing to all of them--or any one in particular--through payroll deductions.

CFC contributions do make a difference.

Directorates Challenged to Reach the TOP

The Directorates are challenged again this year to equal or exceed their participation of last year. Which Directorate will have the honor of having the highest percentage of employee participation? Final tallies for 1979 were:

Directorate	% Employee Participation
Director	100.00
Electronics	91.25
Structures	95.45
Aeronautics	92.16
Management Operations	94.35
Systems Engineering	90.86
Space	97.37
Projects	97.09
Overall	94.81

Langley can exceed last year's participation, with your help. Support the campaign by giving your share. Help your Directorate achieve 100 percent.

The simple pleasure of riding a tricycle, normal to most children, is a major triumph for this child. For him to lead a normal life, the road to recovery will contain years of intensive therapy. Your support of the non-profit National Health Agencies (NHA) helps make his recovery possible. NHA-sponsored therapy programs help millions of children and adults lead normal, productive lives.

Life-saving medical research supported by the National Health Agencies is one of the strongest weapons we have in the fight against disease and suffering. Each member of NHA is sponsoring research that seeks the causes, cures and preventions of the major killing diseases affecting mankind. Help NHA continue this vital life-saving research.

Children are the Hope for Tomorrow, the Most Precious Resource for the Future of the Human Family

Throughout the world, there are 1.3 billion children under the age of 15 — of these, 700-million lack safe water and proper sanitation, 156-million live in squalor, 15.5 million will die before their fifth birthday. The plight of children, particularly in the underdeveloped areas of the world, is awesome. Helpless in the face of poverty, hunger, disease and neglect, their future . . . and ours . . . is threatened. Exploited and deprived, they represent mankind's most tragic failure and society's greatest challenge.

This year has been declared the International Year of the Child. Concerned leaders in 142 countries around the globe are joining hands in a concerted effort to promote major, long-lasting benefits for children everywhere.

Nowhere is the human condition more tragic than in the wasted bodies, minds and spirits of children. In depriving our children of their basic needs and opportunities, we deny all mankind the better world we seek. Poverty and ignorance, anywhere in the world, breed discontent and potential political disruption for all nations. Sickness and disease, in any land, hinder social advancement and creative development everywhere. In denying the world's children decent opportunity for the future, we limit the future for all mankind.

During the International Year Of the Child, the International Service Agencies are working for a better future by meeting the needs of children now. This is not a sentimental celebration, but a vital and essential response to an urgent and pressing need. Keeping up is not enough. With the spread of modern technology and communications, the world grows smaller. Impoverished peoples in less fortunate societies deserve a share of our abundance . . . and they will demand a better world for their children.

The International Service Agencies—International Human Assistance Programs, International Rescue Committee, Planned Parenthood—World Population, Save the Children, CARE and Project HOPE—have developed the expertise to direct our concern abroad. In their commitment to alleviate human misery and to create opportunities for a better future for less fortunate peoples, the International Service Agencies perform essential tasks to improve the lot of children. The Agencies direct service programs, improve health conditions, increase food production, provide better nutrition, expand educational opportunities, teach job skills, develop communities, control population growth and help oppressed peoples to enhance the quality of their lives.

Each agency offers special skills in response to particular concerns in various countries. Together, they embrace the world and its children to ease want and to encourage growth everywhere. The International Service Agencies appeal to all Americans to join in embracing the children during the International Year of the Child. The children urgently need your support. Their future demands it. The International Year of the Child is now.

International Year of the Child

A Letter From Your 1979 CFC Chairman

Last year, I had the privilege of being Chairman of the Langley Research Center Combined Federal Campaign, and was proud of the outstanding response of Langley employees and retirees to the needs of our community. In a period of financial pressure, we raised the highest total in history, $180,511, and exceeded our goal of $175,600.

As we begin this year's campaign, we find that the participating agencies of the Combined Federal Campaign have increased dollar requirements as we all do, and, in response, Langley has carefully selected a responsible goal. I suggest you review this special issue to find out more about the CFC and the services these agencies provide. Be sure to contact Homer Morgan and his staff if you have additional questions. I am confident, if we carefully consider our communities' needs and our own mutual responsibilities, we will raise the needed funds.

Last year 93 percent of Langley's employees gave generously to the CFC, and I ask each of you to please consider a small increase for this year. I also urge the rest of you to join your fellow employees in this once-a-year solicitation.

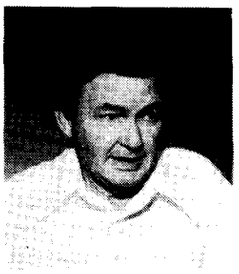
Duncan McIver
1979 Chairman

Personal Opinions

Why do you contribute to the Combined Federal Campaign?

Barbara Crawford
Langley Federal Credit Union

"The biggest reason that I, as well as my staff, will contribute is that we are located on a military base and we like to support the activities of that base and of NASA. The Credit Union, itself, cannot donate to this campagin but the individual staff members can. We like to do our part."



James Joyner
Scientific and Technical Information Programs Division

"We know that there are many people in the world today who need help, probably more, by far, than the average person realizes. I have always tried to give what I could to help whoever I could. Contributing to the CFC is probably the best way of doing so. There are a few organizations that I might have qualms about, but overall, this is a very good program. I give what I can, hoping that some of that money is going to do some good somewhere."

Edna Davidson
Business Data Systems Division

"I really contribute to be a part of a very good plan to help those less fortunate than I am. It is a duty that I am glad I can meet. I have always contributed and I guess I always will."

Charles Jones
Personnel Division

"It is a responsibility we all have, from a community relations standpoint, to contribute and help friends and neighbors who are less fortunate than we are. The activities and money expended are for a very worthwhile cause. It is the least we can do since we are more fortunate than lots of other people."

Jane Hess
Management Support Division

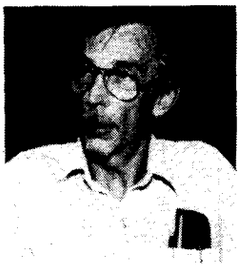
"My reason for contributing to the Combined Federal Campaign is that I want the opportunity to contribute and give to someone, rather than be taxed. I think it is a privilege to give. It is a wonderful feeling to contribute and give when it is not necessarily required. I appreciate that opportunity."

John Crews
Materials Division

"There are as many different reasons for contributing as there are organizations in the campaign. Some of the organizations provide health services and others are more recreation oriented. All are worthwhile causes. I support the Boy Scouts because my boys were Boy Scouts at one time. Another organization that I support very heavily through CFC is the American Cancer Society. The campaign is a vehicle for contributing to these and other organizations."

Blanche Johnson
Financial Management Division

"I contribute to the CFC because I want to give my fair share to different organizations and this is my once-a-year chance to do so. We have door-to-door solicitations in my neighborhood during the year, but I give my share at work, through the campaign."



Fay Moore
Operations Support Division

"I give to the CFC because it is the best way I know to give to all agencies at one time. I like the simplicity of it as I am not always at home when individual organizations have their drives. I have always contributed. It is the easiest way of making donations and is a very worthwhile organization."

– photos by Fred Jones

Aerospace Penpoints
by Wesley Berryman

"Men Grow only in proportion to the service they render their fellow-men and women.
He who does most, lives most.
He who lives most, gives most."

Edward Rickenbacker

Langley - A History of Generosity

Langley has a long history of outstanding participation in community activities, especially in times of community need. The Combined Federal Campaign is the one time each year when that community need is made known to us. The following record shows how Langley has met that need since 1968.

Combined Federal Campaign

Year	Total Pledge	No. Employees Participating	Percent Participation	Average Gift	Chairman
1968-69	109,602.71	3821	94.0	28.68	Anshal Neihouse
1969-70	123,635.95	3705	93.9	33.37	Vera Huckel
1970-71	136,540.89	3676	95.7	36.89	Jess Ross
1971-72	141,031.94	3499	95.85	40.03	Earl F. Stahl
1972-73	144,826.59	3410	96.06	42.47	D. William Conner
1973-74 (RIF Yr)	150,350.98	3389	95.3	44.36	Frank V. Moore
1974-75	166,507.00	3445	94.7	48.30	Janet Campbell
1975-76	168,816.98	3401	94.7	49.64	Edmund W. Randolph, III
1976-77	168,870.16	3269	93.45	51.65	Burnett W. Peters, Jr.
1977-78	173,534.31	3158	93.8	54.95	Abe Leiss
1978-79	180,511.62	3228	92.7	55.92	Duncan McIver

What Your Dollar Buys

It is important for all of us to know that when you contribute to CFC your money does *not* go into a big vault from which agencies withdraw funds when needed. Each agency has a budget to plan and obligate against. Provided that goals for the four participating agencies (Peninsula United Way, Greater Williamsburg United Fund, International Service Agencies, and National Health Agencies) are met, each element of the participating agencies will be able to continue their services.

I like to think of these services in concrete terms. What my dollar, along with those dollars from the Langley family is able to do for the community and individuals in need. Let's take a look at what our dollars can buy:

- $20.00 will send a teenager to a boys' or girls' club camp for one week.
- $200.00 will provide a Big Brother for a fatherless boy for one year.
- $100.00 will buy materials to train paramedics for emergency life sustenance.
- 57 cents will purchase a lab mouse; thousands are used annually for medical research.
- $800.00 will buy special wheelchair for a muscular dystrophy patient.

Continued on page 8.

This Little Boy Could Belong to a Member of the Langley Family

The American Heart Association encourages regular blood pressure screenings in children and adults to detect hypertension and high risk of cardiovascular disease. The association is dedicated to reducing premature death and disability from heart attack, stroke and related diseases through research, education and community service projects.

Thumbs Up! for the 1980 Combined Federal Campaign

Gifts We Give Each Other for Being Human

United way

NHA

ISA

Everyone Pulling Together

Makes Our Money Work Harder

Caring and reaching out to make each other's life better – that's what it's all about. The Combined Federal Campaign agencies care about you. You can help others through your support. Please reach out – make the world a better place through your CFC.

The Peninsula United Fund supports many programs for mentally retarded and physically handicapped individuals. Programs include preparing children for public school special education classes, rehabilitation and special summer camps.

WHAT YOUR DOLLAR BUYS

Continued from page 7.

- $13.00 will provide a school desk for two children overseas.
- $45.00 will purchase a day's supply of medicine for a refugee camp in Thailand.
- $474.50 will feed 138 refugee children in a Southeast Asia camp for a full month.

When we meet our goal of $177,500, the Langley contribution will be able to do all of these things many times over.

If one or more items highlighted above appeals to you, designate your contribution to the related agency with the assurance that your dollars will go to that agency. Also if you have a particular charity or service you wish to designate and are not sure which agency you should list, call Homer Morgan, ext. 3577, or John Stokes, ext. 3265, and we will identify the agency name and number.

Remember your contribution does real things for real people.

John Stokes
Co-Chairman

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 19

September 21, 1979

Ceremony Honors 30-Year Service Employees

An awards ceremony honoring 30-year service employees will be held at Langley on October 2, at 1:30 p.m., in the Activities Center, Building 1222.

Dr. Donald P. Hearth, Langley Director, will present service emblems and certificates to the following employees:

Fabrication Division: Gary K. Ballard; A. Edgar Barker; John H. Belveal; William N. Branch; Mercer W. Christian, Jr.; Clarence M. Cole; Billy B. Dancy; Durwood W. Davis; Charles E. Edmiston; Robert E. Graham; Charles W. Hopkins; Oscar Jennings; George O. Kent; and Charles R. Lewis.

Systems Engineering Division: Briscoe B. Brown, Jr.; Charles S. Gilliland; James M. Henry; Carol C. Kiser; Robert F. Mayer; Clarence A. Robins, Jr.; Erskine C. White; and Richard T. Wilem.

Operations Support Division: William E. Cole; Kenneth W. Crocker; Moody J. Firman, Jr.; Roy E. Henley; Spencer V. Inge, Jr.; Horace W. Jones; Ralph E. Maston; James P. O'Briant, Jr.; George F. Polko; Junie F. Upton and William H. Verser.

Office of Systems Safety, Quality and Reliability: William L. Ervi, Jr.

Office of National Transonic Facility Project: Howard L. Evans.

Plant Engineering Division: Ernest E. Mason; Rupert R. Monahan; George R. Poole; and Willie T. Scott.

Research Facilities Engineering Division: Alfred C. Watkins.

Aeronautical Systems Division: Hal T. Baber, Jr.

High-Speed Aerodynamics Division: Harry W. Carlson; John S. Evans, Jr.; Mary S. Roberts; and Charles D. Trescot, Jr.

Subsonic-Transonic Aerodynamics Division: Elden S. Cornette and Billie J. Walker.

Flight Mechanics Division: Norman L. Crabill; Earl C. Hastings, Jr.; and Merle S. Ott.

Structures and Dynamics Division: William D. Deveikis; George F. Klich; Harvey G. McComb, Jr.; Richard H. Rhyne; Charles L. Ruhlin; Victor L. Vaughan, Jr.; and E. Carson Yates, Jr.

Materials Division: Eldon E. Mathauser.

Acoustics and Noise Reduction Division: Conrad M. Willis.

Flight Electronics Division: Charles L. Breckinridge; Paul W. Culotta; Henry S. Earl, Jr.; Russell K. Nevins; and Herbert F. Thornton.

Instrument Research Division: Opal G. Davis.

Analysis and Computation Division: Willianna W. Smith.

Flight Dynamics and Control Division: James L. Williams.

Space Systems Division: George C. Ashby, Jr.; Peter T. Bernot; Davis H. Crawford; and Lloyd S. Keafer, Jr.

Office of Director for Space: Fred M. Smith.

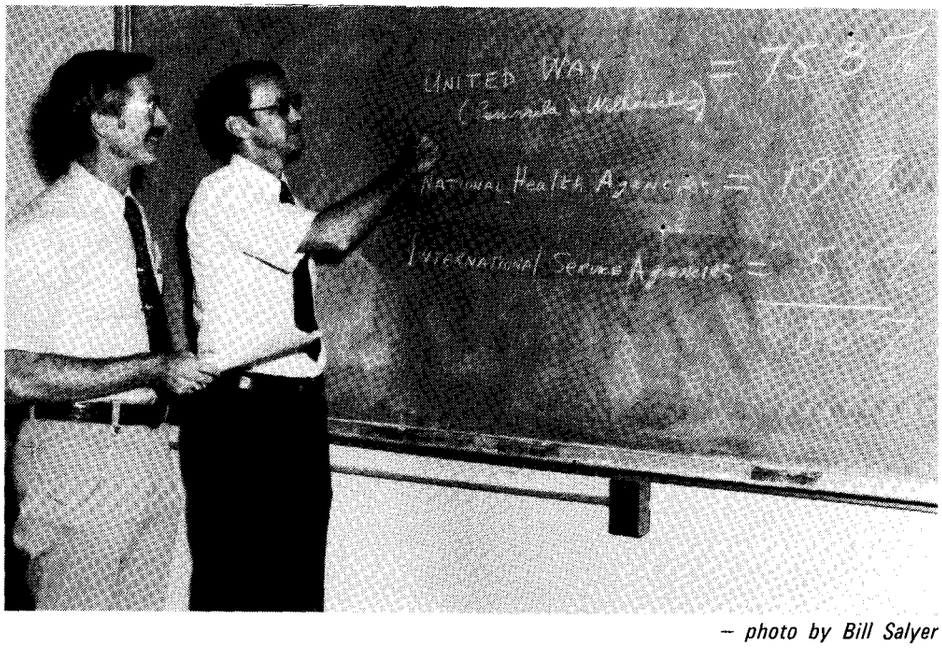
Marine and Applications Technology Division: Beverley W. Lewis and Dewey E. Wornom.

Office of Occupational Health Service: Betty H. Downing and Julia K. Stainback.

Office of Patent Counsel: Wallace J. Nelson.

Scientific and Technical Information Programs Division: Myrtle W. Yates.

Scout Project Office: Joseph F. Dixon and Edith R. Horrocks.



– photo by Bill Salyer

John Stokes (left), Co-Chairman, and James Meyers, Financial Chairman for the 1980 Combined Federal Campaign at Langley, review the percentage distribution of undesignated funds for this year's campaign. The percentages depict how much of the money we collect remains on the Peninsula. Langley's goal is $177,500. If you have not contributed, please turn in your pledge card. Your contribution is vital if the Center is to reach its goal.

– photo by Bob Nye

Nettie Orie, Subsonic-Transonic Aerodynamics Division, performs the data reduction to establish the aerodynamic drag characteristics of a conventional wheelchair during an experimental study in the V/STOL wind tunnel. Under operating speeds of two to three miles per hour, the aerodynamic drag is extremely small. However, under adverse headwind conditions, the drag can be significant, particularly when wheelchair users have only marginal physical and physiological capacities. The study, which defined the overall aerodynamic drag and determined the individual contributions of the various wheelchair components, revealed that, with careful wheelchair design, aerodynamic drag may be reduced and handicapped individuals may be afforded increased mobility. The experimental study was requested by the Rehabilitation Engineering Center of the University of Virginia, under a grant with the Department of Health, Education and Welfare.

AIAA Holds Annual Oyster Roast

Chesapeake Bay oysters by the bushel, freshly steamed crabs and a host of picnic goodies are on the menu for the annual American Institute of Aeronautics and Astronautics Oyster Roast September 26.

The Hampton Roads Section of the AIAA will also supply soft drinks and beer at the roast, which will begin at 4:30 p.m. on the Activities Center picnic grounds.

Reservations are $3 each for members and $4 each for guests. Anyone joining the AIAA at the Oyster Roast can attend free. The incentive is in addition to the $10 reduction in the first year's dues.

Reservations should be made through Buddy Cary, ext. 4546; Bobby Berrier, ext. 2674; or Wally Sawyer, ext. 3131.

Directory Call Notice

This call notice is to remind all offices that any changes in the Organizational Listing or the Service Directory Listing for inclusion in the November 1979 issue are due at Mail Stop 196 by **October 1, 1979**.

The furnishing of accurate information for the Alphabetical Personnel Section of the Directory is the responsibility of each individual employee. Langley Form 133 entitled, "NIPPS – Telephone Directory Transcript," (Change Notice) is provided in the back of the Langley Telephone Directory for reporting change in mail stop, building number, room number, and telephone number. These changes must be submitted no later than **October 1, 1979**, for inclusion in the November issue.

Brain Teaser Solution

The "brain teaser" which appeared in the last issue of the *Langley Researcher* was submitted by Fred Grant, a Langley retiree.

The answer is:

myphone = 2374589

Submitting correct answers were: Tom Finley, Stephen Jones, and David Schryer, Instrument Research Division; Clyde May, Systems Engineering Division; Don Brunk, Research Facilities Engineering Division; Bob McWithey, Structures and Dynamics Division; James C. Newman and Ivatury Raju, Materials Division; Robert Weston, Subsonic-Transonic Aerodynamics Division; Jasper Murnaghan, Atmospheric and Environmental Sciences Division; and Dennis J. Martin, retiree.

Aerospace Penpoints by Wesley Berryman

"Less immediately practical than technological leadership, but no less important in my view, is the fact that in space we may find the keys to an understanding of eternal questions of creation, life, matter, and energy.

What scientists would not welcome the opportunity to help lead the search for these answers?"

ROBERT A. FROSCH
NASA Administrator
1977

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Buckley To Speak On September 27

William F. Buckley, Jr., author, editor and lecturer, will speak on "Some of the Problems of Freedom" at the Langley colloquium on Thrusday, September 27 in the Activities Center, Building 1222. His lecture will begin at 2 p.m., followed by a short question and answer session. The speaker will move to the adjoining Langley Room at 3 p.m. for an informal discussion.

Buckley will give the same lecture at 8 p.m. that evening in the Hampton Coliseum as part of the "Our Future in the Cosmos" public lecture series. This series is sponsored by Langley and the College of William and Mary. Admission is free on a first-come basis. No tickets will be distributed for this lecture.

In his talks, Buckley will express his views on "why the usual defenses of the free marketplace are never enough." He will present his analysis of some of the major economic views and prejudices of the public. An outspoken critic of certain economic and political policies, Buckley will also present his views on topics which concern the general public, business and government leaders.

Buckley, host of the weekly television program, "Firing Line," is an articulate and penetrating speaker on national and international problems. He is founder of the magazine *National Review* and he writes a weekly column, "On the Right," which is syndicated in over 300 U.S. newspapers.

Buckley earned his bachelor of arts degree in political science, economics and history from Yale University in 1950 and has received 15 honorary degrees. He was presented the Best Columnist of the Year Award in 1967; University of Southern California's Distinguished Achievement Award in Journalism in 1968; the television Emmy for Outstanding Program Achievement in 1969; Cleveland Amory (*TV Guide*) Award for Best Interviewer/Interviewee on Television in 1974; and Bellarmine Medal in 1977.

The author of more than 15 books, including *Up From Liberalism* and *Four Reforms*, Buckley has contributed articles to many American periodicals.

Langley employees attending the colloquium are to charge their time to Job Order A1980.

Rotarians Looking For A Few Good Men

The Rotarians of Eastern Virginia are looking for a few young men "with a future" to send to Japan for four all-expense-paid weeks.

The Eastern Virginia District 760, which includes about 60 clubs, has a group study exchange program with the Northern Japan District 273, and in March and April will send five young men from the region to that country for a visit.

Spokesman Dr. Robert Schappert of the Warwick Rotary Club said applicants should be from 25–35 years old and must not have any connections with Rotary International. The applicants should be business or professional men who have been employed full-time for at least two years, and they must be U.S. citizens who live in Eastern Virginia.

Those selected to make the trip will be required to keep a journal or diary of their experiences, and will be expected to address Rotary Clubs both here and in Japan. Proficiency in Japanese is not required, he said.

The group, which will be selected from candidates proposed by clubs in the district, will be furnished with airfare, accommodations and travel. Personal and incidental expenses will be paid by each individual, he said.

The application deadline is October 1. Applications can be obtained from Don Davis at 596-8398.

CFC Underway

At *Researcher* press time, Jim Meyers, Financial Chairman for Langley's Combined Federal Campaign, reported that $5,386 or 3% of Langley's overall goal of $177,500 has been received. Retirees have contributed $3,910 or 2.2% and two offices, Office of Director for Management Operations and Office of Occupational Health Service, have achieved 100% participation.

Generosity is Appreciated

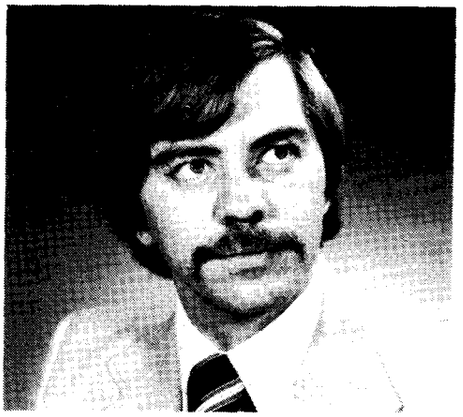
The *Langley Researcher* office has received word that a number of Langley employees took leave from their jobs and opened their homes to assist other employees, friends and neighbors who suffered property damages from the recent tornadoes in Newport News and Hampton.

To those who have been so thoughtful and generous in this time of need, **thank you.**

George T. Howell, and his wife, Marilyn, thank the people who donated blood in his name on August 15. Howell is recovering nicely from open-heart surgery.

– photo by Bob Nye

Yvonne A. Jenson, Aeronautical Systems Division, has been awarded a $300 scholarship by the Peninsula Chapter of the National Secretaries Association (International). Yvonne will use the scholarship to complete her second year at Thomas Nelson Community College where she is majoring in secretarial sciences.



Bair

Barton

Bradley

Chapin

Dagenhart

Eckhardt

– photos by Bob Nye

Langley Employees Recieve Advanced Degrees

Eighteen staff members have received advanced degrees through the Center's Graduate Study Program during Fiscal Year 1979.

Five employees received doctorate degrees through various universities. Dave E. Eckhardt, Jr., Analysis and Computation Division, received the Doctor of Science in Computer Science from George Washington University; Howard L. Price, Jr., Materials Division, received the PhD in Mechanical Engineering and Mechanics from Old Dominion University; R. Clayton Rogers, High-Speed Aerodynamics Division, and Clyde K. Barton, Acoustics and Noise Reduction Division, received the PhD in Mechanical Engineering from North Carolina State University; and James R. Schiess, Analysis and Computation Division, received the PhD in Biostatistics from Virginia Commonwealth University.

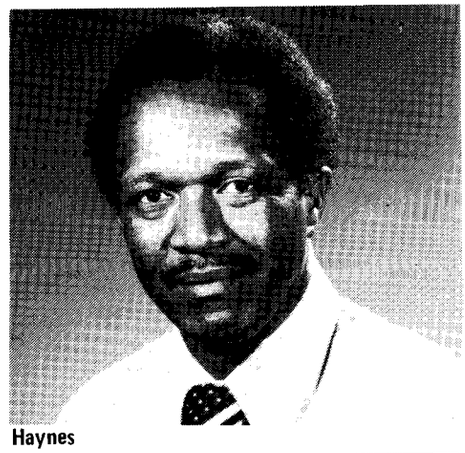
Thirteen employees received masters degrees through various universities. Nettie D. Faulcon, Instrument Research Division, received the Master of Science in Acoustics from George Washington University. Also receiving the Master of Science from George Washington University were Patricia L. Sawyer, Structures and Dynamics Division, in Computer Science; Edwin J. Prior, Atmospheric Environmental Sciences Division, in Information Systems Technology; John R. Dagenhart, Systems Engineering Division, in Fluid Mechanics and Thermal Sciences; and James L. Rogers, Jr., Structures and Dynamics Division, in Administration.

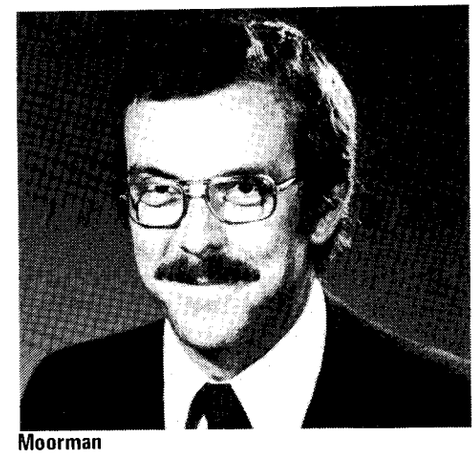
John P. Raney, Acoustics and Noise Reduction Division, and Joseph C. Moorman, Flight Dynamics and Control Division, received the Master of Business Administration from the College of William and Mary. Clayton H. Bair, Instrument Research Division, received the Master of Science in Physics from the College of William and Mary. Pamela F. Bradley, Space Systems Division, received the Master of Science in Aeronautical/Astronautical Engineering from Ohio State University.

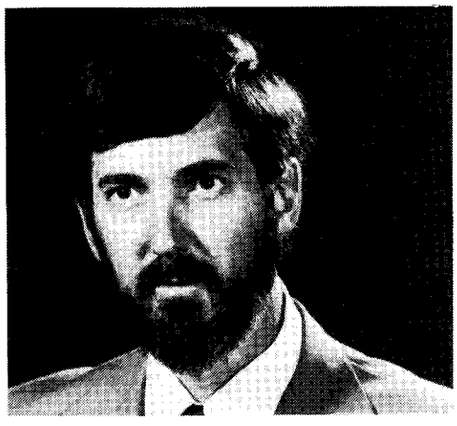
William G. Chapin, Instrument Research Division, received the Master of Engineering from Old Dominion University. Receiving the Master of Science from that University were W. Douglas Morris, Marine and Applications Technology Division, in Oceanography; Gilbert A. Haynes, Flight Electronics Division, in Physics; and Dennis H. Petley, Systems Engineering Division, in Mechanical Engineering and Mechanics.

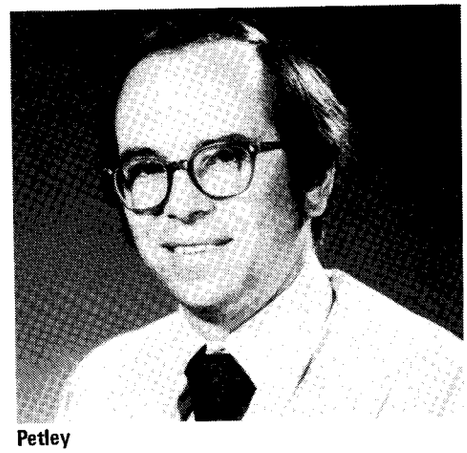
The Training and Educational Services Branch congratulates these individuals for the long hours and hard work necessary for this academic accomplishment. Such work not only brings additional expertise to Langley but also enhances the individual's professional growth and career development.

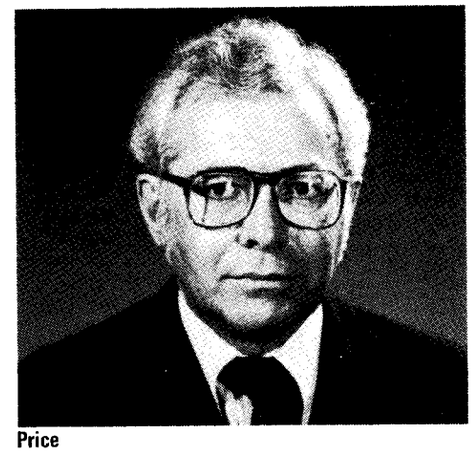
Faulcon

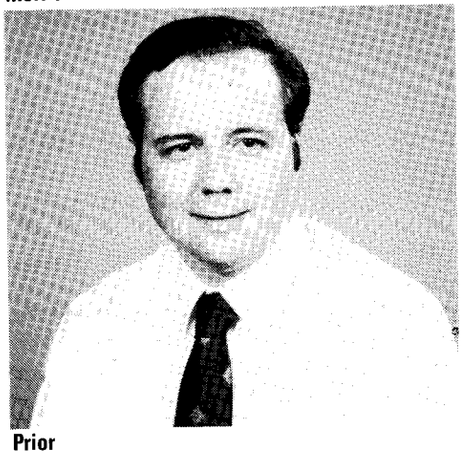

Haynes


Moorman


Morris


Petley


Price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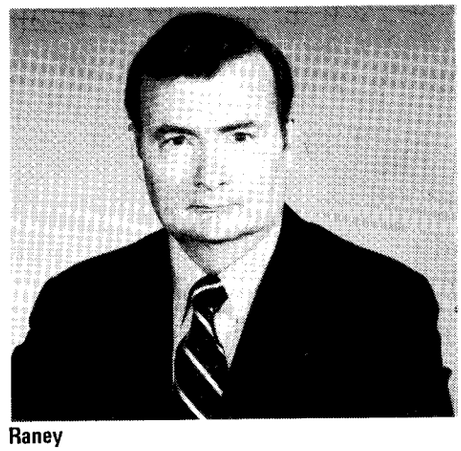
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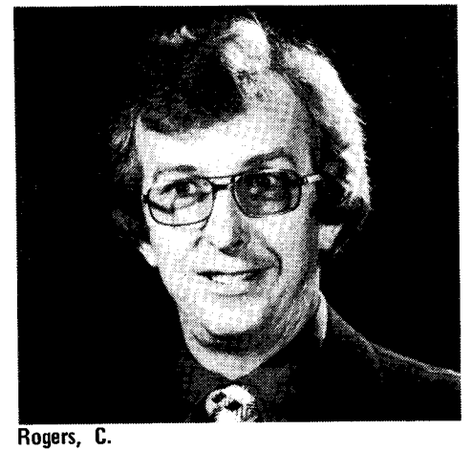
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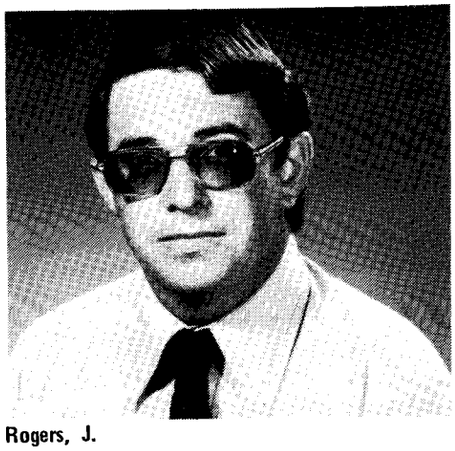
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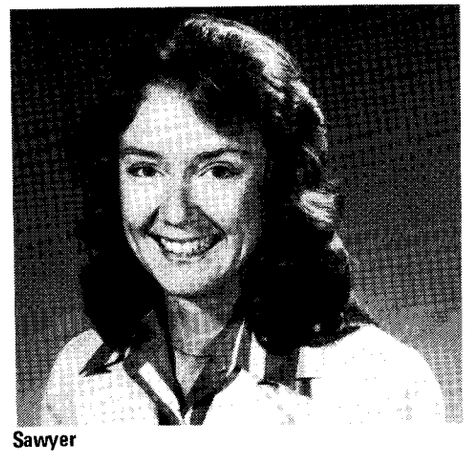
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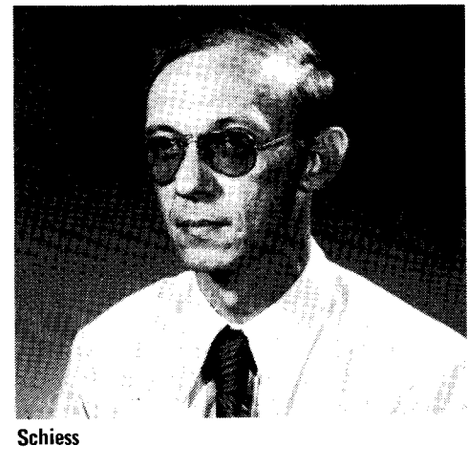
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Lightning May Be Source Of Gases in Earth's Atmosphere

A team of researchers believes that lightning may be an unexpected source of environmentally significant gases in the atmosphere.

Laboratory tests conducted at Langley indicate that an electrical discharge approximately equal to that of lightning can produce appreciable amounts of carbon monoxide and nitrous oxide.

The level of nitrous oxide is twice as great after an electrical discharge, and carbon monoxide is increased 100-fold.

Carbon monoxide is thought to be a major global producer of ozone in the lower atmosphere, which can be harmful to humans, animals and plants. While the production of carbon monoxide by lightning apparently does not approach that from other sources, many urban areas are already threatened by ozone concentrations beyond what is considered healthy.

Nitrous oxide, ironically, is harmful because it leads to ozone destruction. Unfortunately, it doesn't destroy ozone at ground level and in the lower atmosphere, but rises and diffuses into the stratosphere, where it reacts chemically with other elements to deplete Earth's protective ozone layer.

At about 15 miles above the surface of the Earth, the highly-concentrated ozone layer absorbs lethal solar ultraviolet radiation. Scientists predict increased incidence of skin cancer and other diseases if this highly energetic radiation reaches the Earth's surface because of decreased stratospheric ozone levels.

Before the Langley tests, the only known source of ozone-destroying nitrous oxide was from the action of microscopic bacteria in the soil, which release nitrogen and nitrous oxide into the atmosphere from solid nitrogen in the soil. Man-made fertilizers greatly fuel this process by adding more solid nitrogen to the soil.

The discovery of lightning as an additional source of nitrous oxide introduces a new factor to the growing debate over protection of the ozone layer versus production of food for a hungry world. Nitrous oxide takes about 25 years to diffuse from the soil to the stratosphere, and part of the argument for continuing the increased use of nitrogen fertilizers is that it may be several decades before we will be able to detect a measurable decrease in the ozone layer. Meanwhile, increased agricultural yields through increased fertilization could help feed millions of people.

Nitrous oxide produced by lightning, however, may take only hours to days to reach the stratosphere, carried in the rapid updrafts of thunderstorms. Tropical thunderstorms, especially, may be frequent conduits of nitrous oxide. These new findings argue for a complete examination of the sources of nitrous oxide before a decision is made in the ozone-versus-food debate.

Meanwhile, Langley researchers continue to fathom the mysteries of lightning and its effect on the composition of the atmosphere.

Lightning flashes an estimated 500 times a second somewhere around the Earth at a temperature more than three times hotter than the surface of the Sun. Since chemical reactions are highly dependent on temperature, and the higher the temperature the faster the reactions, lightning was a logical suspect as an important contributor to the chemistry of Earth's atmosphere.

In the July issue of *Geophysical Research Letters*, Langley researcher Dr. Joel S. Levine and his associates outline their discovery that lightning produces carbon monoxide and nitrous oxide in Earth's atmosphere. Then they go a step further.

"Very recent information obtained by the U.S. Pioneer Venus and U.S.S.R. Venera missions suggests," they write, "that lightning may be a feature of the Venus atmosphere. This discovery had led to the suggestion, based on (previously reported) theoretical calculations, that lightning may be a significant source of carbon monoxide, nitric oxide and free oxygen on Venus."

The researchers verified the theoretical calculations with laboratory measurements at Langley in the Lightning Facility and the Gas Analysis Laboratory, finding that carbon monoxide, especially, was increased dramatically in simulated Venus atmospheric samples.

Recent photographs of the dark side of Jupiter obtained by NASA's Voyager spacecraft indicate that lightning may be a feature of the Jovian atmosphere.

Lightning may also have been important in biological processes that led to the origin of life on Earth, by converting nitrogen in the atmosphere from a gas to solid forms. They, in turn, were carried by rain into the oceans. One group of those solid forms of nitrogen would likely have been nitrates, essential building blocks in the origin of life.

– photo by Bob Nye

V.A. "French" Letourneau, Bionetics Corporation, connects an air sample from the Langley Lightning Facility to a gas chromatograph. The sample was subjected to a simulated lightning discharge to measure production of two environmentally significant gases.

The Earth has been around for four-and-a-half billion years, yet only within the last several decades have man's activities affected the composition of the atmosphere.

Man's environmental responsibilities are not lessened by the discoveries of lightning-produced carbon monoxide and nitrous oxide, says Levine, "because we know that man's activities are, in fact, altering the environment.

"Before we can assess man's impact, however, we must understand the natural processes that control Earth's atmospheric

Continued to page 7.

'Fortune 500' Executives Attend Langley Seminar

Approximately 60 top industrial executives from throughout the country attended a one-day seminar, titled "Tracking the Space Revolution," at Langley on September 12.

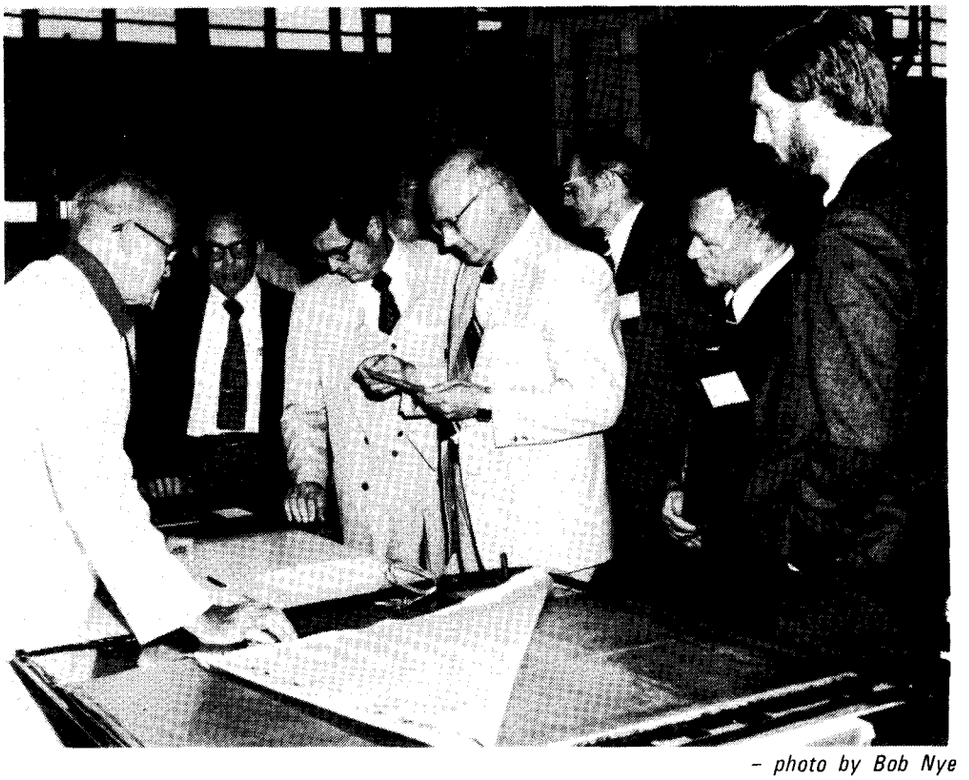
The seminar, sponsored by NASA and the American Institute of Aeronautics and Astronautics (AIAA), was designed to bring NASA's scientific and technological work to the attention of executives from "Fortune 500" companies.

"Fortune 500" refers to the 500 largest U.S. businesses and industries, listed annually by Fortune Magazine.

The 60 executives, plus representatives from the AIAA and several NASA centers, were greeted by Langley Director Don Hearth. They were briefed on major Langley work conducted in electronics technology and materials and structures research.

The executives toured laboratories where work is done to improve materials processing and composite materials.

The Langley seminar is one of several being conducted at NASA centers for the managers of major U.S. industries.



– photo by Bob Nye

Business executives from among Fortune Magazine's top 500 U.S. industries learn about some of the materials processing research being conducted at Langley during a seminar titled "Tracking the Space Revolution."

Happenings

ART OF SPEECH GIVING. You are invited to join the TAC AIR TOASTMASTERS CLUB to develop the arts of giving speeches, evaluating speeches, and chairing an organization or a committee. TAC AIR meets every second and fourth Wednesdays of the month at the Langley Officers' Club at 7:15 p.m. For more information, call Bob Lee, ext. 2486.

SINGLES DANCE, sponsored by Peninsula Young Single Parents, Inc., will be held on Friday, September 28, from 9 p.m. to 1 a.m., at the Rollingwoods Community Center. The cost for members will be $4, for non-members, $5. BYOB. For additional information, call Bob Malosh, 838-3140, or Betty Phillips, 838-6573.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, September 25, at 7:30 p.m., in the Activities Center, Building 1222.

KINGS DOMINION TICKETS are on sale at the Activities Office for $7 through October.

HAPPY HOUR will be held on Friday, September 28, from 4 to 6:30 p.m.

TIDEWATER DINNER THEATER. "South Pacific," the Pulitzer prize-winning musical play by Rodgers and Hammerstein, is being performed at the Tidewater Dinner Theater in Norfolk through October 21. The play is a light and yet somber musical drama about strange meetings, loneliness, love, gallantry and heroism on a remote Pacific island war base. Tickets for the production are on sale at the Activities Office.

LAA ARTS & CRAFTS SHOW will be Sunday, November 18, from 1 to 6 p.m. in the Activities Center. All persons interested in displaying their crafts and handwork should contact Beverly Anderson, ext. 2592, Mail Stop 166A.

BASKETBALL. Anyone interested in serving as the commissioner of the LAA Basketball League this year should contact Sue Juanarena, ext. 3139.

"UP, UP AND AWAY," Saturday morning workshops for children 10 and over, will be held at the Peninsula Nature and Science Center on October 6, 13, 20 and 27, from 10 a.m. to 12 p.m. The cost for the series is $15 for members, $19 for non-members. Participants will work in pairs to build a 12-foot hot air balloon. There will be discussions on the history of balloons and a brief slide presentation. The culmination of the workshops will be a balloon flight. Registration is necessary. Call 595-1900.

SCI-CON I, a Science Fiction "Star Trek" Convention, will be held October 12–14, at the Hampton Holiday Inn. For further information, call Charlotte Yielding, ext. 3561 or Mail Stop 463.

LIGHTNING

Continued from page 6.

composition, climate and the composition of the oceans. The role of lightning is one process that had been neglected in the past."

Working with Levine in the lightning studies have been William E. Howell, Materials Division; the late Ron E. Hughes, Bionetics Corporation; and Professor William L. Chameides, University of Florida. Levine is in the Atmospheric Environmental Sciences Division.

Thumbs Up! for the 1980 Combined Federal Campaign

LAA Travel

There are only 12 seats left on the two-week Hawaii trip that departs from Patrick Henry Airport, December 31. The trip includes round trip transportation by United Airlines, accommodations one night in Hilo, two nights in Kona, three nights in Maui and eight nights in Honolulu, all transfers, baggage handling, taxes, gratuities, some sightseeing and lunch at the world famous Volcano House. The October 18 Las Vegas charter is filled, but there are some seats available at group rates on a Norfolk departure November 8–11.

Cruise from Norfolk to Miami and four ports-of-call in the Caribbean—Samana, San Juan, St. Croix and fly-back from Nassau—December 14–22. Group rates start at $505 per person (two to the cabin).

Call the Activities Office, ext. 3139; Ernie Greene, ext. 2312, home 838-0567; or Herb Boulter, ext. 3234, home 838-4773, for brochures and details.

swap and shop

FOR SALE

Articles

Camper-sized appliances: A/C, gas ref., range/oven, HWH, space HTR, jalousie windows, toilet, more; Anderson vinyl-clad double glass window, 38"x40"H, $50; and Doors—Entrance ($35) and Storm ($10), both 32" wide, hardware included. Call Price, 877-7912.

Piano, Busch and Lane, upright w/mirror, can help deliver, $195. Call 898-7072.

Honey: Blue Ridge Mtn./Shen. Valley, Pure raw honey, light or dark, strained or chunk, in sterilized jars, $4 qt. (approx. 3 lbs.). Call Troy Brooks, 596-6107.

Konica Auto S2 camera, f 1.8, case, manual, Vivitar electronic flash, closeup lens set, and filters, new condition, $98. Call 596-4292.

Vehicles

'73 Vega GT, orange and black, Am/AC, rebuilt engine, 27 mpg reg./HWY., GC, $650. Call J. T. Davis, 488-7668 (Portsmouth).

'69 Pontiac Catalina, AT, AC, PS, PB, radio, 80,000 act. miles, runs good, uses reg. gas, $450. Call Gaskins, 596-3548.

1966 Buick Electra 225; AT, AC, PS, PB, PW, good mech. cond., $175. Call 596-3932.

WANTED

Driver to join witty, congenial, well read, and reliable transportation combination from Riverside/Hidenwood area to West area, 8 a.m. shift. Call Raney, ext. 2648 or 595-3274.

One driver for car pool from the Whealton Heights area to West area on the 8 a.m. shift. Call Walter Pickrell, ext. 4534.

To join or form a carpool from the Bayberry/Harpersville/Concord Lake Apartments area to the West Area on the 8 a.m. shift. Call Tom Moul, ext. 4591, or 595-0329.

Books for Patrick Henry Hospital Fair. Hard backs, paper backs, etc. Call H. A. Smith, 596-6672.

To join or start a car pool, from Victoria Blvd. area (3500 block) to West area, for 7:30 a.m. to 4 p.m. shift. Call Dollie McCown, ext. 4534.

ODU Offers New Degree Program

Old Dominion University's School of Engineering is developing a new graduate program leading to the degree of Master of Engineering Management. The majority of the curriculum will be taught by faculty in a new department of the School of Engineering, but the program will use existing strengths in the School of Business Administration as well.

ODU is in the process of assessing the degree of interest in such a curriculum among engineers and scientists at Langley. All personnel interested in this program should contact the Training and Educational Services Branch, Frank C. Owens, ext. 2611.

Retirement Party

John N. Daniel, Flight Electronics Division, will be honored with a retirement party on Friday, October 5, in the Activities Center, Building 1222. A social hour will begin at 6:30 p.m. with a cash bar. Dinner will be served at 7:30 p.m. The cost of the dinner including gift will be $6.75 per person or $12.50 per couple. Contributions for gift only are welcome. Please make checks payable to Sam Sokol, Mail Stop 488, by September 25.

cafeteria menu

WEEK OF SEPTEMBER 24

MONDAY: Ham & Lima Bean Soup. Barbecued Chicken; Quiche Lorraine; Sweet & Sour Pork. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Braised Beef & Vegetables; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Beef Enchiladas; Baked Tuna & Noodle Casserole. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Hot Roast Pork Sandwich; Broiled Beef Liver w/Onions. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Teriyaki Baked Chicken; Stuffed Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF OCTOBER 1

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Pineapple Chicken. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Roast Beef Au Jus; Ham & Cheese Omelette; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Steak Teriyaki; Meat Loaf. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Eggplant Parmesan; Beef Balls Stroganoff. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Salisbury Steak; Savory Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 20

October 5, 1979

CFC Goes Over the TOP

Once again, Langley has excelled in achieving its Combined Federal Campaign goal of $177,500. As of *Researcher* press time, $180,128 had been given and contributions are still coming in.

Directorate standings as of Wednesday, October 3, are as follows:

Organization	Percent of Participation
Director	97
Electronics	90
Structures	97
Aeronautics	92
Management Operations	95
Systems Engineering	89
Space	88
Projects	97

– photo by Bob Nye

David R. Johnson (left), Office of Director for Electronics, was the first person to deliver Combined Federal Campaign Contributions to the CFC office on September 20. Accepting the contributions were Lee T. Ball, NASA Office of Audit, and Ernestine F. Martin, Financial Management Division.

Langley Apprentices Graduate October 12

Thirty-four apprentices will receive certificates at the Thirty-fifth Annual Completion Exercises for Engineering Technicians on Friday, October 12, at 1:30 p.m. in the Activities Center, Building 1222.

Langley Director Don Hearth will preside at the ceremony and Dr. Thomas S. Kubala, President of Thomas Nelson Community College, will be the keynote speaker.

Robert D. Springfield, Operations Support Division, will be the speaker for the class of 1979 and Malcolm P. Clark, Head of the Training and Educational Services Branch, will present the certificates.

Call the 'Hot Line' for Energy Suggestions

If you have any ideas or questions about energy use, if you have observed any energy waste, or if you need assistance in energy conservation, please call the energy reduction "hot line," ext. 4641.

Langley's success in energy reduction has resulted largely from the ideas, efforts and cooperation of all Center employees. As of FY 1979, our energy use has been reduced 28 percent below the FY 1973 base year.

Remember, Langley's goal is a 50 percent reduction in energy consumption by FY 1985. The continued support and awareness of every individual is critical in successfully meeting this challenge.

Call the "hot line," ext. 4641, as your first step in implementing energy reduction. Energy personnel can assist you in obtaining equipment, making operational changes and/or submitting an Energy Savings Proposal.

– photo by Bob Nye

The Earl and Countess of Malmesbury, recent guests of the Langley Visitor Center, were presented with the NASA book, *This Island Earth.* Lady Malmesbury (left) and Lord Malmesbury (right) are pictured in front of the Apollo 12 Command Module with their host, Lewis McMurran (center). Lord Malmesbury is the Lord Lieutenant of Hamshire, England, and is the Queen's personal representative in that county.

Students to Participate in Explorer Program

The Langley Research Center and the Explorer Division of the Boy Scouts of America will sponsor an Explorer Program for Peninsula high school students from October 1979 through May 1980 at Langley.

Students with career interests in the sciences, engineering and technologies will have an opportunity to learn first-hand about these careers and to reinforce or broaden their career objectives.

The program, which began in 1965, allows students to work with engineers, scientists and technicians in a research environment and to see the application of many concepts studied in school. Students will attend lectures, demonstrations and laboratory sessions in computer science, astronomy, electronics, electricity and aeronautics.

Registration for the program will be held October 16, at 7 p.m., in the Langley Activities Center, Building 1222. The registration fee is $5. An overview of each of the five study categories will be presented.

Students will meet every two weeks for two hours with NASA employees who serve as volunteers in the program. Langley employees willing to work in the program are encouraged to attend the registration session.

Thanks

Betty Bailey, wife of James R. Bailey, writes:

"Jim had so many NASA friends who suddenly became my friends when he passed away so quickly on August 20.

"I am afraid I have not reached all of you to say 'thank you' for flowers, cards, food and prayers, so I am taking this opportunity do do so.

"My husband enjoyed his work at NASA. He remarked the night before he died that he would just as soon be at work as to be off.

"I am sure many of you are missing him as I am. Thank you again."

Question and Answer

Q. A recent Langley Research Center Announcement, Number 41–79, concerning energy conservation, places a ban on the use of POV's for travel in favor of GSA or rental vehicles. How are we saving the country or NASA energy when we must substitute a Government vehicle which gets 15–18 miles per gallon for a POV which gets 30+ miles per gallon on the highway? In taking this action, why isn't more weight given to the fuel consumption factor of the vehicle to be used on travel, instead of who owns it?

A. Edward A. Howe, Chief, Financial Management Division, was asked to address this question. He said:

"The questioner has misunderstood the meaning of the announcement. Airlines, train and bus (commercial transportation) are the acceptable modes of travel, in that sequence. It is not a ban in favor of GSA or rental vehicles. The reference in the announcement to 'use of GSA and rental vehicles' was to their use at destination after traveler arrives there by air.

"When an automobile is the only means of transportation, we may authorize a POV, if it is advantageous to NASA.

"You will note the announcement stated, 'In order to develop a data base on POV fuel use for future estimates, the Travel Office will request POV travelers to indicate an estimated miles per gallon value on POV's to be used on official travel.' So we are taking action to give more weight to the fuel consumption factor."

Recent Retirees

Robert A. Jewell, Materials Division, and **Cleveland G. Hall, Jr.**, Fabrication Division, retired on September 7.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Langley Schedules Intercenter Meet

The dates and rules for the 8th Intercenter Meet have been announced by the sponsoring center, Marshall Space Flight Center. The two events will be 2 miles and 10 kilometers (our "think metric" race) and must be run between October 1 and October 20. Langley has good speed in all age groups, but more participants are needed.

There is an additional group in both the men's and women's categories for October. The age categories are:

Men		Women
29 and under	45–49	29 and under
30–34	50–54	30–39
35–39	55 and over	40 and over
40–44		

Participation is open to Langley employees, retirees, contractors and university fellows. Dependents may participate but will not be counted in the scoring.

Langley races are scheduled on the following days:

2 mile, Wednesday, October 10 (rain date, Thursday, October 11);

10 km, Tuesday, October 16 (rain date, Thursday, October 18).

There will be two races on both days held at 12 p.m. at the Bethel High School track and at 5 p.m. at the Langley Activities Center. In addition, both races will again be held at the Activities Center on Saturday, October 20 (10 a.m.--2 mile; 11 a.m.--10 km). If you wish to participate but cannot enter at these times, please call Don Humes, ext. 3781.

Key Positions

Edward L. Hoffman has been designated Acting Head, Materials Application Branch, Materials Division.

Robert R. Moore has been designated Acting Head, Acquisition Research and Management Office, Acquisition Division.

Larry D. Pinson has been designated Assistant Head, Structural Dynamics Branch, Structures and Dynamics Division.

Retirement Parties

S. Payne Parker, Jr., and **Erskine C. White** will be honored with a retirement party on Thursday, October 18, at Steve's Steak House, 11847 Jefferson Avenue. A social hour, with cash bar, will begin at 6:30 p.m. Dinner will be served at 7:30 p.m. The cost, including gifts, will be $7 per person or $12 per couple. Contributions for gifts only are welcome. Please make reservations by either cash or check payable to Vernon Marshall, Mail Stop 434, by Monday, October 15.

Yoshio Yamaki, Research Facilities Engineering Division, will be honored with a retirement party on Wednesday, October 10, at the Fort Monroe Officers' Club. A social hour will begin at 6:30 p.m. with a cash bar. Dinner will be served at 7:30 p.m. The cost of the dinner including gift will be $7 per person or $13 per couple. Contributions for gift only are welcome. Please make checks payable to Davis Wright, Mail Stop 439, by October 5.

Employees Leave NASA Headquarters

Two NASA Headquarters employees have left the Agency to assume other positions.

Robert A. Newman, Director of Public Affairs at NASA Headquarters for the past three years, has resigned from NASA to become Public Relations Director of Phillip Morris in New York. Newman has been with NASA since 1976.

Dr. James J. Kramer, NASA Associate Administrator for Aeronautics and Space Technology, NASA Headquarters, retired from federal government service on September 30. He has been named Manager of Strategic Planning for the Aircraft Engine Group of the General Electric Company, Cincinnati, effective November 1.

Scherer Heads External Relations

Dr. Lee R. Scherer, former Director of the Kennedy Space Center, is the new Associate Administrator for External Relations. He replaces Arnold W. Frutkin who retired June 22.

– photo by Ronnie Booth

Harriett A. Coombs, Fabrication Division, recently received a Special Achievement Award "In recognition of the outstanding productivity and dedicated effort which contribute to the accomplishments of the Branch and Division."

Witcofski Addresses International Symposium

Robert D. Witcofski, Aeronautical Systems Division, was in Stuttgart, West Germany, the week of September 10 to address the International Symposium on Hydrogen in Air Transportation.

Witcofski, recognized as one of NASA's leading experts in cryogenic--or low temperature phenomena--research, presented a paper titled "Comparison of Alternate Fuels for Aircraft."

The symposium, sponsored by West Germany's space agency, was held to discuss the growing possibilities for liquid hydrogen as an alternate aviation fuel. Witcofski's research has further documented the three most likely candidates to supplement increasingly scarce and expensive jet fuel.

Those candidates are liquid hydrogen, liquid methane and synthetic aviation kerosene. All three fuels, prior NASA studies have shown, are feasible for aircraft use.

Witcofski will assume a leading role in Langley's administrative responsibilities for liquid hydrogen safety tests which will begin early in 1980. The tests will involve men and equipment from several NASA and government centers, and will aid scientists in obtaining more basic data on how the substance would react during an accidental spill or fuel line rupture.

Personnel Profiles

By Allan C. Hanrahan

— photo by Fred Jones

Steering Wheels and Stethoscopes

We could lead this off by attempting some snappy metaphor alluding to **JOHN R. GLEASON's** extraemployment activities, which include auto racing and medical service, but we won't; what we will do is tell you that this thirty-three-year-old really gets around. He gets around a racetrack in his AMC Javelin (shown with him in the photograph) racing--as he put it--"wheel to wheel" against other drivers and their autos in races sanctioned by the Sports Car Club of America (SCCA). He began driving competitively in 1969, "in parking lot events," he related, and progressed to a sixth-place finish in a SCCA track race that is considered the championship event for the southeast United States.

Asked if he has ever won a race he quipped, "No, but I've got a solid string of thirds!" And he is proud of finishing second in a six-hour endurance race on a two-mile track--a race that calls for the car to "stay together (mechanically)" and for "the coordination of the crew and the driver," John said, adding that in their case that meant "eight people, counting the relief or co-driver."

"They ("they" meaning the officials charged with enforcing the rules and regulations) won't let you drive more than two hours at a stretch and no more than four hours in a race," he reported, "but maintaing the concentration for even two hours is a real problem."

The sport of auto racing he obviously enjoys, as you discern when you talk with him, but off the track is when John almost bought the farm, as the saying goes. He was crossing the James River Bridge one night in 1972 when a traffic mishap sent him to the hospital and through seven operations over a three-year period. But even during that period of time when he could not drive he remained involved and served in such capacities as Timing and Scoring Official, Technical Inspector, "corner worker," and steward for solo and series-safety time trials, as well as the chairman of a committee for same.

Before we leave the subject we should mention that he also possesses a NASCAR license.

We said earlier that John "gets around" and that goes for his growing-up years as well: born in New Orleans, he spent a few years there; seven years in Amarillo, Texas; another seven or eight in upstate New York, where he graduated from high school in Rochester; and another year or two in New Jersey before coming to Virginia and the Center--beginning the Apprentice School in 1969.

John "gets around" some at work, too. While formally an Army employee, he is an Engineering Technician assigned to Technical Support Section B in the Operations Support Division but at present is temporarily assigned to the Graphite Fibers Risk Analysis Program Office of the Materials Division.

Academically, John has graduated from the NASA Apprentice School, earned an Associate of Science degree in Business Administration from Thomas Nelson Community College, and is working toward a B.S. degree in Business Administration from Old Dominion University.

After working hours John "gets around" some with the Phoebus Rescue Squad of which he has been a member for about two years. Influenced no doubt by his mother, a neurologist with the McQuire Veterans Administration Hospital in Richmond, and his late father, an anesthesiologist, John is a Paramedic, or Emergency Medical Technician (EMT), licensed by the State after becoming only the second person to achieve a perfect score on the EMT exam. Additionally, he has acquired the necessary training and undergone the grueling State examinations to qualify and be licensed by the State to instruct aspiring EMT's. He is also a Cardiopulmonary Resuscitation instructor for the Heart Association and guesses that totaling all his instructing, he has, over the past couple of years, participated in teaching about two-hundred students.

John does not know if he has definitely saved any lives, either directly, or indirectly--through his teaching, but he did address that aspect of it.

"You think, 'Oh, (expletive deleted)!' when you come up on an accident, or whatever, and you see what you have to deal with, but when it's all over and people have been helped, it's a great feeling; it really is.... That is one most gratifying thing in the world: when the doctor comes out (after treating an emergency the rescue squad has brought in) and says, 'He wouldn't be here if not for you.'"

While John participates in some exciting pastimes, there is one bit of excitement he has missed--marriage. "I'm single," he answered, when asked his marital status, "and I'm available," he added--only half-jokingly.

For relaxation he does some gardening and works around his house.

Yes, John Gleason seems to fit very well the premise that: "A man lives well who maintains a good balance between that part of his life he lives for himself and that part of his life he lives for others." (A little philosophy, courtesy of Abie Aristotle--free of charge.)

Langley Transpo Promotes Steps Towards Energy Efficiency

The Activities Center was a hotbed of energy efficiency September 20 as an estimated 800 Langley employees gathered for Transpo '79.

There they learned how van poolers can save up to $500 a year on transportation expenses, how the Tennessee Valley Authority organized a 450-van fleet for its employees, and what steps the Center will take to increase energy efficiency.

The day-long program also featured vehicle displays and demonstrations, as well as a live telephone conference between Transpo participants and a group of van poolers in Los Angeles.

Joseph Kursch, director of Easyride, a Peninsula federally-funded transportation organization, said van poolers can expect to save several hundred dollars each year when they share the ride with others. A van pooler who shares a 30-mile round trip to work with 11 others would pay only about $40 a month, Kursch said.

The van pool driver would be able to get his trips free, saving not only on gasoline but upkeep, too. Kursch said a successful van pool group could save themselves $500 per year.

In Knoxville, Tennessee, such a program has already proven successful, according to Jo-Anne Beal of the Tennessee Valley Authority. Faced with union demands for a multi-million dollar garage facility, the TVA inaugurated a van pooling program which has grown to include 450 vans and numerous buses and car pools.

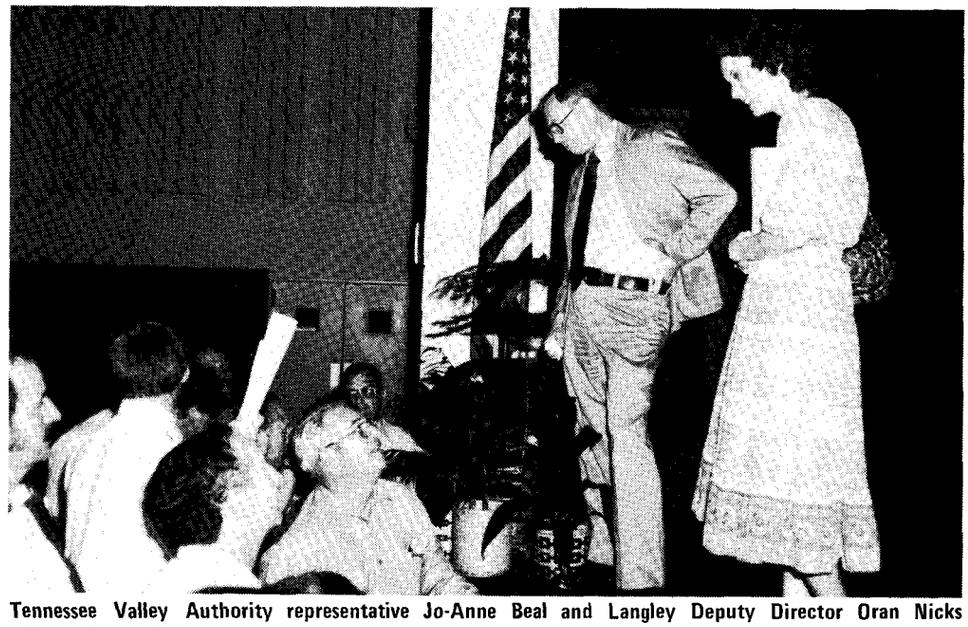
Beal said the program has had a snowball effect, attracting more and more workers as it proves more and more successful.

Energy saving measures are also underway at Langley, Deputy Director Oran Nicks told employees. Those measures include efforts to obtain gasohol for Center vehicles and taking steps to provide prime parking spaces in high density areas around the Center to promote car pooling.

Nicks also said management is considering adjusted shift changes whenever possible to accommodate car poolers. "I also understand that the Langley Exchange Council has agreed to conduct a raffle for a free tank of gas each month to car pool or van pool participants as an added incentive," he said.

Nicks said the experimental east and west shuttles "have not proved to be efficient, and it is planned that in the near future the shuttle service will be discontinued." Another step taken by management has been to instruct taxis to respond to hailing from the curb. Air conditioner settings have been lowered, and guidelines for special use of the taxis are being revised.

Nicks concluded his remarks by saying, "We are healthy, we are used to work-around activities to meet challenging objectives, and I think we will be proud of our achievements if we reduce waste of this valuable resource. Our children and descendants will be grateful, for it is they who will benefit from this effort, as from many of our aeronautics and space activities."



Tennessee Valley Authority representative Jo-Anne Beal and Langley Deputy Director Oran Nicks talk with employees during Transpo '79. Both Beal and Nicks stressed energy efficiency through ride-sharing programs.

– photos by Bob Nye

Transpo attracted an estimated 800 employees, some of whom are gathered outside the Activities Center to look over vehicle displays. Vans, buses, motorcycles, mopeds and bicycles were on display to demonstrate methods for energy efficient transportation.

Langley Employees Receive Awards

Certificates of Recognition for inventions have been presented to the following:

James L. Hunt, Pierce L. Lawing and Don C. Marcum, Jr., for "Hypersonic Airbreathing Missile;" Randolph F. Culotta, for "Static Pressure Orifice System Testing Method and Apparatus;" Charles W. Meissner, Jr., and Robert A. Champine, for "Turbulence Intensity Indicator;" and Donald E. Barthlome, for "Therapeutic Hand Exerciser."

A **Superior Achievement Award** has been presented by NASA Headquarters to Stephen E. Devan "in recognition of an outstanding accomplishment above the performance of assigned duties."

Special Achievement Awards have been presented to the following:

Kathleen L. Hillard, "For outstanding performance and initiative in assuming greater responsibilities."

Albert H. Bell, "For sustained superior performance in the planning, organizing and implementation of a comprehensive energy reduction program for facilities at the Langley Research Center."

Frank C. Owens, "For superior performance and exceptional effort in support of the Langley Learning Resource Center."

Annette L. Forrest, "In recognition of significant contribution made to the Langley Research Center Employee Services Office."

Humbert E. Rockey, Jr., "For major administrative contributions for the Earth Radiation Budget Experiment Source Evaluation Board."

Marianne T. Russell, "In recognition of sustained superior performance in resources and schedule planning and control support of the Large Space Systems Technology Program Office."

Virginia H. Jones, "For continued excellence and high standards in planning, development and equitable administration of a workers' compensation program recognized by NASA Headquarters as a model for all other NASA Centers."

Howard R. Puckett, "In recognition of an outstanding accomplishment above the performance of assigned duties."

Charles B. Karpa, "For the sustained superior performance in the design and construction of a gas generating and handling facility that allows remote control and monitoring of the system thereby greatly enhancing the efficiency and safety of a project for measuring high resolution infrared spectra of highly reactive and toxic gases in support of NASA's effort for developing remote sensing capabilities."

Mack G. Lawrence, "For outstanding and dedicated support to the operation of the National Transonic Facility related diffuser flow apparatus."

John E. Cooper, "For outstanding technical contributions in the definition of sensor concepts, spacecraft interfaces, overall system designs, calibration and data reduction techniques and system/sensor error analyses for the Earth Radiation Budget Experiment."

Wayne H. Bryant, "For major contributions to the successful early completion of the Vertical Take Off and Landing Approach and Landing Technology (VALT) automatic flight control evaluations."

Harold E. Poole, "For the development of efficient instrument operational techniques and software for the Limb Infrared Monitor of the Stratosphere."

Suggestion Awards have been presented to: Thomas J. Lash, "pulsing device for laser plume studies;" Barbara M. Buchanan and Marie W. Hall, "money for cashier;" Keith B. Ford, "procedure of stamping 'Wyle Labs . . . .' on purchase orders for components which go to Wyle Labs;" and Roderick D. Harvey, "modify shut down circuitry of the Cooper Bessemer Helium compressor" and "operation procedure change LN_2 supply to helium recovery systems purifier."

— photo by Bob Nye

Colon R. McMath (right), Management Support Division, receives a Special Achievement Award from Jess G. Ross, Chief, MSD, "for outstanding performance of duties in the organization, development and implementation of a successful disposal plan for Space Radiation Effects Laboratory and related equipment."

Voyager 1 Wins Space Award

The Veterans of Foreign Wars of the United States have awarded their National Space Award Gold Medal and citation to the Voyager Project for the success of Voyager 1 at Jupiter last March. Accepting the award at the VFW annual convention in New Orleans was Mission Director Dick Laeser, standing in for R. J. Parks, Project Manager at the time of Voyager 1's Jupiter encounter. The text of the citation reads:

> *"A brilliant effort teaming professional knowledge, technology, and man's urge to conquer the unknown will lead to vehicles of human design to complete the initial reconnaissance of all the planets of the solar system in the first half century of the Space Age."*

Happenings

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley on Wednesday, October 17, from 9:30 a.m. to 3:30 p.m., in the Activities Center, Building 1222. For more information or an appointment, call the Dispensary, extension 3976.

ART OF SPEECH GIVING. You are invited to join the TAC Air Toastmasters Club to develop the arts of giving speeches, evaluating speeches and chairing an organization or a committee. TAC Air meets every second and fourth Wednesday at the Langley Officers' Club, at 7:15 p.m. Call Bob Lee, ext. 2486; Bob Miserentino, ext. 2817; or Gayle Wilson, ext. 3551.

CARNIVAL WORKERS' APPRECIATION NIGHT given by the LAA, will be held October 20 in the Activities Center. Activities include a social at 6 p.m., dinner with musical entertainment at 7 p.m., and a "show time" at 8 p.m. Reservations should be made with Sue Juanarena, ext. 3139, by October 15.

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, October 15, from 7 to 9 p.m. in Building 1209, Room 180. Program plans include a 30-minute film on beginning beekeeping and a presentation on fall management. The meeting is open to all interested persons. For more information, call Henk, ext. 4637.

CPR COURSE. A Cardiopulmonary Resuscitation Course will be taught by the Red Cross on October 23 and 24, from 7 to 10 p.m. at the Peninsula Nature and Science Center. This technique is a life-saving procedure that may enable you to one day save someone's life. Upon successful completion of the course, a Red Cross certificate will be presented. There is a fee of $2.03 to cover the cost of the manual. To register, call 595-1900.

A BUS TRIP to the National Zoo and the Smithsonian Museums in Washington, D.C., is planned for October 20. People who sign up for the trip will have the choice of going to the Zoo or the Museums, not both. The group will leave the Peninsula Nature and Science Center at 7 a.m. and return by 9 p.m. Minimum age without an adult is 18. A dinner stop will be made on the return trip. The cost is $12 for members, $16 for nonmembers. Call 595-1900 for reservations.

– photo by Bob Nye

RCA recently won the 1979 NASA Softball Association "C" League Championship Tournament. The team also captured first place in the league with a record of 10–7. Front row, from left, are: Bill Ruffin, Morris Holiday, Pat Turner, Charles Poupard, John McMillen and Charles Camarda. Back row, from left, are: Joe Burrell, Jim York, John Anderson, Cecil Burcher and Lee Joyce. Team members not pictured are: Mike Fitzgerald, David McMillen, Bobby Burcher and Carl Voglewede.

THE PENINSULA SKI CLUB will hold a meeting on Tuesday, October 9, at the Chamberlain Hotel. The winter ski trips will be announced and club members may sign up to go on any trip. There will be a ski film, door prizes and an orientation class for beginners. Social hour starts at 7 p.m. and the meeting at 7:45 p.m. Dues are $10 per person or $15 per family. Call Joe Alvarez, 851-7973 ater 6 p.m., for additional information.

SKI AND CANOE TRIPS are no longer sponsored by the Langley Activities Association and the LAA will not be responsible for refunds for canceled trips.

SQUARE DANCE classes will begin Monday, October 15, at 7:30 p.m., at the Community Presbyterian Church. Classes are open to anyone 12 years and over. Call Bill Leftwich, 851-6640.

HAPPY HOUR will be held Friday, October 12, from 4 to 6:30 p.m. in the Activities Center.

THE CONCESSION STAND on the picnic grounds will close for the winter on Friday, October 12.

Notice

Replacement tab inserts for the Stores Stock Catalog can be obtained by calling the Cataloger, ext. 3935.

Job Openings

The following Merit Promotion Announcements are currently open:

79-75 – Quality Inspection Specialist (Aerospace) (2 Positions); GS-1960-8 or 9; Fabrication Division; Planning Resource Control Office; Hardware Control Unit; Closes October 10, 1979.

79-76 – Industrial Property Management Specialist; GS-1103-9; Office of Director for Management Operations; Management Support Division; Property Management Branch; Closes October 15, 1979.

79-77 – AST, Technical Management; GS-801-14; Office of Director for Systems Engineering and Operations; National Transonic Facility Project Office; Closes October 15, 1979.

79-78 – Supply Clerk; GS-2005-4; Management Support Division; Property Management Branch; Stock Management Section; Closes October 15, 1979.

79-79 – Supervisory Librarian (Physical Science and Engineering); GS-1410-12; Office of Director for Management Operations; Management Support Division; Technical Library Branch; Closes October 15, 1979.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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THIRD-CLASS BULK RATE

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Space Administration
NASA-451

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FOR SALE

Articles

Two United Airline half-price tickets. Call Vann, ext. 3438, or 827-6704 after 5 p.m.

Football tickets: 3 tickets to Colt—Jets game Sunday, October 7, $10 ea. Call Simmons, ext. 3095.

Honey—local, light or dark, $3/qt. and $1.10/lb. Call G. Harvey, ext. 2818 or 723-7148 after 4:30.

Sears Kenmore Washer, heavy duty, white, like new, EC, $175. Call 851-6989 (after 5 or weekdays).

Vehicles

Chris Craft, 28' cabin cruiser, sleeps 4, stand-up head, engines and trans. in GC, kept under cover, $5,100. Call 838-0173 after 5 p.m.

1971 Apache Ramada pop-up, fiberglass sides and top, sleeps 8, 3 burner stove, electricity and water hook-up, VGC, $850 OBO. Vall 722-8245.

Real Estate

Lot—Williamsburg area, The Colonies 1+ acre landscaped, waterview, fishing, swimming, skiing, sailing, $17,000. Call Gregg Strohkorb, 220-0677 after 5 p.m.

FOR RENT

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, etc., 2 BR, full bath, sun-porch, outdoor shower, AM/FM stereo, walking distance to beach and fishing pier, 5 min. drive to Sport Fishing Center and charter boats, Fall and Winter rates $110/wk., $55/weekend. Call 826-6177.

Bryce Mt. chalet, LR, DR, kit., 5 BR, 3 BA., game room w/ping pong and pool tables, dishwasher, washer, dryer, disposal, elec. range, A/C and heat, large deck, Apr.—Nov. $300/wk., $50/day. Call E. B. Geer after 6 p.m./weekends 723-5842.

WANTED

Books for Patrick Henry Hospital Fair, hard backs, paper backs, etc. The Fair will be held October 6. Call H. A. Smith at 596-6679.

In Memoriam

John W. Colonna, Jr., 60, died on September 3 in Hampton General Hospital. Employed at Langley for 20 years, he was a Supervisory Construction Representative in the Plant Engineering Division.

Energy Saving Tips

Proper car maintenance can prolong the life of your car and save gasoline. Take advantage of the car maintenance classes being offered at high schools and community colleges. The money you save on gasoline may reimburse you for the cost of the course.

Remember to keep closet doors closed and to close off rooms that are not normally used. Do not heat or cool more space in the house than is needed.

Thought for the Day

When ability exceeds ambition, or ambition exceeds ability, the likelihood of success is limited.

Robert Half

Carpool from the Jamestown Rd.—199 area of Williamsburg, arriving at NASA about 8 a.m., seeks new members. Call 229-6524 after 6 p.m.

cafeteria menu

WEEK OF OCTOBER 8

MONDAY: Holiday

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Chicken Chow Mein; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Stuffed Bell Peppers. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Braised Beef & Vegetables; Quiche Lorraine; Broiled Beef Liver. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Beef Enchiladas; Chicken & Spanish Rice. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

WEEK OF OCTOBER 15

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Crab Cutlets; Barbecued Chicken. Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Beef Balls Stroganoff; Fried Filet of Fish; Hot Roast Pork Sandwich. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Country Style Steak; Ham & Cheese Omelette. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Roast Beef; Sweet & Sour Pork. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Teriyaki Baked Chicken; Meatloaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

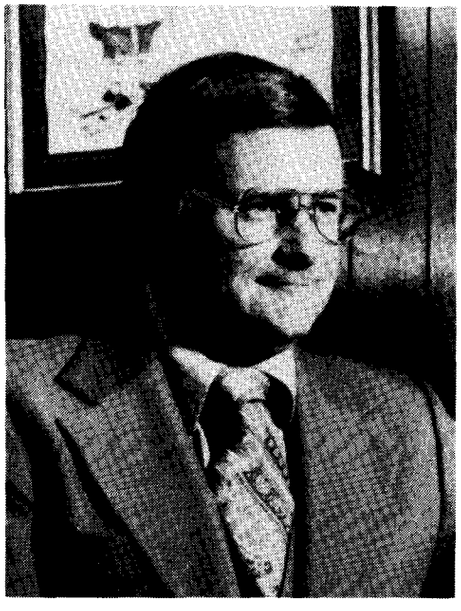
Langley Research Center

NASA

Langley Researcher

SPECIAL ISSUE

October 12, 1979



Kubala to Address Graduates

Dr. Thomas S. Kubala, President of Thomas Nelson Community College, will be the guest speaker for the Apprentice Graduation Ceremony at 1:30 p.m. today. The ceremony will be held in the Activities Center, Building 1222.

Kubala, a native of Johnson City, New York, earned a bachelor of science degree from Rochester Institute of Technology in 1961 and a master of science degree from State University of New York at Oswego in 1967. He received a doctor of education degree from the University of Maryland in 1977.

His career as an educator began in 1961 at Broome Community College in Binghamton, New York, where he served as Assistant Professor of Electrical Technology and later as Associate Professor.

In 1968 Kubala was named Associate Professor and Director of Electrical Engineering Technology at Anne Arundel Community College in Arnold, Maryland. During his 11 years at Ann Arundel, he served as Chairman of the Division of Engineering Technologies, Dean of Career Programs, Dean of Continuing Education, Dean of the Faculty and Dean of the College.

He was appointed President of Thomas Nelson Community College in February 1979.

The author, coauthor or contributing author of eight textbooks, Kubala is a consultant for educational institutions and publishing companies. He has served as an evaluator for regional accreditation of colleges.

Apprentices Graduate Today

Thirty-fifth Annual Completion Exercises

H.J.E. Reid Auditorium, Activities Center

PROGRAM

Presiding	*Dr. Donald P. Hearth*, Director
Processional	United States Continental Army Band Directed by *Sgt. Maj. Robert J. Faller*
Invocation	*Mr. Howard W. Wilson, Jr.* Chaplain, Class of 1979
Speaker for Class of 1979	*Mr. Robert D. Springfield*
Musical Selection	United States Continental Army Band
Introduction of Speaker	*Dr. Donald P. Hearth*
Address	*Dr. Thomas S. Kubala* President, Thomas Nelson Community College
Presentation of Certificates	*Mr. Malcolm P. Clark* Head, Training and Educational Services Branch
Recognition of Honor Graduates	*Dr. Donald P. Hearth*
Presentation of AFGE Awards	*Mr. William C. Tennis*
Recessional	United States Continental Army Band

Frosch Extends Congratulations to Graduates

NASA

National Aeronautics and
Space Administration

Washington, D.C.
20546

Office of the Administrator

OCT 5 1979

Class of 1979
Engineering Technician
Apprentice Program
Langley Research Center
National Aeronautics
and Space Administration
Hampton, VA 23665

Dear Graduates:

I would like to take this opportunity to congratulate all of you upon your completion of the Engineering Technician Apprentice Program. Your past five years of schooling and training have been strenuous and you can be proud to be a member of the Class of 1979.

I extend my special congratulations to the following honor graduates:

Summa cum laude: Harold K. Carney, Jr.; and Paul R. Pfeffer.

Magna cum laude: James M. Arbuckle; George L. Willis; Howard W. Wilson, Jr.; Robert D. Springfield; and William C. Alexander.

Cum laude: Dennis L. Mowrey; Mark W. Wynkoop; William R. Loudermild; Alexander J. Witcowski; Michael M. Mahler; Lloyd R. Marks, Jr.; and Glenn A. Brehm.

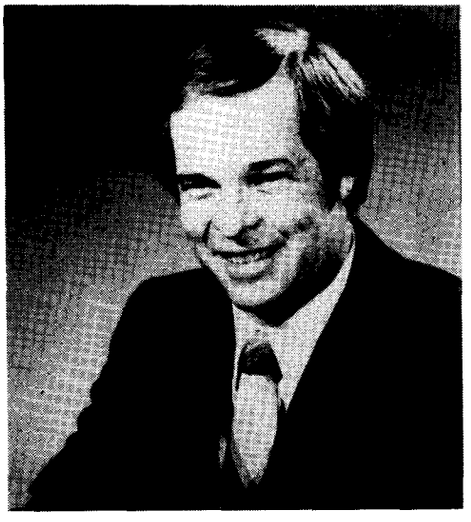
I am very proud of all of you and I wish you every success as you begin your new careers.

Very truly yours,

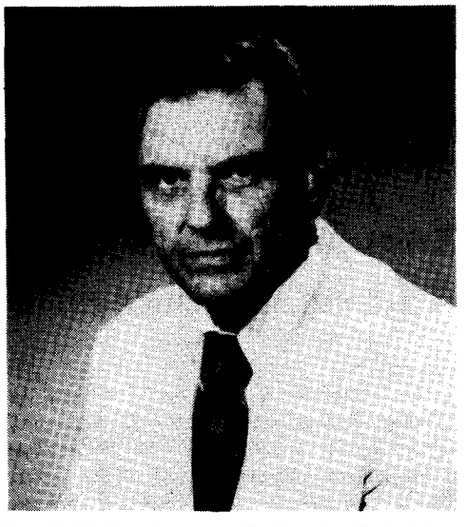
Robert A. Frosch
Administrator

Summa Cum Laude Graduates

3.800 and above



Harold K. Carney, Jr., Electronics Technician, FED



Paul R. Pfeffer, Aerospace Engineering Technician, FLTMD

Congratulations Technicians

The Class of 1979 represents the third class in which Thomas Nelson Community College Technical Co-op graduates have been combined with Langley's regular five-year apprenticeship program, with a total of 34 graduates. Eleven co-op graduates completed a NASA/TNCC Co-op Program and received their Associate in Applied Science Degree from TNCC in 1976.

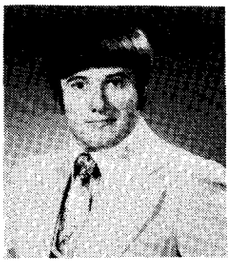
The remaining 23 graduates entered Langley's regular apprenticeship program in the fall of 1974. The past five years have been spent in a strenuous program of classroom study and on-the-job training. This group has completed more than the minimum requirement of 720 hours of related classroom study. The classroom studies are designed for each of the ten trade areas and include such courses as Math, Physics, English, Trade Fundamentals, Electronics, Statics, Strength of Materials, Aerodynamics, and other courses directly related to the trade area to which the apprentices are assigned.

Continued on page 4.

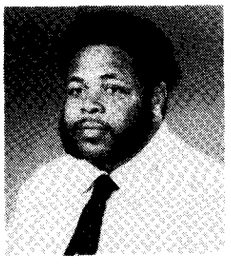
The Class of 1979

*Designates Honor Graduate

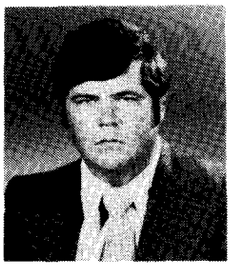
*William C. Alexander, Engineering Technician (Mechanical Development), FD



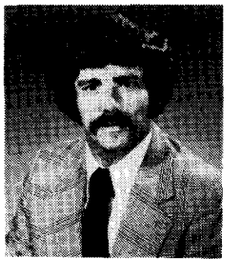
*James M. Arbuckle, Electronics Technician, FD



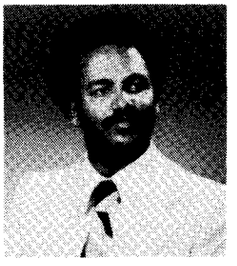
Clarence W. Bailey, Electronics Technician, FD



Kyle R. Ballew, Jr., Engineering Technician (Fabrication Development), FD

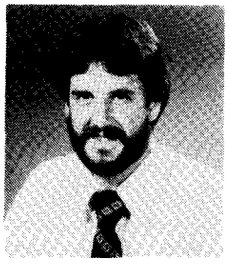


Harold W. Beazley, Electronics Technician, FD

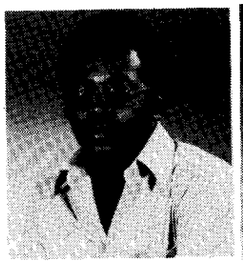


James E. Bell, Jr., Electronics Technician, FD

*Glenn A. Brehm, Engineering Technician (Research Facilities Operations), OSD

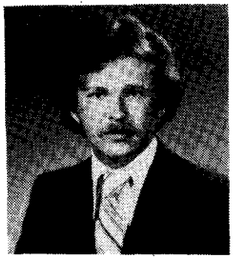


Charles E. Caldwell, Engineering Technician (Aerospace Model Development), FD

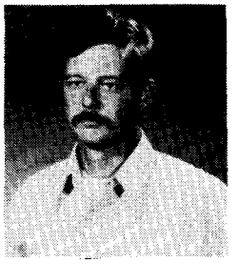


Ricky L. Clark, Engineering Technician (Research Facilities Operations), OSD

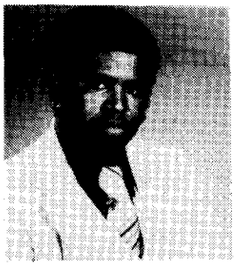
Archerbald J. Epps, III, Engineering Technician (Mechanical Development), FD



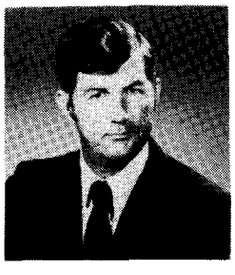
Michael G. Fleck, Engineering Technician (Mechanical Development), FD



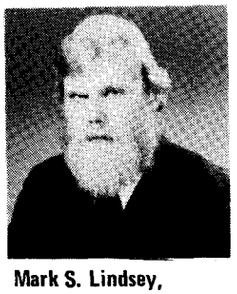
David J. Gordinier, Engineering Technician, (Systems Environmental Specialist), OSD



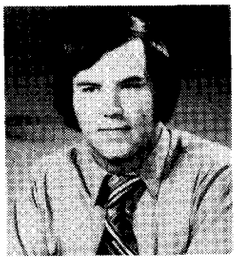
Morris C. Hood, Electronics Technician, IRD



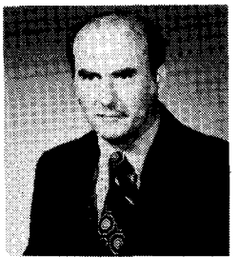
Berkley A. Langford, Jr., Electronics Technician, FED



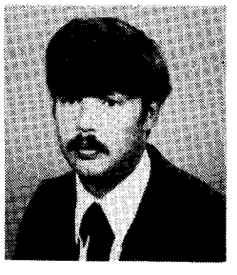
Mark S. Lindsey, Engineering Technician (Mechanical Development), FD



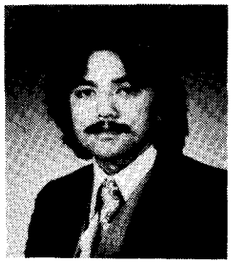
George E. Lockard, Electrical Engineering Technician, OSD



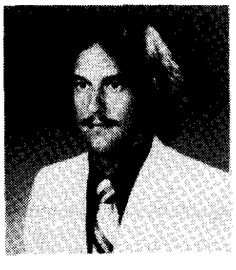
*William R. Loudermilk, Engineering Technician (Research Facilities Operations), OSD



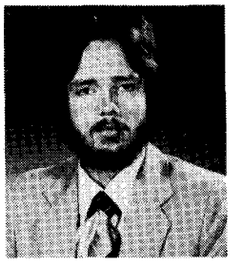
*Michael M. Mahler, Electronics Technician, FD



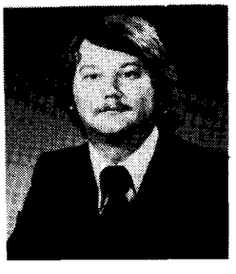
*Lloyd R. Marks, Jr., Engineering Technician (Research Facilities Operations), OSD



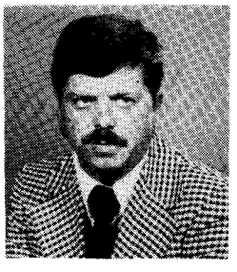
Earl J. Mathis, Jr., Engineering Technician (Research Facilities Operations), OSD



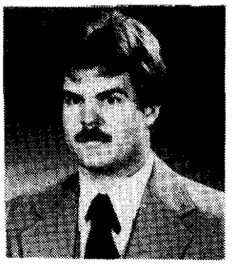
William J. McCabe, Engineering Technician (Research Facilities Operations), OSD



Kevin G. Meidinger, Engineering Technician (Mechanical Development), FD



*Dennis L. Mowrey, Electronics Technician, FD



Charles A. Poupard, Engineering Technician (Research Facilities Operations), OSD

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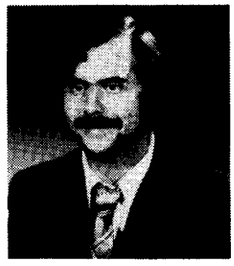
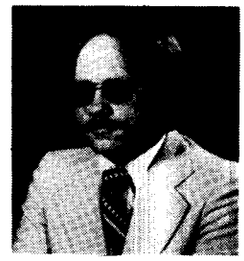
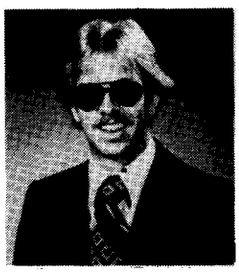


Ricky E. Smith, Engineering Technician (Research Facilities Operations), OSD

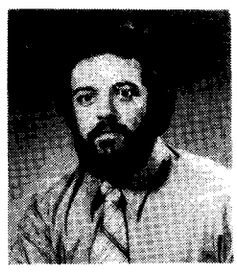


***Robert D. Springfield, Engineering Technician (Research Facilities Operations), OSD**

***George L. Willis, Engineering Technician (Research Facilities Operations), OSD**

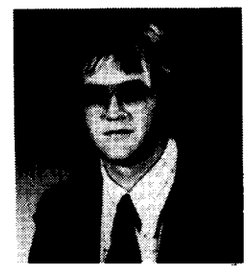


***Howard W. Wilson, Jr., Engineering Technician (Aerospace Model Development), FD**



***Alexander J. Witkowski, Electronics Technician, FD**

***Mark W. Wynkoop, Electronics Technician, FD**



Kenneth C. Young Engineering Technician (Research Facilities Operations), OSD

– photos by Bob Nye and Bill Salyer

Springfield Elected Class Speaker

Robert D. Springfield, Operations Support Division, has been elected by his classmates as Speaker for the Class of 1979 at today's ceremony. He is graduating Magna Cum Laude and sixth in his class.

Springfield was born in Germany but moved to the Peninsula when he was about a year old. He attended Newport News High School and graduated from Warwick High School in the top 10 percent of his class. While attending Newport News High School, he was active in baseball, football, band and several organizations.

"After being bussed to Warwick High School," Springfield said, "I became a little disenchanted with school, dropped all of my activities and only took enough classes to graduate."

The NASA apprentice program was recommended to Springfield by his guidance counselor and in the fall of 1974 he entered the program.

Springfield has three brothers and three sisters. Speaking of his family, he added, "I'm very proud of the way my parents brought us up. I'd have to say that they have been the most influential people in my life."

CONGRATULATIONS

Continued from page 3.

The Class of 1979 is a highly motivated class. Many have already enrolled in additional college courses. Some of the co-ops are working toward a bachelor's degree at Christopher Newport College, others at Old Dominion University. Some of the five-year apprentices are working toward their AA degree at Thomas Nelson Community College.

Langley supports the graduates on job-related courses, such as math or engineering courses, that will directly benefit Langley and that will assist the employee in the performance of his duties. These courses are normally taken in evening school on the employee's own time and at his own expense. Upon satisfactorily completing the course, the employee can request a job-related refund, and if approved, the cost of the tuition is refunded to the employee.

There are approximately 1,055 GS Technicians currently at Langley. About 600 of these are Apprentice School graduates.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 21

October 19, 1979

Allnutt to Speak for Awards Ceremony

Robert F. Allnutt, NASA Associate Deputy Administrator, will be the guest speaker for Langley's Annual Honor Awards ceremony on Thursday, October 25. The ceremony will be held at 2:30 p.m. in Building 1244 (Hangar).

Service Awards will be presented to the following:

Forty Years' Service:

Francis R. Dreisbach; Margery E. Hannah; Lee E. McDaniel, Jr.; Floyd S. Rogers, Jr.; John P. Tribble; and Harper E. Van Ness.

Thirty-five Years' Service:

George Adamowski; Eugene K. Allen; Ralph P. Bielat; H. Benjamin Bland, Jr.; William J. Block; Herbert E. Boulter; Joseph D. Brooks; Harry W. Broskie; John F. Bryant, Jr.; Kenneth S. Bush;

William A. Carmines; Baxter C. Carr, Jr.; Wade E. Cason, Jr.; Ambrose O. Christian; Claude W. Coffee, Jr.; John N. Daniel; Ernest Dennis, Jr.; Andrew C. Dibble, Jr.; Barbara J. Durling;

Charles E. Feller; Charles E. Fiorella; Paul G. Fournier; Roger H. Fournier; Beulah R. Garel; H. Douglas Garner; Paul B. Gooderum; Walter L. Gregory;

Herbert F. Hardrath; Lowell E. Hasel; James L. Hassell, Jr.; Clyde Hayes; Edward L. Hoffman; James W. Huggett; Donald A. Johnson; Joseph L. Johnson, Jr.; Leo J. Johnson, Jr.; Harold H. Jordan;

Edwin C. Kilgore; E. Bernard Klunker; John E. Knemeyer; Dr. Edwin T. Kruszewski; Raymond V. Leatherman; Donald A. Lietzke; Edward C. Lingelfelser; Harold R. Long;

George J. Magnus; Kenneth Margolis; James F. McNulty; James L. Miller; David L. Morris; Thomas C. O'Bryan; James P. Peterson; M. John Pilny; Edward C. Polhamus;

Dr. Manuel J. Queijo; Alphanzo M. Rackley; Ernest L. Rowe; Irvin C. Rowe; Alberta R. Saunders; Edna J. Scott; Robert E. Shanks; William C. Sleeman, Jr.; Eunice G. Smith;

Lloyd E. Smith; Nathaniel R. Spaulding; M. Leroy Spearman; Albert B. Stacey, Jr.; Jane A. Swartzwelder; Lisle E. Taylor; Louis P. Tosti;

Charles N. Valade; Henry P. Watkins; Robert P. Weaver; Barbara L. Weigel; Leon A. Williams, Jr.; Brady D. Wooddell; and William H. Young, Sr.

Recipients of other awards will be listed in a special issue of the *Langley Researcher.*

Langley employees attending the ceremony should charge their time to Job Order A2067.

Morgan Thanks Langley Team

Thank you, Langley Research Center!! Your total giving to the Combined Federal Campaign has reached $184,630 (104 percent of our goal) and exceeds the Center's donation for any previous year by over $4,000.

I speak for the Combined Federal Campaign, the Langley CFC Committee and volunteers, and myself, in expressing appreciation for your generous and willing response to the needs of our community. I'm proud to be part of the public-spirited team at NASA Langley!

Homer G. Morgan
Chairman, Combined
Federal Campaign

Tech House Receives Award

Langley's Tech House was recently honored as one of three outstanding solar energy designs in the State of Virginia for 1979. The award, presented by the Virginia Chapter of the American Institute of Architects, was given to NASA for its sponsorship of the project. The Tech House was designed by Forrest Coile & Associates of Newport News.

The award was accepted September 29 in Fredericksburg by J. A. Zitzelberger, head of the Construction Engineering Branch, Plant Engineering Division.

"The Langley Research Center was very pleased to accept this award as recognition of our contribution to improving the energy efficiency of residential construction," Zitzelberger said.

– photo by Bob Nye

Sikorsky Aircraft, builder of the Army-NASA Rotor Systems Research Aircraft (RSRA), was presented with contract awards at Langley last week. At the meeting were (from left) Thomas L. Coleman, Director, Army Structures Laboratory; Langley Director Donald P. Hearth; Gerald J. Tobias, President, Sikorsky; and William F. Paul, Senior Vice President for Engineering & Development, Sikorsky.

Bertin to Speak at AIAA Meeting

Dr. John J. Bertin, a professor, consultant and historian of aviation, will be the guest speaker for the October 22 meeting of the American Institute of Aeronautics and Astronautics.

The meeting will be held in the Activities Center beginning with a cash bar at 6 p.m. Dinner will be served at 7 p.m. At 8 p.m. Bertin will speak on "The Wrights and Wrongs of Aviation."

Bertin's lecture is a survey of aviation history from early flight through World War II. He will discuss significant firsts and humorous "onlys," along with the personalities, political decisions and technological developments which affected aviation.

Bertin is a professor in the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin. He is principal co-author of "Fundamentals of Aerodynamics for Engineers," a textbook for undergraduates. He is an Associate Fellow of AIAA.

The cost of the dinner is $6 per person. For reservation call Buddy Cary, extension 4546 or 898-7184; Bobby Berrier, extension 2674 or 595-3406; or Wally Sawyer, extension 3181 or 229-6538.

In Memoriam

Dr. Elbridge Z. Stowell, a Langley employee from 1932 to 1959, died October 8 in San Antonio, Texas, after a short illness.

Stowell was assigned to the Structures Division for most of his 27 years at Langley and was a recognized authority on structures theory. He authored or co-authored many technical papers on elasticity, plasticity and metal fatigue.

Following his retirement from NASA in 1959, Stowell moved to San Antonio where he worked for Southwest Research Institute until 1965. While there he conducted research and wrote technical papers on composite materials, viscosity and solid propellants.

Stowell is survived by his widow, Mary G. Stowell.

Share Your Ideas

Agencywide Idea Clearinghouse

In September 1978, NASA Headquarters established an Agencywide Idea Clearinghouse to gather and publish innovative ideas to increase productivity and reduce costs. The Center has recently been asked to continue to support this worthwhile program, which is entirely voluntary.

If you have ideas which you feel could be applied agency-wide, you are encouraged to submit them to the Management Support Division, Mail Stop 123, which will forward them to NASA Headquarters.

Question and Answer

Q. I recently contacted Blue Cross/Blue Shield to inquire about dental insurance coverage, and was told that it was only available under group policies. Has NASA-Langley ever considered offering this coverage to employees? If not, why not?

A. The Personnel Division submitted the following response:

"After checking with Blue Cross/Blue Shield in Richmond, we are told some private companies have contracted for dental coverage for their employees. Our contracts are negotiated between the Office of Personnel Management (OPM) and the carriers. Dental coverage has been suggested by Blue Cross/Blue Shield as a consideration, but they have been told by OPM that the cost would be prohibitive."

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . Jean Drummond
Staff Photographer . . . . . Bob Nye

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

Super Guppy Delivers National Transonic Facility Component

NASA's massive Super Guppy cargo aircraft lumbered onto Langley's hangar apron October 6 to deliver a crucial component for the National Transonic Facility.

Too large to ship by truck or train, the Guppy's cargo, a 33,000-lb. upstream nacelle, had to be loaded aboard the huge airplane at Salt Lake City International Airport. The nacelle was built at Chicago Bridge and Iron Company's Salt Lake fabrication plant.

It is one of several pieces being manufactured by CBI, which will ship the downstream nacelle by truck or rail in a few months. The L-shaped upstream nacelle will form the aerodynamic lines for tunnel gas as it flows through the fan. The NTF, which will be powered by a 130,000-horsepower drive system, will be capable of achieving pressures as high as 130 pounds per square inch when completed in 1982.

About 30 persons were on hand to watch and unload the Guppy, a job which took more than 6 hours. Most of that time was spent lining up an undercarriage on which to place the nacelle. Within minutes after landing, the Guppy's nose had been swung open, but was not finally closed for another 6 hours until a special pallet, minus the nacelle, was eased back into the plane.

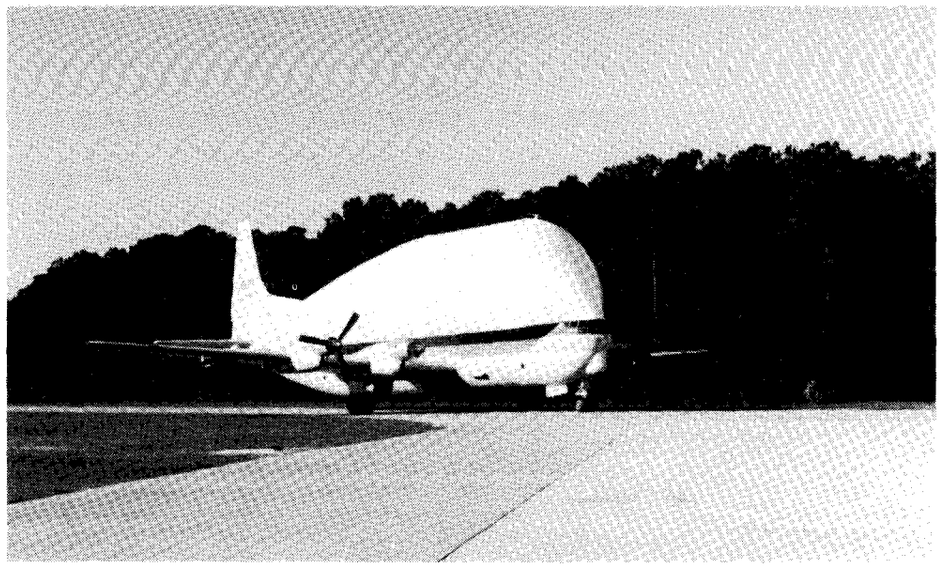
The Guppy, purchased in June by NASA, was originally built in the 1960s by Aero Spacelines for support of the Apollo program. The plane earned its name because of its large size and unique shape.

The Guppy, weighing in at 150,000 lbs. with no cargo or fuel aboard, is powered by four 6,500 horsepower Pratt and Whitney turboprop engines. The Guppy could fly with two and take off with three, "but I wouldn't want to push it," one of the pilots said.

The plane cruises at 265 mph at a ceiling of around 17,000 feet, with a routine altitude of 11,000 feet. The cargo compartment measures roughly 25 feet in diameter by 94 feet in length.

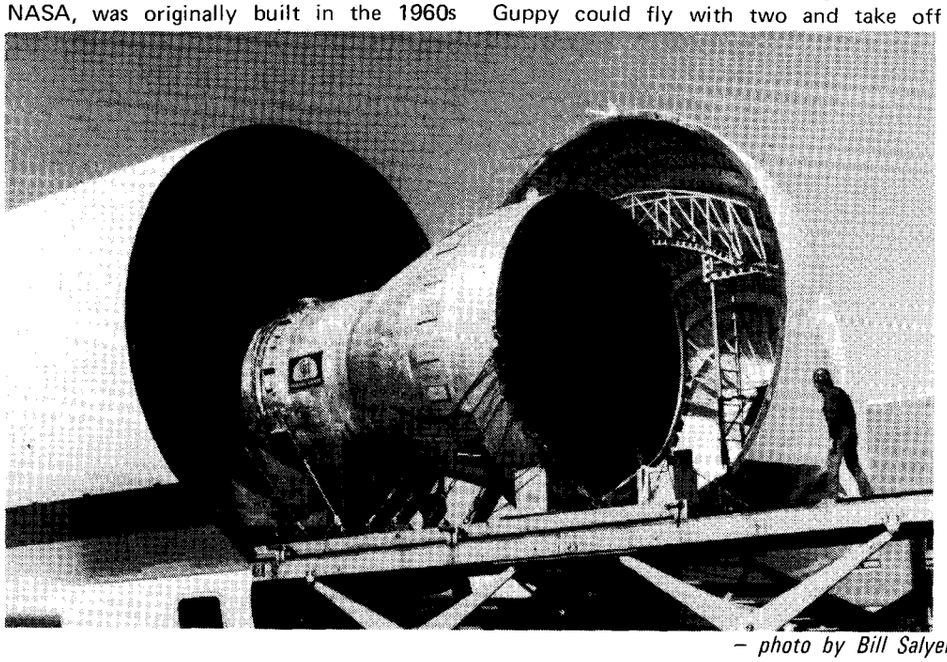
The Guppy's center of gravity is such that its nose wheels are the first thing to touch the ground on landing and the last thing to leave the ground when taking off.

The Guppy last landed here two years ago, before it became part of NASA's fleet. Its home base is now the Johnson Space Center in Houston.



– photo by Bill Salyer

NASA's Super Guppy lumbers onto Langley's hangar apron after a quick trip from Wright Patterson AFB in Ohio. The Guppy, manned by a crew of five, returned to its home base in Houston later that day.



– photo by Bill Salyer

A workman watches as an unseen Guppy crewman slides the upstream nacelle out on a special hydraulic pallet. Five hours later, the nacelle had been unloaded and the pallet was returned to the aircraft.

Thanks

Walt Olstad writes, "Helen and I thank you all for the wonderful party given in our honor on the occasion of my transfer to NASA Headquarters. The fine gifts, the kind words and even the gentle jibes were appreciated by us both. I have had the privilege of being an employee of the Langley Research Center for the past 25 years. During that time you have befriended me, supported me and allowed me to share in the pride of your accomplishments. We will not forget you."

Langley Jet Set to Probe Thunderstorms in Search of Lightning

A jet aircraft from Langley has been streaking into the heavens hoping to get struck by lightning.

Carrying a variety of experiments, most of them nestled in its belly, the modified F-106B fighter plane will enable researchers at Langley to get a closer look at aircraft storm hazards and see the chemical effects of lightning on Earth's atmosphere.

This thunderstorm season, just ended, marks the first time some of the experiments have been taken from man's laboratory to nature's laboratory.

The experiments may yield important results in several fields.

- Aircraft designers would like to use extremely accurate and space-saving digital electronic control systems. Because such systems work at low electrical levels--about one half a volt--they may be upset by electrical disturbance from lightning. The new systems, once affected, would suddenly be useless, needing to be reset, recalibrated or completely replaced back at the shop. Langley is working to collect basic data from direct lightning strikes which will help future designers of aircraft using digital electronics.

- Storm hazards are a serious concern for pilots and their passengers. Severe storms can damage or even destroy an aircraft. More needs to be known about hazards like lightning, hail and turbulence. Instruments on the ground and aboard the plane will record--and the pilot of the F-106 will observe--the experience of flying in storm conditions, hoping to determine how to make storms less hazardous to aircraft.

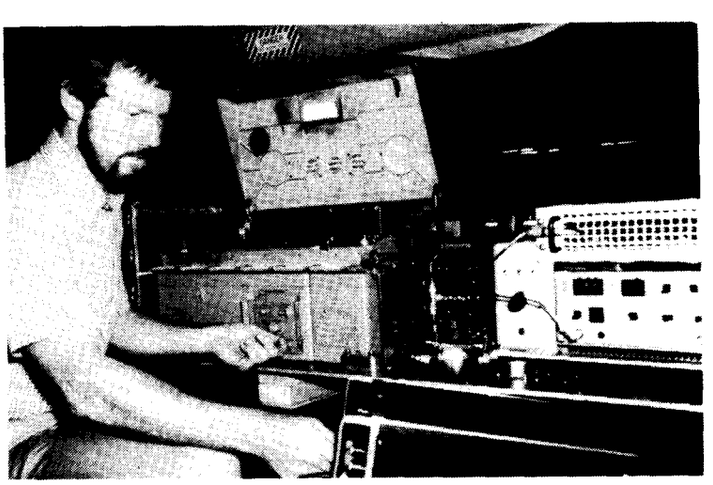
- Reducing aircraft weight is important for increased fuel efficiency. Industry-developed composite materials are stronger than metal and weigh about 25 percent less--but give less protection against lightning. A commercial airliner is struck by lightning an average of once a year. Serious damage is rare because the bolt is passed along the plane's metal exterior while passengers and flight systems are generally safe in the interior, what aircraft designers call a "Faraday cage." Langley researchers hope to prove that an airplane can be made of lighter and stronger composite materials and still preserve the Faraday cage.

- Two environmentally important gases have been produced in laboratory lightning discharges at Langley. One may affect Earth's protective ozone layer and the other is a pollutant at ground level and in the lower atmosphere. Researchers want to better define nature's contribution to atmospheric problems on Earth as a prelude to better understanding of man's impact on the environment. Samples of air collected from thunderstorms by the F-106 are expected to verify that lightning is a source of environmentally significant gases.

The first steps toward achieving these ambitious goals have been taken: the aircraft has been extensively reconditioned, custom-made lightning sensors and other experimental hardware have been fitted into the plane, and shakedown flights in late August and September worked out the bugs and acquired some data.

This year the plane flew on the periphery of thunderstorms and was not struck by lightning; next year, it will fly into thunderstorms. The most severe

Dr. Joel S. Levine, principal investigator for the atmospheric chemistry experiment, inspects the 24-bottle sampling rack in the weapons bay. The experiment is designed to bring back samples of lightning-struck air for environmental studies.



Mitch Thomas tests one of two magnetic recorders, on his left, that are part of the direct lightning strike experiment. The recorder is in one corner of the aluminum box that houses and shields the experiment in flight. The 1,000 pound box is raised and lowered into the weapons bay by a hydraulic jack.

–photos by Bob Nye

Bill Howell, materials engineer, left, and Norman Crabill, program manager, inspect rain erosion of the leading edge of the vertical tail. The fin cap, the lighter colored tip of the tail, was flame-sprayed with aluminum for protection against lightning. It is the production cap and is due to be replaced next spring and summer by caps fabricated from composite materials.

storms will be avoided because the aircraft could be seriously damaged.

The sleek fighter plane, capable of supersonic speeds, is on loan from the Dryden Flight Research Center. The F-106B, a two-seater that was new in the late 1950s and still used today by the Air Force, can fly to 50,000 feet. Most flights, though, will be aimed at thundercells around 15,000 feet, which is the freezing level and, statistically, the altitude where lightning is most likely to strike.

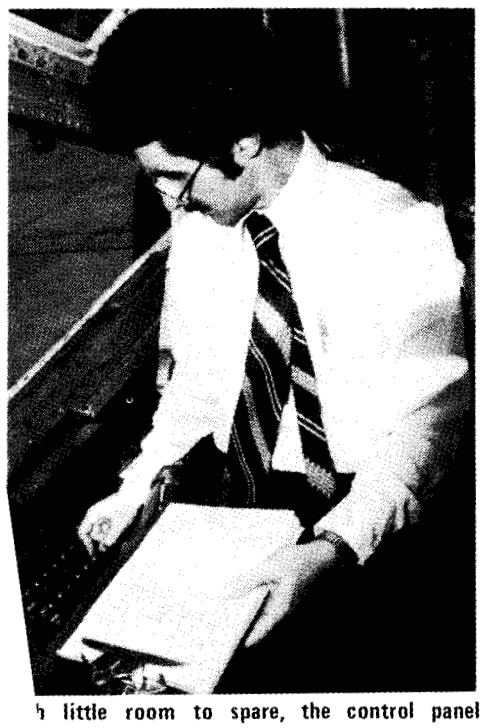
Keeping the pilot and instruments company in the stormy days ahead next year will be a flight engineer in the rear cockpit, where he will throw a series of control switches to begin experiments.

One switch activates the otherwise completely automatic direct lightning strike experiment. Learning more about the electromagnetic hazards of lightning will help aircraft designers of the future to incorporate digital avionics and composite structural materials.

Two transient recorders with solid state memories automatically record electromagnetic signals generated by the lightning strike. Each can record 100,000 samples in a mere one-thousandth of a second, stretching them out over five full seconds for laboratory analysis. Both recorders have been modified by Langley researchers and now have about 100 times the capacity of the commercial, off-the-shelf version.

– photo by Richard Shaw

Senior pilot Perry Deal and Maj. Jerry Keyser fly the Langley F-106B. Though 22 years old, it is fast and rugged, the ideal aircraft for lightning studies. Not long after its introduction, an F-106 broke the world speed record for a single engine jet, which it holds to this day.



h little room to spare, the control panel the atmospheric chemistry experiment has mounted to the right of the flight eer in the rear cockpit. Project engineer Fisher, who sometimes serves as flight er, checks switch positions. A panel on eft, not pictured, activates the direct ng strike experiment.

The study of storm hazards, a second major area of the F-106 research, also involves collecting basic information about lightning. A large part of the emphasis here, though, is in the relationship of all storm hazards to each other.

On those occasions when flying through a thunderstorm is unavoidable, knowing which parts of the storm are likely to produce the least hazardous condition could greatly increase the odds of a safe flight. Storm hazards include lightning, wind shear, turbulence, rain, sleet and hail.

Next year, ground instruments at Wallops Flight Center will locate thunderstorms and map the exact location of the plane while in thunderstorms. These readings will be compared with readings from on-board instruments and visual observations of the pilot. The objective, in addition to steering the aircraft to and through storms, will be to develop and test advanced ground-based and airborne instrumentation for the detection of severe storm hazards. Wallops will use a "SPANDAR" weather radar, and an "LDAR" lightning mapper.

Much attention will be given next year to the study of fuel-saving composite materials. The F-106 will almost be daring lightning to strike the extreme tip of its vertical tail, or the fin cap, as it's called. The seven foot by 18-inch-high fin cap will be replaced this winter with one of two recently developed composite materials. Langley researchers will use the commercially available materials to fabricate their own fin caps for the experiment.

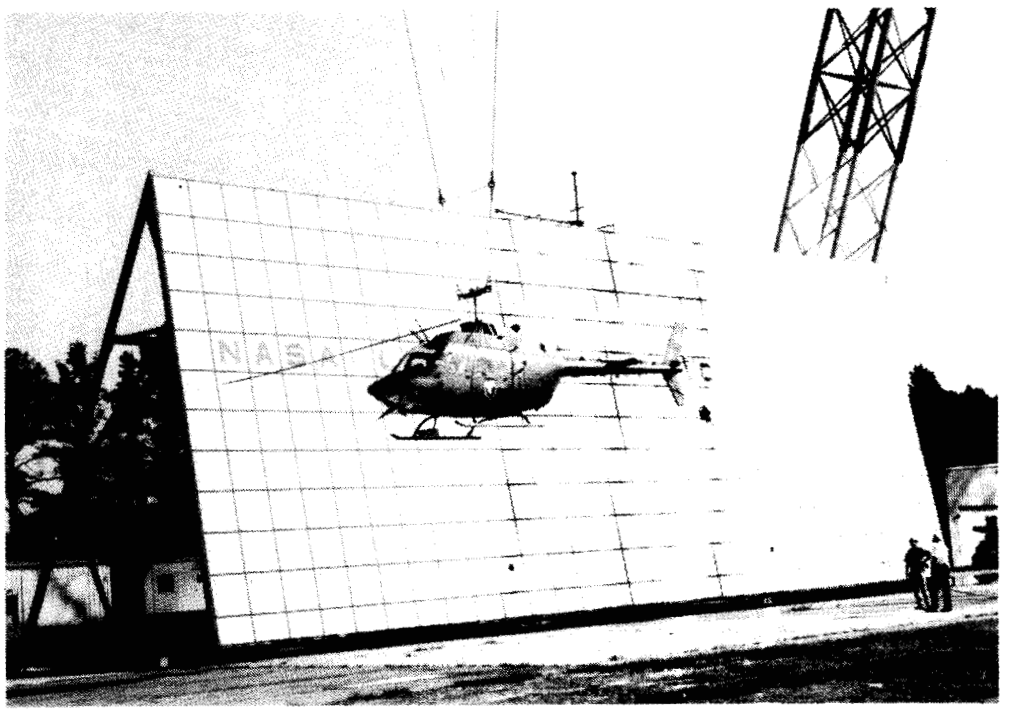
Composite materials are being used more frequently on military and commercial airliners in relatively small, noncritical areas. The Langley F-106 tests are especially aimed at protecting electrical and fuel systems. Once that is done, an entire aircraft could be made of composites and still be storm-worthy.

Meanwhile, unrelated to the problems of flying through thunderstorms, a fourth experiment seeks to confirm laboratory findings that lightning produces measurable amounts of carbon monoxide and nitrous oxide.

Nitrous oxide, doubled in the laboratory lightning experiments, is thought to deplete the Earth's ozone layer, which filters potentially harmful solar ultraviolet radiation. Carbon monoxide, increased 100-fold in the lab experiments, produces ozone which in the lower atmosphere, is a respiratory irritant.

There are other, more abundant, sources of both gases, but the possibility of lightning-produced carbon monoxide and nitrous oxide was largely overlooked

Continued on page 6.



– photo by Bob Nye

The Army, a Canadian wire cutting system and Langley all got together for a recent helicopter test at the Impact Dynamic Facility. An OH-58 was equipped with a wire strike protection system designed with upper and lower mechanical wedge-type cutters and a skid gear wire deflector. The test, conducted by the Applied Technology Laboratory, U.S. Army Research and Technology Laboratories, Fort Eustis, was successful. From the above position, the helicopter was hoisted to the top of the stand. It swung in a pendulum arc to strike the horizontal cable with the middle of the windshield deflector. The cable slid up to the cutter and the copter breezed through. Between 1971 and May 1978, according to Army figures, 6.2 percent of Army aviation accidents and 21 percent of Army aviation fatalities were a result of wire strikes. The wire cutters, developed by Bristol Aerospace Limited for the Canadian government, have been qualified and approved for retrofit on the Kiowa helicopter.

LANGLEY THUNDERSTORM PROBE

Continued from page 5.

before the Langley laboratory experiments.

The F-106 phase of the studies is being expanded to look for other gases that may be produced by lightning. In total, two 24-bottle experiment packages will be carried aloft alternately when the F-106 resumes the search for lightning in the spring.

Langley's Norman Crabill is in charge of the storm hazards area of study and overall program manager for the F-106 lightning experiments. Bruce Fisher serves as project engineer, and frequently rides in the second cockpit operating experiment controls. Crabill and Fisher are in the Safety and Operating Problems Branch, of FLTMD.

Pilots for the project are Perry Deal and Maj. Jerry Keyser, on assignment from the Air Force. The direct lightning strike experiment is headed by Felix Pitts and Mitch Thomas, of the Aircraft Electronic Systems Branch, FED. The composites work is being guided by Bill Howell, of the Materials Application Branch, MD, and Dr. Joel S. Levine is directing the work of the atmospheric chemistry experiment. Levine is in the Atmospheric Sciences Branch, AESD.

Speakers Bureau

Howard Wright spoke to the Newport News Civitan Club about "Future in Aeronautics" on August 7. He spoke to the Greenville, South Carolina, Downtown Kiwanis Club on "Space Missions—Past and Future" on August 16.

Ira Abbott spoke about "Total Energy Management" at the Richmond Technical Institute on August 8 and about the Tech House to the Supervisor of Shipbuilding Conversion and Repair in Newport News, on August 14.

Key Positions

Victor E. Wilson has been selected Supervisory Engineering Technician, Mechanical Development Section, Mechanical Technology Branch, Fabrication Division, under Merit Promotion Announcement 79-60.

Moses J. Long has been selected Head, Systems Development Branch, Systems Engineering Division, under Merit Promotion Announcement 79-65.

Richard M. Boykin, Jr., has been selected Head, Aeronautical Systems Engineering Branch, Systems Engineering Division, under Merit Promotion Announcement 79-66.

Willis H. Ward, Jr., has been selected Supervisory Engineering Technician, Technical Support Section B, Laboratories Operations Branch, Operations Support Division, under Merit Promotion Announcement 79-68.

Frederick L. Moore has been designated Acting Head, Project Planning and Control Office, Projects Management Systems Division.

Lisle E. Taylor has been designated Technical Assistant, Analysis and Computation Division.

Analyzer Demonstrated

A digital signal analyzer, Hewlett Packard's model 5423, will be demonstrated on Friday, October 26, in Building 1230, Room 270.

In addition to the standard time anc frequency analysis functions, the analyze provides the user with a modal analys capability.

For more information, call Ji Monteith, extension 3446.

Recent Retirees

David E. Guthrie, Jr., Scout Prc Office, retired on October 5.

Joseph R. Carpenter, P Engineering Division, retired on Oc 6.

Wade E. Cason, Jr., Instr Research Division, retired on Octo

Joshio Yamaki, Research F Engineering Division, and **Lan Williams,** Instrument Research D retire today.

Happenings

HAPPY HOUR will be held on October 26, beginning at 4 p.m. at the Activities Center.

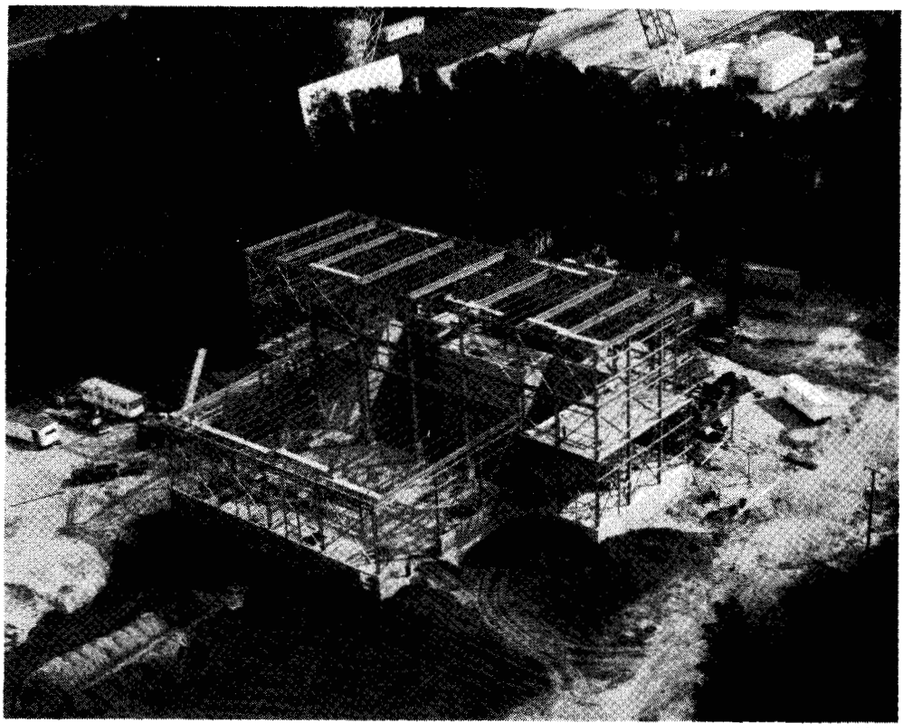
TURKEY SHOOT. The LAA will sponsor its annual Turkey Shoot on Saturday, November 17, on the Activities grounds from 9 a.m. until sunset. Turkey raffle tickets (25 cents each) may be purchased from your Activities Association representative. Volunteers are needed to help with the shoot. Please contact Ernie Greene, extension 2312, if you can help.

LAA ELECTION. Representatives to the Langley Activities Association General Assembly will be elected on Tuesday, October 30.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held on Tuesday, October 23, at 7:30 p.m., in the Activities Center, Building 1222.

LAA ARTS AND CRAFTS SHOW will be held at the Activities Center on November 18, from 1 to 6 p.m. All persons interested in displaying their crafts should contact Beverly Anderson, extension 2592.

NAGS. The National Association of Government Secretaries, Hampton Roads Branch, will hold a dinner meeting on October 16 at Captain George's Restaurant, 2710 W. Mercury Blvd. Registration is at 6:15 p.m., with dinner at 6:30. Professor Rick Lowe, Psychology Instructor at Thomas Nelson Community College, will be featured in the program "Disco Demo." Many will remember Lowe for his presentations on "Transactional Analysis" and "Sleep and Your Dreams." Reservations are required and may be made through October 12 with Reachie Hall, extension 2150 or 826-7495; or Shirley Davis, extension 2759 or 838-7435.



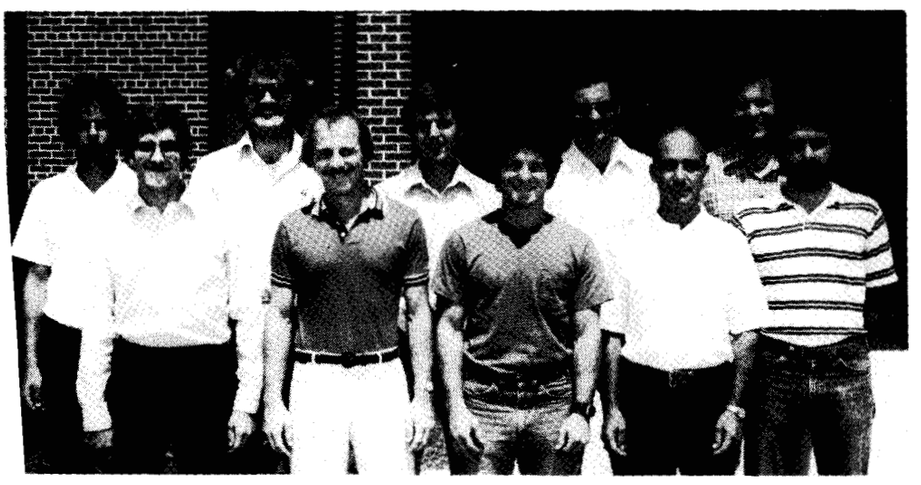
– photo by Al Moore

All major concrete pours (except roadways) have been completed at the Refuse-Fired Steam Generating Facility. Most of the building steel has been erected and roofs and siding will be installed in the near future. Boilers will be hydrostatically tested starting October 15. The project is on schedule for a June 1980 completion.

LAA DANCE. The Langley Activities Association will sponsor a dance on November 3 from 9 p.m. to 1 a.m., in the Activities Center. Top 40 music for young and old will be furnished by Knight Gallery. The cost will be $4 per person or $7 per couple. BYOB, set ups included. For reservations contact Sue Juanarena in the Activities Office, extension 3139.

RUNNERS CLUB will sponsor an intercenter meet on October 20, consisting of a 2-mile race at 10 a.m. and a 10,000 meters at 11 a.m. The races will be run from the Activities Center and are open to all employees. For more information, call Don Humes, extension 3781.

A SINGLES DANCE will be held Saturday, October 20 at 9 p.m. at King James Motel on Jefferson Avenue. A cash bar will be provided.



– photo by Bob Nye

r the third consecutive year, the Shams are the NASA Softball "A" League Champions, with a fect record of 17–0. The Shams also captured first place in the past-season tournament, ning all three games. Members of the team are: (front row) Doug Juanarena, Ernie Burt, Ralph el, Ramon Barr and Alan Frizzell; (back row) Ed Modlin, Mike Luther, Stewart Harris, Brad and George Walker. Not pictured: Rodney Russell, Ron Weber, Bill Clarke and Dwight Clarke.

swap and shop

FOR SALE

Articles

Football Tickets: Two tickets to the VPI vs VMI football game in Blacksburg, November 17, $9 per ticket. Call Tom Moore, 898-7313.

Honey—local, dark, extracted, $3/qt. Call G. Harvey, ext. 2818 or 723-7148 after 4:30 p.m.

TRAVELING? United Airlines coupon good for 50% discount on one way or round trip travel before December 15; $50. Call 851-4936.

Vehicles

Chris Craft, 28' cabin cruiser, sleeps 4, stand-up head, engines and trans. in GC, kept under cover, $5,100. Call 838-0173 after 5 p.m.

1971 Apache Ramada pop-up, fiberglass sides and top, sleeps 8, 3-burner stove, electricity and water hook-up, VGC, $850 OBO. Call 722-8245.

Sunfish, Alcort-AMF, 1979, with Trailex trailer, Model TX-200; used about six times; EC. Call Butler 596-3394.

FOR RENT

Wintergreen Condominium—on Diamond Hill Ski Slope; completely furnished including linens, 2 BR; rates through Dec. 15, $50 per day; Dec. 15 through March 15, $75 per day, Sunday to Thursday; $85 per day Friday, Saturday. Reserve now for ski season. Call C. L. Ladson, 877-3632.

WANTED

To join a carpool from Windsor Great Park to West area for 8—4:30 shift. Call Scott Wagner, ext. 2486.

To join or form a carpool from the Bayberry/Harpersville/Concord Lake Apartments area to the West area on the 8:00 shift. Please contact Tom Moul, ext. 4591, or 595-0329.

cafeteria menu

WEEK OF OCTOBER 22

MONDAY: Old Fashioned Bean Soup; Chicken & Dumplings; Stuffed Bell Peppers; Hot Roast Pork Sandwich. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Broiled Beef Liver; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Corn Chowder; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Beef Enchiladas. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Pineapple Chicken; Steak Teriyaki. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF OCTOBER 29

MONDAY: Old Fashioned Beef Soup; Spaghetti Dinner; Crab Cutlets; Chicken Chow Mein. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Beef Balls Stroganoff; Ham & Cheese Omelette. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Swiss Steak; Sweet & Sour Pork. Snack Bar: Ham & Turkey Club; Steak, Onion, & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo; Roast Beef; Braised Chicken Livers Over Rice; Meatloaf. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory Baked Chicken; Country-Style Steak. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

Farewell Parties

Searcy Smith, Jr., Office of Audit, will be honored with a farewell luncheon on October 29, 11:30 a.m., in the Activities Center. Cost is $6 per person (includes $1 for gift and 15% gratuity). For reservation, please send remittance to Scarlett Coffey, Mail Stop 181, no later than October 24.

Lamar E. Williams, Instrument Research Division, will be honored with a retirement luncheon on Friday, November 2, in Building 1230, Room 257. Luncheon will begin at 11:30 a.m. The cost of luncheon including gift will be $3.50; contributions for gift only, $1. Please pay Andy Kantsios, Mail Stop 234, by October 26.

Job Openings

The following Merit Promotion Announcements are currently open:

79-80 — AST, Control Systems; GS-801-12 or 13; Research Facilities Engineering Division; Systems Design Branch; Facilities Systems Section; Closes October 22, 1979.

79-81 — Writer-Editor; GS-1082-7; Office of the Director; Office of External Affairs; Public Affairs Office; Close: October 26, 1979.

79-82 — AST, Fluid and Fligh Mechanics; Supervisory Aerospac Engineer; GS-861-14 or 15; Office c Director for Systems Engineering Operations; Systems Engineering Divisio Engineering Analysis Branch; Clos October 26, 1979.

79-83 — AST, Experimental Faciliti Techniques; GS-801-13 (2 Position Office of Director for Aeronauti Subsonic-Transonic Aerodynami Division; Colocated with Syste Engineering & Operations Directora National Transonic Facility Proj Office; Closes October 26, 1979.

79-84 — AST, Experimental Facili Techniques; GS-801-14; Office Director for Aeronauti Subsonic-Transonic Aerodynam Division; Colocated with Syst Engineering & Operations Directo National Transonic Aeroydnar Division; Closes October 26, 1979.

Thanks

Ed Brummer extends heartfelt th to all who so very thoughtfully sent the large basket of delicious fruit d his recent confinement at Riv Hospital and to all who exp concern through phone calls and ca

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 22

November 2, 1979

Scout Successfully Launches Magnetic Field Satellite

Langley's Scout rocket successfully launched an experimental NASA spacecraft early Tuesday morning to measure the near-Earth magnetic field and crustal anomalies.

Liftoff of Magsat (Magnetic Field Satellite) occurred at 9:15:52 a.m. EST from the Air Force Western Space and Missile Center at Lompoc, Calif., near the end of a six-minute launch window.

Preliminary information from the Goddard Space Flight Center (at *Researcher* press time) indicates that the spacecraft is working satisfactorily. Its despin maneuver was good and its solar panels deployed as planned.

Rough orbital figures for the Sun-synchronous, nearly polar orbit indicate a perigee of 364 kilometers and an apogee of 624 kilometers. Inclination to the Earth is 96.6 degrees.

The Scout launch, originally scheduled for October 29, was delayed one day because of strong winds a few thousand feet above the launch site.

Magsat's main mission objectives are to:

- Obtain an accurate, up-to-date quantitative description of the Earth's magnetic field;
- Provide data and a worldwide magnetic-field model suitable for U.S. Geological Survey update and refinement of world and regional magnetic charts;
- Compile a global two-dimensional (scalar and vector) crustal magnetic anomaly map. The spatial resolution goal of the anomaly map is to be better than 350 km (219 mi.).

The principal user of Magsat data, the Geological Survey of the Department of the Interior, has cooperated closely with NASA in setting mission objectives and will participate in the data analysis. Magsat data will be used by the Geological Survey in its publication of updated magnetic field charts and maps in 1980 for navigation and geological use.

Scientists from the United States and eight foreign countries--Australia, Brazil, Canada, France, India, Italy, Japan and the United Kingdom--will carry on 32 investigations in six general categories: geophysics, geology, field modeling, marine studies, magnetosphere/ionosphere and core/mantle studies.

– photo by Bob Nye

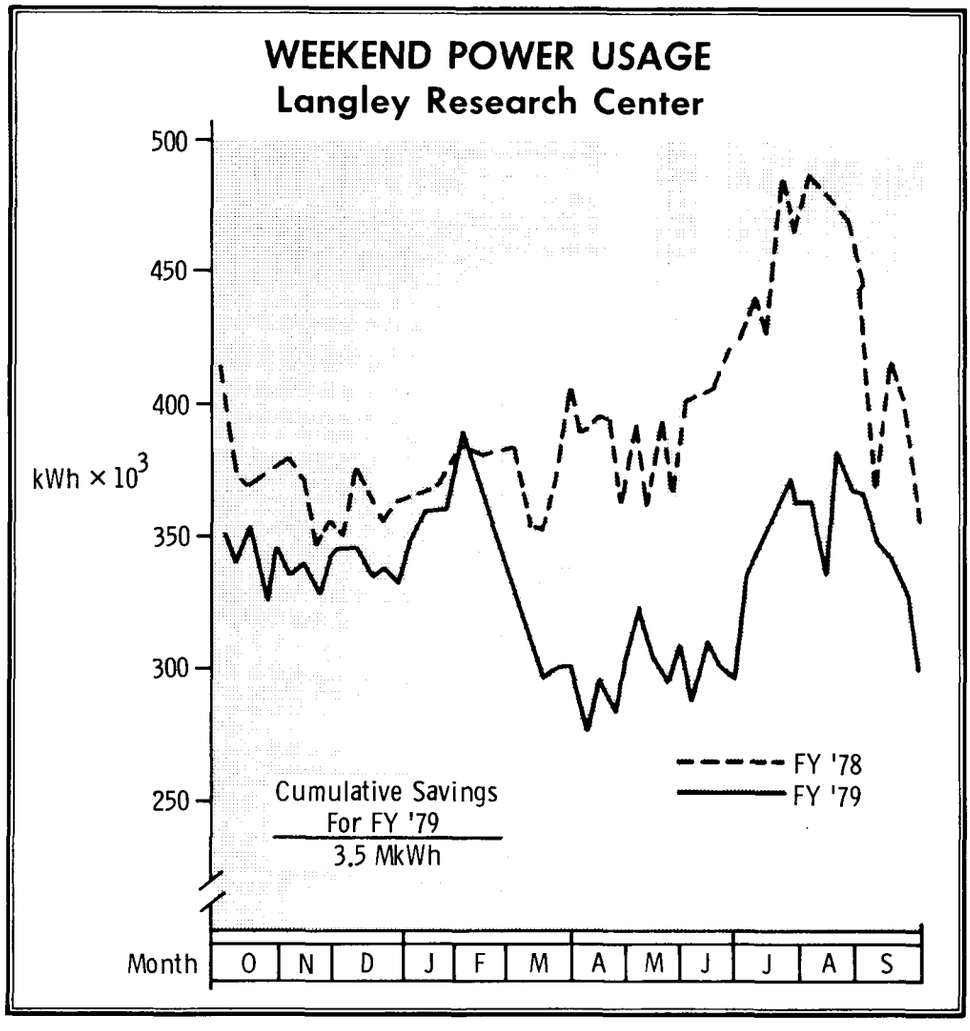
Dr. Vivian Weil (second from left), a research fellow at the Illinois Institute of Technology, spoke on "Ethics in Science and Technology" at the Langley colloquium on October 15. At the Institute's Center for the Study of Ethics in the Professions, Weil is involved in pioneering courses that relate to ethical and humanistic issues. Greeting Weil were members of the Langley Colloquia Committee, Joel Levine (left); Sheila Ann T. Long, Chairman; and Edward R. Long, Jr.

Langley Exceeds Goal

As of *Researcher* press time, Combined Federal Campaign contributions totaled $184,630, which is $7,130 above Langley's goal.

Contributions are still being received from Langley employees on extended travel and retirees, according to Jim Meyers, CFC Financial Chairman.

Langley's final CFC report will appear in the November 30 issue of the *Researcher*.



The graph shows the power used each weekend from midnight Friday to midnight Sunday for Fiscal year 1978 and 1979.

Weekend Electric Power Use Reduced

The Center reduced its use of weekend electric power during Fiscal Year 1979 by 3.5 million kilowatt hours—from 20.5 to 17 million.

Gene Mason, Langley's Energy Resources Manager, said the reduction was primarily due to an increased awareness among the Center's employees, which resulted in turning off a large number of pieces of equipment that use small amounts of power. Additional savings were also realized by consolidating and isolating equipment which requires 24-hour per day air conditioning. The greatest savings were achieved over the last six months of the fiscal year and reflected the Center's response to the President's directive for a 5 percent energy reduction.

The data for this October shows an even greater reduction over October 1978. Mason feels this trend could continue during Fiscal Year 1980, and encourages each employee to seek out any equipment that could be disconnected when the facility is unoccupied and when research would not be compromised.

Energy Saving Tips

Add extra insulation to your house to reduce cooling costs in warm weather as well as heating costs during the winter.

Do not use radiators as bookshelves. Clutter on radiator tops impedes the flow of heat. You may turn the heat up higher than you need to. This is a waste of energy.

Math Modeling Symposium Held

NASA and George Washington University sponsored a symposium on mathematical modeling in structural engineering for academic, industry and government representatives October 24 through 26 at Langley Activities Center.

The symposium, primarily concerned with structural applications, concentrated on computer-based math modeling procedures. Over 100 people attended the two-and-one-half day gathering which consisted of 10 sessions.

Mathematical modeling, a basic element in most engineering efforts, involves idealizing or representing actual structures for computational purposes. These processes allow engineers to learn how structures perform or react under specified conditions.

Topics covered included modeling aeronautical and space vehicle structures, helicopter structures, and beam and panel structures. In addition, mathematical fundamentals and implementation of the computational processes were discussed.

A highlight of the symposium was a presentation titled "Airplane Structures and Their Creators," a look at men and machines by Dr. Nicholas J. Hoff, professor emeritus of Stanford University.

Howe Memorial

Many friends and associates of Margaret and Ed Howe made donations to a memorial fund at Wesley United Methodist Church. The memorial fund was used to purchase a new piano.

The organist/pianist will perform a piano recital on Sunday, November 4, at 7:30 p.m. in the church, 2510 N. Armistead Avenue in Hampton.

Everyone is invited.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Supersonic Cruise Research Conference Here November 13-16

Langley will sponsor a Supersonic Cruise Research (SCR) Conference November 13–16 to review advances in technology disciplines that are applicable to supersonic cruise vehicles.

Approximately 300 representatives from government, industry and education are expected to attend conference sessions on aerodynamics, stability and control, propulsion, environmental factors, structures and materials, and systems integration with economic considerations.

Highlights of the conference will include a paper on the British operational and economic experience with the Concorde, and a paper by a Congressional staff representative assessing the impact of advanced air transport technology.

Langley's seven-year supersonic research program is a concentrated effort to reduce the undesirable factors once associated with supersonic transports. Improvements in noise reduction, structures and economics have been made, and some of these results will be presented during the Conference.

NASA researchers and associates have produced more than 150 technical papers and reports since the last Supersonic Cruise Aircraft Research Conference in November 1976.

The Conference's aerodynamics session will focus on low and high-speed wind tunnel test results, advanced aerodynamic computational methods and concepts. Concorde certifications experience and recent in-flight simulation tests, arrow wing low-speed handling qualities, and simulator studies of advanced procedures for community noise abatement will be discussed in the stability and control session.

Variable cycle engine technology and engine inlet selection effects on cruise speed selection will be discussed in the propulsion session, and the environmental factors session will cover mechanical noise suppressor test results, effects of nozzle design on supersonic jet noise, and pollutant emission control by advanced technology.

Prediction methods, and NASA/industry progress in the development of new, lightweight, durable structures capable of sustained high-speed flight will be described in the airframe structures and materials session.

Cruise speed selection as influenced by design, operational and economic constraints, a family of supersonic airplanes, and the feasibility of an advanced supersonic cruise research vehicle/business jet will be discussed in the systems integration and economics session.

The SCR Conference was planned and organized by the Aeronautical Systems Division, and is chaired by Cornelius Driver and Hal T. Baber, Jr. The Conference will begin each day at 8:30 a.m. in the Activities Center.

Langley Employees Support Bloodmobile

Two hundred seventy pints of blood were donated at the October 17 visit of the Red Cross Bloodmobile. The next opportunity to donate will be on Wednesday, January 23, 1980.

Achieving gallon status were:

10 gallons – G. Michael Jurscaga.

7 gallons – Littleton Burgess.

6 gallons – Joseph F. Powers, Billy W. Beasley and Roger K. Amick.

5 gallons – Robert A. Bruce and Daniel DiCarlo.

4 gallons – Thomas H. Leffel, Jr.

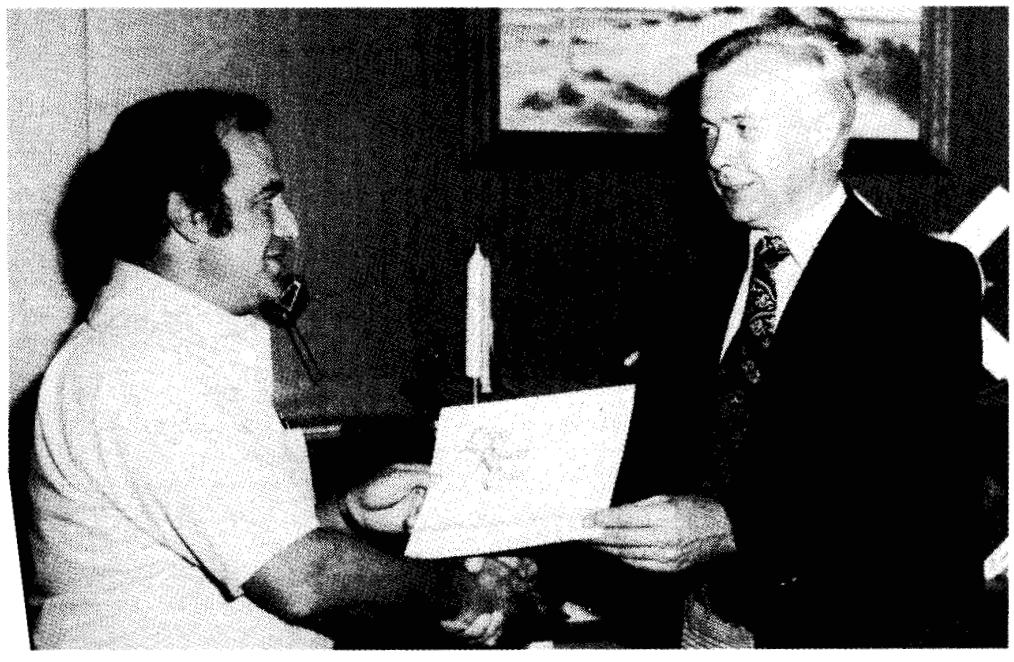
3 gallons – Richard L. Chattin and Rodney D. Russell.

2 gallons – Charles E. Longacre, Donald R. Beasley, Howard Wilson, Jr., Lloyd Nelson, Donald Simmons, Leonard S. Mayo, Charles A. Hardesty, Harvey Murray, Kenneth Voss and John Karns.

1 gallon – Edward Self, John J. Warhal, Jr., Spencer C. Johnson, Tommy Augustsson, Robert A. Golub, Robert E. Graham, Michael G. Fleck, Gregory S. Keat and W. Kent Smith.

Donating blood for the first time were: G. C. Willoughby, Jr., Roger Howell, William Castle, Ollie J. Rose, JoAnn E. Marcroft, Dennis M. Foley, Richard Sailey, Dan W. Ridenour, Catherine Wellons, David Walden, Bryan Ellis, John W. Quinn and Faye Ambrose.

NASA Coordinator for the Bloodmobile was Robert L. (Scotty) McArthur. Mrs. Pat Poslik was the Red Cross Coordinator. Physicians serving were Dr. M. Temko and Dr. E. S. Roberts.



'liam M. Piland (right), Space Systems Division, was presented a Special Achievement Award by ıl F. Holloway, Director for Space, "For outstanding leadership and sustained superior 'ormance of the duties of Assistant Chief, Space Systems Division, during the extended absence 'he Chief."

Recent Retirees

William W. Anderson, Jr., Research Facilities Engineering Division, and **William R. Latta**, Structures and Dynamics Division, retired on October 26.

Roy T. O'Conner, Fabrication Division, retired on October 23.

Museum Provides a View of Aeronautical and Space Technology

Melvin Zisfein, Deputy Director of the National Air and Space Museum, presented a lecture titled "A Museum View of Aeronautical and Space Technology," at the Langley Visitor Center on October 22.

Using an audiovisual presentation, Zisfein took his museum and technology-oriented audience through the historical development of the National Air and Space Museum and provided a tour of many of its galleries. He also discussed the changing role of museums and approaches to technology that assure the identification and preservation of artifacts.

Over the years, the Smithsonian had acquired a huge collection of aeronautical and space objects, and in 1970 the decision to build a modern Air and Space Museum was made. Construction of the National Air and Space Museum began in 1972. The building, which is about seven stories high, was designed with a wide central corridor which facilitates movement of airplanes and spacecraft. Each of the 23 galleries located directly off the main corridor has a special theme. The building also houses a unique theater with a five-story high, special screen and two major presentation areas.

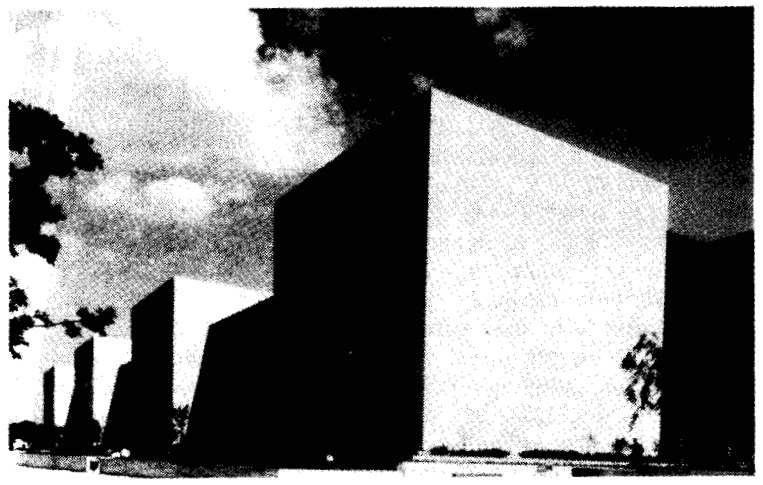
On July 1, 1976, the museum was dedicated. Appropriately, a signal from the Viking Orbiter circling Mars opened the building. Three weeks and two days later, the one millionth visitor arrived. It is the leading tourist attraction in Washington, D.C., with an average of about ten million visitors per year.

Part of the appeal of the Air and Space Museum lies in its use of genuine artifacts. In the gallery, "Milestones of Flight," one can see the world's first airplane (the Wright brother's 1903 Flyer) hanging within view of the X1 (the first supersonic airplane).

In the same gallery, Lindbergh's "Spirit of St. Louis" hangs above the Apollo 11 spacecraft, "Columbia." These are just a few of the original aircraft displayed in the museum's galleries.

Another major appeal of the Air and Space Museum is the hands-on, participative nature of many of the exhibits. The museum uses creative approaches to make history and technology come alive. "We consider ourselves," said Zisfein, "a museum devoted to communication with our visitor." As the

Melvin Zisfein, the first lecturer in the Distinguished Lecturer Series of the Langley Visitor Center, is responsible for the development of the exhibits and presentation complex at the National Air and Space Museum.



The National Air and Space Museum is the leading tourist attraction in Washington, D.C. The building houses 23 galleries, a unique theater and two major presentation areas.

attendance figures testify, this museum communicates extremely well with its public.

In the "You Can Fly" exhibit, the visitor, under supervision, actually experiences "flight" in trainers used for pilots. In the Space Hall one can actually walk through the back-up Skylab vehicle, touch a Moon rock, and see beautiful space photos in a mini-theater.

In the Hall of Air Transportation, one walks through a "forward airfield near Verdun, France," listening to the background noise and to the "conversation" of the personnel stationed there. Mutoscopes, showing maneuvers developed in World War I, are popular participative exhibits in this gallery.

The Planetary Exploration Gallery allows the visitor to experience a simulated spaceship landing on Venus, and a separate exhibit provides the experience of an orbit around Mars.

In the Flight Technology Gallery, five imaginary flight technicians were created to "guide" the visitor through the gallery. The visitor hears the thoughts and words of the technician as they participate in a flight design conference. These are but a few of the many innovative participative exhibits found at the Air and Space Museum.

One drawing card for repeat visitation is the continuing development of new exhibits. "Flying For Fun" is a recent addition which features displays ranging from sailplanes tc frisbees.

Another trend toward meeting the needs of all of th public is the museum's development of special programs for th blind and the handicapped. Special elevators, wheel cha service, special guides, scripts, braille translations, and oth services are provided for those requiring assistance to enjoy t museum.

Formal educational programs receive a special emphasis the museum. "Overall, it's our objective to have an educatic program as good in its way as our exhibits program is in i The educational programs include the publication of spe manuscripts for educational purposes, an outreach program filmstrip sets on each main subject in the galleries, and a S

Continued on pa

Langley Hosts Annual Facilities Conference

Langley was host to representatives from all the NASA centers during the Annual Facilities Conference which ended yesterday in Williamsburg.

The two and one-half-day meeting saw extensive coverage given to energy-oriented issues such as biomass conversion and Langley's Refuse-Fired Steam Generating Plant. Other topics included construction management, environmental protection, labor costs and facilities procurement.

The conference, held at the Holiday Inn 1776, was highlighted by a Tuesday night banquet, where James Waite, a representative of Colonial Williamsburg, spoke on the renovation of Weatherburn Tavern there.

The annual facilities conferences are sponsored by NASA Headquarters.

Langley to Help Fund Human-Powered Flights

Langley and the Dryden Flight Research Center will sponsor a short-term flight research program with one of the world's most unusual aircraft, the human-powered Gossamer Albatross.

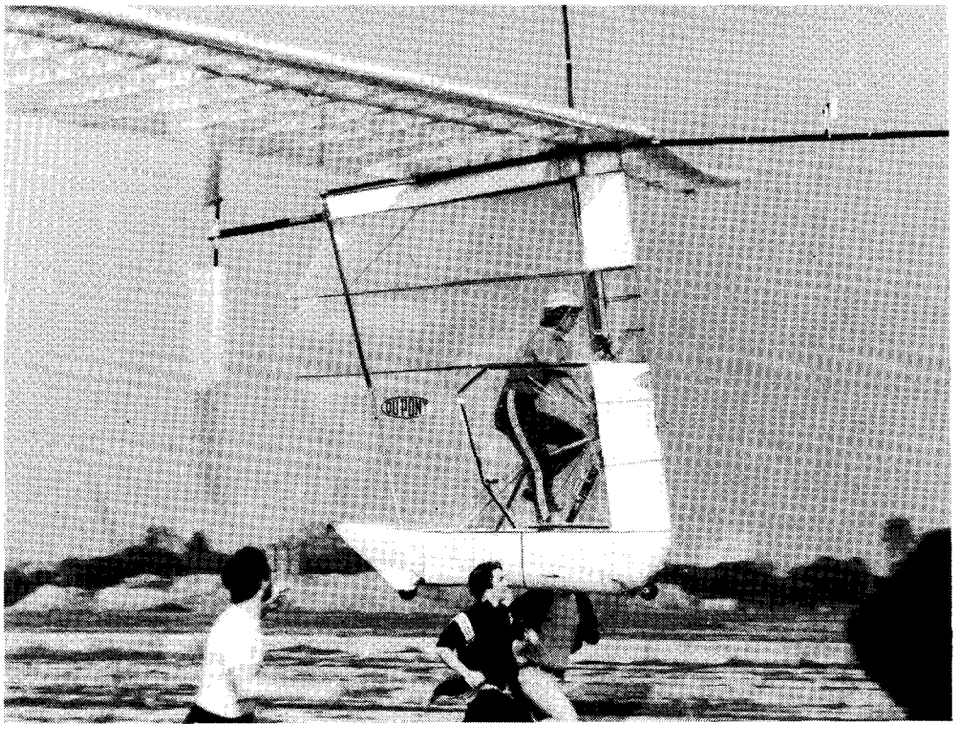
The two-month program will study the flight characteristics of a lightweight, low-speed aircraft for possible application to future aircraft capable of flight at extreme altitudes.

The Gossamer Albatross No. 2 is one of several human-powered aircraft designed and built by Dr. Paul MacCready, president of AeroVironment Inc., Pasadena, Calif. The craft to be flown in the NASA program is the sister ship of the Gossamer Albatross that made history by flying across the English Channel last summer under human power.

The Gossamer aircraft is powered by a pilot who pedals a bicycle-like contraption that drives the craft's propeller.

The NASA study will emphasize the use of a lightweight data system to measure aircraft stability, control and performance characteristics. The craft will be flown at Dryden using human power, towed (propeller-off) flight and an electric motor for steady-state conditions.

The flight program will be conducted by AeroVironment Inc. under a $65,000 NASA contract.



The "Gossamer Albatross," piloted by Bryan Allen, slowly lifts off the ground during a test flight. The human-powered airplane flies at a speed of 11 miles-per-hour at an average altitude of about 30 feet. "Gossamer Albatross" weighs 55 pounds and has a wingspan of 96 feet.

Aerospace Penpoints by Wesley Berryman

To my mind, Edison's greatest "invention" was ORGANIZED RESEARCH.

–Charles F. Kettering

LAA Travel

There are four seats still available on the three island Hawaii trip that departs from Patrick Henry Airport December 31 for a stay of 16 days. You may prefer to visit fabulous Las Vegas at discount prices November 11–15. This charter departs from Norfolk.

Do your Christmas shopping in the Caribbean. Cruise from Norfolk December 14–22 to four ports-of-call. There are only a few cabins left for this exciting trip.

For details call Ernie Greene, 2312, home 838-0567; or Herb Boulter, 3234, home 838-4773.

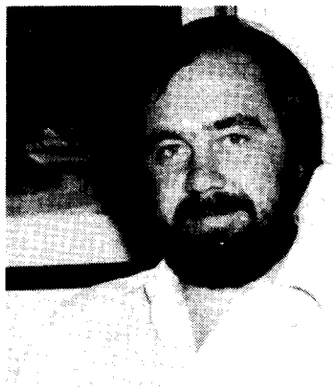
Museum

Continued from page 4.

and Aeronautics lecture series. The museum also sponsors a Lindbergh chair for a visiting professor to encourage scholarship.

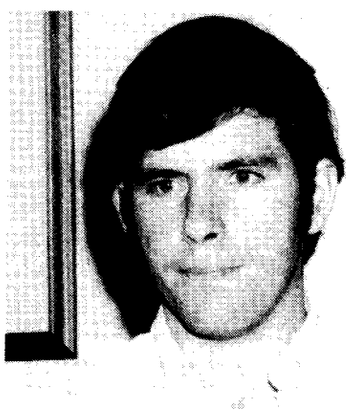
Zisfein stressed the informal educational role of museums. "Today a successful museum masquerades as an opportunity for a casual look at some curiosities while actually offering to its visitors large quantities of information and many otherwise unavailable broadening opportunities."

Special Achievement Awards Presented



Mack G. Laurence, Operations Support Division, received a Suggestion Award relative to "motorized flap assemblies for the diffuser flow apparatus, National Transonic Facility."

Anne K. St. Clair, Materials Division, was presented a Special Achievement Award "For sustained superior performance in the development of new high temperature adhesives and adhesive processes for bonding thin polyimide film."



Gene T. Nuttall, Operations Support Division, was presented a Suggestion Award relative to "motorized flap assemblies for the diffuser flow apparatus, National Transonic Facility."

The following Langley employees have been presented Special Achievement Awards:

Robert F. Mayo, Materials Division, "For safe and effective operation of the arc tunnels in the High Temperature Materials Laboratory with a reduced professional support complement."

Leonard M. Weinstein, High-Speed Aerodynamics Division, "For exceptional inventiveness in turbulent drag reduction research."

S. Zane Pinckney, High-Speed Aerodynamics Division, "For significant contribution to NASA's hypersonic program by providing potential solutions to hypersonic engine inlet-combustor interactions and by continued high-quality, timely research."

Francis J. Capone, High-Speed Aerodynamics Division, recently received a Special Achievement Award "For aggressive leadership in developing and conducting several complex experimental programs on advanced propulsion integration schemes."

Patricia T. Redwood (right), Personnel Division, received a Special Achievement Award "In recognition of outstanding productivity and dedicated efforts which have contributed to accomplishing the goals of the Staffing and Special Programs Branch."

– photos by Bob Nye and Bill Salyer

R. Wayne Guy (center), High-Speed Aerodynamics Division, recently received a Special Achievement Award "For significant contribution to NASA's hypersonic program by providing the innovative research and initiative which resulted in the first tests of an airframe-integrated scramjet engine at conditions simulating Mach 7 flight." Congratulating Guy are Robert A. Jones (left), Head, Hypersonic Propulsion Branch, HSAD, and Roy V. Harris, Jr., Chief, HSAD.

Happenings

CHILDREN'S CHRISTMAS PARTY. The annual LAA Children's Christmas Party is scheduled for Sunday, December 9, featuring Alladin and the Magic Lamp Puppet Show. There will be shows at 1 and 3 p.m. Tickets are on sale at the Activities Office for $1 per person.

LA BOHIME. The opera, "La Bohime," will be performed at the Center Theater in Norfolk today at 8 p.m., Sunday, November 4, at 2:30 p.m. and at the Mosque in Richmond on Friday, November 9, at 8 p.m. Charlotte Williams, wife of Jerry Williams, Materials Division, will be singing in the production with the Virginia Opera Association.

AFGE Health Insurance representative will be available in the Cafeteria on Thursday and Friday, November 15 and 16, from 6:30 to 7:30 a.m. and from 11 a.m. to 1 p.m., to answer questions pertaining to the AFGE Plan. In addition, the representative will be available in Room 100, Building 1232-B, from 3:45 to 5:15 p.m., both days. Employees are to be on their own time while talking to the representative.

BASKETBALL. Anyone interested in coordinating the Activities Association basketball league this season should call Rob Calloway at extension 2483.

NASA EMPLOYERS DAY. The College of William and Mary will sponsor a NASA Employers Day for the William and Mary vs. East Carolina football game on Saturday, November 24, in Williamsburg. Tickets will be sold at $2 per person. All you have to do is show your NASA ID at the William and Mary ticket office. There is no limit to the number of tickets you can buy. It will be on a first-come, first-served basis. Seats are available from the 50-yard line to the end zone.

HAPPY HOUR will be held Friday, November 9, from 4 to 6:30 p.m. in the Activities Center.

TOASTMASTERS. You are invited to join TAC Air Toastmasters Club to develop the arts of giving speeches, evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesdays of the month at the Langley Officers' Club at 7:15 p.m. For further information, call Bob Lee, ext. 2486; Bob Miserentino, ext. 2817; or Gayle Wilson, ext. 3551.

– photo by Bob Nye

During the 1979 LAA Carnival, the second Directorate Mile Relay was held and the old record of 4:00:8 minutes was destroyed by the four-man team from Systems Engineering and Operations. Raymond Parker, Ernie Burt and Ralph Angel, along with Greg Tice (not pictured), ran a 3:50:7 race that left the other five teams muttering, "There is always next year."

Speakers Bureau

Duke Reiber spoke on the Jupiter Encounter to the Gloucester Rotary Club on August 30.

Les Rose spoke to the Franklin Rotary Club about the Tech House on August 31.

John Samos spoke to the Williamsburg Shrine Club on the Tech House on September 5.

John Cox participated in a panel discussion at the Hampton Roads Chapter of the Classification and Compensation Society meeting held at the Little Creek Officers' Club on September 19. The discussion was titled "Why Don't They Talk to Each Other Down at the Civilian Personnel Office."

Jerry Tucker spoke about microprocessors at the Institute of Electrical and Electronic Engineers meeting on September 20.

Prentiss Childs spoke to a fifth grade class in Minnesota on September 21 about space exploration.

Cary Spitzer spoke to the Virginia Science Teachers Association on October 6 about planetary exploration.

Ira Abbott spoke to the Poquoson Ruritan Club about the Tech House on October 11 and to the Dover, Delaware, Fire School, Family Leadership Conference about solar energy on October 31.

Duke Reiber spoke about Voyager to the Newport News Rotary Club on October 23 and about planetary exploration to the Hampton Roads Institute of Electrical and Electronic Engineers on October 25.

John Samos spoke to the Smithfield Rotary Club about spin-offs on October 25.

Howard Wright spoke at Christopher Newport College on October 30 about "Technology in the Service of Mankind."

TURKEY SHOOT. The LAA will sponsor its annual Turkey Shoot on Saturday, November 17, on the Activities grounds from 9 a.m. until sunset. Turkey raffle tickets (25 cents each) may be purchased from an Activities Association representative. Volunteers are needed to help with the shoot. Please contact Ernie Greene, ext. 2312, if you can help.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Thanks

Mary Briggs, a Langley retiree, extends heartfelt thanks to all who expressed sympathy during the recent loss of her husband and to all who contributed blood during his stay at Riverside Hospital.

David Thomas writes, "I would like to take this opportunity to thank all of my friends for the wonderful retirement party and the gifts. I will cherish the memories of this occasion and of my years of association with NASA. My wishes for your endeavors and continuing friendship will always be with you."

Farewell Parties

David E. Guthrie, Scout Project Office, will be honored with a retirement luncheon at the Hampton Elks Club, 95 Tide Mill Lane, on November 15, beginning at 11:45 a.m. Cost is $5 per person. Contributions for gift only are welcome. Contact Grace Girton, extension 2641, for reservations. Make checks payable to Abe Leiss, Mail Stop 158A, by November 12.

Jim Sperance, Office of Audit, will be honored with a farewell luncheon on November 7 at 11:30 a.m., at Captain George's on Mercury Blvd. Please remit only your gift contribution to Scarlett Coffey, Mail Stop 181, by November 5. The Dutch Treat lunch is $4.50.

swap and shop

FOR SALE

Articles

Camera—Nikkormat 35 mm. SLR with Nikon 50 mm. F/2 lens and soft case, EC, $275. Half Fare Coupons, 2 United, 1 American. Call Anderson 898-5983.

Kenmore vacuum cleaner, well used but serviceable, $15. Call Youngblood 877-1224.

TRAVELING? United Airlines coupon good for 50% discount on one way or round trip travel before December 15; $40. Call 247-1756.

Vehicles

1974 Ford Mustang II, 2 door hardtop, dark green, automatic transmission, radio. Call 229-8995.

FOR RENT

Condominium for rent week of Nov. 24—Dec. 1, 1979, sleeps 7, completely furnished, $350, on ocean at Hilton Head, swimming pool, sailboat, tennis and handball courts. Call Charles V. Woerner, ext. 2303, 3431 or Gloucester 693-5053.

LOST

Mens' blue single-speed NASA bicycle, sent from maintenance to the wrong location. Call Barry Shrout, ext. 3181.

WANTED

Shop manual for 1972 Ford Torino, borrow or buy. URGENT! Call Youngblood 877-1224.

To join carpool from Patrick Henry Airport area to West area for 8 a.m. shift. Please contact C. P. van Dam, ext. 3274.

FOUND

All weather coat, navy blue with multi-color check lining, trade name British Mist, left in Bldg. 1268, Room 1056. Call Margaret Ridenhour, ext. 2442.

cafeteria menu

WEEK OF NOVEMBER 5

MONDAY: Ham & Lima Bean Soup; Quiche Lorrain; Chicken Pot Pie; Steak Smothered w/Onions. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Braised Beef; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Corn Chowder; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Stuffed Bell Peppers. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Broiled Beef Liver; Hot Roast Pork Sandwich. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Chicken & Spanish Rice; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

WEEK OF NOVEMBER 12

MONDAY: HOLIDAY

TUESDAY: Bull Island Clam Chowder; Fried Filet of Fish; Roast Beef Au Jus; Sweet & Sour Pork. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Spanish Steak; Meat Loaf. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Beef Balls Stroganoff; Crab Cutlets. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Salisbury Steak; Teriyaki Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 24 November 30, 1979

Director's Discretionary Fund Supports Eight Research Activities

Support for promising research ideas is available to Langley researchers from the Director's Discretionary Fund. The availability and guidelines for the fund were first announced by Director Don Hearth in the December 15, 1978, issue of the *Langley Researcher*.

The purpose of the fund is to nurture research ideas that are high in risk and innovative in approach--and that can be conducted mostly in-house.

Eight such research efforts are already underway, through support from FY 1979 funding. The projects range in scope from in-flight measurements of the characteristics of small-scale atmospheric turbulence to conceiving an airborne spacecraft that would remain in flight for weeks or months.

★ Three researchers--Robert Jackson and Allan Taylor, HSAD, and Jarrett Huffman, STAD, are exploring a concept to augment leading edge vortex flow on swept wings. Suction nozzles are placed above the wing near the trailing edge to ingest the vortex core flow formed by the vortex flow along the entire leading edge. The concept will be tested to determine the best location for the suction nozzles and to measure the effect the concept may have on increasing lift and on vortex burst with increasing angle of attack.

The test hardware is designed, built and waiting at the 7x10-Foot High-Speed Tunnel for testing, now scheduled to begin in February 1980.

★ Calvin Stainback, STAD, is attempting to make in-flight measurements to adequately define the characteristics of small-scale atmospheric turbulence. Hot wire anemometers, boom-mounted on an F-15 and a Jet Star aircraft, will obtain data over a range of altitude, Mach number and meteorological conditions. Disturbances measured in flight and in wind tunnels will be compared.

The measurement system is complete and the hot wire probes are being calibrated. Flight tests are planned at Dryden Flight Research Center in 1980.

★ Three other researchers--Dr. William Grose, Thomas Blackshear and Richard Turner, all of AESD, are developing a realistic atmospheric circulation model to study trace chemical constituent transport in the Earth's atmosphere.

Limited computations have already been made on a scalar computer. Radiative transport will be incorporated into the computations before a complete model is developed, using Langley's STAR computer system.

★ Dr. Joel Levine, AESD, is assessing the role of natural lightning in the formation of nitrous oxide and carbon monoxide in the atmosphere. Laboratory tests have shown that an electrical discharge approximately equal to that of lightning produces trace amounts of the two gases. Flight tests, planned for the 1980 thunderstorm season, will use instruments and sampling containers mounted on an F-106B aircraft to gather and analyze trace gases in air exposed to lightning.

★ Another group of researchers is trying to identify the characteristics and source of high-frequency excess noise observed when tunable diode lasers are used as local oscillators in laser heterodyne spectrometers.

Laboratory measurements are attempting to identify high-frequency

Continued on page 3.

– photo by Bob Nye

Former employees of the 19-Foot Pressure Tunnel gathered for a reunion at Langley on October 26. Approximately 250 people worked in the tunnel from 1936 to 1955. The 19-Foot Pressure Tunnel started calibration tests in September 1939 and the final test was completed in August 1955. The tunnel was then modified and renamed the Transonic Dynamics Tunnel. Touring Langley facilities during the reunion were: (first row, from left) Percy E. Garringer, Ellery B. May, Mrs. G. Chester Furlong, T. Calvin Muse, Mrs. Jules Miller and Robert Graham; (second row, from left) Mrs. Ellery B. May, G. Chester Furlong, Mrs. T. Calvin Muse, Polly O. Sivells, Jules Miller and Robert H. Neely; (third row, from left) James Fitzpatrick, Hadley Richard, Alexander Fulks, Gertrude Westrick and Mrs. Robert H. Neely; (fourth row, from left) Mrs. C. Dixon Ashworth, Margery E. Hannah, Rachel Salmi, Regina Northrop, Patrick A. Cancro and Harold Turner; (fifth row, from left) C. Dixon Ashworth, Robert W. Mulac, D. William Conner, Reino Salmi and James C. Sivells.

Langley Observes NASA Energy 'Deadband'

The President's directive to limit energy use in cooling and heating buildings has gone into effect at Langley.

A "deadband" from 65 to 78 degrees Fahrenheit, in which no energy is to be used for heating or cooling, leads the list of measures as set down by NASA guidelines. Energy may be used in the deadband for ventilation only, with certain exceptions.

Other measures include setting back thermostats for unoccupied periods and limiting the temperature of building hot water used for general cleaning and personnel hygiene to a maximum of 105 degrees, or the lowest thermostat setting if greater than 105.

Specific requirements have been established for each Langley building in compliance with the agency plan. Certain buildings and portions of buildings will be exempt where processes, equipment and stored property would otherwise be impaired or damaged. Buildings heated or cooled by solar or other alternate energy sources may also be exempt.

The measures will remain in force until April 15, 1980, unless halted by the NASA Administrator.

Responsibility for compliance and enforcement within each facility rests with the Facility Energy Manager, who, at Langley, is also the Facility Safety Head. People within each building have a responsibility to support their building energy manager in this effort. All requests, complaints or information about temperature restrictions should be reported to him or his designated alternate. On request of the respective energy managers, necessary modifications to building heating and cooling systems and controls will be made by the Plant Services Unit of the Plant Engineering Division. The Center Energy Resources Manager is responsible for overall Langley compliance and will provide support to the Facility Energy Managers and the Plant Services Unit.

Like other commercial, industrial and non-residential buildings, government facilities are subject to sanctions and penalties for non-compliance. The assistance of all Center employees is needed in order to comply equally within all buildings within the limitations of existing systems.

Information will be posted in each building about the plan along with the names of persons to be contacted concerning complaints or building compliance.

– photo by Bob Nye

Cafeteria workers Louise Lee and Shirley Bethea recently found a wallet containing approximately $300 on the dining room floor. They turned the wallet over to the Security Branch who located the owner. The wallet belonged to a man from Wichita, Kansas, who was attending a conference at Langley. Cafeteria Manager Jay Downing said, "I commend Louise and Shirley for their honesty. It is a pleasure having employees of their calibre working in the cafeteria."

Brown Bag Special Continues

The Learning Center, Training and Educational Services Branch, is sponsoring the second "Brown Bag Special" film showing for personnel on their lunch break. Today's film, "The Time of Your Life," will be shown at 12:15 p.m. in Building 1212, Room 200.

"The Time of Your Life" is designed to give a clear understanding of the basic principles and practices of good time management. The 25-minute film presents ideas on how to make better decisions about the use of time, how to be more analytical about the way you think about time and how to develop some intuitive skills about time use.

Key Positions

Lawrence E. Putnam has been selected Assistant Head, Propulsion Aerodynamics Branch, High-Speed Aerodynamics Division, under Merit Promotion Announcement 79–62.

Shirley D. Evans has been selected Head, Stock Management Section, Property Management Branch, Management Support Division, under Merit Promotion Announcement 79–71.

Jane S. Hess has been selected Head, Technical Library Branch, Management Support Division, under Merit Promotion Announcement 79–79.

Recent Retirees

Harold H. Jordan, Operations Support Division, retired November 16.

James H. Parks, Office of Director for Systems Engineering and Operations, retired November 17.

George E. Wyatt, Operations Support Division, retired on November 26.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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

Director's Fund

Continued from page 1.

noise and assess its effect on the sensitivity of measurement of several tenuous upper atmospheric gases. Understanding the noise problem may lead to simpler measurement systems.

Conducting this research are Dr. Frank Allario, AESD; Dr. Steven Katzberg, FED; and Barry Sidney, James Hoel and Dr. James Hutchby, all of IRD.

★ Dr. Jag Singh and Dr. Alphonsa Smith, both of IRD, are seeking to determine exactly how aerosols form in trace gas mixtures that result from high-temperature combustion processes.

The researchers have built a reaction chamber and conducted preliminary tests with a quadrupole mass spectrometer. Measurements will be made with gaseous water and sulfuric acid as the forming partners.

★ Meanwhile, Dr. Robert Harriss, MATD, is attempting to quantitatively assess the link between energy and economic policy decisions, and the potential impact on global trace element cycles and future environmental quality.

A comprehensive data base is being assembled on the volatile trace element chemistry of petroleum, coal, iron ores, cement materials, wood and other vital raw materials used by industrial societies. A model is being developed that will include both natural and man-made trace element fluxes into the lower atmosphere. The first test case for flux calculation will use mercury, the element most affected by industry.

★ James Youngblood, SSD, is studying a concept for an airborne spacecraft--a high-altitude, remotely powered and remotely piloted vehicle that would remain in flight for weeks or months. The vehicle could be used as a flight observation platform for continuous local or regional coverage.

Youngblood is examining several technologies that might be applied to the concept, including ultra-lightweight airframe materials and structures; high-energy density, rechargeable storage devices; high-efficiency, lightweight solar cells; long-distance microwave power transmission; and wings and propellers with low Reynolds numbers. Evaluation of these technologies, plus potential payload and mission designs, will lead to conceptual configurations for such a craft.

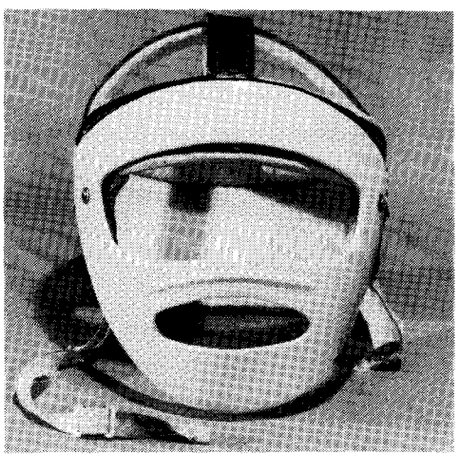
Increased funding in FY 1980 will allow expansion of the present programs. Researchers are encouraged to submit proposals that meet the guidelines of the Director's Discretionary Fund.

Langley-Fabricated Face Guard Aids Employee's Son

A face guard, designed and fabricated at Langley, is being worn by a handicapped boy for protection against head and facial injuries.

Constructed of fiberglass-reinforced honeycomb and attached to a leather head protector, the face guard was designed for Scott Williams, 19-year-old son of H. Frank Williams of Langley's Systems Safety, Quality and Reliability Office.

Scott was born with multi-handicaps and since 1978 has been undergoing treatment, in residence, at the Southeastern Virginia Training Center in Chesapeake. Due to his physical handicaps, Scott frequently falls during normal movement and the falls often cause injury to his head and face. "Since wearing the face guard, Scott has escaped injury to these areas," Williams said.



The design of the protective face guard began following approval from the Technology Utilization and Applications Programs Office to explore the possibility of creating a guard from strong, lightweight, composite materials. Robert M. Baucom of the Materials Applications Branch, Materials Division, assisted Williams in the design and Robert C. Evans of the Composite and Dynamic Models Section, Fabrication Division, fabricated the device.

Final CFC Totals

Goal	$177,500
Percent of Dollar Goal	104.41%
Percent of Participation	91.44%
Average Contribution	$62.07
Retirees Contributions	$6,490
Total Contributions	$185,333

Health Benefits Open Season Closes

Employees wishing to enroll or change their enrollment in the Federal Employees' Health Benefits Program must do so by the close of business December 7.

During the annual open season, any eligible employee who is not currently registered in a health plan may enroll, and an enrolled employee may change from one plan or option to another, or from self only to self and family, or any combination of these.

Health Benefits Registration Forms (Standard Form 2809) and brochures explaining the health plans are available from the Staffing and Special Programs Branch, extension 2523, Room 158, Building 1195C, Mail Stop 174.

Order 1980 Calendars

Requests for 1980 desk and wall calendars can now be submitted to the Stockroom, Mail Stop 382, on Langley Form 2 (see page 5). Please do not include orders for other forms on this request. Calendars will be issued in mid-December.

Each branch secretary should submit branch and section requirements to reduce the number of requests.

Thanks

Erskine White thanks all his friends for the superb retirement dinner party and for the momentos and gifts given to him. "I thank you for being my friends for many years," he said.

Searcy Smith, Jr., thanks those who attended his farewell luncheon and contributed to his gifts. He said "I will miss all my friends at Langley and wish each a fond farewell."

A Man and His Friends Talk in the World of Silence

PERSONNEL PROFILES

By Allan C. Hanrahan

– photo by Bob Nye

Bill Vance (right) uses sign language to communicate with co-workers Tim Bryant and Clarence Bailey. Bryant, Bailey and other employees in the Fabrication Division are taking a sign language class which will help in meeting the needs of the handicapped.

What you are reading at this moment had its beginning with a telephone call from the Langley Research Center Training Office to the Office of Public Affairs of the Center. The call was a request for a news item to be published in the *Langley Researcher* stating that a class in American Sign Language (ASL) is being taught for one hour each Tuesday and Thursday morning and will continue to December Twentieth.

Such an item of news naturally engendered curiosity and additional questions by the intrepid editor of this publication, and it was subsequently learned that presently employed at the Center is a twenty-six-year-old native of Rome, New York, **WILLIAM M. (Bill) VANCE**, who has been deaf since birth. The sign language class is intended to enhance communication between Bill and others and is one of the Center's endeavors in "meeting the needs of the handicapped," as stated by a Training Office spokesman.

While recognizing management's efforts we soon realize that the rank-and-file is equally important, if not more so, at encouraging or discouraging a handicapped employee, and in this respect Bill Vance is fortunate because he is among a mélange of Damon Runyon-esque characters who have a "let's give it a try" attitude, itself a part of the general Center attitude of quiet enthusiasm for a worthy undertaking.

Nine of the eleven members of the sign language class work with Bill in the Electronics Fabrication Development Branch of the Fabrication Division where Bill is a Trainee.

He worked at the Center during the summer of 1978 and returned this past October when he received a two-year appointment, an act that precipitated action by Clarence Bailey, one of Bill's co-workers: "I decided if the man was going to be working right in front of me for the next two years I should at least be able to talk to him," Clarence noted, so he and Bill began communicating by writing, using the dictionary, and employing signs that Bill taught Clarence.

"Clarence started it," said Tim Bryant, who works about fifteen feet away from Bill, "and I got interested in what they were doing and sort of drifted over into their conversations. He is a good teacher," Tim said of Bill and reported that Bill sometimes taught him as many as ten signs a day––signs that stand for phrases, objects, gender, letters of the alphabet, and so forth. And the signs are, to a great extent, multinational.

The communication takes other forms such as lip reading and aural; Bill can speak some words––numbers, for instance––even though he cannot hear them himself. "Acting out," or pantomine is also a communication tool and for that reason drama is stressed at most of the schools for the deaf. And Bill has attended a number of such schools because his parents were in the military and the family, which includes two older sisters, moved frequently. His father was a dentist and his mother was a registered nurse but they are now retired and living in Florida.

Bill holds an Associate of Science degree in Electromechanical Technology from the Rochester (N.Y.) Institute of Technology. He also possesses an outgoing personality and, as Tim Bryant describes him, "is a character. He can do everything."

While holding a simultaneous conversation with Tim and Bill it was learned that Bill is quite an athlete, a good basketball player (in high school) and up to jogging five miles at a time, three times a week, partly because he didn't have that much to do in the evenings.

"But I was losing too much weight," he indicated, so he quit that. He has been SCUBA diving "since 1973," he informed us, and he related how he once came within two minutes of freezing to death while diving in frigid waters. Sadly, one of the divers in his group did perish. He then proudly pointed out a certificate of his first parachute jump, which took place on May twenty-third of this year. He has made six more jumps since that time.

He is "almost a good snow skier," he conveyed to us and he enjoys water skiing and sailing, being a member of the Virginia Sailing Association. He desires to begin racing in the Hobie Cat Class next Spring and if allowed to do

Continued on page 6.

Two Langley Employees Aid City of Hampton

"I decided it was time to put up or shut up."

With those words, William Mace, Chief of the Flight Electronics Division, went on to explain why he has spent the last four years working weeknights and weekends to aid the City of Hampton.

Mace

Both Mace and a Langley colleague, Robert Kirby, Chief of Programs and Resources, have worked on numerous citizen's committees for the city, and just returned from representing Hampton at a meeting of the National Municipal League in Detroit.

"If I'm going to offer suggestions and comments," Mace explained, "I should dig in and find out what I'm talking about." And in the process of digging in, both he and Kirby ended up working on Hampton's unique Committee of 13, the citizen's body which spent four months in 1978 formulating a virtual financial plan for the city, one which was supported time and again by the City Council, and is now being used to prepare for the 1980 budget proceedings.

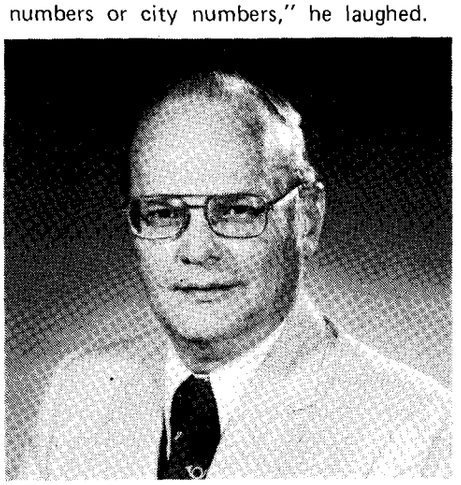
"That plan," said Hampton Assistant City Manager for Administration Robert O'Neal, "has become what will be almost the financial plan for the city for the next five years. Bob Kirby headed the Committee of 13, and Bill Mace headed the Budget Advisory Committee last year. Those two people have played key roles in city government. Pretty soon I thought there had to be 40 hours in the day for what they were doing."

During the four months when the Committee of 13 was trying to determine what the future financial needs of Hampton would and should be, the members interviewed each of the 47 city department heads, and usually met twice a week to discuss their findings. They looked at what services would be needed in the present and future, where the revenue would come from, and what commitments were being made. "We established a minimum base needed to run the city, and then told why," Mace said. After gathering the data, the committee met with other citizen's groups, made themselves available for media interviews, and did their best to involve more citizens in the process.

"From council's point of view," O'Neal said, "it is much easier to operate with citizens' involvement. There's a different atmosphere when a citizen says this is the kind of government we want."

"Government has to be a community affair," Mace said. "You can't just expect those seven people on the council to sit down there and make decisions. They need input."

Kirby said providing input for the council would at times be complex, since both Hampton and NASA operate their budgeting cycles in the winter and early spring. "I almost get mixed up sometimes whether I'm talking NASA numbers or city numbers," he laughed.



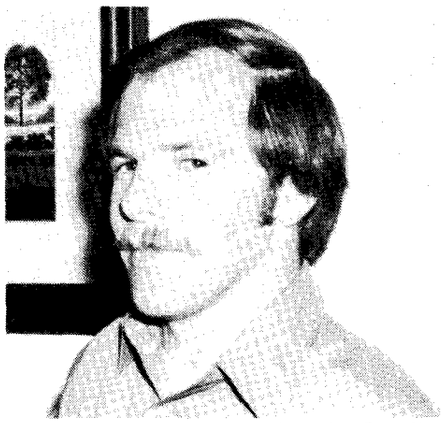
Kirby

Their latest efforts on behalf of Hampton involved sacrificing the Veterans Day holiday to travel to Detroit and help Mayor Charles Wornom represent the city in the All America City competition. The All America City award is presented each year by the National Municipal League in an effort to help disseminate useful and innovative ideas for city government. Hampton first won the award in 1972 for a citizen's involvement program called "The Hampton Spirit."

Both Mace and Kirby paid their own expenses. "We felt that we should," Kirby said. "We have been voicing austerity and careful use of the taxpayer's dollars, and this was an example of doing just that."

They are hopeful that their efforts will result in another award. "Ours was specifically presented in conjunction with this year's theme, which was 'Constructive Response to Fiscal Restraint,'" Kirby said. "I think that gives us some hope." A decision is expected from the League in March or April.

"We think if we got the award, it would stimulate more interaction and more citizen participation," Mace said. "We're still trying to gather people's views and foster an understanding of city government among the people. After all, it's not the council's work that we're doing. It's our city."



– photo by Bob Nye

Robert F. Berry, Fabrication Division, recently received a Suggestion Award for his suggestion relative to "improved acoustic emission data cassette."

Key Positions Designated

The following employees have been designated for the key organizational positions indicated:

William I. Watson – Acting Head, Space Systems Engineering Branch, Systems Engineering Division.

Jesse D. Timmons – Head, Mechanical Systems Section, Space Systems Engineering Branch, Systems Engineering Division.

Yes, employees, there was a trench dug here.

Ed Howe would move tons of dirt to find a quarter.

Profiles

Continued from page 4.

so will be the first deaf person to race, but as Tim explained there is still doubt about that, referring to the danger of not hearing other sailors' shouts regarding impending collisions. But of necessity being more observant, which may count for something in the matter, Bill may end up racing after all.

Indoor activities he enjoys are dancing, and reading the newspaper, books on the stock market, and such periodicals as the U.S. News and World Report.

He is looking forward to using the T.T.Y. his parents are giving him for Christmas. That is a teletype device that will allow him some telephone communication. Along that line his doorbell is a flashing light as is his alarm clock.

"He started out with a sixty-watt bulb," Tim Bryant related, "but that didn't do the job so he kept increasing it until now he has a two-hundred watt bulb; if he ever oversleeps he's going to get a sunburn."

As congenial as Bill is its difficult to imagine him angry but Tim enlightened us: "He really gets mad at deaf people who won't work; you know, the ones who show you a card in the parking lots. We are looking forward with eager anticipation to the next time we run into one of those . . . we have learned some choice signs."

When you realize the life that Bill Vance leads, in spite of his handicap, you begin to sense how they feel. After all, with just a little patience and understanding from others, coupled with Bill's attitude and ambition, what handicap he has is lessened considerably.

Speakers Bureau

John Samos spoke about spin-offs to the Portsmouth Rotary Club on November 1 and to the senior citizens at St. Bede Church in Williamsburg on November 6.

Duke Reiber spoke to the Chesapeake Rotary Club about planetary exploration on November 7.

Andronicos Kantsios spoke about energy conservation to the Methodist Men's Club at Noland United Methodist Church on November 13.

Olaf O. Storaasli spoke November 14 to the Hampton Roads Chapter of the Data Processing Management Association about computer aided design.

Lester Rose spoke on spin-offs to the Women's Club of King and Queen County November 15.

LAA Delegates Elected

The following delegates were recently elected to the Langley Activities Association General Assembly for 1980:

Johnny Arrignton, Office of the Director;
Virginia Marks, Flight Dynamics and Control Division;
Ernie Greene, Analysis and Computation Division;
Herbert Boulter, Instrument Research Division;
John G. Wells, Flight Electronics Division;
Jane Hagaman, Materials Division;
Bill Willshire, Acoustics and Noise Reduction Division;
Thomas Yager, Structures and Dynamics Division;
Martha Norman, Aeronautical Systems Division;
Dana J. Morris, Flight Mechanics Division;
Noel A. Talcott, High-Speed Aerodynamics Division;
Frances Sabo, Subsonic-Transonic Aerodynamics Division;
Frankie Ward, Financial Management Division;
Claude Watts, Management Support Division;
Econyes Harvey, Personnel Division;
Frank Godfrey, Acquisition Division;
Betty Hughes, Scientific and Technical Information Programs Division;
Alton Grimes, Fabrication Division;
Bruce Little, Fabrication Division;
Elvin Ahl, Systems Engineering Division;
Joe Poslik, Research Facilities Engineering Division;
Beverly Anderson, Operations Support Division;
E. Wayne Martin, Operations Support Division;
John Wainwright, Plant Engineering Division;
Vivian Parrous, Atmospheric Environmental Sciences Division;
Althea Brown, Space Systems Division;
William G. Witte, Marine and Applications Technology Division;
E. Marie Ashe, Director for Projects;
David Carter, Terminal Configured Vehicle Program Office;
Mary G. Coburn, Scout Project Office; and
Duane Reaugh, Business Data Systems Division.

Turkey Shoot Raffle Winners

The following people won turkeys in the LAA Turkey Shoot Raffle on Saturday, November 17:

Name	Ticket No.
Robert Askew	3347
Carl Baab	2732
A. B. Blair	4612
Charles Bailey	1921
Meredith W. Ballard	3441
Al Bell	3576
H. E. Bellamy	3348
Bobby Boulter	1864
E. Ray Causey	2048
M. B. Causey	3060
Kenneth H. Crumbly	3256
D. G. Cuddihy	3823
Al Curtis	3822
Dale W. Dalin	3333
Walter J. Dale	3710
Joel Daniels	4913
David C. Davis	2509
Ray B. Dowdy	1446
Wayne D. Erickson	4520
R. Fairheart	3280
Robert K. Faison	3063
Lawrence J. Farrow	4197
Janice D. Felton	1542
Robert L. Fixx	3456
Vincent J. Fleck	4964
Robert L. Gates	1746
J. L. Harris	4077
D. Hellman	3157
O. E. Hillard	2626
Mercedes Hobbs	4459
Bruce J. Holmes	2042
Stephen P. Horvath	4977
Robert L. Huffman, Jr.	4435
Clayton James	4294
Brian Jaynes	1695
K. St. John (2)	1096
	1095
Marshall D. Johnson	1537
Eloise L. Johnson	3937
Jack T. Kayton	0160
George O. Kent	4839
Scott O. Kjelgaard	3332
Roy Little	3917
Gladys R. Loar	2241
Donna Lanning	1002
George J. Link	4872
Royce F. McCormick (2)	0127
	0910
Ann Miller	2794
Margaret N. Mills	2627
Richard Miles	3981
Michael Mitchell	3613
Domenic J. Maglieri	2133
Janet Nagele	3860
James H. Neal	4552
Warren R. Nichols	2826
Gregory D. Riebe	0634
H. E. Rockey, Jr.	0940
Dale M. Rodman (2)	2828
	2827
Lee Roland	1832
Frances E. Sabo	3331
Aimee Sheppard	0040
Donald B. Shortt	3451
Brenda N. Steele	0624
Craig Street	2350
Stan Timble	3464
George H. Veneris	3757
K. Voss	2522
John W. Wallace	2230
Herbert L. Whitaker	1438
John Wilson (2)	3005
	3004
Deene J. Weidman	3676

Runners Support Fall Intercenter Meet

The Fall Intercenter Meet held in October resulted in mixed returns for the home team. Ten centers entered the two events—a 2-mile race and a 10-kilometer race. Langley placed fourth in the 10-km behind ARC, GSFC, and HQ, respectively, and sixth in the 2-mile race behind ARC, HQ, DFRC, JSC and GSFC.

We showed continued growth in our level of participation and an impressive improvement by several individuals in speed. Langley had 73 enter the 2-mile race and 48 enter the 10-km event.

Those persons from Langley who placed in the top ten in their age category and thereby earned extra points for their speed are listed below:

Rich Booth placed 4th in 2-mile and 6th in 10-km. John Hoppe was 1st in 2-mile and 2nd in 10-km. Jim Fields placed 9th in 2-mile. Earl Dunham placed 8th in 10-km. Don Humes was 2nd in 2-mile and 8th in 10-km. Al Graham finished 7th in 2-mile. Jim Robinson placed 7th in 2-mile and 9th in 10-km. Chuck Engle finished 8th in 2-mile and 7th in 10-km. Joe Kubalak was 2nd in both. Dianne Stewart finished 9th in 10-km. Lucy Parks placed 7th in 10-km. Dana Morris finished 10th in both.

Forty percent of Langley's total points came purely from participation. Langley would have moved up one position in both events if six more people had covered the distance.

The next event sponsored by the Langley Runners' Club will be a 5,000 meter run on Saturday, December 15, at the Activities Center beginning at 11 a.m. Come out and run as an individual or represent your directorate team. Cross country scoring will be used in the team competition, which means the five fastest runners determine the team score.

For further information on the next event, contact Don Humes, extension 3781.

LAA Officers Elected

The following people were recently elected to the Langley Activities Association Executive Board for new terms: Herbert Boulter, President; Frances Sabo, Secretary; Ernie Greene, Activities Committee Chairman; Dana Morris, Children's Committee Chairman; Tom Yager, Building, Grounds and Safety Committee Chairman; and Beverly Anderson, Arts & Crafts Committee Chairman.

Continuing their terms in office are: Ross Phillips, Vice President; Frances Hartman, Treasurer; and Eugene Hicks, Social Committee Chairman.

– photo by Bob Nye

Stephen C. Wright, Fabrication Division, was presented a Suggestion Award for his suggestion relative to "Time Code Generator/Tape Search Unit Digital Interface Unit."

Thanks

Yoshio Yamaki writes, "I appreciate the wonderful retirement party my friends gave me. I shall remember the occasion for a long time. Thank you for making my 17 years at NASA very pleasant and enjoyable."

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Happenings

HEALTH INSURANCE. The AFGE Health Insurance representative will be in the Langley Room of the Activities Center Monday, December 3, from 3:30 to 5:15 p.m., to discuss the various health plans available to Langley employees. All employees are invited to attend and should do so on their own time. Additional information can be obtained from any officer or steward. Refreshments will be served.

BINGO. The last bingo for the year was held Thursday, November 15. The LAA would like to thank all the regulars for their support throughout the year. We are looking forward to an even better year in 1980 with more and bigger prizes, beginning on Thursday, January 10.

CHRISTMAS PARTY. The annual LAA Children's Christmas Party will be held Sunday, December 9, in the Activities Center. The Jerry Halliday Puppets will present "Aladdin and the Magic Lamp" and Santa will give gifts to the children. Tickets, $1 each, are on sale at the Activities Office and will be available at the door. Shows are scheduled at 1 and 3 p.m.

NEW YEAR'S EVE DANCE. The LAA will sponsor a New Year's Eve Dance in the Activities Center from 9 p.m. to 1 a.m. Music will be provided by **12 O'Clock High**. Tickets go on sale at the Activities Office December 10. The cost of the semi-formal dance is $15 per couple, set-ups included (BYOB). Reservations are required.

swap and shop

FOR SALE

Articles

Glass fireplace screen, antique finish, heavy duty, Sears, for fireplaces 36" wide by 28" high, $60; fireplace heat exchanger, heavy duty, $40. Call 599-4321.

Two United Airlines half-price discount coupons, good until Dec. 15, $50 each. Call 596-0397.

Suzuki violin w/33½ teaching record, EC, $185. Call 877-7223.

Fireplace wood, oak, $45 for one-half cord; will deliver and stack. Call 595-1029.

Vehicles

1973 Pontiac Bonneville 4-dr. sedan, AT, AC, PS, PB, CC, AM/FM, new parts, new inspection, VGC, $950. Call 838-2801.

LOST

Gold butterfly pin lost between Buildings 1151 and 1194. If found, please call Brenda Spencer, extension 3511.

WANTED

Ride to West Area on 7 a.m. shift from Southampton/Ivy Home Road area. Call Williams, extension 3987.

Energy Saving Tip

Turn off lights when you leave a room. Keeping lights on unnecessarily wastes electricity and costs money, too.

cafeteria menu

WEEK OF DECEMBER 3

MONDAY: Ham & Lima Bean Soup; London Broil; Savory Baked Chicken; Quiche Lorraine. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Braised Beef & Vegetables. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Beef Enchiladas. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Hot Roast Pork Sandwich; Broiled Beef Liver. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Chicken & Spanish Rice; Stuffed Bell Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

WEEK OF DECEMBER 10

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Barbecued Chicken; Country Style Steak. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Bull Island Clam Chowder; Pork Chop Suey; Fried Filet of Fish; Roast Beef. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Ham & Cheese Omelette; Beef Pot Pie. Snack Bar: Beef Taco; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Broiled Chicken Livers; Meatloaf; Crab Cutlets. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Teriyaki Baked Chicken; Beef Balls Stroganoff. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 18 Issue 25

December 14, 1979

– photo by Hubert Lloyd

The children of Bionetics Corporation, Telos Computing, Inc., and NASA employees are greeted by Santa's newest elf, Mr. Exploratron. Santa's helper is busily taking last-minute Christmas orders to be delivered by his boss on Christmas Eve.

Upward Mobility Program Classes Offered

Two college credit classes will be offered at Langley under the Upward Mobility Program during the TNCC Winter Quarter 1980, beginning the week of January 7, 1980: SPDR 136, "Speech Communications," and BUAD 276, "Personnel Management." Each class will meet for three hours a week for 10 weeks and earns three credits each.

"Speech Communications" is a study of modern communication theories and principles useful in understanding how people affect and are affected by others through communication. Emphasis is on helping students increase their effectiveness as communicators. Understanding and application of communication theory rather than making speeches is emphasized. Class will meet from 2:30 to 5:30 p.m. on Wednesdays.

"Personnel Management," which is offered under the Pre-Supervisory/Management Training Program, will include discussions of the problems and issues in the administration of personnel actions. It will include organizations and tasks of personnel development, significant personnel considerations and an appraisal of the position of labor in business today. Class will meet from 4:40 to 7:30 p.m. on Tuesdays. Persons who have attended previous classes offered under the Pre-Supervisory/Management Training Program will be given priority.

Students will be expected to purchase their textbooks but tuition will be paid by Langley. Necessary forms may be secured from Eloise McGehee, Training and Educational Service Branch, 2611, Building 1195-X, Room 150.

Speakers Bureau

Ira Abbott spoke about the Tech House to Ferguson High School students November 15.

Cary Spitzer spoke November 18 at the Nature and Science Museum in Winston-Salem, N.C., about planetary exploration.

Space-Age Robot Assumes Christmas Role

Santa Claus has a new helper--and he's the most futuristic elf around.

Four feet tall, with blinking, multi-colored eyes and an electronic voice, he's none other than NASA's Mr. Exploratron, a special robot built by Explorer Scouts during an evening program at Langley.

The very talkative, free-wheeling helper is decked out Santa-style and ready to convey the wishes of hopeful children to his boss. He'll also answer questions on just about everything. Santa, who's an avid Buck Rogers fan, thinks Mr. Exploratron is the perfect little assistant.

You can meet Santa's newest elf at the Langley Visitor Center on Saturdays, December 15, from 1 to 4 p.m. Walt Disney films such as "Man In Flight," "Weightlessness," and "All About Astronauts" will be featured.

Special Thanks

The *Langley Researcher* staff extends special thanks to Wes Berryman for designing the cover of this Christmas issue.

Key Positions

Roy J. Duckett has been designated Head, Experiments Systems Section, Space Systems Engineering Branch, Systems Engineering Division.

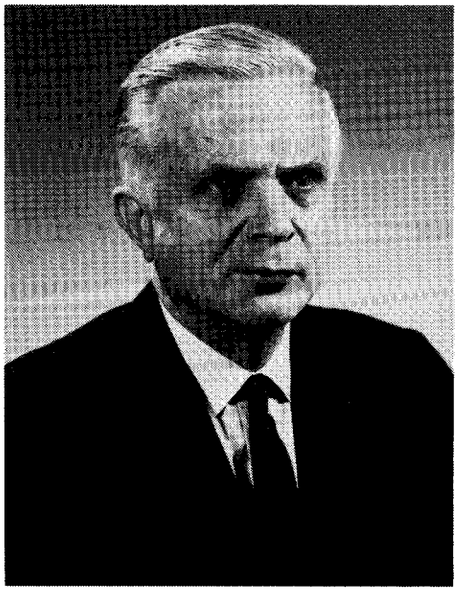
Deadline Notice

The next issue of the *Langley Researcher* will come out on Friday, January 11, 1980. The deadline for this issue will be Friday, January 4, 1980.

The *Langley Researcher*, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665, is published every other week in the interest of its employees. Address contributions to the Editor, Mail Stop 115A, telephone 2934.

Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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



– photo by Bob Nye

Dr. Richard T. Whitcomb, Subsonic-Transonic Aerodynamics Division, received the Howard N. Potts Medal "For his outstanding and innovative contributions to transonic flight, in particular for the development and application of the area rule concept, the supercritical wing and winglet." The medal, given for contributions in applied science, was presented by the Franklin Institute in Philadelphia.

Happy Holidays

The holiday season is a good time to pause and reflect on the past year and to contemplate the future. The past year has been a good one. Langley people have made sizeable contributions--in aeronautics and space--in research and projects. Also, we are pleased to have made contributions in other areas such as definition of the Virginia Resources Information System. We are proud of these past contributions, and fully expect the opportunity to make similar contributions in the future. During this holiday season, reflect on these contributions and be proud of what Langley has done in the past, and will do in the future for all of mankind. HAPPY HOLIDAYS!

Donald P. Hearth
Langley Director

NASA Film Receives Awards

"The House that NASA Built," the NASA film about Langley's Tech House, received two awards at the annual CINE awards ceremony in Washington, D.C. on November 15.

The film received Special Mention from the Fourth International Festival of Environmental Films in Nice, France. The award was presented by Rolan Husson, Cultural Consul of the French Embassy.

The Granet Prix was presented in the Scientific and Research Films category by the 17th International Festival of Films on Scientific and Technical Progress in Czechoslavakia. The presentation was made by Dr. Josef Stary, Third Secretary of the Embassy in Czechoslavakia.

Thanks

"To those of you who participated in and supported the functional review of the Equal Opportunity Program--**Thank You Very Much!!!**"

Office of Equal Opportunity Programs

Atlantic Voyage Discussed at Colloquium

A voyage from Virginia Beach to Falmouth, England in the smallest boat ever to cross the North Atlantic Ocean will be discussed at the Langley colloquium December 17.

Gerry Spiess, an engineer and sailor from White Bear Lake, Minn., will speak on "Alone Against the Atlantic--The Voyage of the Yankee Girl," in the Activities Center, Building 1220, at 2 p.m. The speaker will move to the adjoining Langley Room at 3 p.m. for an informal discussion.

In his talk, Spiess will describe the design and construction of the 10-foot Yankee Girl, voyage preparations and trials of the voyage. Discussing his 54-day voyage across the Atlantic Ocean which began June 1, Spiess said, "I see ventures of this type as three challenges: intellectual, physical and emotional. Prepare for these ventures entirely on your own but share the results with everyone."

Spiess said all his life he has been concerned with challenges. "The reason I made the voyage to England was that it was a personal challenge to see if I could build the smallest boat possible for the voyage and then take it across myself," he said.

Spiess began sailing 17 years ago and has built four boats, three of which were miniature ocean-going cruisers. His longest cruise was from Minnesota to Equador, via the Mississippi River and the Gulf of Mexico, in 1969.

A native of St. Paul, Minn., Spiess received a bachelor of arts degree in psychology and a bachelor of science degree in education, both from the University of Minnesota.

While in the U.S. Air Force, Spiess served as a developmental engineer on the Apollo Program at the Johnson Space Center, and a Minuteman launch control officer. He has also served as an administrator with the Gillette Company and a technical instructor in electronics at the 3M Company. Since his voyage to England last summer, he has been designing ocean cruisers, making personal appearances at boat shows and speaking at various colleges.

Langley employees attending the colloquium should charge their time to Job Order A1980.

Study Finds Carbon Fiber Risk "Insignificant"

The release of carbon fibers from civil aircraft accidents will cause only insignificant damage to electrical equipment, according to a 22-month study of the potential problem.

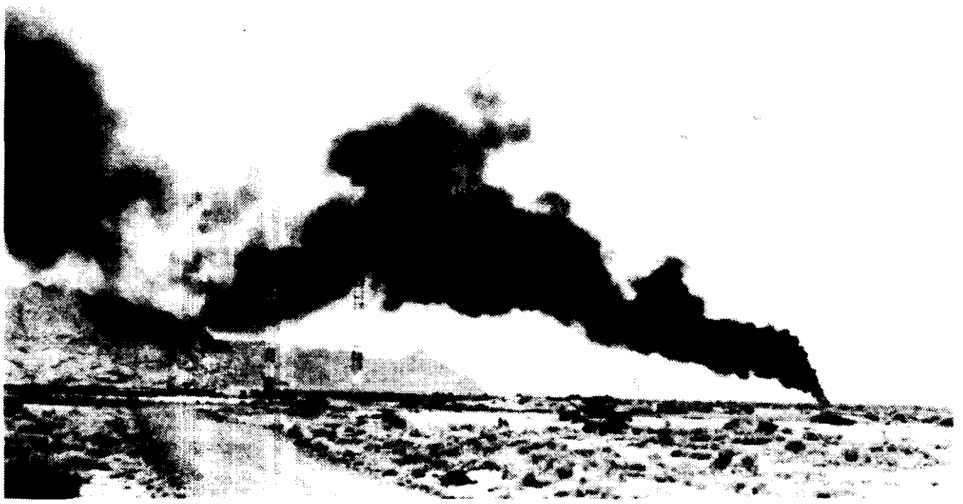
Results from the NASA analysis were reported last week during a Carbon Fibers Hazard conference at Langley.

At the same meeting, representatives of several government agencies and private companies presented technical papers and oral reports on various aspects of a continuing government study of the potential use of carbon fibers.

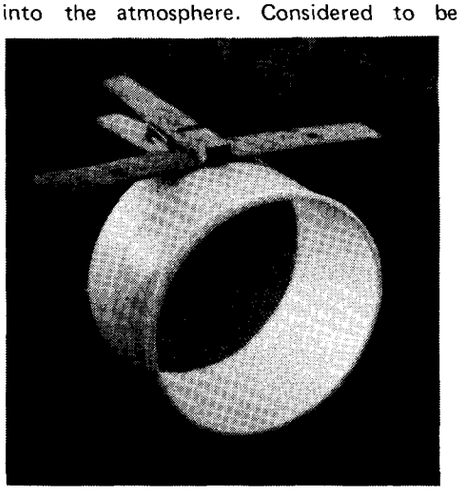
Richard R. Heldenfels, Director for Structures, summarized the NASA study results by saying, "The public risk from using carbon fibers on current and future civil aircraft in the United States is very small."

Carbon or graphite fibers are small-diameter filaments used to make composite materials; composites are formed when fibers are embedded in a plastic matrix to form a solid material. Composites are being used increasingly in aircraft because of their high strength, durability, improved performance factors and light weight.

Composites are also used in many commercial products, from recreation to industrial equipment. With a growing demand for composites, the government became concerned about potential accidental release of the fibers. The potential risk stems from the reaction of most composite structures to burning, which causes the composites to break down and release short lengths of fibers into the atmosphere. Considered to be highly heat-resistant and electrically conductive, the fibers were first thought to be very damaging to electrical equipment. Because of their extreme lightness, fibers can possibly float for miles, settle on electrical equipment, and sometimes cause short circuits or equipment malfunction.



A thick cloud of smoke billows from the burn pit during one of the carbon/graphite fiber field tests. This photo, taken only minutes after the fire was ignited, shows the smoke plume passing through the Jacob's Ladder sampling array. The net itself is invisible to the camera, but the two Air Force ballons which hold it up can be seen just above the burn pit.



One of more than 1,000 ground samplers that were placed around the field test area. Some of the samplers were more than 19 kilometers from the burn site.

"The study had to be done," says Robert Huston of Langley, chief of the NASA Graphite Fibers Risk Analysis portion of the government study. "If the earlier concern had materialized, there was a good chance that carbon fiber applications throughout the country would have been seriously impacted."

In July 1977, the Director of the Office of Science and Technology Policy was directed by the President to conduct a study of carbon composite materials, analyzing potential problems and providing a plan for possible federal action.

Preliminary analysis of the situation determined that the greatest potential for release was either during manufacture of composite materials or when carbon composites were burned. In a government-wide study of the issue, headed by the Office of Science and Technology Policy, NASA was assigned the specific task of assessing the risks in the civil aviation field.

A Graphite Fibers Risk Analysis Program Office was established at Langley, supported by the Ames Research Center, the Johnson Space Center and the Jet Propulsion Laboratory. Valuable support to the NASA study was provided by the National Bureau of Standards, several Department of Defense laboratories and private aerospace and research companies.

Other government agencies involved in various aspects of the total government study include the Departments of Commerce, Transportation and Energy, and the Environmental Protection Agency. Their representatives also reported on the status of their research at the Langley conference.

An example of the kind of research conducted during the NASA study was a test series at the U.S. Army's Dugway Proving Ground in Utah. Begun in the fall of 1979, the tests were meticulously designed to recreate an aircraft fuel fire. Actual composite parts were burned with jet aircraft fuel for 20-minute periods, the length of the average aircraft fire.

A test apparatus called a Jacob's Ladder was devised to determine the rate of release of carbon fibers from a composite burn site. Jacob's Ladder is a giant, moveable net--305 meters (1,000 feet) square--vertically suspended in air by large balloons and guy wires. The device was located 152 meters (500 feet) downwind of the burn site.

More than 500 sampling instruments were installed on Jacob's Ladder. Another 1,600 ground samplers were

scattered around the burn area to a distance of 23 kilometers (14 miles). The most complex samplers, located on the net, were eight high-voltage grids that counted each fiber's contact with the electrical field and measured the electrical resistance of the fibers. This allowed researchers to obtain a constant readout on the flow rate and the characteristics of the fibers.

The most important conclusion from five burn tests at Dugway was the confirmation of previous laboratory tests that showed less than one percent of the fibers are released in a typical aircraft crash fire.

A small percentage of the epoxy matrix in the composites was converted under heat to a carbon char, which bound masses of fibers together, keeping them from drifting with the smoke plume. Between 50 and 70 percent of the fibers in the composite material remained because of the carbon char binding. Substantial portions of the remaining fibers were burned away.

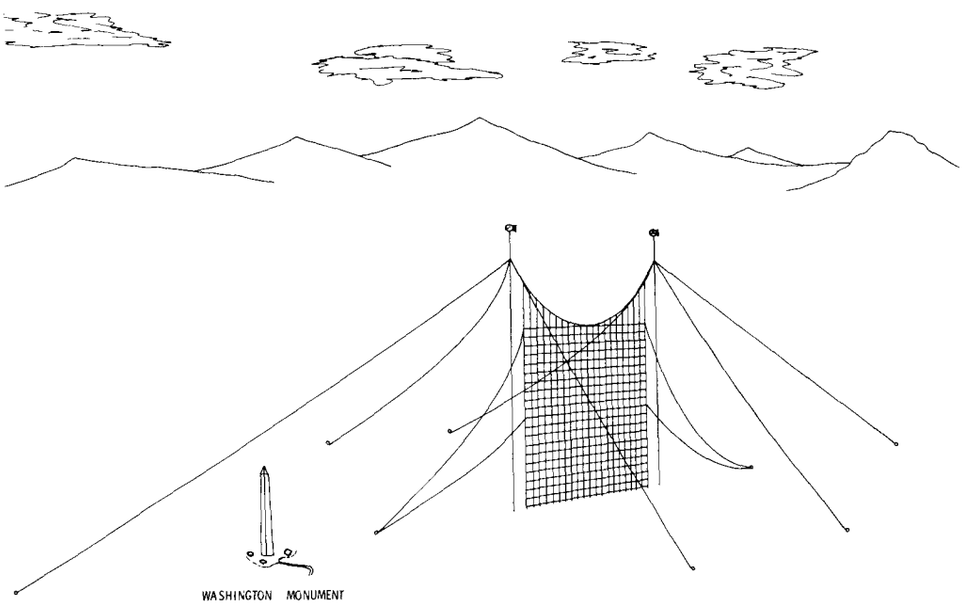
Detailed analysis by Langley researchers of information on electrical equipment revealed these additional facts:

- Many kinds of commercial electrical equipment have conformal coating on circuit boards, insulating them from fiber shorting. (Conformal coating is a process in which circuits are dipped in an epoxy-like substance that makes them virtually fail-safe against short circuits.)
- Most companies that have critical computer controls routinely place them in highly filtered and air conditioned rooms that also protect equipment from penetration by fibers.
- Airborne carbon fibers, released when aircraft composites burn, are not a significant risk to industrial equipment, television sets and stereo equipment.
- Common 110-volt motors and household appliances are almost invulnerable to carbon fibers.

Researchers even discovered that fiber-induced malfunctions in some equipment can be corrected merely by using a vacuum cleaner to remove fibers.

After almost two years of research, NASA results indicate that the risk of using carbon fiber composites in civil aircraft is insignificant. The loss to the U.S. economy--by the early 1990's--of the accidental release of fibers from aircraft crash fires is expected to be about $1,000 a year. The expected loss is far exceeded by the benefits to the nation from reduced fuel usage by aircraft built with carbon fiber composites.

Reports presented at the Langley conference will be compiled and published in March 1980.



An artist's rendering of Jacob's Ladder, the huge sampling array that is being used to test the density and rate of release of carbon/graphite fibers. Held aloft by two Air Force balloons, the net would dwarf the Washington Monument.

Shortcuts Won't Cut It, Traffic Committee Says

Many drivers are avoiding intersections such as those at Ames and Freeman Roads by cutting through the parking lots of Buildings 1208 and 1209, according to Jane Swartzwelder, Traffic Safety Committee Chairperson.

"And that just won't do," she said. "The practice of cutting through parking lots is extremely dangerous to all pedestrians, is a violation of the state vehicle code and must be terminated," she said.

The speed limit in parking lots is 10 mph, but vehicles cutting through are traveling much faster, endangering pedestrians in that area. "While this practice is heavier during peak rush hours, it cannot be condoned at any time," Swartzwelder said.

Swartzwelder urged all NASA, contractor and other drivers to exercise extreme caution and courtesy at Langley intersections, and to drive defensively.

Oscilloscope Camera Missing

A tektronic oscilloscope camera is missing from the Arc Facility, Building 1267. The camera belongs to Rockwell International and bears a North American Aviation property tag No. NO797574.

Individuals with oscilloscope cameras should check for the above item and if found, return it to R. F. Mayo.

GWU Offers Course

The course on Wind Tunnel Research Techniques, offered by The George Washington University for the 1979 fall semester, will be offered again for the 1980 spring semester because of the strong interest shown in the course.

The objective of the course is to familiarize students with wind tunnel facilities from subsonic to hypersonic and the specialized research equipment and research techniques used in the various facilities. Field trips are planned to most of the major facilities and lectures will be given by Langley guest lectures.

For more information on the course, call Professor John P. Campbell, George Washington University extension 2219.

Guest Lecturer Discusses Sea Ice

Sea ice, some results of microwave measurements of sea ice taken from aircraft and the parameters required during future ice study missions will be discussed by an educational resource lecturer at Langley on December 17.

Dr. Rene O. Ramseier of the Canadian Center for Remote Sensing is a member of the Canadian Surveillance Satellite Program (SURSAT). He has been engaged in cooperative research programs with NASA in the Great Lakes, Alaska and the North Sea.

Ramseier's lecture will begin at 9 a.m. in Building 1202, Room 246. Langley employees interested in oceanography, particularly sea ice, are invited to attend.

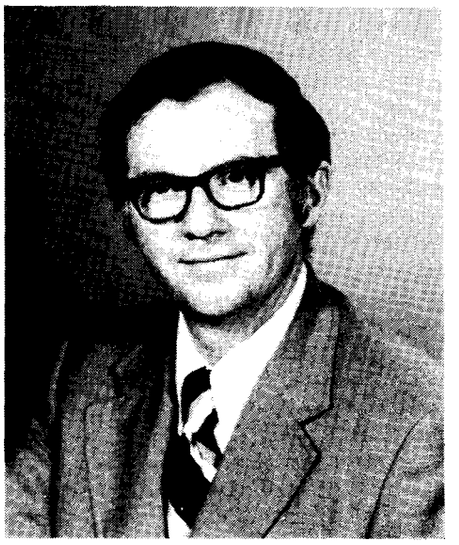
Scherer Retires from NASA

Lee R. Scherer, NASA Associate Administrator for External Relations and former Director of Kennedy Space Center and Dryden Flight Research Center, retired from federal service December 1.

Scherer, who joined NASA in 1964, after retiring as a captain in the U.S. Navy, was appointed to his present position in September. He had been Director of the Kennedy Center since 1975 and was Director of Dryden from 1971 to 1975.

– photo by The White House staff

Thomas E. Pinelli (second from left), Assistant to the Chief, Scientific and Technical Information Programs Division, has been recognized for "exceptional creativity and outstanding leadership and service in the development of a publications management program for the Executive Office of the President." Pinelli was presented a Certificate of Appreciation from the Office of Administration, Executive Office of the President, and a Letter of Commendation from The White House by Richard M. Harden (right), Special Assistant to the President for Information Management, during ceremonies held November 1, in Washington, D.C. Assisting in the presentations were Carl Grant (left), Director of Personnel, NASA Headquarters, and John Heiss, Assistant Director for Personnel, Office of Administration, Executive Office of the President. Pinelli was selected as one of three Langley employees to participate in the 1978–79 NASA Career Development Program where he served as Projects Officer in the International Affairs Division at NASA Headquarters. In January 1979 he was detailed from NASA Headquarters to the Executive Office of the President where he served until July 1979.



Young Named Goddard Director

A. Thomas Young, former mission director of Project Viking at Langley, has been named director of the Goddard Space Flight Center, effective February 1, 1980. He succeeds Dr. Robert S. Cooper, who left government service in June.

Young, deputy director of the Ames Research Center, has been with NASA since 1961, when he joined the Langley staff. While at Langley, Young also served as mission operations manager of Project Viking and mission definition manager of the Lunar Orbiter Project.

Young served as director of the Planetary Division in the Office of Space Science at NASA Headquarters from November 1976 to February 1979, when he was named deputy director of Ames.

Young received NASA's highest award, the Distinguished Service Medal, in 1977 for his contributions to Viking. In 1977 he also received Langley's Sustained Superior Performance Award for his work on Viking and in 1967 for his contributions to the Lunar Orbiter Project.

In 1975 Young was one of five people to receive the Hampton Roads Jaycees' "Peninsula's Outstanding Young Leader" award.

He is a member of the American Institute of Aeronautics and Astronautics and a fellow of the American Astronomical Society.

A graduate of the University of Virginia, Young was a Sloan Fellow at the Massachusetts Institute of Technology in 1971–72 and received a master's degree in management.

Happenings

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, December 17, from 7 to 9 p.m. in Room 180 of Building 1209. Following a short business meeting VPI & SU extension agent, John Gray, will speak about "Honey Plants." The meeting is open to all interested persons.

SKI TRIPS. One-day ski trips are planned for Thursdays, January 10, February 7, February 21 and March 20 to Bryce Mountain; January 17, February 14 and March 6 to Massanutten; and January 24 and March 13 to Wintergreen. The cost of each trip is $28, including rentals; $23 if you have equipment. A bus will depart Newmarket South at 5 a.m. and return by 10 p.m. A check should be made payable to Richard Bennett and sent to him at Mail Stop 397 or 11 Bosch Lane, Newport News, Va. 23606 to reserve a seat. For further information call Bennett on 599-6293.

DOG OBEDIENCE CLASSES, sponsored by the James-York Dog Training Association, will begin Thursday, January 3, 1980. Registration will be held from 7 to 7:30 p.m. at the Hampton Armory, 504 North King Street, with a basic class immediately following from 7:30 to 8:30 p.m. and an advanced class from 8:30 to 9:30 p.m. All dogs are required to have shots recommended by the vet for their age and to be free of worms. Please bring your dog's shot record. Each dog will be fitted with a special training collar; six-foot leads are required and will be available at registration. For further information call 874-5706 or Doris Bryan, 898-6273 after 5 p.m.

CNC BASKETBALL. The Athletics Department of Christopher Newport College extends a special invitation to Langley employees and their families to see the CNC Captains play basketball this season. A special rate of $2 per family is offered for each home game. Employees must present their NASA badge at the ticket office to take advantage of this offer. A schedule of home games and tickets can be obtained by calling 599-7025.

NEW YEAR'S EVE DANCE. The LAA will sponsor a New Year's Eve Dance in the Activities Center from 9 p.m. to 1 a.m. Music will be provided by **12 O'Clock High**. Tickets are on sale at the Activities Office; reservations are required. The cost of the semi-formal dance is $15 per couple, set-ups included (BYOB).

Fred W. Bowen, Acting Director for Management Operations, receives the Presidential Commission's Exceptional Service Award from Dr. John G. Kemeny, Chairman of the President's Commission on the Accident at Three Mile Island. The award, presented during an awards ceremony November 15, in Washington, D.C., reads, "For exceptional service and outstanding contributions in the national interest to the President's Commission on the Investigation of the Accident at Three Mile Island." Bowen served as Director for Administration of the Commission last summer during the investigation of the accident.

Brown Bag Special Continues

A 30-minute film "Managing Stress" will be shown today at 12:15 p.m. in Building 1212, Room 200. The film showing is part of the "Brown Bag Special" sponsored by the Learning Center.

"Managing Stress" presents important research based information on work related stress. Stress in moderation is a healthy and energizing force for most people. But it can also build into unhealthy tension. The 30-minute film is designed to help the viewer recognize common sources of stress, assess his or her own capacity to tolerate stress and become more aware of alternative means for coping with stress.

Thanks for Christmas

"Words cannot adequately express the sincere thanks that my family and I convey to the very special people in Building 1250.

"During a time of hardship and tribulations in my family, very thoughtful and sincere people gave me an unexpected gift for Christmas that will take us through the season in uplifted spirits. It is very gratifying to know that there are still people around who really care.

"I would like to give special thanks to Lin Burns, Ken Crocker, Paul Jones, Mary Wallace and certainly all the other beautiful people who have been Santa Claus to my boys this Christmas.

"I have a home away from home. I have friends here at NASA.

"God Bless You All This Christmas Season."

Ann Miller & Family

National Aeronautics and
Space Administration

Langley Research Center
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23665

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FOR SALE

Articles

Roller Derby shoe skates, girls, white, size 4, GC, $10; Tyco lighted TCR road race set, GC, $15. Call 838-4227.

Two United Airlines half fare coupons, $35 each or two for $60. Call 877-3609 after 6 p.m.

Antique dictionary stand, wrought iron w/rollers, 1923 dictionary, $165; end table, blond w/black legs, $10. Call 722-5953.

Everett mahogany spinet piano w/bench, VGC, $800. Call Youngblood, 877-1224.

Lane dining room drop-leaf table and six chairs, walnut Danish modern, EC, $300. Call 877-9577.

Animals

Miniature Schnauzer puppies, whelped November 10, AKC registered, champion bloodline, tails docked and dew claws removed. Each one adorable, strong and healthy; will hold for Christmas, $200. Call 229-6197.

Vehicles

1975 Dodge B300 Camper-Van with everything. $6800. Mike Ellis, 898-6040.

Schwinn suburban bike, boys, 28" 5-speed, black, GC, $95. Call Salake, 723-5525 after 4 p.m.

1972 Pontiac LeMans, 3-seat wagon, AC, AT, PS, FDB, AM/FM, GC, $925. Call 229-3837 after 6 p.m.

Real Estate

Lot in Middle Plantation near Williamsburg; Section I, Block H, Lot 7, on cul-de-sac; half acre near golf course, $15,000 or finance. Youngblood, 877-1224.

FOR RENT

Wintergreen Condominium--on Diamond Hill Ski Slope, completely furnished including linens, 2 BR; rates through March 15, $75 per day, Sunday to Thursday; $85 per day Friday and Saturday. Reserve now for ski season. Call Ladson, 877-3632.

WANTED

Two-person car pool desired from Edgehill to West Area on 8 a.m. shift. Call Avery, 3731.

One rider to join established car pool from Kempsville, preferably College Park area of Virginia Beach, to West Area, 8 a.m. shift. Call Taudon, 3561, or 420-9256.

LOST

Khaki coveralls lost on Parimeter Road December 4. Call Harvey, 2818.

cafeteria menu

WEEK OF DECEMBER 17

MONDAY: Ham & Lima Bean Soup; Chicken & Dumplings; Stuffed Bell Peppers; Hot Roast Pork Sandwich. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Manhattan Clam Chowder; Baked Lasagna; Fried Filet of Fish; Broiled Beef Liver. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Corn Chowder; Roast Turkey Dinner; London Broil; Baked Tuna & Noodle Casserole. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Beef Soup; Fish Dinner; Beef Enchiladas; Savory Baked Chicken. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

CAFETERIA will be CLOSED until

Wednesday, January 2, 1980.

MERRY CHRISTMAS
and
HAPPY NEW YEAR!!!!

WEEK OF JANUARY 2

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Ham & Cheese Omelette; Meat Loaf. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Roast Beef; Crab Cutlets. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Pineapple Chicken; Beef Balls Stroganoff. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF JANUARY 7

MONDAY: Ham & Lima Bean Soup; Country Style Steak; Chicken Chow Mein; Quiche Lorraine. Snack Bar: Submariner; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island Clam Chowder; Baked Lasagna; Braised Beef & Vegetables; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Stuffed Bell Peppers. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Broiled Beef Liver; Hot Roast Pork Sandwich. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Beef Enchiladas; Chicken Pot Pie. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

Retirement Parties

Charlie E. Dameron, Lemuel E. Forrest and **Edwin A. McErlean** of the Instrument Research Division will be honored with a retirement buffet luncheon on Thursday, January 10, 1980, at the Activities Center. The roast beef buffet will begin at 11:30 a.m. The cost will be $6 per person, plus $1 for a gift for each retiree (total $9 if contributing to all three). Contributions for gift only will be accepted. Please make reservations by cash or check payable to Robert E. Wright, Mail Stop 234, or Tom Carpini, Mail Stop 236, by Tuesday, January 8.

Margaret S. Schoonover, Programs and Resources Division, will be honored with a retirement luncheon on Wednesday, January 9, 1980, in the Activities Center at 12 noon. The cost of the luncheon including gift will be $5.75 per person; contributions of $1 for gift only are welcome. Please make checks payable to Carol Wetterling, Mail Stop 104, by Friday, December 21.

FREE

Three bantam hens. Call Jim Morris, 4534, or 851-0120.