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Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 1

January 11, 1980

Goddard Scientist to Speak at Colloquium

Dr. Stephen P. Maran, Senior Staff Scientist at the Laboratory for Astronomy and Solar Physics, Goddard Space Flight Center, will be the guest speaker at the Langley Colloquium January 24.

The lecture, titled "A Star in Trouble and Other Condensed Remains of Supernovae," will be held in the Activities Center at 2 p.m. followed by a question and answer session. At 3 p.m. the speaker will move to the adjoining Langley Room for an informal discussion.

In his talk, Maran will discuss the star called SS433. Maran said the star has two oppositely directed jets of plasma that, although travelling at relativistic speeds, remains cool and collimated. "The jets trace out a giant cone in the sky every 164 days, while the star travels in a binary system orbit once every 13 days, apparently sucking matters from its companion," the scientist said.

According to Maran, SS433 is just the latest kind of remnant star to be found. It appears that after a supernova explodes, it leaves a condensed star that may behave like SS433 or may be a pulsar, the neutron-star member of a pulsating binary X-ray source, or even a black hole. "Strangely enough and contrary to expectations, all neutron stars may have the same mass," Maran said.

Maran joined the Goddard staff in 1969. He is involved as Co-Investigator for Operations on the "High Resolution Spectrograph" experiment on the Space Telescope and as a member of the Space Telescope Data and Operations Team and the Space Telescope Mission Operations Working Group. He also leads a group that is doing an infrared source survey with measurements from U.S. Air Force satellites, a project that is a follow-up on his monitoring of infrared variable stars with USAF satellites. The latter project was the first systematic infrared astronomy research conducted with sensors in Earth orbit.

Prior to his present position, he served as Project Scientist for Orbiting Solar Observatories, Head of Advanced Systems and Ground Observations Branch and Manager of "Operation Kohoutek."

Maran has been involved in both ground-based and space research in Astronomy. Among the results to which he has contributed have been the identification of the star responsible for the optical pulses from the Crab Nebula; the investigation of the Gum Nebula as a possible new class of celestial object; the identification of Native American rock art that may represent additional records of the Crab Nebula supernova explosion of the year 1054 A.D.; the first detection of microwave continuum radiation from a comet and by implication, the first direct detection of the icy-grain halo structure in comets.

Maran received a Ph.D. in Astronomy from the University of Michigan in 1964

Continued on page 2.

– photo by Bob Nye

Oran Nicks, Langley Deputy Director; Dr. Harriett G. Jenkins, NASA Director of Equal Opportunity Programs; and Jerry Hansbrough, Head of Langley's Office of Equal Opportunity Programs, review the agenda for the Equal Opportunity Officers' meeting. Dr. Jenkins and Equal Opportunity Officers from all NASA Centers met at Langley January 8 and 9 to discuss the Equal Employment Opportunity Commission's guidelines for developing an Affirmative Action Plan and to prepare a proposed draft of a plan for the Agency. Federal Women's Program Managers and Hispanic Employment Program Managers also participated in the two-day meeting.

William H. Phillips, a Distinguished Research Associate at Langley, receives NASA's Distinguished Service Medal from Dr. Robert A. Frosch, NASA Administrator. The medal, presented during NASA Headquarters Annual Honor Awards ceremony November 20, 1979, was given to Phillips "For distinguished service to the United States in making highly significant contributions in the field of guidance, control, and flying qualities of aerospace vehicles ranging from World War II aircraft to the Space Shuttle." Phillips retired February 28, 1979, with more than 38 years of service to NASA and NACA.

Goddard Scientist

Continued from page 1.

and then joined the Kitt Peak National Observatory in Tucson, AZ. At Kitt Peak, he was astronomer-in-charge of the 50-inch remotely-controlled telescope project and worked on pulsars and variable stars.

The co-author of a college textbook, "New Horizons in Astronomy," and editor or co-editor of four other books, Maran is assisting the National Geographic Society in the development of an atlas of the universe. He contributes a regular column on new developments and discoveries to *Natural History* magazine. His articles have also appeared in *Scientific American, Smithsonian Magazine, Science Year* and *Sky and Telescope.*

Maran was editor of *Astrophysical Letters* from 1974 to 1977 and is associate editor of that journal and *Earth and Extraterrestrial Sciences.* He is a member of four International Astronomical Union Commissions.

Langley employees attending the lecture should charge their time to Job Order A1980.

Key Positions

John W. Wainwright, III, has been selected Supervisory Construction Representative, Inspection Section, Plant Support Branch, Plant Engineering Division, under Merit Promotion Announcement 79-86.

The following employees have been designated for key positions in the Acquisition Division:

Frank E. Godfrey, Assistant Head, Facilities and Materiels Contracting Branch;

William R. Kivett, Assistant Head, Research and Technology Contracting Branch;

Michael F. Cavelli, Jr., Head, Projects and Technology Contracting Section, Research and Technology Contracting Branch;

Albert C. Knollmann, Head, Research Contracting Section, Research and Technology Contracting Branch;

Richard T. Bright, II, Head, Research and Technology Contracting Branch, and Acting Head, Support Contracting Section, Research and Technology Contracting Branch.

EE Savings Bonds Pay 7 Percent

The Department of Treasury announced on December 14, 1979, that Series EE Bonds will be identified as Energy Savings Bonds. An energy bonus of one-half percent is being offered on each Series EE Bond that is held until maturity. This bonus becomes fixed as a part of the maturity value and is payable upon redemption at or after maturity. It increases the effective yield on bonds held to maturity to 7 percent.

The term of the Series EE Bond is 11 years, in contrast to the 5-year term of Series E Bonds. However, the yield on both series is 6½ percent, compounded semiannually, if the bonds are held for a minimum of 5 years. The energy bonus raises the yield on bonds held for 11 years.

Colonial Parkway Closes for Repairs

The Colonial Parkway between Williamsburg and Yorktown will be closed to all traffic on the morning of January 15, and will remain closed for approximately 11 months as major repairs commence on several bridges along the scenic route.

James Sullivan, Superintendent of the Colonial National Historical Park, said the parkway will be open to Route 199 on the Williamsburg side and to the Yorktown Naval Weapons Station gates on the Yorktown side. But the section in between those points will remain closed to all traffic--including pedestrians and cyclists--until the work is complete, Sullivan said.

The repairs will include replacing curbing, decks and railings on three bridges, and rebuilding the bridge over Felgate's Creek. The National Park Service and the Federal Highway Administration are in charge of the project.

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.

Warning System Awareness Urged

On Friday, Nov. 16, 1979, near the noon hour, many Langley employees were surprised to hear a wavering siren sound for several minutes throughout the West Area.

A few people immediately stopped work and headed for personnel shelters; many others ignored the signal; still others jammed the emergency telephone system trying to find out what the signal meant.

What it meant was "Attack Warning," the signal warning of an actual attack against the country. The people who headed for shelter were the few alert ones among us.

Fortunately for the majority of employees, that Friday siren sounded by accident, and the Langley Air Force Base Command Post, which operates the system, is making certain that a similar accident does not reoccur.

The accidental event, and employee reaction to it, is a reminder that all of us should remain aware of the siren signal system and its purpose. It is designed to warn of an imminent peace-time disaster or of actual enemy attack.

Langley's Center Emergency Plans include responses to the siren system and other signals. They are based on the assumption that an enemy attack in this area would be preceded by increasing world tensions and formal announcements, but plans also recognize that the total warning period could be as little as 30 minutes, although this is a remote probability.

Every employee should periodically review the inside front cover of the Center telephone directory, where emergency signals are explained. If in doubt about a signal, check with your supervisor--don't clog the emergency phone system. It should remain free for real emergencies.

Thanks

James R. Sperance thanks all his friends for the farewell party, mementos, and gifts. He said, "The party was just one of many fond and pleasant memories of Langley that I will value for a long time."

S. Payne Parker, Jr., writes, "I would like to express my sincere thanks to my co-workers and friends for the grand retirement party and gifts given to me."

2,937 Apply for Astronaut Positions

A total of 2,937 men and women applied for 10 to 20 open astronaut positions during a NASA two-month recruiting drive that ended Dec. 1.

More than 300 of the hopefuls applied for both mission specialist and pilot categories. Future Space Shuttle missions will employ astronauts in both categories.

The number of women applicants for the two categories totaled 390.

The astronaut selection board at the Johnson Space Center will narrow the selection to those best qualified in the two categories. Approximately 100 will be selected for preliminary screening and physicals at the center next spring.

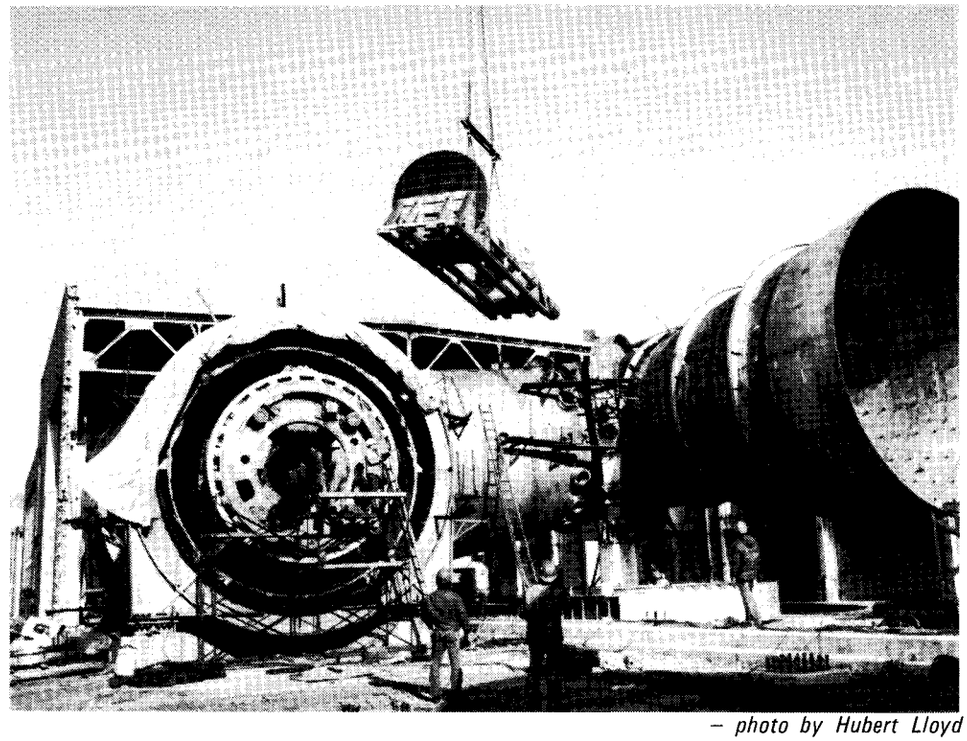
Those selected as astronaut candidates will report to Johnson in July 1980 for their one-year training and evaluation period. Final selection as an astronaut will depend on satisfactory completion of the evaluation period.

NASA plans to accept applications for Space Shuttle astronauts on an annual basis. The number of open positions will depend on NASA's need for pilots and mission specialists.

Hearth Featured on 'Focus' Program

Director Donald Hearth will be featured on the television program "Focus" this Saturday, January 12, beginning at 6:30 p.m., on WVEC-TV, Channel 13.

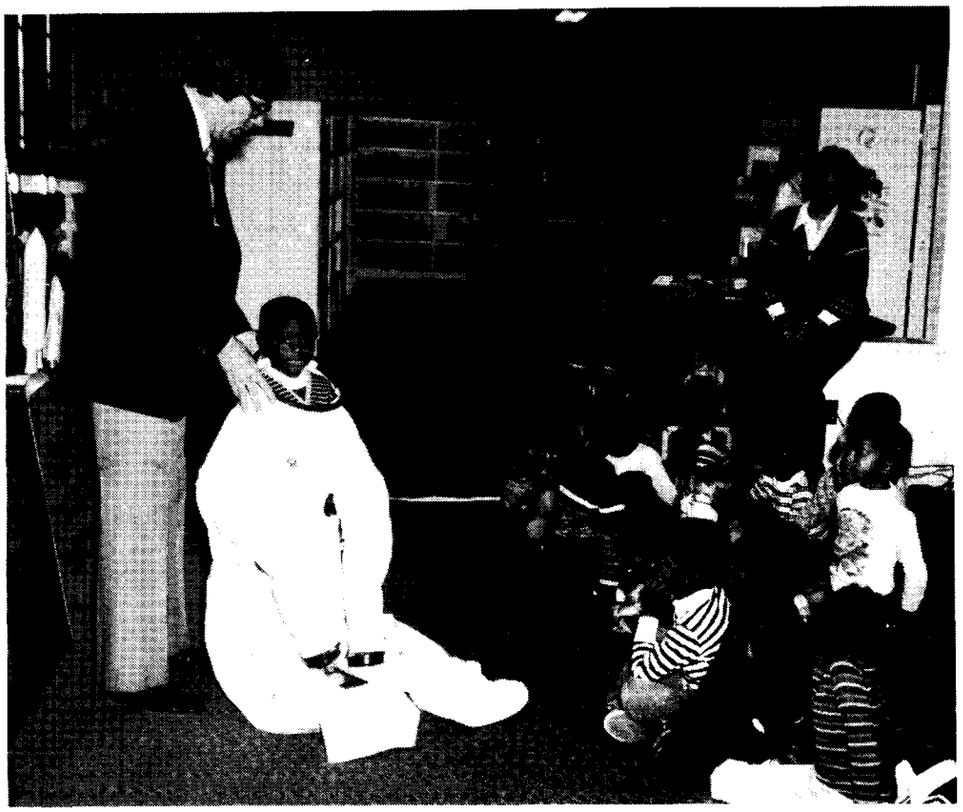
The first segment of the program, titled "Whatever Happened to Outer Space," includes an interview with Hearth and filmed examples of Langley work in aeronautics.



– photo by Hubert Lloyd

NTF GETS SHAFT. Workmen make final preparations for installation of the National Transonic Facility (NTF) driveshaft, as the 68-ton shaft assembly is lifted over Building 1236 a recent Saturday morning. After uncrating and unwrapping, it was inched into the bearing housing at left. The shaft and its hub--attached to the near end of the shaft--were each forged in Japan from nine percent nickel steel before assembly and balancing in the United States. When complete, the 55-foot shaft will use up to 130,000 horsepower to turn a fan which will propel gas around a rectangular circuit, compressing it along the way, for tests of model aircraft at transonic speeds. The NTF is a high Reynolds Number wind tunnel being constructed by NASA for joint use by NASA, the Department of Defense and industry. The facility will be able to duplicate the Reynolds Number of aircraft as large as a Boeing 747 using models with a wing span of about five feet. Reynolds Number is an important parameter used in engineering tests and is related to velocity, density and viscosity of the test fluid and size of the airplane being tested.

On the Front Lines with Langley's Aerospace Education Unit



It's not exactly a close fit, but this child and his classmates get some idea what astronauts encounter when wearing their bulky spacesuits. Allison mixes humor with facts and visual stimulation to keep and take advantage of the students' interest.

Out of this world beeps and tweets fill the ears of Allison's audience as he operates a light detection device. The light detector, part of a satellite telemetry demonstration unit, is one of Allison's most successful tools, giving him both laughs and interest from the students.

by Brian Welch

George Allison, who is married, has two children, and spends more than 250 days a year on the road with Langley's traveling Aerospace Education Program, was asked--enroute to something like his 1,450th presentation of the year--why such a job would appeal to him.

He shifted his gaze from the road to the rearview mirror and back again as the NASA van neared Stuarts Draft in the western mountains of Virginia.

"Because I like working with kids. I like the opportunity to see the ins and outs of schools and communities. I enjoy meeting people, and I enjoy the immediate gratification which comes when kids and adults respond in a positive way."

His answer made good sense, but it wasn't until two days later, during the course of several presentations at various schools in Murray, Kentucky, that the nature of Allison's job came into clearer focus.

As he was explaining the atmosphere of Venus to a group of entranced elementary school students, and patiently discussing the future of solar energy with an idealistic citizen at a gas station, and carefully loading thousands of dollars worth of NASA equipment into the van at the end of a long day of lectures, the essence of his job and responsibilities became clear.

Allison represents NASA--and to a lesser extent Langley--on the front lines: in the communities and the schools and before the Kiwanis Club and the Women's Day luncheons, where an explanation of what NASA is and what NASA does will for them become gospel, putting great responsibilities on his shoulders.

In a single year, Allison and more than 20 counterparts throughout NASA will each come into contact with around 200,000 students and adults, all of whom will form an opinion of the space agency based on their presentations.

But Allison's job is much more than making friends for NASA. His job is first and foremost educational in nature, and he is quick to point out that fact.

"We go into a community and perform an educational service," he said, "as well as leave those people with a positive attitude towards NASA. And we leave the students with the awareness that NASA does certain important things,

and that they need a good education to get anywhere in this world."

Allison, a former teacher, is especially forceful on that point. Each of the presentations he made to grade school and high school audiences during the Kentucky trip ended with the reminder that "knowledge is essential, and your teachers are the most important resource you have."

Coming on the heels of satellite telemetry demonstrations, slides of the planets, and the sight of Allison holding a Space Shuttle heat tile sample in one hand while scorching it with a propane torch held in the other, that statement seemed to carry some weight with the students.

The reactions of the students to seeing Allison's impressive setup--color posters, large models, a spacesuit and other paraphernalia lined up on long tables--were similar despite age differences. When elementary students filed into the auditorium on the first of three days of Murrary programs, one child shouted excitedly, "Oh Boy! Look at the NASA stuff" The next day, when it was the high school's turn for a visit from NASA, the same excitement, translated into the vernacular of a student maybe 10 years older, came out as, "Ooh! Check out the NASA stuff!"

During each presentation (there were 12 during the three-day visit), and with every age group from elementary to college students, there was excitement and edge-of-the-seat interest in Allison's talks. He described for each audience, in varying degrees of complexity, the basic foundation and goals of aeronautical research; he told them about the Saturn V rocket ("The first stage averaged six inches for every gallon of fuel it used," he said in a characteristically fascinating aside); he described the plans NASA has for the Space Shuttle, and how the craft will work; he told them about Skylab's experiments and what scientists learned about the effects of space living on the astronauts.

In five years of doing this kind of work, learning the Interstates and back roads of Virginia, West Virginia, North and South Carolina and Kentucky, becoming familiar with small towns in his region ("Lotta, South Carolina," he said once, reminiscing. "Now that's a nice town. The Lotta Motel--$7 per night. It was very clean, and they were nice, friendly folks."), Allison has averaged six presentations a day, five days a week. He has done programs for the mentally retarded, the blind and the deaf. He has been given the keys to small towns, and been interviewed by reporters of every description. He now laughs at once being billed by a small town newspaper as "George Langley from the Allison Research Center."

Allison said, "There have been times when I'd flip a coin to see if I stay in the motel or in the van." His passenger, thinking about how crowded the van is, asked him why on Earth he would do that. "Because sometimes it beats the motel by a long shot," he said.

He laughed at that, more because of the truth than the humor in the statement. As the van headed back for home, passing the Hungry Mother State Park on Interstate 81 near Marion, Virginia, Allison talked about the job and the success of the program.

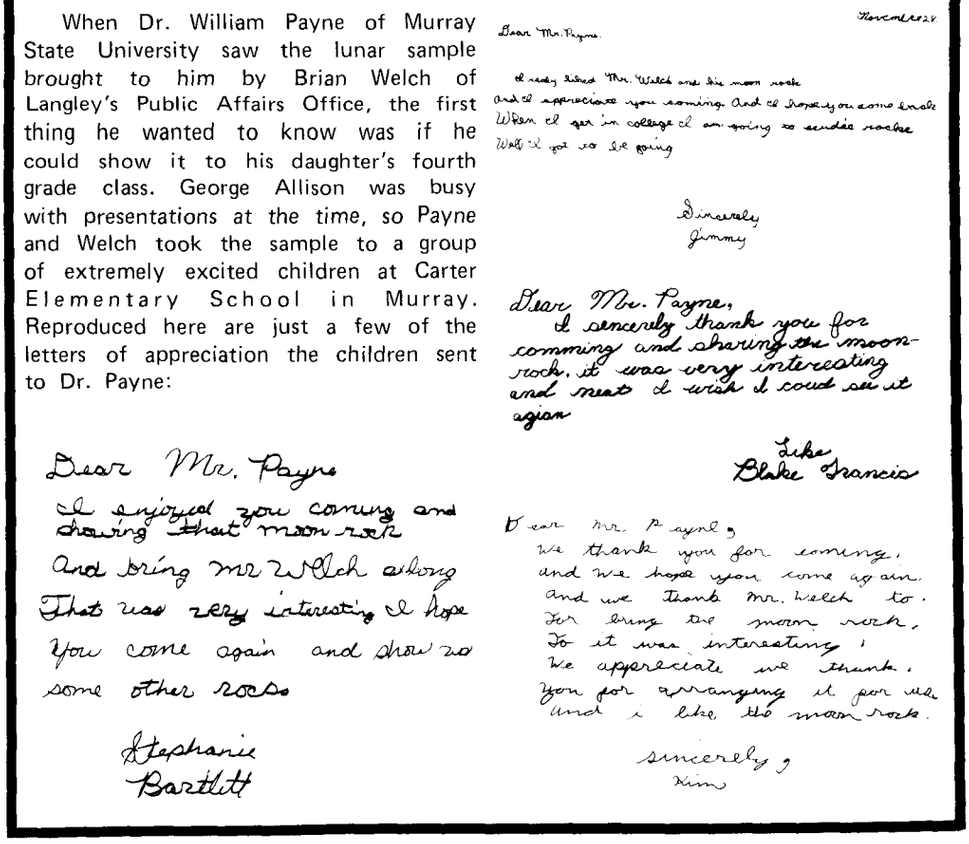
"The only way we can arrive at a measure of success is in the continued demand for our program," he said. "And the demand is outstanding."

"It's a good job."

Brian is a co-op journalism student from Kentucky's Murray State University. He is assigned to the Public Affairs Office.

Fourth Graders Excited About Lunar Sample

When Dr. William Payne of Murray State University saw the lunar sample brought to him by Brian Welch of Langley's Public Affairs Office, the first thing he wanted to know was if he could show it to his daughter's fourth grade class. George Allison was busy with presentations at the time, so Payne and Welch took the sample to a group of extremely excited children at Carter Elementary School in Murray. Reproduced here are just a few of the letters of appreciation the children sent to Dr. Payne:


Dear Mr. Payne
I enjoyed you coming and showing that moon rock
And bring Mr Welch along
That was very interesting I hope
You come again and show us
some other rocks
Stephanie
Bartlett

November 21
Dear Mr. Payne
I really liked Mr. Welch and the moon rock
and I appreciate you coming. And I hope you come back
When I get in college I am going to study rocks
Well I got to go I'm going
Sincerely
Jimmy

Dear Mr. Payne,
I sincerely thank you for
comming and sharing the moon
rock. it was very interesting
and neat I wish I could see it
agian
Like
Blake Francis

Dear Mr. Payne,
We thank you for coming,
and we hope you come again.
And we thank Mr. Welch to.
For bring the moon rock,
To it was interesting!
We appreciate we thank.
You for arranging it for us
and i like the moon rock.
sincerely,
Kim

New Emergency Number Announced

827-2111 is a telephone number to remember. It is a new part of the emergency announcement system for Langley employees.

The number is reserved for special announcements concerning emergency conditions--such as heavy snowfall, hurricane warnings or flooding--that might cause Director Donald Hearth to close the Center.

During regular duty hours, normal channels of communication should be adequate to alert employees to emergencies. If an emergency occurs outside regular work shift hours, such as heavy snow, employees can learn if, or when, to report to work by calling 827-2111.

Similar information will also be announced over area radio and television stations, as in past years.

Limousine Service Available from Norfolk

The Air Transport Company is now providing limousine service from Norfolk International Airport to various points on the Peninsula.

Due to limited parking facilities at the airport, the Langley Travel Office recommends that you take advantage of this service. A one-way fare from the airport to NASA Headquarters is $8.25.

Taxi service will be arranged from NASA to private residences when requested upon boarding the limousine in Norfolk.

The schedule listed below covers transportation from Monday through Friday. Weekend trips will be made upon request. On the Peninsula call 877-9477; in Norfolk call 857-1231.

Leave Norfolk International Airport		New Market Mall—King James Motel	Coliseum Mall Sheraton	LAFB Pass Term. Bldg. 754	NASA Hdqtrs.	Fort Monroe Chamberlin Hotel	Arrive Norfolk International Airport
3:40 a.m.	1st Trip	4:15	4:30	4:45	4:50	5:05	5:35 a.m.
4:55 a.m.	2nd Trip			5:45	5:40	5:25	6:30
5:55 a.m.	3rd Trip			6:45	6:40	6:25	7:30
6:35 a.m.	4th Trip	7:10	7:25	7:40	7:45	8:00	8:30
8:00 a.m.	5th Trip			8:45	8:50	9:05	9:35
8:30 a.m.	6th Trip	9:05	9:20	9:55	9:50	9:35	10:40
10:05 a.m.	7th Trip			10:50	10:55	11:10	11:40
10:40 a.m.	8th Trip	11:15	11:30	11:45	11:50	12:05 p.m.	12:35 p.m.
12:00 noon	9th Trip			12:45	12:50	1:05	1:35
12:35 p.m.	10th Trip	1:10	1:25	1:40	1:45	2:00	2:30
2:35 p.m.	11th Trip	3:10	3:25	3:40	3:45	4:00	4:30
4:25 p.m.	12th Trip	5:00	5:15	5:50	5:45	5:30	6:35
6:55 p.m.	13th Trip	8:20	8:10	7:40	7:45	8:00	8:55
9:30 p.m.	14th Trip*	10:55	10:45	10:15	10:20	10:35	11:30
11:30 p.m.	15th Trip*	12:05 a.m.	12:20	12:35		12:50	1:20 a.m.

*Scheduled only if there are passengers needing transportation.

Aircraft Art Displayed at the Visitor Center

The McDonnell-Douglas F-15 will find itself in good company with such aircraft as Lindbergh's "Spirit of St. Louis" and the 1933 original Goodyear Blimp as the Langley Visitor Center presents a special showing of aircraft art.

The show which will be held through January 20 features the work of two area artists--Bill Ellsworth and Joseph Chambers. Both men have been deeply involved with aircraft from a professional as well as an artistic standpoint.

Bill Ellsworth of Virginia Beach is a veteran of 30 years' service as a Navy pilot. Operating from some 28 aircraft carriers, Bill says "I sketched and painted whenever possible." His oil paintings and woodcut prints reflect his "deep affection for aircraft, ships, sky and sea." The Spirit of St. Louis, the Boeing F-4B, the Grumman F-4F and F-6F, the Grumman TBF (torpedo bomber) and the Curtiss BFC are just a few of Ellsworth's 30 works which are on display at the Visitor Center.

Ellsworth's paintings have been exhibited locally in the War Memorial Museum and at the Bank of Virginia in Newport News. Galleries in Philadelphia, Baltimore and San Diego hang his works.

Joseph Chambers, Head of Langley's Dynamic Stability Branch, has been involved with aeronautical research for the past 17 years. Through the years, Chambers has had a general interest in aircraft modeling and aviation art, but only in the past two years has he begun to seriously produce color airbrush renderings and pen and ink drawings of a variety of aircraft. "I receive a high degree of personal satisfaction from working artistically with many of the aircraft with which I am technically involved," he says. Chambers, whose current research centers around general aviation and military airplanes such as the F-14, F-15 and F-16, is exhibiting works whose subjects include the German World War I Albatross, the Curtiss/P-6E Hawk, the Dogulas TBD Devastator, the North American F-100 (the first supersonic level flight military jet fighter) and the McDonnell-Douglas F-15.

Golf Association Ends Season

The NASA Golf Association ended the 1979 season recently with a banquet at the Activities Center.

Walt Ellis, Langley retiree, and Tom Hall, Plant Engineering Division, tied for the association's Championship Award with a net score average of 67.6. Jerry Deaton, Materials Division, was second with 68 and Harry Johns, retiree, was third with 68.6.

Johns was the leading "money" winner of the year, winning $53 in gift certificates. Alan Frizzell, Materials Division, came in second with $47.50 and George Adamowski, Materials Division, third with $45.50.

Officers elected for the 1980 season are Bob Turner, President; Ron Weber, Vice President; and Frizzell, Secretary-Treasurer, all of the Fabrication Division.

In Memoriam

Robert F. Montgomery, 53, died December 10. He was an Engineering Technician in the Operations Support Division and had worked for NASA and NACA for 37 years.

Employees Retire

Iris C. Geer, Office of Director for Structures, and **Jack F. Zanks**, Flight Electronics Division, retired from government service December 17.

Francis W. Charles, Melvin D. Kuhns, Rudolph B. Heinatz and **William L. Cutchins**, Fabrication Division; **Edwin A. McErlean, Lemuel E. Forrest, Jr., Seth T. Walters** and **Charlie E. Dameron**, Instrument Research Division; **George F. Klich**, Structures and Dynamics Division; **Garland E. Wilson**, Systems Engineering Division; and **Atwood R. Heath, Jr.**, Aeronautical Systems Division, retired December 21.

Harry B. Slade, John P. Tribble and **Wilton B. Pollard**, Fabrication Division; **Thomas C. Kelly**, Subsonic-Transonic Aerodynamics Division; **Francis R. Dreisbach**, Flight Electronics Division; and **Thomas H. Redding**, Operations Support Division, retired December 28.

Happenings

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, January 21, from 7 to 9 p.m. in room 180 of Building 1209. Program plans include a slide presentation on the Starline & Mraz Honey Bee Breeding Programs. The meeting is open to all interested persons.

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley on Wednesday, January 23, 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.

BINGO. The Langley Activities Association will start the 1980 Bingo season Thursday, January 10, with more and bigger prizes. Games will begin at 7:30 p.m. in the Activities Center.

TOASTMASTERS. You are invited to join TAC Air Toastmasters to develop the arts of giving and evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesdays at the Langley Officers' Club at 7:15 p.m. Call Bob Lee, 2486, for more information.

NAGS. The National Association of Government Secretaries will meet January 15 at Captain George's Restaurant at 6:30 p.m. Franklin C. Owens of the Training and Educational Services Branch will speak on "Are You in the Right Career?" Dinner reservations must be made with Reachie Hall, extension 2150, or Shirley Davis, extension 2759.

Retirees Honored With Parties

James H. Parks, who retired December 22 from the Office of Director for Systems Engineering and Operations, will be honored with a retirement party Saturday, January 26, at the Langley Activities Center. A cash bar social will begin at 6:30 p.m., hot hors d'oeuvres at 7:30 and the program at 8:30. The cost will be $6.50 per person, $12.50 per couple or $1.50 for gift only. Please make checks payable to Jackie Kallick, Mail Stop 112, by Monday, January 21.

Charles Miller and **James Burden**, Operations Support Division, will be honored with a retirement luncheon Wednesday, January 30, in the Activities Center at 11:30 a.m. The cost of the luncheon including gift will be $7 per person, $12 per couple. Contributions of $2 for gift only will be accepted. Please make reservations by cash or check payable to Gloria S. Evans, Mail Stop 163B, by Monday, January 28.

Charles A. Rogers, Jr., of the Operations Support Division will be honored with a retirement buffet luncheon on Tuesday, January 22, at the Activities Center. The fried chicken buffet will begin at 11:30 a.m. The cost of the luncheon including gift will be $6 per person; contributions of $1 for gift only are welcome. Please make reservations by cash or check payable to Collis P. Moore, Mail Stop 226-A, by Wednesday, January 16.

Sam Ailor and **Abe Leiss**, Scout Project Office, are retiring from Langley on January 4 and February 29, respectively, after a combined total of 74 years NACA and NASA service. They will be honored with a retirement dinner in the Virginia Room, Hotel Chamberlain, on Thursday, March 6. A cash bar social will begin at 6 p.m. and dinner at 6:30. A choice of either roast tom turkey with dressing, giblet gravey and cranberry sauce, or broiled flounder, white wine and mushroom sauce is available. Please specify. Cost is $10 per person, or $18 per couple, which includes a $1 gift contribution to each retiree. Contribution to gifts only are welcome. For reservations, send check or cash to Grace Girton, Mail Stop 158A, by February 29.

Tom Harper and **Ken Whiting**, Operations Support Division, will be honored with a retirement luncheon on Wednesday, February 6, at the Activities Center. The price of the luncheon and contribution to the gifts is $6. Contributions to the gifts only are welcome. (Please specify if contribution is only for 1 person.) Please send checks to Ann Bell, Nettie Orie or Bob Schwartz, Mail Stop 286, by January 31.

Continued on page 8.

– photo by Bill Salyer

Congressman Thomas R. Harkin of Iowa (second from right), Chairman of the Transportation, Aviation and Communication Subcommittee of the Space and Technology Committee, and staff member, Ralph N. Read (right), visited Langley recently to review Langley's programs. Homer G. Morgan, Chief of the Acoustics and Noise Reduction Division, explains the research being conducted in the quiet anechoic flow facility of the Aircraft Noise Reduction Laboratory that will lead to quieter future aircraft.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Space Administration
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U.S.MAIL

Retirement Parties

Continued from page 7.

Dr. Manuel J. Queijo and **Donald E. Hewes**, Flight Dynamics and Control Division, will be honored with a retirement dinner Wednesday, January 30, at Fort Monroe Officers' Club at 6:30 p.m. The cost of the Beef 'n Burgundy dinner including gifts will be $8.99 per person. Send checks to Judith Burton, Mail Stop 161, by January 25.

A reitrement party for **J. R. Leaman, Jr.**, and **Richard A. Pincus** of the Plant Engineering Division, will be held at the Ft. Monroe Officers' Club, Casemate Room, at 7 p.m. on Wednesday, February 6. The menu will be a beef and burgundy buffet. Cost will be $7.50 per dinner plus a gift contribution for either or both. For your reservations, call Richard Rountree, extension 4637, before February 1.

Seth T. Walters and **Alphanzo M. Rackley** of the Instrument Research Division will be honored with a retirement party Tuesday, January 29, at Sammy's Steak House, 12399 Warwick Boulevard. Cocktails will be served at 6 p.m. and dinner at 6:30 p.m. The cost including contributions to gifts will be $8.75 per person or $14.50 per couple. Contributions of $1.50 for gift only will be accepted for each retiree. For reservations, send cash or check to Roger Phelps or Paul Wooddell, Mail Stop 238, by January 23.

Thomas H. Redding of the Operations Support Division will be honored with a retirement party on January 11 at the Langley Officers Club. For reservations call Jean Foster, extension 4514.

cafeteria menu

WEEK OF JANUARY 14

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

TUESDAY: Manhattan Clam Chowder; Beef Pot Pie; Fried Filet of Fish; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Ham & Cheese Omelette; Steak Smothered W/Onions. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese; Bacon, Lettuce & Tomato.

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

FRIDAY: Beef Noodle Soup; Fish Dinner; Meatloaf; Barbecued Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF JANUARY 21

MONDAY: Ham & Lima Bean Soup; Hot Roast Pork Sandwich; Teriyaki-baked Chicken; Beef Enchiladas. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: Corn Chowder; Roast Turkey Dinner; Quiche Lorraine; Barbecued Pork Loin. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Baked Tuna & Noodle Casserole; 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; Stuffed Bell Peppers; Chicken & Dumplings. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

swap and shop

FOR SALE

Articles

Exercise bicycle in EC, $25. Call 826-9045 after 5 p.m.

Traditional-style sofa and matching armchair; blue plaid herculon; LNC; $150. Call 838-4227.

1978—79 Nikon camera equipment: F2AS Black Body w/strap and cable release, $375; 80—200 mm AI zoom lens w/fltr, hood and hard case, $375; 35 mm F/1.4 AI lens w/fltr and hood, $275; SB-10 flash w/F2/F2AS adapter and wide angle attachment, $45. Perfect condition. Call 826-8916 after 5:30 p.m.

Vehicles

1965 Dodge Polara, 4 dr., 4 new steel belted tires, new points and plugs, new muffler, $300. Call 851-7620.

1965 1/2-ton Pick-up, wrecked, new engine undamaged (not rebuilt) 4,000 mi., good drive chain and many parts, $700. Call 851-6640.

1973 Pontiac Bonneville 4 dr. sedan, VGC, AT, AC, PS, PB, CC, AF/FM, new parts, new inspection, $900. Call 838-2801.

FOR RENT

Sandbridge, new cottage: liv.-kit.-din. area, 4 BR, washer/dryer, dishwasher, fireplace, 1/2 block from beach and Back Bay, AC, phone, 6-car parking; summer rates $400/wk. Call G.O. Kent, extension 3095, or 420-8391.

LOST

Tie clasp; Gold golf club, 30-year-old gift. Lost between Hangar, 1205 parking lot, Headquarters and West Dispensary. Call Harold Crane, extension 3274, or 723-0861.

WANTED

One rider to join established car pool from Kempsville, preferably College Park area of Virginia Beach, to West Area on 8 a.m. shift. Call Jaudon, extension 3561, or 420-9256.

Person interested in joining car pool from Windsor area of Isle of Wight County to West Area, 7:30 to 8 a.m. shift. Call Milton Lamb, extension 3181.

Garden cart, steel tray with inside dimensions 36"x22"x10"; in good condition. Call Miller, extension 2065.

Thanks

"A special thank you to Carmen Batten, Gianni Gaetano, Richard Hofler and Bob Lutinski, who have taken their personal time to assist me by translating letters from foreign countries that have come to Langley during 1979. Your services are sincerely appreciated."

Renee Benton
Office of External Affairs

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

SPECIAL ISSUE

January 18, 1980

the 70s

A Decade of Progress Amid Cuts, A Time of Ingenuity, Resilience and Growth

It was a time of dwindling budgets and a declining workforce. It was a 10-year period in which men came back from the Moon to find themselves bumped off the front pages by news of war, inflation, energy woes and public familiarity with the wonders of space travel.

It was a decade when the nation concentrated on its ground-based problems, and demanded from NASA a higher degree of benefits from aerospace technology.

But the 1970s also saw proof of NASA's resilience and ingenuity. Langley's history provides a case in point. Even though employment dropped one-third--from the 1966 high of 4,485 to 3,005 in 1979--and even though budgets were sharply reduced (Langley's research and development allotment dropped $45 million in 1976, the same year the Viking spacecraft encountered Mars), steady and often spectacular advancements were made in all areas of research.

Patents were granted to Langley employees for 333 different concepts and devices during the 70s, and the Technology Utilization and Applications Office could list well over 100 direct spinoffs from Langley research which were used to improve capabilities in medicine, environmental monitoring, construction--and even keeping the caliper disc brakes cooler in Richard Petty's race cars.

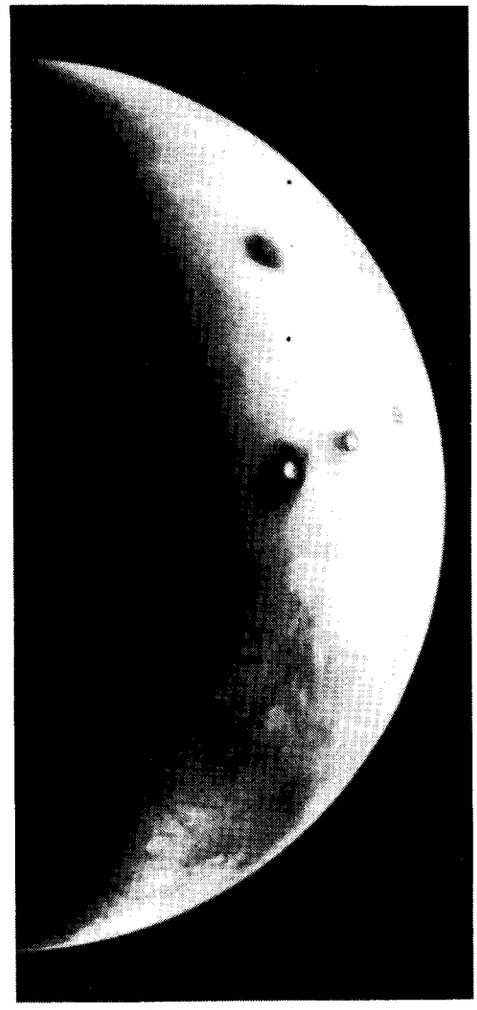
The fabled Shroud of Turin--claimed by some to be the burial cloth of Jesus Christ--was investigated with techniques suggested by Langley scientists, and shock absorbing--or frangible energy dissipation--studies led to the installation of accordion-like devices on highway guardrails, aircraft landing gear and even the bottoms of elevators.

Computational capabilities increased by quantum leaps, not once, but several times during the decade in various areas, from computer graphics to the STAR (String Array) computer, capable of 25 million additions per second. Electronics improvements were so fast and furious, so comprehensive, so progressive, that Chris Gross, recently retired head of the Measurement Physics Branch, said it is increasingly difficult to stay abreast of them all. "It's mind boggling," he said. "We are on the leading edge of technology, but many of us still stay at least six months behind. You can't keep up."

It was a decade when Langley researchers perfected the use of the laser velocimeter, programmed interactive computer graphics systems with highly advanced capabilities, developed the first nuclear pumped laser, inaugurated the best stall/spin research program in existence, routinely designed a microwave device with immense potential in the war on cancer, and sent robots to explore the fourth planet from the Sun in immaculate detail.

In space technology, the push progressed from sending men to the Moon to exploring the planets to preparing to put a truck into space, 50 times a year, for the next decade or more. Endowed with the most resources and public interest of all NASA's 1970s programs, the Space Shuttle benefited substantially from Langley research, and has not yet seen the last of them.

(Continued)



Mars looms before the approaching Viking 2 spacecraft in this 1976 photo.

Hearth Speaks

The 1970s was a decade in which Langley can be proud of its accomplishments. A few of the Center's program accomplishments were:

- Culmination of the Viking Project after many long hard years. The landing on Mars will go down in history as one of mankind's most important accomplishments in space.

- The 100th launch of Langley's Scout launch vehicle.

- Space flight data from several Langley-developed instruments, such as the Meteoroid Detection Experiments (on Pioneers 10 and 11), LIMS, SAM II, SAGE, etc.

- The VALT program and the application of Langley's STOL concepts to the YC-14 and 15.

- Initiation of a coordinated composite materials program with the USAF.

- Research initiated under the TCV program using Langley's 737 aircraft. Among other accomplishments, TCV was a major factor in the international decision in favor of the U.S. MLS design.

The 1970s were also a period of new Langley facilities, such as the V/STOL Tunnel, STAR Computer Complex, the new Technical Library, the Differential Maneuvering Simulator, the Aircraft Noise Reduction Laboratory, the Visitor Center, the Tech House, and the solar-powered Systems Engineering Building.

Many Langley people have been recognized during the past decade. Some that come to mind are Dick Whitcomb (Sylvanus Reed Award and National Medal of Science), Harvey Hubbard (AIAA Acoustics Award), Ed Kilgore (Roger Jones Award), Jim Patton (Iven C. Kincheloe Award), Hewitt Phillips (President's Distinguished Service Medal), and the "Viking Team" (Goddard Memorial Trophy).

The 1970s were exciting and rewarding. The Center, however, went through major adjustments in its program, organization, and personnel complement. While these adjustments were difficult for many, they were necessary and have placed the Center in a strong position to enter the 1980s with confidence. In the next issue of the *Researcher*, I will comment on what I see for Langley in the next decade.

the 70s

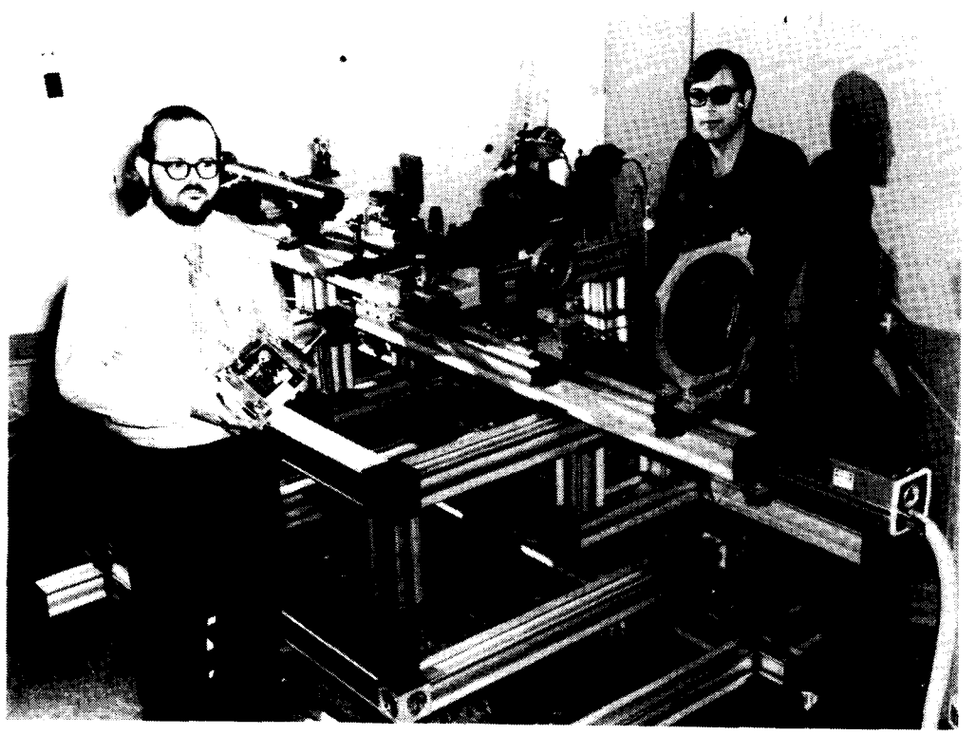
From Shuttle . . .

It was at Langley that Shuttle configurations were tested with more than 55,000 wind tunnel occupancy hours. The 1977 Langley annual report on Research and Technology Accomplishments said, "the influence of these studies is reflected in the use of a delta wing rather than a straight wing, a single vertical tail instead of outboard tails, a wing-body concept rather than a lifting body, solid instead of liquid rocket boosters, and entry profiles to minimize sonic boom."

Langley also contributed to the use of high-temperature adhesives, thermal control materials and thermal protection for the Shuttle. Vibration tests of the system in one-eighth scale paved the way for greatly enhanced predictions of how the configuration will react during operation. Hardware known as nestable tapered tubular truss components were developed which would allow the Shuttle to carry enough material for a structure 300 meters square. A Bolt Tension Monitor (which received a 1976 IR-100 award) is being proposed for use in checking for stress on the main critical bolt which holds the Orbiter atop the main fuel tank. Langley simulators were able to duplicate most of the Shuttle's re-entry regime.

Added to that capability was the information gathered from digital fly-by-wire flight tests with a Navy F-8C in 1978 and 1979. The aircraft was the first to fly with a triplex system--three IBM AP101 digital computers--and no gears, pulleys or other mechanical devices for the pilot to use if the computers went down. Information from those tests was carefully analyzed by Shuttle engineers, who have installed five redundant computers of similar design on the Orbiter.

Also associated with the Shuttle program was the establishment of a Large Space Systems Technology (LSST) office and development of the Long-Duration Exposure Facility (LDEF). Using composites, light durable metals and ingenious compression techniques, the LSST group established plans and parameters for a wide range of



Langley's expertise in the use of laser velocimeters during the decade allowed aeronautical researchers for the first time to obtain pressure, density and temperature measurements without intruding on the tunnel test section. Shown here are Jim Meyers (right) and John Franke, both of the IRD's Measurement Physics Branch. Franke holds a laser diode velocimeter, which he built in just a few months, that accomplishes the same function on a smaller scale as the large laser unit behind him.

Probing The Envelopes of Flight

Flourishing Research Greatly Advanced the Science of Aeronautics

If it flies, some element of its makeup probably originated at Langley.

That statement was especially true in the 1970s, when an impressive array of civil, commercial, research and military aircraft were scrutinized at Langley for everything from landing gear to design analysis.

All types of airplanes were tested in Langley's Stall/Spin tunnel, the only one of its kind in the nation. The unique facility enabled researchers to contribute major findings to the body of stall/spin knowledge, and allowed for the development of an unmatched series of contemporary fighters with unparallelled handling and maneuverability at high angles of attack.

The wide variety of wind tunnels provided the capability to test every regime of flight from low speeds to Mach 20. Advances in laser velocimetric techniques gave engineers a way to simultaneously measure desnity, temperature and velocity, without invading the test section. Rapid advancements in silicon chip and microprocesser technologies in the late 1970s led to the development of the Electrically Scanned Pressure Measurement system.

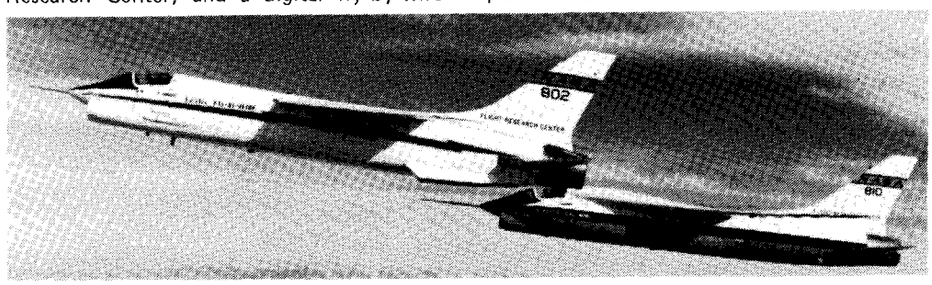
The development of such a system, meant to replace cumbersome individual pressure inputs, began in 1975, and by 1978 engineers were already trying to improve their fourth generation designs. By 1979, results which once came from trailing tubes out of a wind tunnel model could be obtained with devices which were wholly contained within the model. In the span of a year, the measurement system was improved again when silicon chip advancements made it possible to shrink an accompanying mini-computer--which stands a meter tall, about a half meter wide and a half meter deep--to a size where it would fit alongside pressure scanners inside a model.

With these and many other tools, Langley researchers probed the flight envelope of increasingly advanced concepts. Helicopters with wings were shown to be highly promising in a joint NASA/Army Rotor Systems Research Aircraft program, which produced two Skiorsky test vehicles and a wealth of data.

Other concepts studied included Short and Vertical Takeoff and Landing vehicles, greatly improved supersonic transports, an oblique wing aircraft now being flight tested at the Dryden Flight Research Center, and a digital fly-by-wire system in which a triplex computer array actually flew an F-8C by monitoring and directing the active control surfaces.

The supercritical wing was flight tested, a Laminar Flow Control Airfoil Experiment Office was established, sleeker wings with higher aspect ratios produced reductions in fuel consumption and were adopted by Boeing for the 757 and 767 aircraft, the Highly Maneuverable Aircraft Technology (HiMAT) robot was successfully flight tested and helped pave the way for new advancements in transonic performance for aircraft of the 1980s and 90s. These are just some of the ambitious undertakings in Langley's aeronautical programs during the decade.

By probing the envelopes of so many different kinds of flight, by constantly improving the means by which aircraft are designed and tested, Langley research solved aerodynamic problems of the past, identified concerns for the present, and pointed to new directions for the future.



Two concepts studied at Langley during the 70s were given wings on these F-8C aircraft at the Dryden Flight Research Center. In the foreground is the Digital Fly-by-Wire test vehicle. Flying close behind is an F-8C equipped with the Langley-developed supercritical wing.

the 70s

construction efforts in space. The Near-Term Platform Technology Development Plan, published in June 1979, contains objectives and options for deploying huge antennas, trusses and platforms for communication, solar energy collection and even space living. Many of the concepts now being studied could be erected for analysis in space by 1985.

Closer at hand is LDEF. The platform for space-borne experiments has already been built for transport in the Orbiter's cargo bay, and is now scheduled for launch on a shuttle mission during 1982. It will be retrieved one year later for analysis.

. . . To Satellites . . .

Satellite programs also thrived at Langley during the 70s. The Scout rocket began the decade with its 68th launch and ended with its 101st. The 34 missions investigated such things as astronomy, astrophysics, radiation and meteorology. Clients included the United Kingdom, Germany, France, Italy, the European Space Agency and the Department of Defense. In addition to Scout, Langley researchers contributed to the Hawkeye Satellite, SeaSat, the Meteoroid Technology Satellite, the Stratospheric Aerosol Measurement and Limb Infrared Monitoring of the Stratosphere packages aboard Nimbus 7, the Stratospheric Aerosol and Gas Experiment aboard the Application Explorer Mission satellite (see page 6), the Earth Radiation Budget Experiment and the High Energy Astronomical Observatory.

But clearly the most impressive accomplishment in space was the Viking Project, managed by Langley. After years of preparation, two Viking craft were launched toward Mars in August and September of 1975. Viking Lander 1 touched down at 4:13 p.m. Martian time on the seventh anniversary of the first manned Moon landing. Lander 2 was close behind, landing at 9:49 a.m. local time 4,600 miles north of its sister craft. The robots operated almost perfectly for the next three years, and still occasionally send photos to Earth, such as a recent one showing Mars' annual frost cover.

A few days before the first Viking touched down, during a panel discussion in California moderated by Director Donald Hearth, celebrated panelists examined the question of why man explores. Author Norman Cousins said, "The fact that we can conceive of the inconceivable, and comprehend the incomprehensible, is perhaps the highest exercise of the human brain, symbolized so dramatically by the exploration of Mars."

Viking images revealed unearthly Sunrises and Sunsets, an eerie red sky and distant blue landforms in the horizon of some panoramas. Both Vikings conducted extensive soil sample research in their intricately built microbiology laboratories.

Gerald Soffen, former project scientist for Viking, writing in the Journal of Geophysical Research, detailed the investigations performed: "Three mapping experiments from the Orbiter, one atmospheric investigation during the Lander entry phase, eight experiments on the surface of the planet, and one using the spacecraft radio and radar systems. The experiments on the surface dealt principally with biology, chemistry, geology and meteorology. Seventy-eight scientists have participated in the 13 teams performing these experiments."

With that impressive list of accomplishments, Soffen was scarcely overstating the case when he said, "The two Viking missions to Mars are NASA's most ambitious and memorable planetary missions . . . which have yielded more data about Mars than all previous observations collectively."

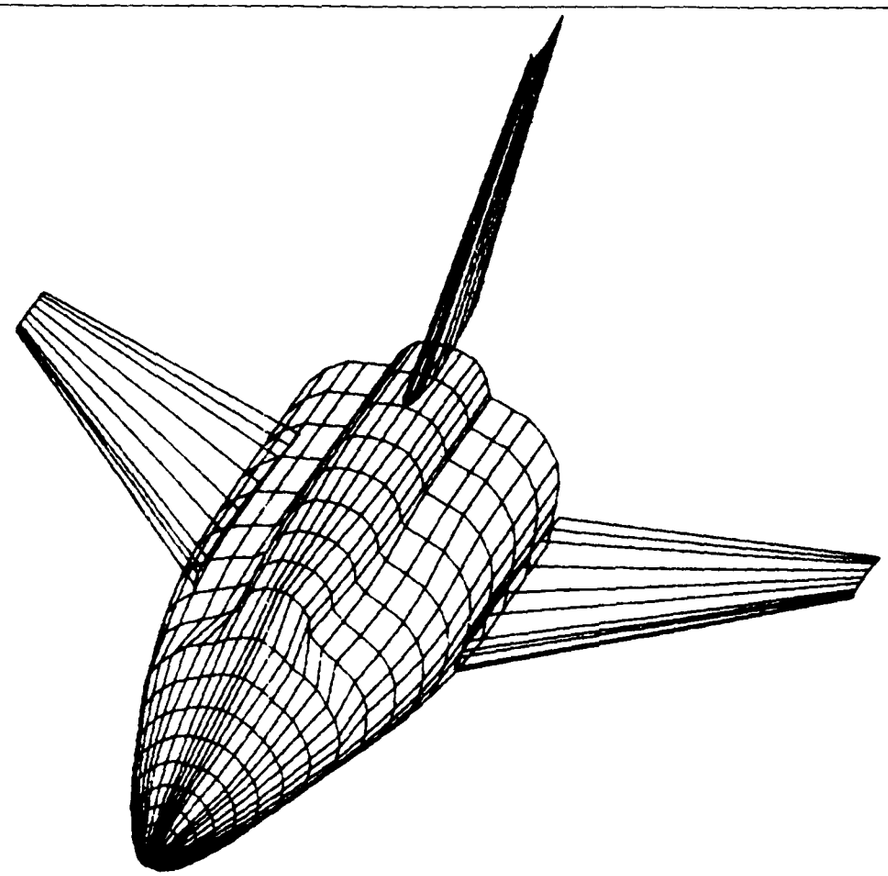
Langley engineers also contributed to other planetary missions, including an experiment package aboard the Pioneer Venus spacecraft, and involvement in the Voyager and Pioneer 10 and 11 missions.

. . . And Back to Earth

Closer to home, Langley researchers devised new ways to use satellites in weather observations, land use analysis and environmental monitoring. Langley's cooperation with local and state officials involved using remote sensor technology--Landsat for instance--to study land reclamation efforts, determine the causes of silting, document losses and gains in forest acreage, and produce land use maps for such agencies as the Division of Mined Land Reclamation and the Air Pollution Control Board.

Pollution monitoring was also done with space, air and land-based instruments in the Tidewater area, including measurements of atmospheric pollutants in the Hampton Roads area. Microwave remote sensing was used in 1977 to measure the temperature and salinity of coastal waters. In a single three-hour flight, researchers were able to completely survey a 3,000-square-kilometer area near the entrance to Chesapeake Bay. Intensive stratospheric modeling during the decade also paved new inroads in the knowledge of solar ultraviolet effects on the atmosphere.

Models performed on Langley's impressive STAR computer enabled scientists to develop simulations of severe storm environments, which when supplemented with routine daily measurements of temperature, pressure and moisture, allow for a 16-hour forecast of storm activity over portions



The procedure for designing space transportation vehicles like this one was greatly enhanced in June 1977 when the Aerospace Vehicle Interactive Design system went on line. Such interactive computer systems allowed researchers for the first time to evolve beyond the old batch system of computation, where submitted programs might not be seen again for several hours or days. Systems like AVID can in most cases generate immediate results, and facilitate the interface between the human mind and the computer.

of the nation. The system, now being tested by the National Meteorology Center, is the only one of its scope available.

Air and ground-based Lidar (Light Detection and Ranging) systems measured atmospheric particles, and a smokestack monitor was developed (now in commercial production) that can provide a visual image of normally invisible sulfur dioxide emissions.

The seas provide a natural laboratory for Langley research. In 1979 a Remote Chlorophyll Mapping program was performed in Narragansett Bay, Rhode Island. A remote airborne fluorosensor allowed scientists to gain information on the variations and concentrations within the phytoplankton community, an integral part of the Bay's eco-system.

SeaSat, an oceanographic research satellite launched in the summer of 1978, carried with it a Langley-developed instrument called a scatterometer. This active device, which read and interpreted signals bounced off a target, was the first to measure from space the windspeed and direction on the globe's oceans. SeaSat was short lived--a power bus blew three months into the mission--but eh scatterometer functioned perfectly and obtained readings on almost 20 major storms and hurricanes.

The same team that worked on the scatterometer, mostly from the Electromagnetic Research Branch, is now concentrating on the measurement of sea ice. Global weather is greatly influenced by the interaction of ice and water at the polar regions. Scientists are working on two scatterometer systems for the National Ocean Satellite System, scheduled for launch in the early 1980s. The two-satellite system is a 5-year, tri-agency venture with the National Oceanic and Atmospheric Administration and the Department of Defense.

Batting .1000

Heyman's Ideas Keep Coming

One decade and three IR-100 awards later, Joe Heyman is still exploring the many uses of ultrasonic techniques.

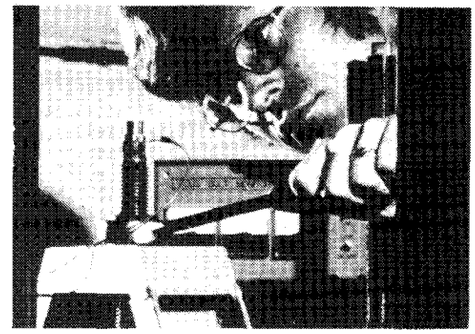
His three major inventions, cited in 1974, 1976 and 1978 by *Industrial* Research Magazine as each being among the 100 best new ideas of each year, established Heyman as one of the most innovative researchers at Langley, and certainly one of the most publicized.

Heyman began his work in ultrasonics as the decade opened. He had been studying such subjects as space physics and the applications of ion implantation while in college, but ultrasonics seemed to be a wide open field with great promise.

So in 1970, after a few months of tinkering in the laboratory, Heyman devised his Transmission Oscillator Ultrasonic Spectrometer (TOUS), which he used to more accurately detect changes in acoustic resonator properties. Using cadmium sulfide as a calibration device, Heyman was able to develop a way to monitor flowing liquids. The technique was used by NASA to measure lubricant flow and composition, and led to the Continuous Wave Ultrasonic Microemboli Monitor, a 1974 IR-100 winner.

As with most of Heyman's inventions, the microemboli monitor has a list of applications almost as long as its name. One of the most important was its adoption as a way for doctors to monitor a patient's blood during open heart surgery. In those procedures, large amounts of blood are circulated outside the body, where microclots (emboli) are more easily formed.

Using the monitor, doctors can instantly detect microclots and take steps to ease the danger such particles pose for a patient. The monitor can also be used to measure any flowing liquid, Heyman said, such as those traveling through sewers, water pipes or cooling systems.



Joe Heyman adjusts a bolt before monitoring on the bolt tension device.

In 1976, Heyman perfected his next invention, the Bolt Tension Monitor. The bolt monitor measures the strain on bolts by passing an ultrasonic wave through them. Conventional techniques, such as electronic strain gauging, can cost as much as $300 per bolt, Heyman said.

In 1978, Heyman's Acousto Electric Transducer made it possible to measure acoustic power rather than just acoustic pressure. This advancement made it much easier to characterize materials quantitatively, and can be used for examining irregular materials, especially composites and human tissue.

Heyman attributes his success over the years to "the excellent freedom of research" at Langley. "It's a very free research center," he said. "Research is, by definition, not a known, but an unknown. It takes freedom to really open up research efforts."

Recycling Facilities

On the ground, Langley researchers improved many existing facilities. The old Lunar Landing Research Facility was converted into a unique aircraft crash test laboratory in the mid 1970s. Seventeen airplanes and a handful of research craft--such as the Navy's XFV-12 experimental, vertical takeoff fighter (which also logged many wind tunnel hours at LaRC)--were swung to Earth from the huge gantry for a variety of tests. Through this crash dynamics research, Langley was able to convert a facility with a completed mission into one of the best aircraft research instruments in the world. Information gathered from the crashes on such things as load distribution, seat stability and restraint operations is in high demand from concerns all over the world. A Public Broadcasting Service/British Broadcasting Corporation television program will feature extensive segments filmed at the facility in February of this year.

Next door to the crash site, research continued on the science of landing loads dynamics. Everything from the landing gear of the X-15 to automobile tires has been tested on the unusual water jet-propelled sled, which only costs

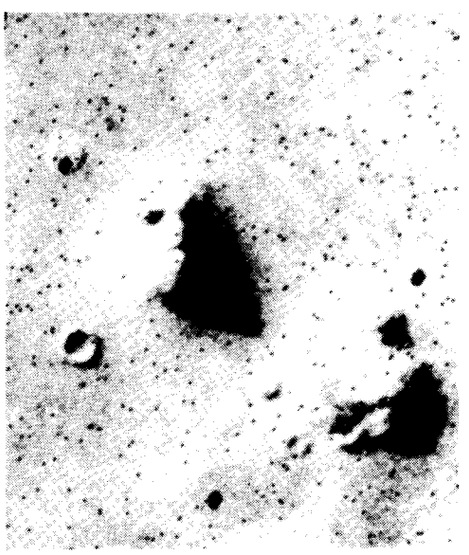
about $5 to launch. Plans are being readied for renovation and extension of the landing loads track in the next two years.

Composites Grow

In the field of materials and structures, the big '70s story was composites. High-strength substances made by imbedding fibers in matrix materials, composites have been around for decades, but it wasn't until the '70s that they were used for a wide range of applications, from aircraft components to lightweight leg braces for the handicapped.

Composites grew to be a large segment of the Aircraft Energy Efficiency Program, established in September 1975 to address the growing energy problem. Besides pioneering the use of composites on commercial and military aircraft, ACEE oversaw the first flight tests of a successful maneuvering and gust load control system--which will save 3 percent in fuel and is scheduled to be introduced into airline service in April of this year. ACEE also conducted tests on winglets and a fluid injection system for reducing leading edge contamination and anti-icing on laminar flow control wings.

An electron beam provides the means by which flow visualizations can be obtained. This shuttle model is shown undergoing helium flow testing in the 22-inch helium tunnel in 1975.



Shadows give the illusion of eyes, nose and mouth on this 1.5 kilometer-wide rock formation on the surface of Mars. The photo was taken July 1976 by Viking Orbiter 1 from a distance of 1,800 kilometers.

Traditions Continue

One thing that didn't change at Langley during the '70s was its basic approach to research. Take these examples: the Terminal Configured Vehicle program is flight testing various combinations of avionics equipment to (among other things) decrease the work required of commercial pilots and traffic controllers; the Aircraft Noise Reduction Lab is studying ways to decrease the noise that surrounds airports; other researchers are developing devices to eliminate dangerous wingtip vortices. All of this interrelated research has the same large goal: to improve the environment and operations at the nation's busy air terminals.

Another Langley tradition, the systemizing of research results, continued in the development of an airfoil series for low-speed aircraft, originally designated as GA(W)-1, standing for General Aviation (Whitcomb) in honor of the consistently prolific Dr. Richard Whitcomb.

Langley's expertise continued to be sought by many organizations throughout the decade, as exemplified by the just-completed study of carbon fiber usage in commercial aircraft, advice provided during DC-10 aircraft crash inquiries and, most recently, the appointment of two Langley researchers, John McCarty and Percy Bobbitt, to head Space Shuttle study committees.

Through all of these and many other programs during the 70s, Langley contributed an impressive list of accomplishments, new designs and concepts, information and results in the continuing growth of scientific knowledge.

La Soufrière

Scientists Had Good Luck and Even Better Results

For four days La Soufrière had belched and rumbled. The Caribbean volcano, located on the northern tip of St. Vincent island in the Lesser Antilles, erupted on April 13, 1979, again the next day, and was expected to let loose again very soon.

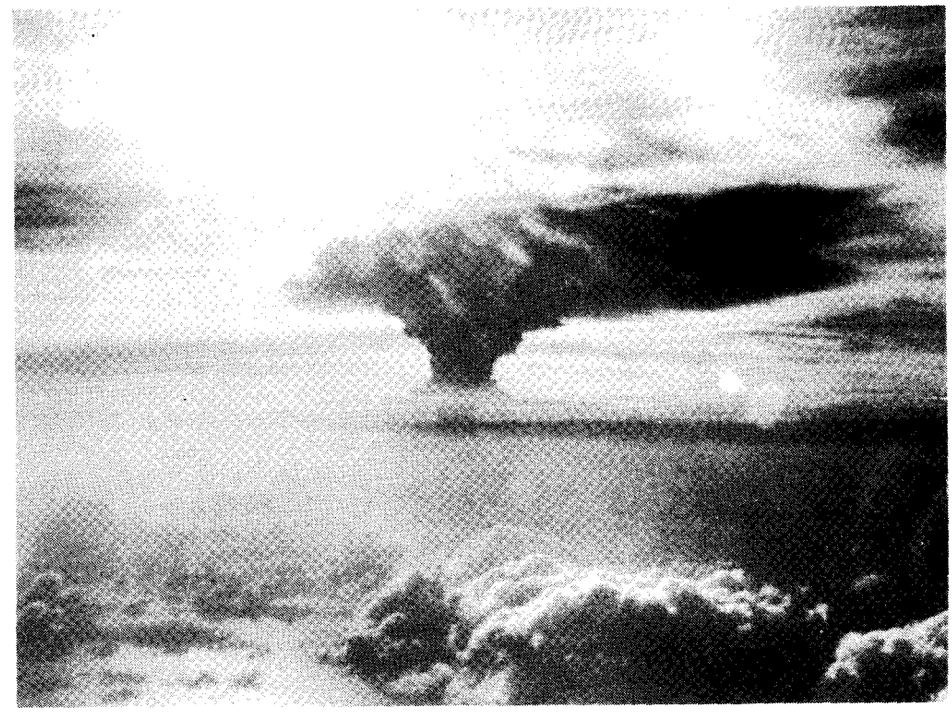
During its explosive eruptions last spring, when billowing sulfuric clouds and blocks of granite the size of cars were ejected with disquieting ease, over 200,000 tons of fine ash were sent spiraling into the stratosphere, and even more drifted through the lower atmosphere and onto the ground.

The spectacular volcanic activity, coupled with a timely stroke of good fortune, presented Langley and other scientists with remarkable opportunities. For the first time, they could actually conduct stratospheric aerosol experiments in the vicinity of a major volcanic eruption. With land, sea, air and space borne devices, they were able to trace the flow of gases and aerosols--particles--through the atmosphere, on a global scale, from a single point of origin.

In the process, they could confirm and supplement information coming from the Stratospheric Aerosol and Gas Experiment (SAGE) on board the Applications Explorer Mission satellite, launched only two months before from Wallops Flight Center.

SAGE project scientist Dr. M. Patrick McCormick of Langley still marvels at their good luck. A team from Langley--which developed SAGE--Wallops and Wyle Laboratories had been in the region for several days, performing ground truth experiments which would be compared with data coming from the satellite. As they were wrapping up the mission and preparing for the trip home on board the Wallops P-3 Electra, they received a message from McCormick--relayed by the State Department--to scratch the return trip and proceed instead to the skies around La Soufrière.

The team--William H. Fuller Jr., Bill Rouse, Samuel Sokol and David Woods from Langley; John Riley and Clarence Barrett from Wallops; William Hunt and Forrest Diehl from Wyle Labs; and Robert Snell Jr., Bobby Easley and Edward Leinberger from Lockheed Aircraft--set out from Barbados on the afternoon of April 17 for a late afternoon measurement mission.



The volcanic veil of the La Soufrière eruption is shown rising high above the clouds in this photo taken April 17, 1979.

They were not disappointed.

Sixty miles from La Soufrière, at an altitude of 10,000 feet, they witnessed a spectacular eruption. "The thing just blew," McCormick said. "If they had been over the cone (which rises to an elevation of 4,048 feet) when it erupted, they would have been killed for sure."

As it was, sulfur gases began to seep into the plane while they circled the site, taking 8-mm movies and measurements with their light detection and ranging (lidar) system. Lidar, which uses a laser beam in much the same way that radar uses radio waves, allows scientists to obtain particle size and distribution data by measuring the backscatter from the projected beam. This was the first time man had ever used such a device in the shadow of a fresh volcanic plume.

While the significance of the opportunity was stunning, safety was of primary concern. The researchers donned oxygen masks when the sulfur gases were detected, and soon returned to Barbados. The next day they tried again, and found that the growing plume, dwarfing the billowy clouds around it, was penetrating the stratosphere at altitudes exceeding 50,000 ft.

Because of field experiments like the ones at St. Vincent, where scientists from Langley roamed the globe from South America to Greenland ("It was minus 30 degrees up there," McCormick recalls ruefully) a climatology, a data base for stratospheric aerosol distribution, is emerging.

Data from SAGE and from the Stratospheric Aerosol Measurement aboard the Nimbus 7 satellite flows daily into a climate-controlled room in the Instrument Research Division at Langley. There the information is analyzed and compared with ground truth experiments, and scientists are putting facts on paper which, before the launch of those satellites, no man could ever have hoped to gather.

A new, seven-channel SAGE II, with greatly enhanced capabilities, is now scheduled to be free floated into orbit by the Shuttle Orbiter in 1984. The horizons for this pioneer field of research keep expanding.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
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A Changing Face

Center Modernization had Steady Progress

Since 1971, $2 million a year has been spent on the rehabilitation and modernization of Langley facilities.

While upgrading the buildings, the Plant Engineering Division has also been able to choreograph a 30 percent reduction over 1973 energy consumption levels.

They've replaced roofs, sidewalks, sewer and water lines, improved electrical cabling, and demolished several rickety wooden structures, one of which used to sit on the grassy plot just south of Building 1219.

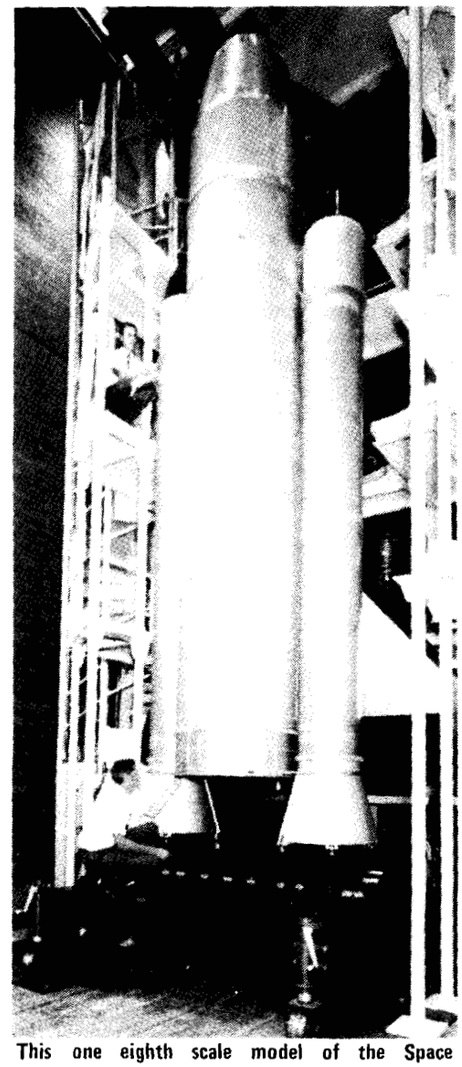
New construction projects have included:

- Building 1250, which contains the Systems Development, Gas Analysis, Microbiology, High Pressure Flame and Environmental and Space Sciences laboratories.
- The Solar Collector Field, which supplies power to Building 1209 and the Technology Utilization House, and was itself built under a five-month crash design and construction program.
- The addition to the Analysis and Computation Division, Building 1268B, in which computer systems with capabilities exceeding those of many countries are housed.
- The Noise Reduction Laboratory, Building 1208, where advanced research into the abatement of aircraft noise is being conducted.
- The mall leading from the vicinity of Building 1219 to the Cafeteria. The area, now comprised of a wide sidewalk bordered by trees, used to be a branch of Stratton Road.
- The Vertical/Short Takeoff and Landing Tunnel, Building 1212C, where one of a very few new laser velocimeters is being used to take non-intrusive pressure, density and temperature readings.
- The National Transonic Facility, which, when completed in late 1981, will be a showplace for cryogenic wind tunnel technology. Ingenious weather protection silos have kept the project invigoratingly close to schedule.

Postscript

This special issue takes a look back at the 1970s at Langley. Like a flat rock skimmed across a deep lake, it touches only a small part of the surface and none of the depths of research that filled the past ten exciting years at Langley. It's a snapshot album, not a family history.

We thank those people around the Center who contributed their time and patient explanations to this issue, and we salute all of Langley's researchers, past and present, whose work helped to improve science and technology during the 1970s.



This one eighth scale model of the Space Transportation System is shown undergoing vibration tests in August 1973.

National Aeronautics and
Space Administration

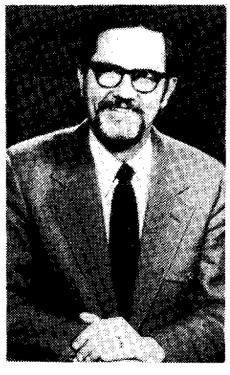
Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 2 January 25, 1980

Director's Comments



Langley faces a new decade. I am convinced that the 1980s will present us with opportunities equal to those of the 1970s. The 1980s will probably not include spectacular, highly visible accomplishments such as the Viking landings in 1976. Nevertheless, we will have ample opportunities to make very significant contributions in both aeronautics and space.

Objectives

The major objectives of Langley's research program in the 1980s are:

- To investigate the problems of flight in the Earth's atmosphere and in space with a view toward their practical solution. This has been the principal objective of our research in the past and will remain so in the future. Emphasis will continue on basic, fundamental disciplinary research of a "high risk" nature.

- To significantly improve the safety, operational reliability, economy, environmental acceptability and performance of General Aviation and Subsonic Cruise civil aircraft. This reflects important national needs where Langley is uniquely qualified to make major contributions through its disciplinary and system level research programs.

- To provide the data base and technology for Supersonic Cruise civil aircraft. I continue to be convinced that the United States will eventually develop and operate such aircraft and Langley will aggressively continue its aerodynamics, structures and system level research programs.

- To provide the technological basis for airbreathing craft which can operate efficiently at hypersonic flight speeds. I anticipate major progress in propulsion, aerodynamics and high-temperature structures during the next decade.

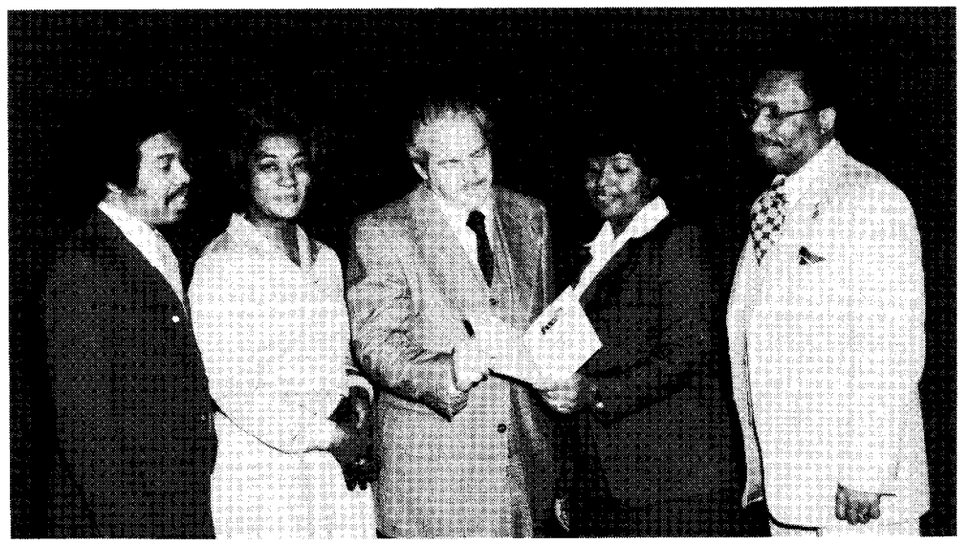
- To make major contributions in Langley's areas of discipline strength to advanced military aircraft and missiles. We will continue to work directly with the military services and their contractors, as well as perform independent research specifically related to military applications.

- To provide advanced technology for tomorrow's space systems in Langley's areas of discipline strength. For example, I expect that Langley will provide the technological means for a more efficient Shuttle-type system and for large systems to operate in space.

- To demonstrate effective means for remotely monitoring the Earth's atmosphere, water resources and energy balance. In addition, to increase the understanding of natural and man-made changes to the Earth's environment.

- To facilitate and accelerate the transfer of Langley's research results to the nation's aerospace and non-aerospace communities. Our research is meaningless unless the results are effectively transferred to the potential users of our

Continued on page 2.



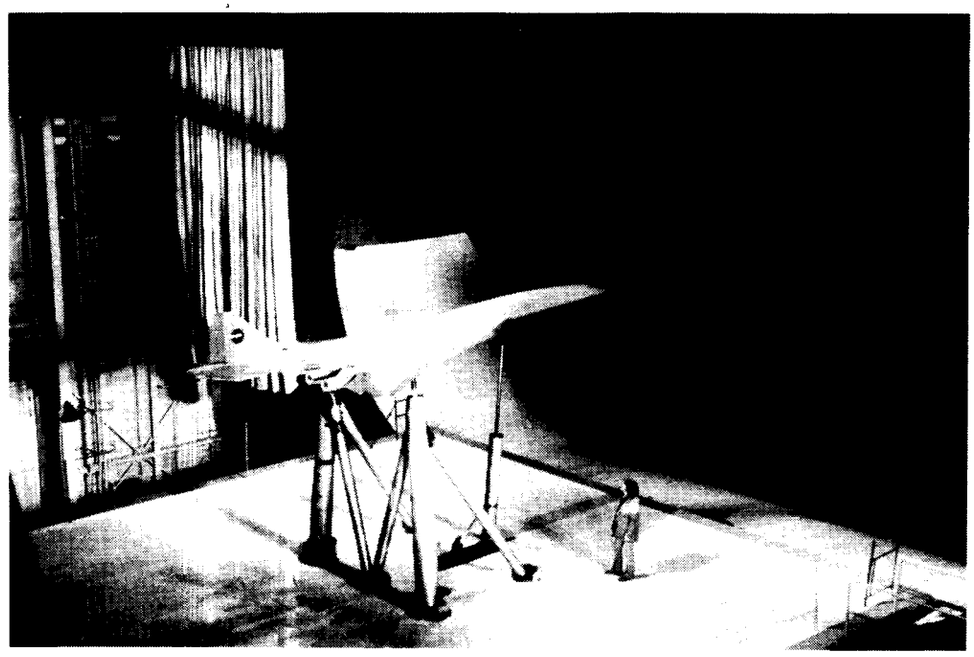
– photo by Bob Nye

"Being Financially Successful on Your Income" was the subject of a seminar presented January 8 and 9 by The Federal Women's Program. On January 8 G. Lewis Watson (left), President of Virginia Financial Consultants, Inc., told Langley employees he believes that "financial progress and independence come through economic awareness and planning" and suggested ways of becoming financially successful on a limited income. A question and answer session on "Dynamics of Spending" was conducted by Watson, Roy Andes (center), President of Andes and Associates, and James E. Robinson, III (right), President of Peninsula Accounting and Tax Services, Inc. On January 9 workshops were held on budgeting; credit; estate accumulation; taxes, tax shelters, insurance and wills; and buying a home. In this photograph Mildred Haskins (second from left), Administrative Assistant to Watson, and Janet M. McKenzie, Affirmative Action Program Manager, discuss the seminar with the guest speakers. The Federal Women's Program is managed by Mary W. Jackson.

DIRECTOR'S COMMENTS
Continued from page 1.

technology.

Program Objectives such as these are difficult, as they indeed should be. However, they will only be possible if we have the proper combination of people, facilities and programs during the next decade. It is first worth noting that I do not foresee major adjustments to our program mix, organization and personnel practices during the next few years. While some changes will no doubt occur, it is unlikely that they will be as major as in the past ten years.



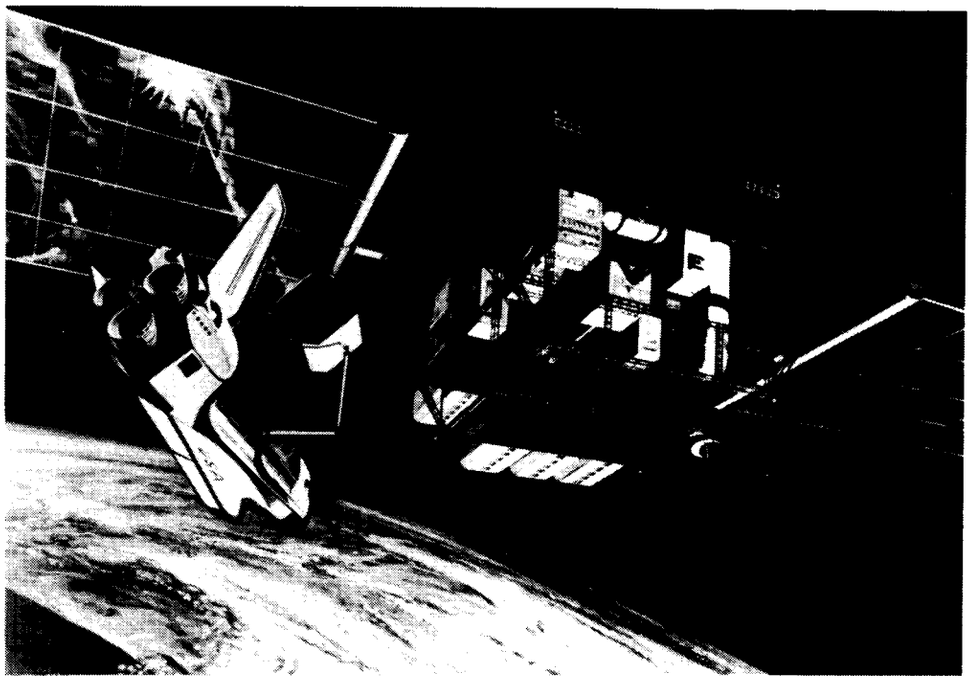
Major contributions are expected from Langley in the study and design of advanced supersonic transports.

Expectations

During the 1980s, I expect the following:

- **People** – During the past decade, the Center Civil Service complement decreased from approximately 3,800 to 3,000. As a result, we increased the out-of-house portion of the Center's program and we only hired about one half of our attrition. The future outlook is more promising; for example, our ceiling will be stable at about today's level for at least the next two years and this year we will be hiring more people than we have at any time during the past five years. The quality of our new hires is extremely important, if we are to continue as a quality organization, which we must. In this year's college recuiting program, we have been impressed with the quality of the applicants. All indications are that our technician and clerical hires will also be of high quality. Complement stability is also important to keeping our promotion rate at one of the highest levels of all the NASA Centers. Relative to the in-house/out-of-house mix, although small adjustments are possible, I expect we will maintain about the current mix for the next several years. In my view, this is particularly important in the Center's fabrication shops. We will also continue to strengthen our ties with the university community in which programs such as JIAFS and ICASE will continue as important elements.

- **Facilities** – Langley has been blessed with an excellent mix of research facilities and an excellent physical plant. We must, and will, continue to update and modernize the Center's facilities. When the National Transonic Facility becomes operational in 1982, we will have the best group of transonic wind tunnels in the world. Other new and updated technical facilities are planned for the 1980s, such as the Avionics Integration Lab and upgrading the Landing Loads Track to higher speeds. Unfortunately, Langley is a major energy user (we are VEPCO's fifth largest customer). We must continue to reduce our energy consumption. RECOUP will be operational this summer, reducing our



Working to develop large space structures like this one could be a significant part of Langley's mission during the 80s.

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.

oil consumption by over 2,000,000 gallons per year. More needs to be done, and more will be done in the next decade to reduce our energy consumption without impacting our research output.

• **Program** — The proposed Langley research program has received very strong support in recent years. This support reflects the importance of the work proposed, excellent preparation of our research proposals and our good relations with NASA Headquarters, the Congress and other NASA Centers. I am confident that this record of success will continue. As we move through the 1980s, I also expect: 1) an increasing trend toward more basic research, 2) growth of the Center Director's Discretionary Fund and 3) continuation of aeronautics and space research at about today's mix.

Challenges

While we have important and difficult objectives and will have the people and facilities to accomplish them, we will also face a number of challenges in the 1980s. Some of the more significant ones will be:

• **Public Concern with Big Government** — For the past several years, the public has been concerned with the size of the government. This will probably continue. When coupled with the priority of "space" relative to other national needs, we must expect continued pressure on the size of NASA ($ and people). We can best cope with this situation by drawing attention to Langley's sizeable contributions to the nation's technological capacity during the past and Langley's likely contributions in the future. In addition, we will have to learn to get along without "the nice things to have."

• **Profile of Langley's Staff** — We have an excellent staff at Langley today. However, because of the small hiring of the past ten years, we have a staff that is older than it should be, is lacking in people in lower grades, and a staff in which women and minorities are not well represented (particularly in higher grades and management positions). With the complement stability expected in the next several years, we should be able to make sizeable progress in this area.

• **Turnover** — Because of the age pattern of the Langley staff, we anticipate a large number of retirements during the next few years. This will mean the loss of a great deal of experience and it will be up to younger people to meet this challenge. Several of the Center's managers and supervisors will probably also retire. This will be a challenge to all of us, but also an opportunity for other staff members to progress into management and supervisory positions. I intend to continue Langley's tradition of "growing its own," although we will selectively hire, where appropriate, experienced people from outside of Langley. In addition, it is also my firm conviction that the "dual ladder" is important to Langley--It will be strengthened, where possible.

• **Research Environment** — I am sensitive to the need for enhancing the environment at Langley for innovative research. This is a continuing challenge to all of the Center's management.

• **Risk Taking**— As an agency and a center grows older, there is a natural tendency to "play it safe;" for example, to set objectives that are easy to accomplish. We must avoid this pitfall and continue to "take chances" and accept occasional failures. Only in this way can we make major contributions in the future as the Center has done in the past.

Major technical innovations have been a characteristic of Langley. This will probably happen again in the 1980s. Possibilities that come to mind are sizeable reductions in aircraft friction drag, spin-proofing light aircraft, major efficiency increases for supersonic cruise, environmental monitoring from space and design of a future space transporation system. I can not predict what the major Langley innovations of the 1980s will be; but they will surely happen.

If I sound excited about the 1980s, it's because I am. A future not free of challenges, mind you; but I am convinced that Langley people can look forward to a rewarding decade.

Aerospace Penpoints
by Wesley Berryman

MAN must rise above the Earth — to the top of the atmosphere and beyond — for only thus will he fully understand the world in which he lives.

SOCRATES

Thanks to Donald Baals for sending in this quotation. If you have a favorite famous quotation, or one of your own, that you would like to see in Penpoints, send it to Wesley Berryman, M.S. 150.

1979 NASA Highlights Film at Visitor Center

The film "Aeronautics and Space Highlights--1979" will be featured at the Langley Visitor Center each day during the week of January 27 through February 2. A special lunchtime showing for employees will take place at 12:30 p.m. on weekdays.

The film scans NASA research in the past year. The Pioneer space probes that flew by Jupiter and Saturn, the Space Shuttle and the Tiltrotor Research Aircraft are a few of the projects highlighted in the film. Skylab reentry, an electric car and the High Energy Astronomy Observatory Spacecraft (HEAO) are also discussed. HEAO is now scanning the galaxies for gamma and cosmic rays in an effort to find clues about radiation from exploding stars and the mysterious black holes.

Two Langley efforts are featured in this NASA 1979 overview. The first is the Wallops-launched S.A.G.E. (Stratospheric Aerosol and Gas Experiment) satellite which is used to study the ozone layer and effects of aerosols on that region. The second deals with Langley's General Aviation crash testing. Planes are intentionally crashed at varying angles and speeds to obtain information that can be used to improve the crash worthiness of aircraft.

In Memoriam

William C. Malcolm, 44, died January 18 in Riverside Hospital.

Employed at Langley for 23 years, Malcolm was a computer analyst in the Business Data Systems Division. He earned a bachelor's degree in 1975 from Christopher Newport College. He served in the U.S. Army during the Korean war.

'Some One Came Knocking At My Wee, Small Door'

By Allan C. Hanrahan

Some one came knocking
At my wee, small door;
Some one came knocking,
I'm sure — sure — sure;. . .

— Walter de la Mare —

. . . And we can be sure that people come knocking at the wee, small doors of the little houses of **DONALD M. COFFEY, JR.**, and understandably so because Coffey exhibits exceptional craftsmanship building doll houses. He prefers the description of "miniature houses," he said, informing us that they are scale models--"the scale is one inch equals one foot"--with the furnishing scaled accordingly.

Coffey is an Engineering Technician in Technical Support Section B of the Operations Support Division and he serves the Structures and Dynamics Division in Building 1148. Scarlett, his ten-year partner in matrimony as well as his partner in miniature house construction and decoration, works for the Inspector General in the NASA Office of Audit.

Together they attended a three-day seminar on miniature houses in Atlanta last August, and Scarlett "was also expected to do all the work in building one." mentioned Coffey, who went on to add that "I do all the work that requires power tools, but she is able to help me with the rest. I do a lot of 'shell' work in the garage and then bring it into the den. The wife is real helpful with siding and shingles (which must be glued on one-at-a-time). Her interior decorating is what I rely on."

Miniature home-building, in case you have not noticed, has become almost an industry recently, part of the boom in "miniatures collecting."

"When I was in Atlanta I found that miniatures collecting was second behind stamp collecting," Don reported. But the houses are not inexpensive. "I saw one shell priced at $1,300!" he exclaimed, adding that it was an impressive work. The seminar was eye-opening in other ways, particularly if you have already built some houses and have encountered problems or formed questions. He had already built three, the first two being for nieces, and guesses he expends anywhere from one hundred to one-hundred-and-fifty hours on each, depending on the size and detail, or course.

"No two are alike," he said. "Even with a basic plan there are some changes." I enjoy building them and I enjoy showing them--I enjoy doing the shows and hearing the comments; one man said 'If I could afford it I wouldn't let my child touch it.'"

Don also related: "Scarlett had decorated a 'Santa House' for Christmas and at this show a child immediately asked, 'Where's Rudolph?' So, she had to add a red nose to one of the reindeer."

Don's own daughter by a previous marriage, twenty-one-year-old Robin, has not indicated yet that she wants a miniature house of her own but . . .

Another of Don's pastimes--and one which complements his home building so well--is woodcarving, which he has been doing

— photo by Bob Nye

for a couple of years now. He produced some detailed and charmingly whimsical pieces that accentuated his brief declaration: "I enjoy carving." Of course, he went on to explain what woods and tools he prefers.

Don and Scarlett made their three-day visit to Atlanta part of a two-week southern journey because they also enjoy travel, and on that trip visited Nashville and the Grand Ole Opry (twice) as well as other sights. They were very pleased with Disney World (a few years back) and have been on a camping trip to Nova Scotia and other places in Canada. (Don was president for two years of the local chapter of a camping club.) Of a two-week vacation to Germany and Switzerland, including the Bavarian and Swiss Alps, Don stated that he saw "some of the most beautiful sights I have ever seen in my life--just beautiful!" (No doubt he incorporated his other interest, photography, in that trip.)

Don's other travels include an eighteen-month stint in Japan spent while he was in the Air Force from 1954 to 1958, preceding his coming to the Center in December 1958, on a Training Program.

A forty-three-year-old native of Lynchburg, he was reared in Newport News, graduating from old NNHS in 1954. He is a follower of the Redskins and Colts (in that order), enjoys seeing a hockey game, and expects to visit Baltimore next summer to see the Orioles play.

A past-president of the Hampton Elks Lodge, and a member of other fraternal organizations, Don, along with Scarlett, is a member of Crooks Memorial Methodist Church in York County, where he has served on the usher staff.

Taking our leave of Don and Scarlett Coffey we impart to them some lines from a poem by Elizabeth Godley:

If you've got a little house
And you keep it spick and span,
Perhaps there'll come to live in it
A tiny little man.
You may not ever see him . . .

Thompson Fellowship Can Produce Blissful Research

Dr. Calvin Swift of FED's Electromagnetics Research Branch found himself immersed in four blissful hours of uninterrupted research on microwave propagation each day for a year.

John Anders of HSAD's Fluid Mechanics Branch jumped into an entirely new field, saw his branch acquire a wind tunnel so his work in that area could continue when he returned, and even resumed work on his Ph.D. after a seven-year lapse.

Marion Bailey, also of the Electromagnetics Research Branch, spent the year looking at analytical techniques applicable to a wide range of antennas and came back "very enthused."

Dr. Martin Mikulas of SDD's Structural Mechanics Branch worked for a year at Cal Tech on large space structures, and now has a patent pending on one concept directly related to his stay there.

What these four men have in common is the year they spent away from Langley on a type of sabbatical leave provided through the Floyd L. Thompson Fellowship.

Awarded each year since 1977, the Thompson Fellowship provided most of the resources for Swift's studies at the National Oceanic and Atmospheric Administration's Wave Propagation Laboratory (WPL) in Boulder, Colorado; Anders' stay at the University of Southern California; Bailey's year at the University of Mississippi; and Mikulas' studies at the California Institute of Technology.

Swift's experiences at WPL illustrate the potential of the fellowship program.

Through his contact with WPL, both NOAA and NASA were better able to compare microwave remote sensing devices used to study the world's oceans. Joint experiments and research missions are planned, and the information coming from both devices is further confirmed when their independently-derived data is compared. "I'm still drawing on the bank of knowledge at Boulder," Swift said.

He underscored that point by disclosing that only this week new data from the devices have given scientists reason to believe that the oceans actually tilt in the vicinity of severe storms. Information coming in daily leads researchers to believe that a gradual slope over hundreds of square kilometers occurs when large storm formations, such as hurricanes, develop over open water. What this means to the formation of weather patterns is one of the areas that will be

Continued on page 7.

Olympic Torchbearer Speaks at Langley

What would you think of a man of 50 who runs 15 miles a day and still competes in international track competition? Such a man is Anthony "Tony" Diamond, Washington, D.C.'s representative on the 52-runner team that will carry the Olympic Torch overland from Yorktown to Lake Placid, N.Y.

Diamond will speak about his experiences and the "lifestyle of a runner" at the Runners' Club meeting Monday, January 28, at 5 p.m. in Building 1209, Room 180. This meeting is open to all interested persons.

He will speak to area track and cross country teams and their coaches on January 29 in a special program sponsored by the Langley Visitor Center. His topic will be "Running and The Olympic Spirit" with emphasis on training and lifestyle as well as training by objective.

Diamond, who professes a special interest in young athletes, began his 36-year running career as a freshman member of his high school track team. He says, "After beating a few seniors as a freshman, that whetted my appetite for running." Some of his accomplishments include finishing ninth in the world in his age classification for the 10,000 meter run at the 1979 World Master's Track and Field Championship and 12th in the 1954 Boston Marathon. He is currently the National Champion for people 50 to 54 years of age as awarded by the National Master's Long Distance Running Committee of the Athletics Congress of the United States.

An employee of NASA Headquarters, Diamond runs the six miles to work and

back four days a week and often runs three miles at lunch time. His scenic route takes him through parks, down the Rock Creek Parkway and past the Lincoln and Washington monuments--all of which provide a magnificent setting. The time he spends running is "a very relaxing period for me. I'm running loosely and the cares of the day seem to float away. Because of the physical exhilaration, your mental capacities are sharpened and you can get many good insights into matters that concern you." Diamond feels running is a good way to stay young and active and also to avoid the excessive weight and heart problems that come from a sedentary life style.

Diamond's wife, Irene, is a frequent running companion. They have two children aged three and one.

Public Invited to Welcome Olympic Torch

Area residents are invited to line Langley Air Force Base streets to see the Olympic Torch make its first appearance ever on American soil later this month.

The torch will arrive at the base from Olympia, Greece at 7:09 a.m. on January 31 and will continue its journey on the ground to Lake Placid, N.Y., the site of the 1980 Winter Olympics.

Following brief ceremonies on the flightline, the torch will be run through base streets before boarding a U.S. Navy patrol boat for a trip up the York River to Yorktown, the official starting point of the 1,000-mile run to Lake Placid. The torch will be carried by Suzy Mink of Roanoke, one of 52 Olympic Torchbearers, and escorted by courtesy runners--active duty officers and airmen--from the base. It will arrive in Lake Placid to signal the start of the Winter Olympics on Feb. 8.

The public is invited to watch as the Olympic Torch begins the trip to New York about 7:10 a.m. Spectators will be admitted to Langley only through the La Salle Avenue gate (Route 167) between 6:00 and 6:45 a.m. on January 31. La Salle Avenue northbound from Interstate 64 is the most direct route to the base.

Base police will direct spectators to and from parking areas and, to reduce congestion, carpooling is encouraged. Cameras will be permitted.

Sixty-five Employees Retire From Government Service

Samuel J. Ailor, Scout Project Office, retired from government service January 4, 1980.

Retiring January 11 were:

William H. Verser, Henry P. Watkins, Charles A. Rogers, Jr., Walter E. Frayser, Jr., Harold R. Snyder, Arthur C. Bombs, Charles W. Miller, George W. Massenburg, James K. Whiting, Charles T. Schrum and **Meredith W. Ballard**, Operations Support Division;

Margaret S. Schoonover, Programs and Resources Division;

Ruby M. Davis, Marion O. McKinney, Jr., Edwin E. Davenport, Joseph D. Brooks and **P. Kenneth Pierpont**, Subsonic-Transonic Aerodynamics Division;

John F. Bryant, Jr., William E. Craig, Jr., Billie Short, Robert L. Kenimer and **Floyd E. Rankin**, Flight Electronics Division;

Elmo P. Crowder, Harold W. Ayres, David E. Jones, Thomas H. King, Tandy B. Powell, Jr., Joseph A. Italiano, James F. Pressey, Preston L. Zember, Edgar W. Parr, Jr., Howard N. Bright, James H. Link, Virginia L. Griggs, Robert E. Graham, Alan R. Vanasse and **Swen G. Anderson**, Fabrication Division;

Furman L. Geddings and **Alphanzo M. Rackley**, Instrument Research Division;

Richard A. Pincus, Martin A. Weiner, John R. Leaman, Jr., James R. Martin, H. Benjamin Bland, Jr., and **George V. Hellman**, Plant Engineering Division;

Dewey E. Wornom, Marine and Applications Technology Division;

Thomas N. Bartron, Office of Director for Systems Engineering and Operations;

Donald E. Hewes, Manuel J. Queijo and **Margery E. Hannah**, Flight Dynamics and Control Division;

A. Warner Robins and **Alexander P. Sabol**, High-Speed Aerodynamics Division;

Eugene D. Schult, Terminal Configured Vehicle Program Office;

John M. Robeson, III, Research Facilities Engineering Division;

Harry W. Broskie, Scientific and Technical Information Programs Division;

James L. Hassell, Jr., Adolphus B. Blair, Vernon W. Saunders and **Ward E. Schoonover**, Flight Mechanics Division;

Ernest J. Phillips, Jr., Projects Management Systems Division;

James E. Pleasants and **William J. Carroll**, Systems Engineering Division;

Charles R. Davis, Jr., Acquisition Division;

Beverly Z. Henry, Jr., Space Systems Division.

Code Outgoing Mail

The Mailroom has a problem with mail that has been returned to Langley for various reasons, such as the addressee moved without leaving a forwarding address. Without proper identification of the sender on the envelope, mail cannot be returned if necessary.

The NASA Correspondence Handbook, NHB 1450.10A, Chapter 3: Envelopes and Mailing, Paragraph 301.6 states: "The NASA return address is printed on penalty indicia envelopes. The mail code or name of the sending office will be entered above the printed return address for all outgoing mail."

Please be sure that a return name or code is provided for all outgoing mail.

– photo by Don Ward

Recipients of special awards were honored recently in brief ceremonies by the Director for Aeronautics, Robert E. Bower (second from right) and the Chief of Flight Mechanics Division, Robert O. Schade (second from left). Shown above for a NASA Group Achievement Award as members of the VALT Control and Display Integration Team are (left to right) James R. Kelly, Vernon M. Batson, John F. Garren, Jr., Kazmere C. Romanczyk, Robert A. Champine, Wayne H. Bryant, and Kenneth R. Yenni. Other team members, not shown in the photograph, include Frank R. Niessen, Tarence S. Abbott, Aaron J. Ostroff, David R. Downing, Maj. Thomas E. Edwards and Maj. Robert Merrill. Also shown at the right of the photograph is James M. Patton, Jr., Chief Test Pilot and Head of the Operations Branch, Flight Mechanics Division, who was recognized for receiving the Iven C. Kincheloe award for "outstanding professional accomplishment in the initiation, formulation and conduct of the NASA general aviation stall/spin flight research program."

Retirement Parties

Harry Broskie of the Scientific and Technical Information Programs Division will be honored with a retirement party at the Hampton Elks' Club on January 31. Cocktails will be served at 6:30 p.m. and dinner at 7:30. The cost will be $8 per person including gift. Contributions of $2 for gift only are welcome. Send money to Hazlett or Salyer, Mail Stop 425, by January 28.

Beverly Z. Henry, Space Systems Division, will be honored with a retirement dinner (prime rib and cash bar) Friday, February 22, at 6:30 p.m. at the Langley Officers' Club. Cost will be $9.50 per person or $18 per couple including gift. Contributions for gift only are welcome. For reservations send checks, payable to Pat Shoemaker, to Mail Stop 365, by Friday, February 8.

Vernon W. Saunders and **Ward E. Schoonover**, Flight Mechanics Division, will be honored with a retirement party Wednesday, February 20, at the Activities Center. A cash bar social will begin at 6:30 p.m. and dinner will be served at 7:30 p.m. The cost, including gift contributions, will be $8 per person or $14 per couple. Contributions for gifts only are welcome. Checks should be sent to Gene Barr or Nathan Johnson, Mail Stop 255, by February 13.

Alfred Curtis, Charles Hahn, and **Jimmy Morris** of the Analysis and Computation Division will be honored with a retirement dinner Tuesday, February 26, at the Activities Center. A cash bar social will begin at 6 p.m. and dinner at 6:45 p.m. The cost of the dinner is $9 per person or $15 per couple, which includes a $1 gift contribution to each retiree. Contributions to gifts only are welcome. For reservations send cash or check payable to Peggy Rollins, to Mail Stop 157D, by February 20.

Thomas C. Kelly and **Joseph D. Brooks**, Subsonic-Transonic Aerodynamics Division, will be honored with a retirement party on Friday, February 8, at the Activities Center. Hors d'oeuvres along with a cash bar will be served at 6 p.m. The cost will be $4.50 per person plus $1 for a gift for each retiree (total of $6.50 if contributing to both). Contributions for gifts only will be accepted. For reservations send remittance to Paul G. Fournier, Mail Stop 359, by Monday February 4.

Film Featured

"Better Odds for a Longer Life," by the American Heart Association, will be shown Friday, February 1, in Building 1212, Room 200, at 11:30 a.m. and 12:15 p.m.

Dr. G. F. Kelly, Medical Director of the Occupational Medical Center, will be available to answer questions.

For further information, contact the Learning Center, extension 2611.

A retirement luncheon for **Lou Griggs**, Fabrication Division, will be held at the Langley Officers' Club on Friday, February 15, at 12 noon. The menu will be Roast Round of Beef Au Jus. The cost will be $6 which includes a gift contribution. Contributions for gift only are welcome. Send checks to Linda McKnight, Mail Stop 387, by February 11.

James Hassell, Lysle Parlett and **Clyde McLemore** of the Flight Mechanics Division will be honored with a retirement party on February 9 in the Activities Center. A cash bar social will begin at 6:30 p.m. and dinner will be served at 7:15 p.m. The cost, including gift contributions, will be $13 per person or $19 per couple. Make checks payable to Sue Grafton, Mail Stop 355, by February 1.

Henry P. "Skinny" Watkins and **Harold R. Snyder**, Operations Support Division, will be honored with a retirement party on Friday, February 8, at the cafeteria. A cash bar social will begin at 6:30 p.m., dinner at 7 p.m., and the program at 7:45 p.m. The cost will be $7 per person, $12.50 per couple or donation for gift only. Those attending only the program should arrive at 7:45. Make reservations by cash or check payable to Wayne C. Hogge. Contact Daisy Terry, Wayne Hogge or Phil Davidson, Mail Stop 166/B, by Friday, February 1.

Tom Harper and **Ken Whiting**, Operations Support Division, will be honored with a retirement luncheon on Wednesday, February 6, at 11:30 a.m. in the Activities Center. The price of the luncheon including contribution to the gifts is $6. Contributions to the gifts only are welcome; please specify if contribution is only for 1 person. Send checks to Ann Bell, Nettie Orie or Bob Schwartz, Mail Stop 286, by January 31.

THOMPSON FELLOWSHIP

Continued from page 5.

explored in future NASA/NOAA projects.

That kind of achievement was characteristic of the Bailey, Anders and Mikulas studies as well, all because Center management decided four years ago to give non-supervisory researchers some sort of reward for their dedication.

The Fellowship was set up in 1977, said Associate Director Dr. John Duberg, "so our researchers could take a look over the fence, become exposed to another viewpoint, another set of minds, and maybe even upset some ideas they've let become too entrenched."

Researchers awarded the Thompson Fellowship are given full salary for one year, per diem, travel and up to $15,000 in research monies. The most recent recipient is Dr. Roger Crouch of FED's Electronic Devices Research Branch, who is now doing research at the Massachusetts Institute of Technology.

Applications, now being accepted through March 3, will be scrutinized by an ad hoc committee. The committee's recommendations will be turned over to the Director, who will approve the final selections. The recipient or recipients will be announced around April 1.

Researchers in a non-supervisory position "who have demonstrated continued growth in research capability and have been at the Center for around 10 years" are eligible, according to Frank Owens of the Training and Educational Services Branch.

Applications and more information can be obtained from Owens at Mail Stop 309, Bldg. 1195X.

Happenings

HAPPY HOUR will be held Friday, February 1, from 4 to 6:30 p.m. in the Activities Center.

ODU BASKETBALL. Old Dominion University will play Virginia Commonwealth University at the Hampton Coliseum February 2 at 3:30 p.m. Regular $5 tickets can be purchased for $1.25 at the Activities Office.

WILLIAM AND MARY BASKETBALL. William and Mary will play James Madison University February 16 at William and Mary Hall. Regular $5 reserved seat tickets will be available for $1.25 for the first 200 tickets sold and for $2.50 thereafter to NASA employees and contractors by presenting their badge at the ticket window. The window will open at 6 p.m. and the game will begin at 7:30 p.m.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Telephone Directory Changes Due

Changes in the Organizational Listing or the Service Directory Listing for inclusion in the March 1980 issue are due at Mail Stop 196 by **February 11, 1980.**

The furnishing of accurate information for the Alphabetical Personnel Section of the Directory is the responsibility of each individual employee. These changes must be submitted no later than **February 11, 1980,** for inclusion in the March issue.

cafeteria menu

WEEK OF JANUARY 28

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

TUESDAY: Manhattan Clam Chowder; Pork Chops Over AuGratin Potatoes; Fried Filet of Fish; Roast Beef Au Jus. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Beef Pot Pie; Ham & Cheese Omelette. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Meat Loaf; Crab Cutlets. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Beef Balls Stroganoff; Savory Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF FEBRUARY 4

MONDAY: Ham & Lima Bean Soup; Chicken Chow Mein; Barbecued Pork Loin; Quiche Lorraine. Snack Bar: Pizza; 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; Stuffed Bell Peppers; 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. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Corn Chowder; Fish Dinner; Chicken Pot Pie; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

swap and shop

FOR SALE

Articles

Baby crib (side drops down) and covered mattress, EC, maple finish; 8 mm projector, never used; Black and Decker cordless grass shear with a detachable hand shear including a blade sharpener, used once. EC. Call 851-0181.

Large salt water spinning reel, VGC, $15. Crosman CO_2 Pistol, VGC, $15. Call 851-4675.

Log storage crib, like-new, black steel tubing, $7. Healthkit timing light, solid-state, assembled, EC, manual, $10. Call Mathis, 722-7629.

Karastan Oriental Carpet, 6x9 "Nomadic Naturals:" pattern, EC, $350. Call Wainwright, 3188 or 877-3985.

Tickets for "Ain't Misbehaving," Sunday, March 16, in Chrysler Hall, Norfolk, $13, no res., 826-4170.

Whirlpool commercial heavy-duty washer and dryer, EC, $250 for both or best offer. Call 827-6704 after 5 p.m.

Vehicles

Bradley GT I, 5000 miles, like new condition, AC, stereo w/tape player, 1600 cc engine. $5,800. Call 826-3053.

1972 Torino Station Wagon, 302 CI s/AT, $550; 1968 Plymouth Station Wagon, 383 CI w/AT, $300. Both high mileage but GC & current inspection stickers. Call Youngblood, 877-1224, after 4 p.m.

WANTED

Person interested in joining car pool from Norfolk to West area 7:30 a.m. shift. Call Edward Hudgins, extension 3072.

Drivers or existing car pool (up to three people) to join two-member car pool from Riverside area of Newport News to West area on 7:30 a.m. shift. Will consider change to 8 a.m. shift. Call Harry Carlson, extension 3181, or Manng Rind, ext. 3483.

Job Openings

The following Merit Promotion Announcements are currently open:

80-8--AST, Aerostructural Dynamics; Aerospace Engineer; GS-861-11 or 12; Office of Director for Structures; Structures and Dynamics Division; Aeroelasticity Branch; Closes February 1, 1980.

80-9--AST, Fluid and Flight Mechanics; Aerospace Engineer; GS-861-12; Office of Director for Aeronautics; High-Speed Aerodynamics Division; Propulsion Aerodynamics Branch; Closes February 1, 1980.

80-10--AST, Fluid and Flight Mechanics; Aerospace Engineer; GS-861-12; Office of Director for Aeronautics; High-Speed Aerodynamics Division; Hypersonic Aerodynamics Branch; Closes February 1, 1980.

80-12--Supervisory Engineering Technician; GS-802-12 or 13; Operations Support Division; Tunnels Operations Branch; Technical Support Section D; Closes February 1, 1980.

80-13--Chief, Scientific and Technical Information Programs Division; GS-301-14 or 15; Office of Director for Management Operations; Scientific and Technical Information Programs Division; Closes February 1, 1980.

National Aeronautics and
Space Administration

Langley Research Center

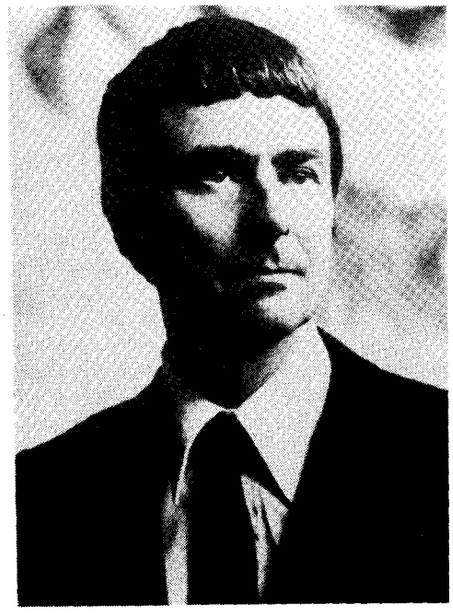
NASA

Langley Researcher

Volume 19 Issue 3

February 8, 1980

O'Neill to Speak on 'The High Frontier' Here February 12



Concepts for using space resources for the benefit of humankind will be discussed at the Langley colloquium February 12.

Dr. Gerard K. O'Neill, physicist, author and lecturer, will speak on "The High Frontier," 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.

O'Neill 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. Free tickets are available at the Coliseum box office.

O'Neill's ideas for constructing industrial facilities and communities in space have generated serious government, industry and academic studies since they were first popularly introduced in a 1974 Physics Today article. His subsequent book, "The High Frontier," won the Phi Beta Kappa award for best science book of 1977.

His concepts center on the use of lunar and other non-terrestrial (such as asteroid) materials for the construction of huge spaceborne colonies and solar energy satellites. By the middle of the next century, he predicts, thousands of people will be living and working in space, and many current energy problems may have long since been ended by using power from the Sun. Slides and film clips will be used to illustrate his presentation.

O'Neill, a Professor of Physics at Princeton University, has been exploring these concepts for more than a decade. His visibility has increased with public

Continued on page 2.

Geer to be Honored During National Engineers Week

E. Barton Geer, Director of Systems Engineering and Operations, has been named Engineer of the Year by the Peninsula National Engineers Week Committee.

Geer's award will be presented at a dinner dance February 23 which will highlight the Peninsula's observance of National Engineers Week. Geer, who has been a Langley employee since he first signed on as a mechanical engineer in May 1942, was nominated by the local chapter of the American Institute of Aeronautics and Astronautics.

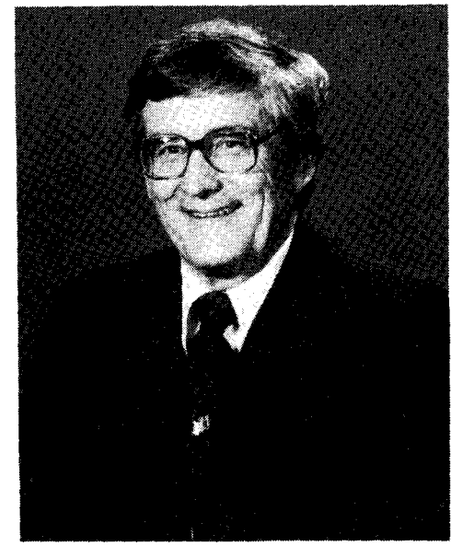
National Engineers Week, February 18–22, has, since 1951, been traditionally observed during the week of Washington's birthday to celebrate the first president's civil engineering background. This year's activities will include displays at Coliseum Mall, visits by engineers to local schools, and a Career Day for local high school students at Langley. (See related story, page 4.)

First District Congressman Paul S. Trible, Jr., will present the award to Geer at the dinner, which will begin at 7 p.m., February 23, at the Langley NCO Club. A cash bar will open at 6 p.m., and the program will begin at 8 p.m. Dancing will follow from 9 p.m. to 1 a.m. Tickets will cost $8 per person and may be obtained from the Peninsula National Engineers Week Committee or from Buddy Cary at ext. 4546.

Geer's award will not be his first. Past commendations have included the NASA Exceptional Service Medal and the NASA Outstanding Leadership Award for his work on the Viking Project.

Geer has served as head of the

Continued on page 2.



Director Donald P. Hearth cuts the ribbon inaugurating Piedmont Airlines' new direct B727 service from Tidewater to Houston. Participating in the January 15 ceremony at the Norfolk International Airport are, from left: Peter R. Daikos, Norfolk Port and Industrial Authority (NPIA); Norman Coiner and Lionel Anders, Piedmont Airlines; and Paul Caplan, NPIA. In a recent letter to Hearth, Daikos said, "We look forward to providing the proper service to Houston which NASA well deserves."

GEER HONORED

Continued from page 1.

Systems Engineering and Operations Directorate since 1972. Other assignments have included Spacecraft Manager for the Viking Project, Special Assistant for Viking Lander Components and membership on several high level committees within NASA. In 1967 he was a member of the committee which reviewed the Apollo One tragedy which took the lives of three astronauts. In 1971 he became a member of the technical team which reviewed the systems involved in the Apollo and Skylab programs. He was appointed in 1973 to the Skylab 1 Investigation Board, which analyzed problems in Skylab's launch.

Geer is an active member of the First United Methodist Church, where he has served as Finance Committee Chairman. He has served on the Hampton Planning Commission, and is a current member and past president of the Merrimac Shores Civic Association.

He is also a member of the Industrial Advisory Group and the Electric Utilities Advisory Group for the Commonwealth of Virginia.

Geer was born in Rockwell, Iowa, and earned his bachelor of science degree in mechanical engineering from Iowa State College at Ames in 1942.

O'NEILL SPEAKS

Continued from page 1.

interest in his ideas, making him a popular subject for articles, television talk shows and hundreds of appearances all over the world.

O'Neill has been teaching physics at Princeton since 1954. He is an expert in high-energy particle physics and the inventor of the colliding-beam storage ring now used in almost all international particle accelerators.

O'Neill earned his bachelor of arts in physics from Swarthmore College in 1950, and his Ph.D. in physics from Cornell University in 1954. He has addressed several Congressional committees on his concepts, and is president of the Space Studies Institute. He is a private pilot who also enjoys gliding, and is one of a handful of glider pilots who have earned the International Diamond Badge for soaring.

Langley employees attending the lecture are to charge their time to Job Order A1980.

Question and Answer

Q. Is there any action being considered to restrict smoking in Langley facilities?

A. Fred Bowen, Acting Director for Management Operations, responded to the question as follows:

"There is no overall Agency or Center policy which would prohibit or restrict smoking in designated areas. The Cafeteria, however, has specified a 'No Smoking' area where sitting together is a matter of personal preference.

"The subject of smoking within a large multitude of types of facilities is a complex and emotional issue which cannot be solved easily with broad rules and still consider everyone's rights. Hopefully, specific situations can be resolved by all parties involved using common sense, courtesy, and respect for other people's rights and liberties. Each situation may have a different solution. Relocation of employees in offices, prompt extinguishing of cigarettes, respect for genuine medical problems and tolerance are examples of on-site solutions.

"Some past suggestions for special ventilation equipment have proven to be far more costly than the Center could ever support or justify. Total prohibition against smoking or special 'smoking breaks' do not seem fair either. Center management asks employees to try to work it out among themselves without rigid Center rules."

Job Opening

80-11--Supervisory Procurement Analyst; GS-1102-13; Office of Director for Management Operations; Acquisition Division; Acquisition Research and Management Office; Closes February 8, 1980; NASA-Wide.

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.

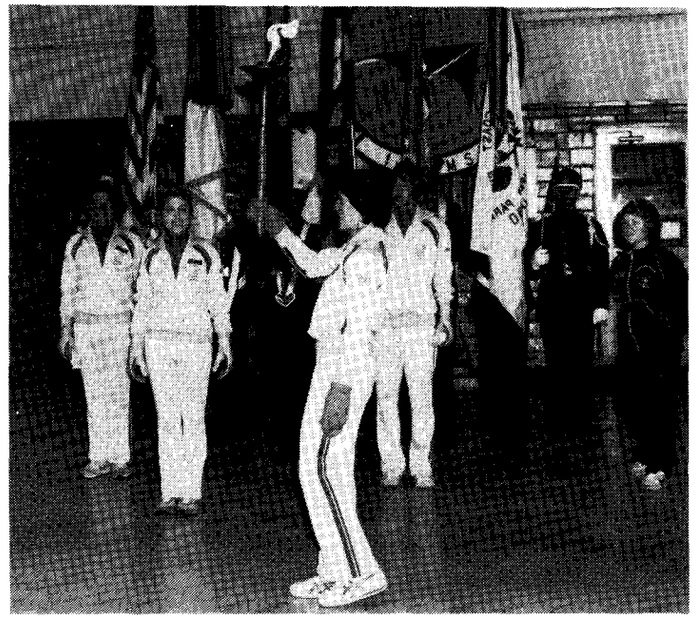
Editor . . . . . .Jean Drummond
Staff Photographer . . . . . .Bob Nye

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.

Olympic Flame Arrives on American Soil for the First Time

– photos by Bob Nye

Despite heavy snow, wind and 20-degrees temperature, over 200 people gathered at the Langley Air Force Base flight line Thursday, January 31, to witness the arrival of the Olympic flame from Greece at 7:09 a.m. The crowd cheered and sang "God Bless America" as an Olympic official carried two miner's lamps from the presidential plane. The lamps contained the flame ignited by the Sun's rays Wednesday in Olympia, the first home of the Olympic games 2,600 years ago. This is the first time the Olympic flame has come to the United States.



Sandee Norris, an Indiana native who escorted the flame from Greece, lit a torch from a miner's lamp and ran the torch to a hangar where 600 invited guests rose and applauded. Norris passed on the flame to Suzy Mink (second from left) of Roanoke, the official Virginia torch bearer. Mink ran the flame on two miles of icy roads at the base to the Yacht Club. The flame was carried aboard a Navy launch to Yorktown, where the 1,000-mile relay to Lake Placid officially began.

During ceremonies inside the hangar, 20 children of federal employees received the flame from Sandee Norris' torch as the Tactical Air Command Band and Chorus performed The Olympic Hymn. Rev. Bernard Fell, President of the Lake Placid Olympic Organizing Committee, traced the history of the Olympic torch and Langley's Maj. Gen. Carl H. Cathey, Jr., spoke about the Olympic flame. "The flame stands for hope and reminds us of the common spark of life we all share," Cathey said.

Share Drafts Provide Benefits

No service charge, no minimum deposit and free drafts for the rest of the year:

Those are some of the benefits of opening a share draft account with the Langley Federal Credit Union in the next few weeks, according to General Manager Jean Yokum.

Since Congress extended to March 1 the deadline for any share draft regulatory legislation, the National Credit Union Administration (NCUA) is encouraging credit unions nationwide to promote their own share draft programs.

The move by Congress is seen by the NCUA as an endorsement of share drafts, Yokum said. Share drafts are similar to checking accounts, provide members with automatic records of transactions, and can facilitate direct deposit of net pay, she said. They also provide built-in lines of credit.

Persons wishing to find out more about share drafts can call 827-7200 and ask for a share draft officer, Yokum said.

Langley to Sponsor Career Day

The laws of flight haven't changed in the last 40 years, but areas in which to explore those laws surely have.

Back in the 40s, when many on the Langley staff were in high school or earning their college degrees, there was no such thing as a Space Age, and the science of aeronautics dealt mostly with subsonic, propellor-driven aircraft.

Things have changed since then, and with those changes have come a multitude of new options for high school students interested in a science-related engineering career.

To help prospective engineers come to grips with those options, Langley's Office of Educational Programs and the Peninsula Engineer's Week Committee are sponsoring the ninth annual Career Days at Langley February 20 and 21.

The program, "What's In Store For '84? Your Place in Aerospace," will show approximately 500 academically talented high school students what scientific and engineering career choices are represented by Langley's four research directorates--Aeronautics, Electronics, Space and Structures.

Designed so that small groups of students can interact more easily with Langley personnel, the program will consist of three 30-minute morning sessions in each of the four directorates. Groups of 20 students will rotate among the various sessions, and in the afternoons will have their choice of viewing related movies, continuing their discussions with Langley staff members, or consulting with representatives from Tidewater engineering organizations.

Both days' programs will open in the Langley Activities Center, Building 1222, with welcoming remarks by Director Donald Hearth and a keynote address by Howard Wright, Director for Projects.

The first graduating class of the Peninsula Joint Apprenticeship Training Committee for Maintenance Crafts received their journeyman certificates Thursday, January 24, during a ceremony at the Langley Officers' Club. Langley Director Donald P. Hearth and Gene Conner, Apprentice Representative of the Virginia Department of Labor and Industries, presented certificates to: (kneeling, from left) Robert Young, Carrell Guthrie, Gary Wheeler, Robert O'Hara and Mark Turgeon; (standing, from left) James Insley, William Holloway, John Crisp, Thomas O'Bryan, Dennis Caldwell and Stephen Goens. Hearth was the keynote speaker for the occasion and Walter Sykes, Contract Manager, Klate Holt Company, served as master of ceremonies. The apprentice program is operated jointly by Klate Holt and the International Brotherhood of Electrical Workers.

– photo by Don Ward

Cornelius B. Apple, Operations Support Division, received a Special Achievement Award "For technical contributions in support of the Langley Hypocycloidal Pinch and Solar U.V. Laser Development."

LAA Holds Travel Show

A travel show, describing the Langley Activities Associations's group tours for 1980, will be held Tuesday, March 4, in the Activities Center at 7:30 p.m.

Destinations included in the show are:

Scandinavia: Norway, Sweden and Denmark; September 16–25; 10 days, nine nights;

Rome/Munich: July 20–August 4; 16 days, 15 nights; Optional: Oberammergau Passion Play;

Hawaii: Three islands: Maui, Hawaii and Oahu; October 6–16; 11 days, 10 nights;

Las Vegas: May 16–19--four days, three nights; April 13–17--five days, four nights;

Bermuda Cruise: May 14–20; Seven days, six nights.

Two movies will be shown featuring Scandinavia and Rome/Munich, which highlights the Passion Play at Oberammergau.

Door prizes will be drawn and light refreshments will be served. A cash bar and sandwiches will also be available at minimal prices.

For detailed itineraries and reservation forms, call the Activities Office, extension 3139; Ernie Greene, extension 2312 or 838-0567; or Herb Boulter, extension 3234 or 838-4773.

Science Academy Abstracts Due

Any Langley researchers who would like to present a paper in the space sciences and technology segment of the Virginia Academy of Science meeting May 13–16 in Charlottesville has until March 3 to submit an abstract.

Dr. D. M. Ras is accepting brief abstracts until March 3. The abstracts should include authors, affiliations and mailing addresses, and should be sent to Ras at Mail Stop 287.

Joseph Chambers, head of the Dynamic Stability Branch, has been invited to speak on Langley's Stall/Spin research at the meeting, which will be held at the University of Virginia. For more information, contact Ras at extension 3711.

– photo by Fred Jones

The contract between Langley and the Patternmakers League of North America, Newport News Association, was signed by Director Donald P. Hearth on January 21. Shown with Hearth are members of the Management and Union negotiating teams. Seated, from left, are John S. Powell, Barry L. Price and Thomas M. Desmett; standing, from left, are Thomas H. King, Diane S. Wieting, William R. Page, James J. Fay, W. Morris Phillips, Jacqueline T. Kallick, L. Clifton Jones, Joseph V. Boyle and James W. McNamara.

Key Positions

Larry D. Pinson has been designated Head, Structural Analysis Section, Engineering Analysis Branch, Systems Engineering Division.

Leon V. Taylor has been selected Head, Spaceflight Instrumentation Branch, Flight Electronics Division, under Merit Promotion Announcement 79-93.

James L. Miller has been designated Acting Head, Mechanical Technology Branch, Fabrication Division.

Gary P. Beasley has been selected Assistant Chief, Flight Dynamics and Control Division, under Merit Promotion Announcement 79-90.

Clarence D. Young, Jr., has been selected Head, Engineering Analysis Branch, Systems Engineering Division, under Merit Promotion Announcement 79-82.

Boyce E. Lavender has been selected Supervisory Engineering Technician, Technical Support Section C, Tunnels Operations Branch, Operations Support Division, under Merit Promotion Announcement 79-98.

James P. Arrington has been designated Head, Vehicle Analysis Branch, Space Systems Division.

TRT Vans Available

Prospective van pool drivers at Langley now have the opportunity to lease 15-passenger vans from Tidewater Regional Transit (TRT) in Norfolk to operate ride-to-work pools.

TRT has reached agreement with Easyride, the ride sharing program of Pentran (Peninsula Transportation) to allow Peninsula residents to lease TRT vans through Easyride, which does not yet have vans available for leasing.

Drivers of the TRT vans will operate the vehicles as individual commuter businesses, through a leasing arrangement with TRT. Drivers must meet certain driving, age and credit requirements, and must sign up at least eight passengers.

TRT will provide van maintenance and repairs, tires, back-up vans for emergencies, comprehensive insurance and assistance in getting riders.

An advantage of TRT van pooling, aside from the obvious one of saving valuable gasoline, is that operators are free to use the vans for personal driving when not van pooling.

Examples of approximate costs involved in driving a 1979 model, 15-passenger van with 10 passengers are these:

- Basic leasing cost: $231 a month.
- Mileage charge for a 20-mile round trip: $63 a month.
- Total cost: $294 a month.

Charging each of 10 passengers approximately $30 a month would cover these costs--and save a lot of gas.

For more information on becoming a van pool operator, write to Carol Russell, Transportation Service Representative, Tidewater Regional Transit, 509 E. 18th St., Norfolk, Va. 23504, or call her at (Norfolk) 627-9291.

Roots of Culture Presented

A Black History Program, titled "The Roots of Culture," will be held on Sunday, February 24, at 3 p.m. in the Activities Center.

The guest speaker for the occasion will be Jack W. Gravely, Executive Secretary of the Virginia State Conference of Branches, N.A.A.C.P. The "Performers," a drama group from Norfolk State University, will provide music and dance.

– photos by Bob Nye

TECH BRIEF AWARDS. Thirteen Langley employees were presented cash awards for Tech Briefs by Associate Director Dr. John E. Duberg (seated second from left). Checks and certificates were presented to: (left photo, seated from left) Marvin D. Rhodes, Andrew C. Dibble, Jr., Robert E. Grandle, Martin M. Mikulas, Jr.; (standing from left) Olaf O. Storaasli and Howard M. Adelman; (right photo, seated from left) Donald R. Rummler, Russell V. Parrish, Philip R. Young, William M. Kahlbaum, Jr.; (standing from left) Ernest W. Armstrong and Columbus W. Stroud; (not pictured) Billy R. Ashworth. The quarterly "NASA Tech Briefs" journal, distributed nationwide, stimulates technology transfer by disseminating information on new developments stemming from aerospace research.

Langley Retirees to be Honored With Parties

Joseph Italiano, James H. Link and **James F. Pressey** of the Fabrication Division will be honored with a retirement party Tuesday, February 19, at St. Eve's Steak House, 11847 Jefferson Avenue, at 6 p.m. Cost for the dinner and gift contributions will be $7 per person or $12 per couple. Contributions of $1.50 for each retiree's gift will be accepted. For reservations, send cash or check to Ellwood L. Peele, Jr., or Benjamin F. Guenther at Mail Stop 385 by February 11.

A retirement luncheon in honor of **Paul W. Huber**, High-Speed Aerodynamics Division, will be held on Friday, February 29, at 11:30 a.m. in the Activities Center. The price of the luncheon, including a gift contribution, will be $6.50 per person. Contributions to the gift only are welcome. Please make checks payable to John S. Evans, Mail Stop 168, by Wednesday, February 20.

Alexander P. Sabol, High-Speed Aerodynamics Division, will be honored with a retirement dinner on Friday, February 22, at the Ramada Inn, 950 J. Clyde Morris Blvd. A cash bar social will begin at 6:30 p.m. and dinner will be served at 7:15 p.m. The cost, including a gift contribution, will be $8.50 per person or $16 per couple. Contributions for the gift only are welcome. For reservations, send checks to Wayne Guy, Mail Stop 168, by Wednesday, February 13.

Thomas H. King, Fabrication Division, will be honored with a retirement party Saturday, March 1, at the Activities Center. A cash bar social will begin at 6:30 p.m. followed by a steamship round dinner to be served at 7:30 p.m. The cost, including gift contributions, will be $6.75 per person or $13 per couple. Contributions for gift only are welcome. For reservations send cash or checks, payable to W. Cecil Burtner, to Mail Stop 389 by February 25.

George R. Oden, Operations Support Division, will be honored with a retirement luncheon on Thursday, February 28, in the Activities Center at 11:30 a.m. The cost of the luncheon including gift will be $6 per person or $11 a couple. Contributions of $1 for gift only are welcome. Please make reservations by cash or check payable to Gloria S. Evans, Mail Stop 163B, by Tuesday, February 26.

A retirement luncheon for **Lou Griggs**, Fabrication Division, will be held at the Langley Officers' Club on Friday, February 15, at 12 noon. The menu will be Roast Round of Beef Au Jus. The cost will be $6 which includes a gift contribution. Contributions for gift only are welcome. Send checks to Linda McKnight, Mail Stop 387, by February 11.

Betty H. Downing and **Julia K. Stainback**, Office of Occupational Health Services, will be honored with a retirement luncheon Friday, February 22, at 11:30 a.m. in the Activities Center. The cost will be $5 per person plus $1 gift donation for each retiree. Contributions for gifts only are also welcome. Make checks payable to Virginia Jones, Mail Stop 293, by February 15.

Thanks

Charlie Dameron, Lemuel Forrest and **Edwin McErlean** wish to express sincere thanks to their co-workers and friends for the grand retirement party, mementos and gifts they received.

Brown Bag Special Featured

Two "Brown Bag Special" film showings are planned this month. The films listed below will be shown in Building 1212, Room 200, at 11:30 a.m. and 12:15 p.m. on the dates indicated.

Friday, February 15 – "Grab Hold of Today." This film may help you realize that life is an on-going stream of possibilities and that one should not limit oneself.

Friday, February 29 – "Father Martin's Guidelines." In this film Father Martin defines alcoholism, tells how to identify an alcoholic and gives eight guidelines for helping alcoholics.

Langley Employees Support Bloodmobile

Two hundred fifty-five pints of blood were donated at the January 23 visit of the Red Cross Bloodmobile.

Achieving gallon status were:

13 gallons — James J. Fay.

10 gallons — Andrew R. Wineman.

8 gallons — Ralph P. Bielat and Albert J. Caciappo.

7 gallons — Davis B. Wright.

6 gallons — James L. Leiffer and George W. Jones.

5 gallons — James M. Shipp and Edward F. Germain.

4 gallons — George J. Link.

3 gallons — Sandra L. Gaster, Richard G. Booth, Jr., Barry L. Price, Milton Lamb, Lemuel Meetze, Gene A. Wagner and William C. Alexander.

2 gallons — Frank L. Jones, Edward D. Phillips, Gary L. Carl, Wayne Melton, John W. Paulson, Clarence C. Poe, Jr., Michael J. Walsh and David J. Dearing.

1 gallon — Markham C. Terry, Richard F. Hellbaugh, Gary Beasley, Kenneth N. Cole, Charles S. Bryant, Paul S. Pao and Calvin D. Hawkins.

Donating blood for the first time were Denise Stephenson, Don Soloway, Octavia A. Winter, Donald Hunt, Jerry Plassman, William Adkins, Alan Whipple, Otto Ripley, Denise Hill, Douglas B. Price, Arlene Gunther, Adrienne Croslin and Stuart K. Johnson.

NASA Coordinator for the Bloodmobile was Robert L. "Scotty" McArthur. Mrs. Jenny Scheiman was the Red Cross Coordinator.

— photo by Bob Nye

James J. Fay, Personnel Division, received a 13-gallon donor pin during the January 23 visit of the Red Cross Bloodmobile. Fay said it has taken over 28 years to donate the 13 gallons of blood.

Langley is a Gasoholic!

— photo by Hubert Lloyd

Langley's government vehicles, taxis and other contractor vehicles have been using Gasohol since December. This photograph shows a recent delivery of Gasohol to the Center.

Happenings

WILLIAM AND MARY BASKETBALL. The College of William and Mary will play James Madison University on February 16 at William and Mary Hall. Regular $5 reserved seat tickets will be available for $2.50 to NASA employees and contractors. Badge must be presented when tickets are purchased. The ticket window opens at 6 p.m. and the game starts at 7:30 p.m.

THE PENINSULA LITERACY COUNCIL will sponsor a workshop February 9, 16 and 23 from 9:30 a.m. to 2 p.m. The Laubach Literacy program will be held at Grace Episcopal Church in Newport News and is designed to train people to teach the illiterate to read and write. More information can be obtained by calling the Council at 838-5300.

TOASTMASTERS. You are invited to join TAC Air Toastmasters Club to develop the arts of giving and evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesday at the Langley Officers' Club at 7:15 p.m. For further information call Bob Lee, extension 2486, or Gayle Wilson, extension 3551.

HAPPY HOUR will be held Friday, February 15, from 4 to 6:30 p.m. in the Activities Center.

GOLF ASSOCIATION. The organizational meeting for the 1980 NASA Golf Association will be held at the Activities Center Friday, February 22, at 7 p.m. Membership is open to all NASA employees and retirees. For additional information, call Robert Turner, extension 3095, or Alan Frizzell, extension 2086.

FEDERAL ALMANACS are now on sale for $2.10 at the Activities Office.

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, February 11, from 7 to 9 p.m. in Room 180 of Building 1209. Program plans include a discussion on "Spring Management." All persons who plan to begin keeping honey bees this year should try to attend this meeting. For additional information contact R. Henk, extension 4637.

FREE CATALOGS for William and Mary's credit free spring programs can be obtained at Williamsburg's Public Library; The College Library; by writing Office of Special Programs, College of William and Mary, Williamsburg; or by calling 877-9231. Programs are free to citizens 60 years of age or older; others pay enrollment fee before the first class. Cooking art, auto or home repair, photography and the stock market are just a few of more than 50 programs being offered in February, March and April.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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FOR SALE

Articles

Everett spinet piano, mahogany, just tuned, GC, asking $850. Call Youngblood, 877-1224.

Antique round oak dining room table, 42 inch diam. with two 12-inch leaves. Refinished in EC, $300. Call 877-1687, after 5 p.m.

Electric Whirlpool dryer; GC, 3 cycles, $75. Electric hot water heater, 56 gallons, GC, $75. Call 898-4727, between 5—8 p.m., weekdays.

Drexel pine bedroom suite with 4-drawer chest. Double dresser with large hanging framed mirror and night table. Call 596-7596.

Brass fireplace screen set, GC. Call 868-9580.

Dining room suite: solid birch table with 2 leaves, 6 chairs and large buffet, EC, $800. Call 596-1944.

Ski boots, size 10½, DYNAFIT, used 1 year, EC, $30. Call Bill Davis, extension 3483 or 898-6834.

Antique sideboard w/beveled-edged mirror, $280; solid brass scales with marble base, $80; professional exercise belt, $35; slantboard, $25. Call Sabo, extension 3611 or 723-2166.

G.E. stove, EC, $150. Call 838-8521 after 5 p.m.

Animals

Dobermans, AKC registered, champion bloodline, two males (one fawn, one blue), one female (black), all shots, ears and tails clipped, partially obedience trained, gentle and loving, papers speak for themselves. $75. Call 838-0770.

Golden Retrievers, AKC, five females, three males, seven weeks old on Feb. 1, shots and wormed, hips and eyes ok'd. Sire Champion w/obedience and field trials. Dam obedience trained, $175. Call 596-4292 after 5.

Vehicles

1976 Ford Granada, 2 dr. brown ½ vinyl beige top, V-6 engine, new battery tune-up, No. 6 inspec., A/C, PS, PB, AM radio, auto. trans., $2,500. VGC. Call 247-9446.

1975 Ford LTD, PS/PB/AC, 52,000 miles, $1,700. Call Ward, 868-6042.

1973 Gran Torino (mid-size) Ford Station Wagon. AT, PS, PB. 3-way door tailgate with electric window. $875. James A. Martin, 693-4241.

1968 Plymouth Station Wagon; radio, heater, AC, AT, GC, $300. Youngblood, 877-1224.

FREE

Teddy bear hamsters. Call after 8 p.m. 838-5577.

FOR RENT

Sandbridge, new cottage, liv-kit-din area, 4 BR, washer, dryer, dishwasher, fireplace, ½ block from beach and Back Bay (freshwater), AC, phone, 6-car parking, summer rates $400/wk. G. O. Kent, 3095--home 420-8391.

WANTED

Ride from the Buckroe Area (Andrews Blvd. and Newton Road vicinity) to Bldg. 1205, 8 a.m. shift. Call P. Smith, ext. 2361.

Maine coon cat. Parrish, ext. 3875, or Gloucester 642-5081.

Engine 15—35 HP, gas or diesel, 2- or 4-cycle, with or without supercharger, must be in good running condition. Call ext. 3993.

LOST

Would the person who borrowed a DC clamp-on ammeter from the Electric Shop four or five months ago, contact John Carmines at 2826.

FOUND

A pair of Pierre Cardin prescription glasses and a green collapsible umbrella were left on the Receptionist's desk, Building 1219. Call Mary Mesic, ext. 3395, to identify.

cafeteria menu

WEEK OF FEBRUARY 11

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

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Yankee Pot Roast; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef and American Cheese.

WEDNESDAY: Old Fashioned Bean Soup; Fried Chicken Dinner; Meatloaf; Ham and Cheese Omelette. Snack Bar: Chicken Cutlet; Ham and Turkey Club; Steak, Onion and Cheese Sub; Bacon, Lettuce and Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Pork Chops; Roast Beef. Snack Bar: Submariner; Ham and Cheese Club; BBQ Pork; Roast Beef and American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken and Spanish Rice; Salisbury Steak. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey and Bacon Club.

WEEK OF FEBRUARY 18

MONDAY:

HAPPY
GEORGE WASHINGTON'S BIRTHDAY!!

TUESDAY: Bull Island Clam Chowder; Hot Roast Pork Sandwich; Fried Filet of Fish; London Broil. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ Pork; Roast Beef and American Cheese.

WEDNESDAY: Ham and Lima Bean Soup; Roast Turkey Dinner; Quiche Lorraine; Broiled Beef Liver. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak and Onion Sub; Bacon, Lettuce and Tomato.

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

FRIDAY: Vegetable Soup; Fish Dinner; Barbecued Chicken; Stuffed Bell Peppers. Snack Bar: Hot Roast Beef; Turkey and Bacon Club; Deluxe Sub; BBQ Pork.

Thanks

Margery Hannah writes, "I want to thank my friends at Langley for the delightful retirement party and farewell gifts. I have enjoyed the work at Langley very much and my friends even more and am looking forward to seeing all of you."

Alphanzo M. Rackley thanks all his co-workers and friends for the wonderful farewell party. "The many valuable gifts, mementos and memories shall be cherished for a long time. It was a beautiful climax to many years of enjoyable fellowship in IRD," Rackley said.

Margaret Schoonover, writes, "I wish to thank all my friends for a long-to-be remembered retirement luncheon and for the lovely gifts given to me on that occasion. As I look through my album, I have many pleasant memories of my years at NASA. My thanks and best wishes to you all."

Jack F. Zanks writes, "Looking back through the years, my career at Langley has been very rewarding. I want to take this opportunity to thank all of my friends on the TCV and other programs for their loyal support and dedication. And a special thanks to all of my colleagues and friends for the fine retirement luncheon and gifts."

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 4

February 22, 1980

Black History Month Observed at Langley

Black History Month, observed nationally during February, commemorates the heritage of a people who were and are important to the development of the United States. It is a reminder of the nation's commitment to creating an environment wherein persons of all races and colors can share in the economic and social benefits of this country.

The Langley Research Center shares America's dedication to recognizing the contributions of black Americans and has planned two special programs in observance of Black History Month.

The Learning Center will show the film "Dr. Martin Luther King" Monday, February 25, at 12 p.m., in Building 1212, Room 200. The film presents a chronological history of King's nonviolent Civil Rights movement against segregation and racism, including bus boycott, economic boycotts, marches, arrests and memorial speeches such as "I Have a Dream."

The Office of Equal Opportunity Programs will sponsor a program titled "Black Perspective: Past and Present" Tuesday, February 26, in the Langley Air Force Base Theater at 1:30 p.m.

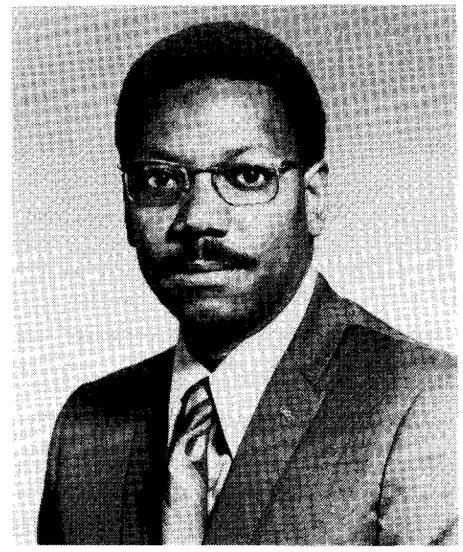
Jessie M. Rattley

Guest speakers for the program will be Jessie M. Rattley, President of the National League of Cities and a Newport News City Council member, and Dr. Alvin F. Anderson, Head of Langley's Office of Research Grants and University Affairs. Rattley will speak on "Black Perspective: Present" and Anderson will talk on the "Past." Musical selections will be performed by Lenora Brooks Westley, a vocalist from Hampton Institute.

Rattley is the first black woman to hold the top office in the National League of Cities, the largest organization of municipal governments in the country. She is Chairman of the Democratic National Committee Black Caucus, member of the Arrangements Committee for the 1980 Democratic National Convention and member of the Joint Center for the Political Studies Advisory Committee on Government Training. She is an instructor for the Civil Service Commission's Executive Seminar.

Rattley was selected by President Carter as a member of the Presidential Delegation to return the Crown of Saint Stephens to Hungary in 1978. She was a member of the Vice President's official delegation to Panama City to represent the United States at ceremonies marking the transfer of the sovereignty over the Panama Canal in 1979.

In addition to her national activities, Rattley has been recognized for her services at the state and local level. She was the first black elected to the Virginia Municipal League Executive Committee and was president of the Virginia League in 1978. She serves on the Governor's Criminal Justice and Crime Prevention Task Force and several special task forces on criminal matters and mental health.



Dr. Alvin F. Anderson

In 1970 Rattley was elected to the Newport News City Council at the first black and first woman; in July 1976 she was elected Vice Mayor.

Rattley is president of the Peninsula Coordinating Committee, former secretary and member of the Trustee Board of Carver Memorial Presbyterian Church, life member of the NAACP, member of the Virginia Chaplaincy Service and member of the Southeastern Business College Association. She is the founder and president of Peninsula Business College.

Anderson, Head of Langley's Office of Research Grants and University Affairs since March 1975, is responsible for the planning, interpretation and operation of research grants between Langley and over 100 universities. His office is the focal point for all university personnel contact with the Center.

Anderson joined the Langley staff in July 1972 as Head of the Office of Equal Opportunity Programs. He was responsible for the liaison between management and program staff, special

Continued on page 2.

– photo by Bob Nye

Brig. Gen. Clayton G. Kitchen, Commandant of the Canadian Forces Command and Staff College, presents a plaque of the College to Dr. John E. Duberg, Associate Director. Kitchen accompanied the Air Element Officers, who are pilots with the rank of major or higher, on a tour of Langley. The plaque was presented in appreciation of their visit to the Center recently.

Black History Month Observed at Langley

Continued from page 1.

interest groups, community leaders and organizations and for the development and implementation of the Affirmative Action Plan. In a nation-wide competition Anderson was selected to serve as a Congressional Fellow in the 95th Congress of the United States.

From October 1978 to October 1979 Anderson participated in an Intergovernmental Personnel Agreement between Langley and Hampton Institute where he served as an Assistant Director for Development for Federal Programs.

Anderson came to Langley from Hampton Institute, where he was Associate Director of the Afro-American Studies Program and Assistant Professor of Counseling. While at Hampton Institute, he developed and edited the first *Journal of Afro-American Studies*, initiated a Certificate Program in Afro-American Studies and developed an Interdisciplinary Lecture Series.

Before joining the faculty of Hampton Institute, Anderson was Assistant Principal at M. Rutledge Rivers High School in Charleston, Director of Counseling Services at Voorhees College in Denmark, S.C., Director of Guidance Services at Brown High School in Charleston and a counselor at the Luther Burbank School for Boys in Mercer Island, Wash.

He has published 15 articles in national journals and government publications and is the author of a book, *The Challenge to Black Counseling in a Black College*.

Anderson is a member of the Hampton/Newport News Headstart Advisory Committee, National Technical Association, Virginia College Placement Association, Vestry of St. Cyprian's Episcopal Church, Urban League's Black Executive Exchange Program, American Personnel and Guidance Association and Association of Counselor Education and Supervision. He serves on the Board of Trustees at Saint Paul's College in Lawrenceville, Va.

Bus transportation will be provided to and from the theater, leaving at 1 p.m. from Buildings 1222, 1244 and 1202 and returning immediately following the program, which will last approximately two hours. Limousine service will depart from Building 643 at 1 p.m. for employees in the East area.

Employees attending the program are to charge their time to Job Order A1599.

Hearth Named to WHRO Board

Director Donald P. Hearth has been named to the new Community Advisory Board for WHRO. The 26-member board was chosen February 12 by the educational broadcasting organization's board to help plan the future for Hampton Roads' public radio and television stations.

Board members were selected to provide a cross section of the community interests and concerns from throughout the WHRO area.

Speakers Bureau

Robert L. Stermer spoke to the Hampton Roads Chapter of the International Electrical and Electronics Engineers about magnetic bubble memory technology on January 15.

Dwight McSmith spoke to members of the Peninsula Radio Club on January 16 about aircraft crash safety.

John Samos spoke about the Tech House to the Pine Hurst Home Demonstration Club in Grafton on January 21.

Eugene Mason spoke February 4 to the Exchange Club of Williamsburg about a method for monitoring electric power.

Renee Benton spoke to the Newport News Junior Woman's Club on February 11 about Langley's Docent Program.

Maurice Parker spoke to the Tidewater Chapter of the National Association of Government Communicators about Langley's Public Affairs Program February 19.

Key Position

Linwood W. McKinney has been designated Assistant Chief, Subsonic-Transonic 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.

Langley Employees Receive Awards

Certificates of Recognition for inventions have been presented to the following:

Robert Miserentino and **Bruce Flagge**, for "Displacement Probes with Self-Contained Exciting Medium;" **Emmett L. Bryant**, for "Noncontacting Method for Measuring Angular Deflection;" **William M. Kahlbaum, Jr.**, for "Chromatically Corrected Virtual Image Visual Display;" **Roland W. Lee**, for "Retainer for Murine Specimens and Test Equipment;" and **Wilford E. Sivertson, Jr.**, for "Radar Target for Remotely Sensing Hydrological Phenomena."

Special Achievement Awards have been presented to the following:

Meredith W. Ballard, "For piping support of the CAMRA Tunnel, the Mach Eight Tunnel and the Quiet Tunnel."

William E. Craig, Jr., "For superior performance in technical management and administration of Center-wide research support programs."

William F. Hunter, "For outstanding achievement in the analysis of the National Transonic Facility Fan Assembly System."

David L. Lyons, "For superior performance in the planning and implementation of the instrumentation system for the Active Controls Pressure Model Wind Tunnel Program."

Frederick J. Rosensteel, "For outstanding performance in developing the electronics systems for the SILTS flight hardware package and the grounds support systems."

David G. Stephens, "For special achievement in planning and implementing programs for research on human responses to noise and aircraft interior noise control."

Sandy M. Stubbs, "For sustained superior performance in providing the leadership and coordinating effort necessary to execute the NASA antiskid braking research program for improving aircraft stopping performance on slippery runways."

Irby W. Jones, "For outstanding contribution to the design and testing of the Active Controls Pressure Model."

Thomas E. Pinelli, "For outstanding performance of duties in the design, development and establishment of a publications management program for the Executive Office of the President."

James Bene, "For providing improved battery technology for aerospace applications with safer operational characteristics."

Ralph W. Will, "For outstanding performance during the definition and development of the Interactive Software Invocation System."

William K. Goad, "For outstanding technical contributions in the development of an operational holographic flow visualization system and application of optical measurement techniques."

Gerard E. Migneault, "For original and innovative work in the development of emulation techniques."

H. Milton Holt, "For superior performance in integrating the complex experimental avionics system for the TCV aircraft, and in solving problems during international flight demonstrations."

Charles E. Drummond, "For sustained superior performance of duties involved in the wind tunnel testing of full-scale flightworthy general aviation aircraft."

Earle K. Huckins, "For outstanding leadership and sustained superior performance as Manager for the Large Space Structures Technology Program."

Loretta W. Watkins, "For sustained superior performance in this Center's Property Utilization and Disposal Programs.

William D. Beasley, "For sustained superior performance in assigned duties as research project engineer and especially in support of the rehabilitation of the low-turbulence pressure tunnel."

Sue B. Grafton, "For sustained superior performance and personal dedication to high-angle-of-attack studies of advanced military airplane configurations including the HiMAT, F-16, F-18 and SCAMP."

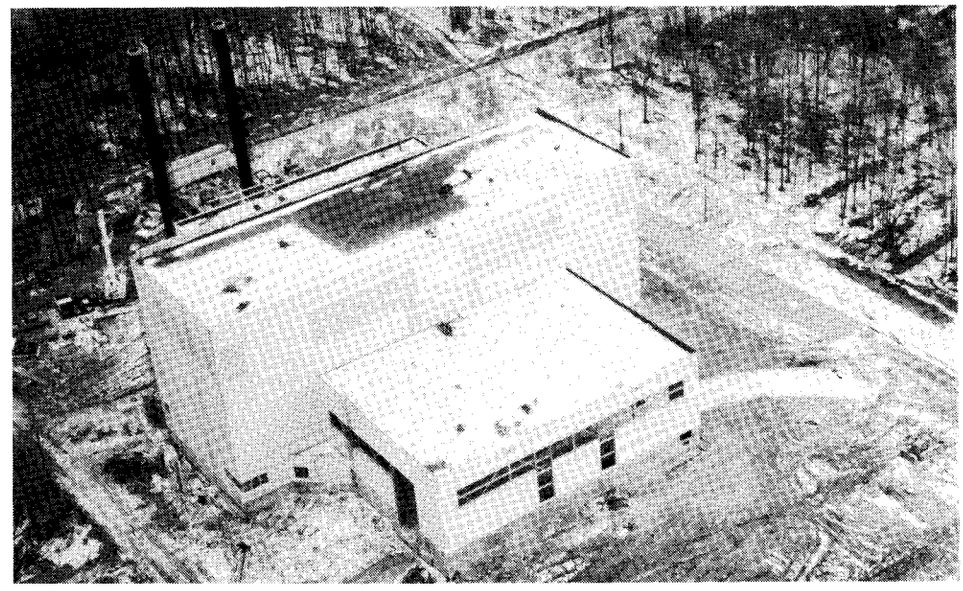
Question and Answer

Q. What is Langley policy on the use of annual leave on the same day or in the same week that a person works overtime?

A. Edward Howe, Chief of Financial Management Division, responded to the question as follows:

"The matter of requesting and approving or authorizing overtime and the granting of annual leave is entirely at the option of the supervisor.

"The AFGE agreement with NASA Langley Research Center, Section 8-8, of Article 8 states 'The opportunity to work overtime shall not be denied to any employee for the reason that annual or sick leave has been granted in accordance with established regulations and conditions outlined in this Agreement.'"



– photo by Alton Moore

With installation of translucent panels nearly completed and windows having been glazed, the Rufuse-Fired Steam Generating Facility is amost weather tight. Electrical and mechanical work is continuing inside the facility and the boilers are 95 percent complete.

Behind the Scenes: *The Technical Library*

A look at those poeple and groups who provide support for Langley's projects and research programs. Photos by Bob Nye.

The Floyd L. Thompson Technical Library, named in memory of Langley's Director from 1960 to 1968, has "a collection of books, journals, reports, indexes and other reference aids that rivals that of any other federal research organization in the nation and any other aerospace collection in the world," said Jane Hess, Head of the Technical Library.

"The most important resource, however, is our staff of experienced personnel who are without rival in their ability to obtain the research, technical and management information required by its patrons," she added. There are 11 professional librarians, a secretary and nine contractor employees, two of whom are professionals, assigned to the Technical Library Branch of the Management Support Division.

Jane S. Hess, Head, Technical Library Branch, and Willie Mae Beckett, Secretary to the Branch, review a distribution list for SCAN.

Established in the early 1920s when the agency was known as the National Advisory Committee for Aeronautics (NACA), the Library circulation consisted of material contained in two file cabinets. After Sputnik I was launched in 1957, NACA became the nucleus of a new agency--the National Aeronautics and Space Administration. With the new space ventures came a need to expand the circulation of vital aerospace material. The Library today has approximately 60,000 books, 265,000 documents and the ability to obtain for its patrons nearly 42 million titles through inventory and commercial data base. Circulation transactions (responses to patrons' requests) totaled 76,400 in FY 1979.

The areas of the Library are cataloging, reference (including selection), circulation and acquisition. Cataloging and reference are done by Langley employees, and circulation and acquisition are under contract to the Klate Holt Company.

One of the duties assigned to Catalogers Doris L. Crumpler (left) and Susan A. Motley is to bibliographically examine documents when they arrive at the Center. The documents are analyzed, indexed and systematized to facilitate their use by clientele.

• Cataloging is the development of a major tool--the card catalog--used by the reference staff and patrons. When new material is received, it is card cataloged with the title, author, source and other pertinent information. "By developing this tool, the catalogers enhance the research and reference efforts of the people that are using the card catalog--be they people outside who are patrons or people inside who are doing the reference for the patrons," Hess said.

• The reference staff and the head of the Library, assisted by 22 consultants at Langley who are specialists in many subjects, select the journals, documents and books ordered by the Library.

Reference Librarians Carolyn E. Floyd, Nadine J. Batkins, Susan K. Miller and Willaree R. Curtis are researching material to provide clientele with the most up-to-date information pertinent to their work.

The reference staff is responsible for providing users with published material, and for making them aware of new areas of interest that might be relative to the needs of this Center. "In order to keep clientele currently aware of on-going research and new developments, we must maintain current awareness for ourselves. We cannot do for someone else what we do not know," she explained.

Sue K. Seward, Dr. Richard W. Peacock and Joseph J. Sholy (from left) are Technical Information Specialists who work in the reference area. In this photograph Seward receives requested information from a literature search performed on the NASA RECON and reviews the abstract with Peacock and Sholy.

To keep abreast of continuing research, librarians and patrons have access to literature which includes current journal articles, conference papers, books, aerospace reports and abstracting and indexing serials relevant to the Center's interests. Much of this literature is included in International Aerospace Abstracts (IAA), Selected Current Aerospace Notices (SCAN) and Scientific and Technical Aerospace Reports (STAR) announcement services. This literature can be viewed, searched and obtained through NASA's

computerized Remote Console (RECON) system in the Library.

Hess thinks the major way the scientific community communicates within itself is through open literature, primarily conferences and journals. "We have professionals scanning journals, newly acquired books, new reference literature and other new documents to provide the researchers with the information pertinent to their work and their effort," she said.

Patricia L. Hosey is the Serials Librarian in charge of the journals on file in the Library. She places orders for journals and follows up on missing issues from yearly subscriptions.

• The circulation and acquisition section is greatly enhanced by the CLSI-LIBS 100 computer. "The Computer Library Systems, Inc., technique is in a developmental process and we are a part of that process," said Vicki Sweet, section head. "We agreed to go along with them in the development of this system. As they develop new areas, we try them."

"Everything we do revolves around the computer and how we can use it to our best advantage," Sweet added. Since the computer was first installed, its services have been expanded to meet the increasing needs of the Library's patrons and professional staff.

Vicki Sweet (left), Head of Circulation and Acquisition, and Dorothy Bunyon, Library Aide, order a conference paper for a Langley researcher.

In the circulation area, the computer is used for many transactions, such as checking books in and out, telling when a book is checked out and who has it and processing recall notices which are generated automatically when a hold is placed on a title. "This is a systematic way of calling books back from patrons. The Library gets approximately 75 percent response on recalls using the computer," Sweet explained. "The system also functions where it can cancel a hold on a title at a certain time."

Wanda Miante (left), Library Aide, and Anne Barka, Supervisor of Acquisition, check purchase requests against invoices for new books ordered by the Library. Kathy DeLauder, not pictured, is the Work Leader.

The acquisition staff is responsible for ordering all purchasable material, including books, documents, conferences and visual aids. The staff uses the CLSI computer to follow-up orders and to follow books through the internal process in the Library. "We can pinpoint the location of a book within any area in the Library," Sweet explained. "We can tell whether or not the book has been received, if it is with a cataloger or on a cart to be placed on the shelf."

The Technical Library exists to serve everyone--employees, contractors, visitors and the general public. Patrons' needs are being met through the many available tools in the Library and through the efforts of the professional staff. "Whether your information about the material you want is vague or incomplete--if it exists, we will find it," Hess concluded.

Visitor Center Closes

The Langley Visitor Center and Tech House will be closed tomorrow and Sunday for electrical repairs. Both will reopen on Monday, February 25. The Visitor Center is generally open Monday through Saturday from 8:30 a.m. to 4:30 p.m. and on Sundays from 12 to 4:30 p.m.

Anderson Invited to Panama

Dr. Alvin F. Anderson, Head of Langley's Office of Research Grants and University Affairs, was the keynote speaker at the National Black History Month celebration at Howard Air Force Base in Panama. Anderson discussed "A Prospective of the Black Presence in America." He also conducted two seminars for officers and enlisted personnel while in Panama February 14–19.

According to Benjamin Smith of the Office of External Affairs, Anderson's invitation was part of the Center's minority community outreach efforts. Anderson has conducted a variety of seminars at universities and community organizations during the past few years.

Commenting on his invitation, Anderson said, "I believe this was a significantly high honor for me to be invited to share this experience with the American airmen and their families overseas. I am proud to be a government employee in these days of mistrust in government."

Library Aides Linda Ackridge, Grace Joyner and Kathy Robertson place a hold on a book to be checked out by a patron at a later date. These employees are assigned to the circulation area along with Jakki Tibbetts, Libary Aide, not pictured.

– photo by Hubert Lloyd

Robert J. Hayduk, Eleanor C. Wynne and Olaf O. Storaasli, Structures and Dynamics Division (SDD), recently received Special Achievement Awards from Roger A. Anderson (second from right), Chief of SDD. Hayduk's award was presented "For superior performance in research on behavior of light aircraft in simulated and actual crashes." Wynne's citation read, "For superior performance in developing computer applications software and analyzing data for a variety of dynamic studies in the TDT, thus contributing significantly to efficient Aeroelasticity Branch operations." Storaasli received his award "For sustained superior performance in developing a Paris Air Show computer-aided design exhibit, implementing a new computerized design/drafting capability at Langley, and demonstrating benefits of minicomputers for structural calculations."

Langley Runners' Club Plans Race

The Langley Runners' Club will sponsor a 10-mile, staggered-start run Saturday, February 23, at 10:45 a.m. The run will begin in front of the Activities Center and will require two trips around the 5-mile course encompassing the NASA West Area.

There will be a series of staggered starts between 10:45 and 11:35 to provide handicaps. Participants who have previously entered a Runners' Club event of 2 miles or more will start in the group appropriate to their most recent performance (faster runners start later). All other participants may start with the group appropriate to their pace. A list of runners who have competed in previous Runners' Club events will be available at the starting line.

The event is open to all NASA and contractor employees and their families. Participants may run a single five-mile lap and have their times recorded. Pre-registration is not necessary. For further information, call John Hoppe, extension 2466.

Win a Cruise for Two at Travel Show

Register to win a "Cruise for Two" to Bermuda or the Caribbean at the Langley Activities Association Travel Show Tuesday, March 4.

The show, scheduled for 7:30 p.m. in the Activities Center, will feature movies and information on Scandinavia, Hawaii, Rome/Munich, Las Vegas and cruises from Norfolk. Provisions will be made in the lounges for individuals to show slides or pictures of recent trips.

Door prizes will be given during the show and light refreshments will be served. Sandwiches and a cash bar will also be available at minimal prices.

For additional information, call the Activities Office, extension 3139, or Ernie Greene, extension 2312 or 838-0567.

Retirement Parties

Ernestine F. Martin of the Financial Management Division will be honored with a retirement buffet luncheon Tuesday, March 4, at 11:30 a.m. at the Activities Center. The cost will be $5 per person, plus $1 for a gift. Contributions for gift only will be accepted. Please make checks payable to Mildred F. Hartman, Mail Stop 175, by Wednesday, February 27.

Samuel Ailor and **Abraham Leiss**, Scout Project Office will be honored with a reitrement dinner in the Virginia Room, Hotel Chamberlin, on Thursday, March 6. A cash bar social will begin at 6 p.m. and dinner at 6:30. A choice of either roast tom turkey with dressing, giblet gravy and cranberry sauce, or broiled flounder with white wine and mushroom sauce is available. Cost is $10 per person or $18 per couple, which includes a $1 gift contribution to each retiree. Contributions to gifts only are welcome. For reservations, send check or cash and dinner choice to Grace Girton, Mail Stop 158A, by February 29.

Beryl R. Abicht, Operations Support Division, will be honored with a retirement luncheon March 5 at 11:30 a.m. in the Activities Center. The cost will be $6 per person, which includes $1 for gift. Contributions to gifts only are welcome. For reservations, send check to Donald Coffey, Mail Stop 188D, by March 3.

Victor L. Vaughan, Jr., Structures and Dynamics Division, will be honored with a retirement buffet dinner Tuesday, February 26, at 4:30 p.m. at the Impact Dynamics Research Facility, Building 1297. The cost, including gift, will be $4 per person or $8 per couple. Contributions of $1 for gift only are welcome. Send check or cash to Robert Thomson, Mail Stop 495, by February 22.

A. Warner Robins, High-Speed Aerodynamics Division, will be honored with a retirement dinner Wednesday, March 5, in the Chesapeake Room, Fort Monroe Officers' Club. A cash bar social will begin at 6:30 p.m. and dinner (beef and burgundy) at 7:30 p.m. The cost will be $7.50 per person plus contributions for the gift. Contributions for the gift only are welcome. For reservations, send cash or checks to Nellie Dick, Mail Stop 406, by Friday, February 29.

Continued on page 7.

Thanks

Garland E. Wilson writes, "I wish to express my appreciation to those who participated in the retirement luncheon given in my honor. My family and I thoroughly enjoyed the luncheon and the friendly reception extended to each of us by everyone. The gifts and mementos are greatly appreciated and will serve as reminders of the many friends and associates who helped to make my years at NACA-NASA so memorable and enjoyable. Your consideration, understanding and cooperation helped to provide me with an exceptional working relationship for which I am thankful. I will always cherish those fond memories."

James W. Burden and family wish to express their appreciation for a wonderful retirement dinner. "The gifts, album and plaque will serve as reminders of our many friends," Burden said.

Donald E. Hewes writes, "I'd like to thank the many friends and associates who provided a very memorable evening for me at my retirement party. The many kind words were truly heartwarming and the gifts were greatly appreciated."

Harold Snyder writes, "I want to thank everyone for the retirement party February 8. Although I could not express my feelings like I wanted, I want everyone to know that Helen and I did appreciate everything. I'm sure there couldn't be a greater group of people anywhere; all of them I will long remember. NASA has been a great place to work and it gives me a feeling of pride to have worked there."

Joseph D. Brooks and **Thomas C. Kelly** would like to express their thanks to all those associated with their recent retirement party. "Great friends, great gifts and great food made it an evening to long remember. Thanks again."

Seth Walters writes, "My sincere thanks to all of my friends for the wonderful retirement party. I will enjoy for a long time the nice gifts and mementos given to me. I have enjoyed the work at Langley and will miss all of the good friends that I have made over the years."

Retirement Parties

Continued from page 6.

The retirement party for **John R. Leaman, Jr.**, and **Richard A. Pincus**, postponed because of snow, has been rescheduled for Wednesday, March 19. The party will be held in the Casemate Room of the Fort Monroe Officers' Club. Social begins at 6:30 p.m. with a beef and burgundy buffet dinner at 7 p.m. Reservations may still be made by contacting Richard Rountree, extension 4637, by March 12. Cost is $7.50 per dinner plus a gift contribution for either or both.

Edward L. Hoffman, Materials Division, will be honored with a retirement party Wednesday, March 19. in the Activities Center. A cash bar social will begin at 6:30 p.m. with dinner being served at 7 p.m. The cost including gift will be $7.50 per person or $13.50 per couple. Contributions of $1.50 for gift only are welcome. Send check or cash to Jo Ann Woodcock, Mail Stop 188A, by March 12.

M. John Pilny, Systems Safety, Quality and Reliability Office, will be honored with a retirement luncheon February 29 at 12 noon at the Langley Officers' Club. Attenders will use the regular luncheon serving lines at the Club. For reservations contact Abner M. Askew, extension 2964, by February 25.

Herbert F. Hardrath of the Materials Division will be honored with a retirement party Friday, March 14, at 7 p.m. at the Langley Officers' Club. Cost for the fingertip buffet will be $8 (gift contribution included). Contributions to the gift only of $1.50 are welcome. Please make checks payable to L. A. Teichman, Mail Stop 188M, by Friday, Februaty 29.

Harold W. Ayres, Fabrication Division, will be honored with a retirement dinner Saturday, March 15, in the Activities Center. A cash bar social will begin at 6:30 p.m., followed by a steamship round dinner to be served at 7:30 p.m. The cost, including gift, will be $7 per person or $13 per couple. Contributions for gift only are welcome. For reservations send checks to Clarence M. Cole, Mail Stop 237 by March 7.

– photos by Bob Nye

Cash awards and certificates have been presented to these Langley employees for their Tech Briefs. In the left photograph, Edwin C. Kilgore (center), Director for Management Operations, presented checks and certificates to: (from left) Lamont R. Poole, W. Douglas Morris, Daniel I. Sebacher and Gerald C. Purgold. In the right photograph, Dr. John E. Duberg (seated second from left), Associate Director, presented awards to: (seated from left) Benjamin F. Butler III, Roland W. Lee, Kenneth L. Quinn and (standing) Leland E. Wilkinson. Paul G. Sandefur, Jr., not pictured, also received an award. "NASA Tech Briefs," a current awareness medium issued to encourage commercial application of new technology derived from the space program, is published quarterly and is free to U.S. citizens and organizations.

National Aeronautics and
Space Administration

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Hampton, Virginia
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FOR SALE

Articles

Movie Camera, Super 8 (silent), Focal XL303 with F1.1 Lens, 2X PWR/Man ZM. Macro. Bkit. cntrl., fade out. Over/under exp. indicator, inst. man., VG, $100 or best reasonable offer. Call Sinelnick, 596-1851.

Vehicles

1976 El Camino with camper shell, 350 engine with A/T and cruise control, PS/PB/PW, tilt steering wheel, bucket seats, light package, AM/FM radio, light brown and tan, GC, $3,000. Call 599-5070 after 6 p.m.

1973 Pontiac Bonneville, 4 door, A/T, A/C, PS/PB/CC, AM/FM radio, VGC, No. 4 inspection sticker, $850.00. Call 838-2801.

FOR RENT

New ocean front 6 BR cottage at MP 19 in South Nags Head. Large LR, DR, and kitchen combination on upper floor to take advantage of spectacular ocean view, 3 full baths, 2 enclosed outside showers, carpeted, electric heat, dishwasher. Beds: 3 Queens, 2 full, 1 twin, 2 sets bunks. Upper and lower open decks on ocean front. Screened porch on road side. No pets. For information call 868-7251.

Sandbridge: New cottage, liv-kit-din area, 4 BR, washer, dryer, dishwasher, fireplace, 1/2 block from beach and Backbay (freshwater), AC, 6-car parking, summer rates $400/wk. G.O. Kent, extension 3095, or 420-8391.

WANTED

Person interested in joining car pool from Norfolk to West area on 7:30 a.m. shift. Call Edward Hudgins, extension 3072.

Good home for small mixed breed pet dog, needs lots of loving. Call Ramey 244-4233.

Wooden storm window, 36" by 39". Call 596-0758.

Boy Scout pants, size 14 slim. Call Brooks, extension 2977.

LOST

Will the person who borrowed the original of NASA TP 1106 titled "Oracls—A System for Lineat—Quadratic—Gaussian Law Design," please return it to Ernest Armstrong, Mail Stop 152A.

cafeteria menu

WEEK OF FEBRUARY 25

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

TUESDAY: Manhattan Clam Chowder; Roast Beef; Fried Filet of Fish; Pork Chops. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Meatloaf; Beef Pot Pie. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Vegetable Soup; Braised Chicken Livers; Crab Cutlets; Ham & Cheese Omelette. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Old Fashioned Bean Soup; Fish Dinner; Beef Balls Stroganoff; Chicken & Dumplings. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF MARCH 3

MONDAY: Tomato & Rice Soup; Hot Roast Pork Sandwich; Chicken Pot Pie; Stuffed Bell Peppers. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island Clam Chowder; Baked Lasagna; Fried Filet of Fish; Baked Tuna & Noodle Casserole. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Quiche Lorraine; Beef Enchiladas. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki 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; Barbecued Pork Loin; Pineapple Chicken. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Happenings

HAPPY HOUR will be held February 29 in the Activities Center from 4 to 6:30 p.m.

GOLF ASSOCIATION. The 1980 membership drive for the NASA Golf Association is now open to all NASA employees and retirees. The annual organization meeting will be held at the Activities Center, Friday, February 22, at 7 p.m. Refreshments will be served. For additional information, call Robert Turner, extension 3095, or Alan Frizzell, extension 2086.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, February 27, at 4 p.m. in the Activities Center, Building 1222.

CONCERT. The Peninsula Youth Orchestra will present "The Toy Symphony" Sunday, February 24, at 2 p.m. in the Warwick High School auditorium. The orchestra will be directed by Roland Carter. Tickets are $1.50 and may be purchased at the door. The concert, expecially for children, is sponsored by the Newport News Branch of the American Association of University Women for the benefit of the Educational Foundation Programs.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

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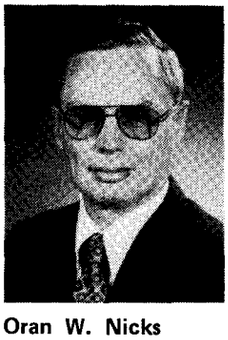
Seventy-two Employees Leave in February

Seventy-two employees left Langley during February, including four directors and four division chiefs.

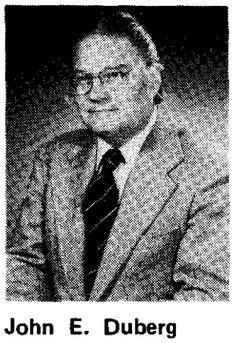
Oran W. Nicks, Deputy Director, resigned to become Executive Director of the Research Foundation at Texas A&M University. Retiring directors are Dr. John E. Duberg, Associate Director; Richard R. Heldenfels, Director for Structures; and James E. Stitt, Director for Electronics.

Retiring division chiefs include Baster C. Carr, Jr., Chief, Plant Engineering Division; William A. Brooks, Jr. Chief, Materials Division; Roger A. Anderson, Chief, Structures and Dynamics Division; and Edmund A. Brummer, Manager, Avionics Planning Office.

Directors



Oran W. Nicks



John E. Duberg

Nicks, who began his NASA career in 1960, will become Executive Director of the Research Foundation at Texas A&M University. Duberg, Heldenfels and Stitt began their government careers in the 1940s with NASA's predecessor agency, the National Advisory Committee for Aeronautics.

Langley Deputy Director since 1970, Nicks has served as General Manager of the Center, responsible for directing various research and technology activities and for institutional management of all facilities and equipment.

Before coming to Langley, Nicks worked at NASA Headquarters from 1960, where he was responsible for such unmanned space flight programs as Ranger, Surveyer, Lunar Orbiter, Mariner and Pioneer, plus other space sciences, space applications and advanced research and technology programs.

Nicks earned a bachelor of science degree in mechanical engineering from the University of Oklahoma in 1948, and he also studied aeronautical engineering at the University of Texas and the University of Southern California. He attended the Federal Executive Institute in 1977.

He served in the U.S. Army Air Corps during World War II and was a Reserve Officer from 1950 to 1953. Before joining NASA, he worked for 12 years with North American Aviation and Chance Vought Aircraft.

Dr. Duberg, Associate Director since July 1968, has been closely connected with Langley's relationships with the nation's academic community, and was instrumental in the development of NASA's Space Radiation Effects Laboratory in Newport News. He is the Director of the Joint Institute for the Advancement of Flight Sciences, a cooperative program between Langley and George Washington University's School of Engineering and Applied Science. Founded in 1971, the institute is dedicated to increasing the nation's research and engineering capabilities in relevant technical fields.

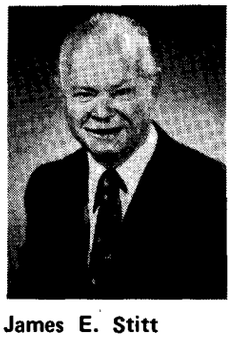
Duberg graduated with highest honors from Manhattan College in 1938 with a bachelor of science degree in civil engineering. He received a fellowship from Virginia Polytechnic Institute and State University in 1939 and held a graduate research assistantship at the University of Illinois from 1940 to 1943.

Duberg joined the Langley staff in 1943 and returned to the University of Illinois in 1946, where he earned a doctor of philosophy degree in engineering in 1948. He returned to Langley that year as Chief of the Structures Research Division.

From 1956 to 1957 he was Director of Aeromechanics at Aeronutronics Systems Inc., Glendale, Calif.; from 1957 to 1959 he was a professor at the University of Illinois.

Duberg returned to the Langley staff in 1959 and was appointed an Assistant Director in May 1964, with responsibility for the research activities of the Dynamic Loads Division and the Structures Research Division.

Richard Heldenfels



James E. Stitt

Heldenfels, Director for Structures since March 1975, manages research and development activities in acoustics, noise reduction, materials, structures, loads, dynamics, aeroelasticity and special programs in computer-aided design and composite structures for aircraft and space vehicles.

Heldenfels received a bachelor of science degree in aeronautical engineering from the Massachusetts Institute of Technology in 1942 and served in the U.S. Army Air Force during World War II.

Heldenfels began his Langley career in November 1947. He was one of the first investigators of aircraft structural problems produced by aerodynamic heating and has been particularly active in the development of structures test

Continued on page 2.

Employees Leave

Continued from page 1.

facilities that simulate or duplicate the environment of high-speed flight.

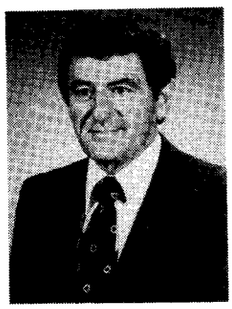
He was appointed Chief of the Structures Research Division in 1956 and became Assistant Director for Structures in 1970.

Stitt, Director for Electronics since March 1975, manages all electronics research and development activities at the Center, including operation of computer systems, electronics support to other organizations and management of the Terminal Configured Vehicle Program to improve aircraft operations in terminal areas.

Stitt served in the U.S. Army Signal Corps during World War II. He began his Langley career in June 1947 after receiving a bachelor of science degree in electrical engineering from the Georgia Institute of Technology.

He was selected as Assistant Chief of the Instrument Research Division in 1963. From 1965 to 1970 he was Assistant Chief of the Flight Instrumentation Division (now the Flight Electronics Division), and he was named Chief of that organization in 1970.

Division Chiefs



Baxter C. Carr, Jr.

William A. Brooks

Carr was named Chief of the Plant Engineering Division in July 1972. He began his career at Langley in 1962, transferring from the Naval Weapons Station in Yorktown, where he had worked since 1947.

From 1970 to 1972, Carr was Head of the Facilities and Plant Planning Office and from 1962 to 1970 he was Project Control Officer in the Flight Vehicles and Systems Division.

Carr earned a bachelor of science degree in electrical engineering from Virginia Polytechnic Institute and State University in 1943. He attended Bowdoin College and the Massachusetts Institute of Technology. He served in the U.S. Navy during World War II and then as an electronic design engineer with Eastman Kodak Company.

Brooks was named Chief of the Materials Division in October 1970. He joined the Langley staff in 1950 as an aeronautical research scientist to conduct research on stability of structures, heat transfer and structural problems caused by aerodynamic heating. His later research involved thermal protection for entry vehicles.

From 1956 to 1961 he was Head of the Structural Configuration Section and from 1961 to 1970 was Head of the Entry Structures Branch.

Brooks served in the U.S. Army from 1940 to 1945. He earned his bachelor of science and master of science degrees in aeronautical engineering from the University of Illinois.

Roger A. Anderson

Edmund Brummer

Anderson, appointed Chief of the Structures and Dynamics Division in October 1970, directs in-house and contractual research programs in aeroelasticity, structural dynamics, solid mechanics, aerothermoelasticity and computer science.

He joined the Langley staff in 1944 after receiving a bachelor of science degree in civil engineering from Northwestern University. From 1948 to 1949 he studied and worked at the Aeronautical Research Institute of Sweden.

Anderson returned to Langley in 1949 and was appointed Head of the Strength Section in 1952. He was named Head of the Airframe Configuration Branch in 1955 and Assistant Chief of the Structures Research Division in 1961. In these positions he contributed to the preliminary design and technology development phases of several NASA programs, including the X-15 research airplane, the Mercury, Apollo and Viking spacecraft and the Space Shuttle.

Brummer was named Manager of the Avionics Planning Office in January 1978 to support the planning and development of the NASA Avionics, Controls and Human Factors Program for the 1980s.

Brummer began his Langley career in 1949. He was appointed Head of the Telemeter Techniques Research Section in 1962 and Communications and Tracking System Manager for the Lunar Orbiter Project in 1963. In 1968 he was named Supervisory Engineer in the Advanced Space Projects Office. He served as Lander Components and Subsystem Manager for the Viking Project from 1970 to 1975. He was appointed Chief of the Project Technical Operations Division in 1975.

He attended Bucknell University from 1944 to 1945. After serving in the U.S. Army for two years, he attended Louisiana State University, where he earned his bachelor of science degree in electrical engineering in 1949.

Other Retirees

The following is a list of retirees from each Directorate:

OFFICE OF DIRECTOR: Lula R. Agee.

PROJECTS: Donald E. Forney; Abraham Leiss.

ELECTRONICS: Lillian R. Boney; Alfred K. Curtis; Charles I. Hahn; David L. Morris; James M. Harris; Carlo A. Noce; Matthew Carli, Jr.; James C. Nelms; Barbara L. Weigel; Ellwood L. Peele.

STRUCTURES: Edward L. Hoffman; Kenneth Margolis; Victor L. Vaughan, Jr.; Andrew C. Dibble, Jr.; Robert W. Fralich; Herbert F. Hardrath; Harvey H. Hubbard; Charles B. King; James P. Peterson; Alberta R. Saunders; Ferdinand W. Schmidt; John L. Sewall.

AERONAUTICS: Huel C. McLemore; Lysle P. Parlett; William J. Alford, Jr.; Albert L. Braslow; Emanuel Boxer; Jim A. Penland; E. Bernard Klunker; Paul W. Huber; D. William Conner; William B. Kemp, Jr.; Dr. Richard T. Whitcomb.

SPACE: John A. Moore.

SYSTEMS ENGINEERING: Beryl R. Abicht; George S. Black; James W. Burden; Thomas Harper; George G.

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.

Kerner, Jr.; George R. Oden; Earle S. Trimble, Jr.; Frederick C. Balmer; William N. Branch; Robert L. Girouard; M. John Pilny; Benjamin M. Tingelhoff; Carter W. Turnbull; Robert S. Freeman; A. Edgar Barker; Alfred J. Schultz, Jr.; Robert E. Johnson; James W. Mayo; Austin D. McHatton; George R. Poole.

MANAGEMENT OPERATIONS: Betty H. Downing; Julia K. Stainback; Ernestine F. Martin; Grace B. Shackelford; Marion T. Harvey; Cora B. LaPrade; Robert L. McArthur.

Question and Answer

Q. Why isn't Management better prepared to sand or salt the parking lots during and following heavy snowfalls? Even though the roads were relatively clear, the parking lots remained very icy. The Safety Office is taking a big chance on employees getting seriously injured trying to get from the parking lots to the work sites.

A. Walter C. Hoggard, Systems Safety, Quality and Reliability Office, responded to the question as follows:

"The primary consideration regarding snow removal and ice control is to maintain the safe and efficient operational status of the Center. Accordingly, streets, sidewalks and parking areas are cleared as quickly as possible during or after a storm. Preplanning has been accomplished to establish the necessary priorities to accommodate these considerations on an emergency basis; however, the heavy storms of recent weeks have taxed our personnel and equipment.

"Clearing main thoroughfares, Ames and Walcott roads, followed by assuring access to such locations as the heating plant, fire station and motor pool, are our first consideration. Then the remaining streets, sidewalks, building entrances and parking lots are addressed.

"As we know, the Peninsula normally does not experience the extent of snow that 1980 has presented. The personnel involved in this activity have worked diligently around the clock during extremely difficult weather to keep our facilities open and as safe as possible. Employee protection is and will remain the primary focal point for safety emphasis at Langley, but it is very difficult to eliminate all hazards caused by melting and refreezing over a several day period."

Student Symposium to be Held

A student symposium titled "Minority Students in Technology" will be held March 7–8 in Hampton to give minority students in technical fields an opportunity to share experiences and to acquire first-hand exposure to work situations.

The two-day symposium is sponsored by the National Technical Association Inc., Hampton Roads Chapter, NASA's Langley Research Center and Hampton Institute.

The March 7 program will be held in the Langley Activities Center, beginning with a keynote address by Dr. Wesley Harris, Associate Professor of Aeronautics and Astronautics at Massachusetts Institute of Technology.

The March 8 activities, centered around a Job Opportunity Fair, will be held at Hampton Institute.

About 240 undergraduate and graduate students in technical fields such as engineering, architecture, natural and computer sciences and mathematics are expected to attend the symposium. Area high school students interested in technical careers have also been invited.

The first day's activities will include four sessions during which student technical papers and projects will be presented. A workshop will follow the sessions, and tours of the Langley Research Center will be available.

The second day will feature a student panel on technical career opportunities, the Job Opportunity Fair and a lunch at which awards will be made for the best technical papers presented at the symposium.

The National Technical Association, founded in 1926, is concerned with the participation of minority youth in meeting the challenge of modern technology.

For more information on the symposium, call Gilbert Haynes, coordinator, at the Langley Research Center, 827-3541.

Employees Receive Awards

A Special Achievement Award has been presented to **James L. Raper**, "For outstanding leadership in the development and implementation of the Earth Radiation Budget program."

Suggestion Awards have been presented to: **John R. Nayadley, Jr.**, "fatigue Test--600 PSI test vessel;" **David W. Pierpoint** "improved method of tightening bolts on 16-Foot Tunnel prop blades;" **Peter Vasquez**, "modification of 30" diameter centrifugal furnace;" **Patricia J. W. Block**, "shuttle map on back of Langley's phone book;" **Thomas E. Deans** and **Howard E. Price**, "more efficient control of dewpoint in the 8-Foot T.P.T., Building 640."

Energy Suggestion Awards have been presented to: **Joseph G. Hudson**, "Steam System Modification;" **Max B. Bryan**, "Reduced use of high pressure air;" **Willie Lucento**, "Remove sign illuminating lamps from all drink machines."

An Honorary Suggestion Award was presented to **Mildred F. Hartman** for her suggestion relative to "a job order."

Special Service Awards were presented to the following: **Edith C. Moen**, "For special service in recognition of performance in carrying out duties that go beyond normal branch level secretarial support;" **Grace P. Gardner, Duane M. Sparks, Louise C. Wright** and **Priscilla B. Carter**, "For special service in the participation of a project to verify the service computation dates of all employees at Langley."

Aerospace Penpoints
by Wesley Berryman

My scientific work is motivated by an irresistible longing to understand the secrets of nature and by no other feelings.

ALBERT EINSTEIN

Astronaut Portraits Displayed at Visitor Center

Portraits of astronauts Alan Shepard, John Glenn, Neil Armstrong--plus rocketry pioneer Dr. Robert Goddard--will be among those displayed in a special art exhibition at the Langley Visitor Center through April 27.

The 52 pencil portraits, all done by artist William J. Numeroff, are from the Goddard Memorial Collection, which honors Goddard. Goddard launched the first liquid fueled rocket in March 1926.

The idea for the collection came from the 1958 Atoms for Peace postage stamp, which inspired Numeroff to begin a series of portraits of people who significantly contributed to the atomic age. Beginning with a list of 32 individuals, the project expanded to include contributors to the International Geophysical Year and the U.S. space program. The collection now includes 174 portraits, 160 of which are autographed.

Numeroff was an editorial artist for the New York World-Telegram and Sun for 35 years, and he studied with artists William Starkweather, William Levy and Stanislav Rembski.

Portraits from the collection have been exhibited in the American Museum of Natural History and at many museums, libraries, planetaria and national philatelic exhibits.

The exhibition will especially appeal to philatelists because many of the portraits bear special postmarks and commemorative stamps. Numeroff is a writer on philately and has designed many envelopes commemorating the space age.

Several of the portraits from the Goddard Collection have been reproduced in the book, "America's Journey Into Space: The Astronauts of the United States." In the book's foreword, former astronaut Gordon Cooper called the book "a journey back to what were . . . for me, the most memorable years of my life . . . Numeroff's artistry . . . vividly captures the glow of those years."

Autographed copies of the book are for sale in the Visitor Center.

– photo by Hubert Lloyd

Richard Truly (left) and William Numeroff admire a portrait of the former done by the latter. Truly, one of four astronauts scheduled for early Space Shuttle missions, was at Langley last week for the opening of an exhibit of Numeroff's Goddard Memorial Collection, which will be on display at the Visitor Center through April 27.

Astronaut Optimistic About Shuttle Operations

Richard Truly, one of the first four astronauts scheduled to fly on early Space Shuttle missions, thinks NASA is getting a "bum rap" for its problems with the Orbiter Columbia.

Not only are the delays and postponements understandable, he said, but the airworthiness of the Shuttle itself has been taking what he considers to be an unfair drubbing by the nation's news media.

"A 190,000-pound vehicle entering from space, designed to fly 100 times, is one tough engineering problem," he said. But Truly thinks those problems will be solved soon enough, "and when we get to that day, we'll go out and fly."

Truly, backup pilot for the first orbital flight test of the Shuttle, said it is important to remember that there are no celestial deadlines for mission planners to meet. Unlike the Viking and Apollo missions, for example, the Shuttle does not have to be launched during a precise orbital window.

The Navy Commander, a NASA astronaut since 1969, flew in the second and fourth Enterprise free-flight approach and landing tests in the fall of 1977. He was at Langley for the opening of the William J. Numeroff art exhibit at the Visitor Center.

Truly said he does not subscribe to the familiar opinion that the Shuttle flys "like a rock with wings."

"I've flown the Orbiter, and it's a fine flying machine. The glide ratio is plenty safe, and there are disadvantages to changing it. It is very, very responsive. You could scare yourself with its performance."

He said regular Shuttle operations will balloon in the next few years, accomplishing what he considers a milestone in the space program: "getting the spectacular out and the routine in.

"Once we start," he said, "we'll never stop again. We'll be doing things 15 years from now that we haven't even thought of yet. The Shuttle itself will probably evolve in design and uses. Langley, of course, leads the way in aeronautical modifications that could be made, but it will never look like an F-104 or a T-38."

He said delays in the Shuttle

Continued on page 5.

Langley Featured on 'NOVA' Tuesday

Langley will get some national exposure Tuesday night, March 11, when an episode of the award-winning science series "NOVA" airs on PBS.

The episode, "The Safety Factor," takes a look at research being conducted to reduce the hazards of airline travel. Major portions of the program were filmed at Langley in October, and will include scenes shot at the Aircraft Crashworthiness facility, the towing tank in the East Area where wake vortex research is conducted, and aboard the Terminal Configured Vehicle.

The program will air locally at 8 p.m. Tuesday on WHRO, Channel 15.

Astronaut

Continued from page 4.

timetable have not had a demoralizing effect on the astronauts. "We just hope that all the people who are working with the Shuttle don't lose faith. It's a shame that everyone in the space program can't go down and just look at it. It's awesome."

Astronauts are training for extra-vehicular activities should there be problems with the payload doors, he said. The first orbital flight, scheduled to last 54 hours, is being planned primarily for safety, plus a thorough checkout of the vehicle.

"During the first four revolutions there will be a series of tests to confirm the health of the vehicle. Six hours into the flight is the last chance for several hours to land at Edwards (Air Force Base in California). On the second day there will be deorbit practice, and on the third day the Shuttle will enter and land at Edwards," Truly said.

He thinks Shuttle launches will be the most spectacular since Apollo. "As soon as the STS is clear of the tower, it will do a three axis maneuver (so that the Orbiter will be underneath the fuel tank and boosters when it slices through the atmosphere) and head northeast, heads down and outbound."

Truly, 47, can claim an unusual distinction among astronauts, indeed, among most government employees: he never filled out an application for his job. In the late 1960's he was about to graduate from the Aerospace Research Pilot's School when he was selected for astronaut training in the Air Force's Manned Orbiting Laboratory (MOL) program. When MOL was cancelled, Truly was ushered into NASA's seventh astronaut group in August 1969 but, because of his standing with MOL, he was not required to fill out an application.

Red Cross Needs Your Help

By the time Hurricane David slogged through Tidewater last fall, the American Red Cross was already several days into one of its largest relief efforts.

Thousands of persons from the keys of Florida to the marshes of Louisiana were given shelter and food, medical attention and clothing through the Red Cross. The situation was so serious that the Red Cross threw everything it had into the effort, leaving the organization with serious financial problems.

President Carter has proclaimed March as Red Cross month, and has urged all government employees to support the organization through donations of time, money and blood.

The President noted that while the Red Cross is part of the Combined Federal Campaign, about half of its 3,000 chapters raise all their funds in March. This month is also a traditional time when the Red Cross makes a concerted effort to inform the public of its needs and services.

The next visit of a Red Cross Bloodmobile to the Center will be March 19. The Bloodmobile will be at the Activities Center from 9:30 a.m. to 3:30 p.m.

Credit Union Holds Annual Meeting

Three board members and two Credit Committee members will be elected at the annual meeting of the Langley Federal Credit Union March 17.

The meeting, to be held at 7 p.m. in Kecoughtan High School, will also feature an audio-visual review of the past year, prizes and refreshments. Prizes to be given away include a color TV and six $100 share certificates.

Members unable to attend the meeting may vote for the officers at any LFCU office from 10 a.m. to 3 p.m. during the week of March 10.

Happenings

HONEY BUNCH. The NASA-Langley Apicultural Club will meet March 17 in Room 180 of Building 1209 at 7 p.m. Spring colony management will be discussed. All interested persons are welcome.

HAPPY HOUR will be held Friday, March 14, from 4 to 6:30 p.m. in the Activities Center.

FEDERAL ALMANACS are on sale for $2.10 at the Activities Office.

SOFTBALL ASSOCIATION organizational meeting will be held at the Activities Center on Thursday, March 13, at 12:30 p.m. A representative of each prospective team should attend.

BOOK SALE. The Hampton Branch of the American Association of University Women will hold the annual Book Sale April 17–19 at the Coliseum Mall Community Room. All proceeds go to the Educational Foundation Programs. Donations of used books will be greatly appreciated. For book pickup, call 826-8103.

LAA ARTS & CRAFTS SHOW will be Saturday, May 17, from 12 to 5 p.m. in the Activities Center. All persons interested in displaying their crafts and handiwork should contact Beverly Anderson, extension 2592, Mail Stop 166A.

GOLF ASSOCIATION. The 1980 membership drive for the NASA Golf Association is now open to all NASA employees and retirees. The annual membership dues are $7. Make checks payable to the NASA Golf Association and send to Alan W. Frizzell, Mail Stop 390, by March 14, to be eligible for the first tournament later this month. Ten tournaments, including two-man and four-man best ball, individual, and alternate shot are planned. Also included this year is a two-day tournament at Nags Head's Seascape Golf Course. Each tournament, scheduled three to four weeks apart, will be played at a different golf course. For additional information, call Robert Turner, extension 3095, or Ronnie Weber, extension 2086.

LAA Travel Show has been rescheduled for March 11 at 7:30 p.m. in the Activities Center.

Personnel Profiles

Mr. Langley Activities Association

by Allan C. Hanrahan

December Thirty-first, Nineteen-seventy-nine was the last day of a year, the last day of a decade, and the last day of a two-year term of office as President of the Langley Activities Association for **HERBERT E. BOULTER**. But do not despair, neither be dismayed for Boulter has agreed to tack another two-year term onto the nine years he has already served in that office.

"I can't get nobody else to run," was his humorous exclamation, accompanied by his infectious grin and ever-ready chuckle that the Phoebus born-and-bred Herb more often than not directs at himself.

Of course, it's probably because he is doing such a good job that everyone thinks he should remain in it. Fifty-seven-year-old Herb, or Herbie as he is variously and affectionately known, interjected some levity when he commented on the subject: "Well, I do have more time to devote to it than a lot of the younger folks who are busy with their children and all. And when you've done it for a while you get to know all the ins and outs and so it isn't as difficult for me as it will be for someone new."

Herb's involvement with the LAA goes back better than twenty years and includes such other offices as Social Chairman and Chairman of the Building and Grounds Committee, itself responsible for many of the improvements made, such as the softball field and picnic shelter, for example.

"I've been involved a lot," Herb admitted, but in that self-deprecating way of his he added, "I haven't done a lot, I don't feel."

In a later conversation Herb admitted his away-from-work interest was primarily the Langley Activities Association, although he did spend twenty years working with youth baseball in the Phoebus Pony League and the Hampton Church League. Herb and his wife, Mary, are themselves Communicants at Immaculate Conception Catholic Church.

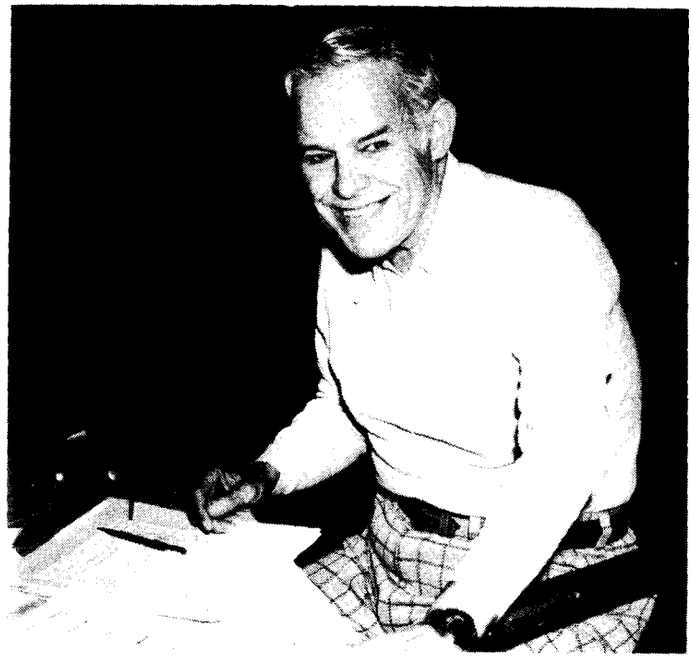
Regardless of Herb's opinion of his LAA service, one thing is for certain: when he declines to serve any longer as LAA President he will be a hard act to follow, as evidenced by the esteem shown him one night last summer when a "Herb Boulter Night" was sponsored by the Activities Association at the Peninsula Memorial Stadium for one of the Peninsula Pilots games.

Being in the packed stands that evening you could sense the genuine affection felt for Herb when the brief ceremony introducing him was conducted.

How did he feel at the time, I asked him.

"It was quite a shock, I tell you, that it was done for me. I was honored, I really was. It's something how good they (Langley people) can be. It was overwhelming, the way the people treated me; I wish more people could experience it--not just because it was done for me," and here Herb paused, searching for the right words.

"I just wish other people could experience it," he continued. "I sat there and saw all those people and I looked over there (gesturing to the right) and there were friends' faces and out there and over there (gesturing straight ahead and then



to the left) the faces of people I knew. It was--it was just something."

Having been at the Center since March of 1947, except for a two-year stint in private industry in the late Fifties, Herb has indeed gotten to know a lot of people.

He first worked in Publications as a Binding and Finishing Worker before entering the Apprentice School and graduating "in Nineteen-fifty or fifty-one--I can't remember that far back," chuckled Herb.

A graduate of old Hampton High School, Herb served in the Navy from Nineteen-forty-two to forty-seven, most of that time as an electrician aboard a destroyer escort in the Pacific.

Presently, Herb is an Engineering Technician in the Instrumentation Coordination Section of the Instrument Research Division but this writer first met him about nineteen years ago when Herb worked in the old Ground Facilities Instrument Installation Unit of IRD. Although he is a bit thinner and his hair is now more white than grey, the personaltiy and temperament remain the same--and the ready grin and chuckle are always nearby.

Herb doesn't get around quite as much now as before though. Diabetes, "the sneaky disease," lived up to its name and sneaked up on Herb, causing him problems in his lower extremities that necessitated the amputation of first one of his lower legs and then the other. Herb talked about that misfortune some but soon, characteristically, was exclaiming how sincerely solicitous, accommodating and helpful his fellow workers have been. In the same vein he also mentioned that his twenty-five-year-old son, Robert, a graduate of St. Mary's

Continued on page 7.

Retirement Parties

William J. Alford, Jr.; Emanuel Boxer; Albert L. Braslow; and **D. William Conner**, Aeronautical Systems Division, will be honored with a retirement party in the Activities Center Saturday, March 29. A cash bar social will begin at 6:30 p.m. and dinner at 7:30 p.m. Cost is $10.25 per person or $16.50 per couple (includes contribution to the gifts). For reservations, send check to Betty Pate, Mail Stop 249A, by March 21. Your participation in the gifts only would also be appreciated.

Lillian R. Boney and **Barbara L. Weigel**, Analysis and Computation Division will be honored with a retirement luncheon Thursday, March 20, in the Activities Center at 11:30 a.m. The cost including contributions to gifts will be $5.50 per person. Contributions of $1 for gift only will be accepted for each retiree. For reservations, send cash or check to Betty Farmer, Mail Stop 125, by March 14.

Edmund A. Brummer, William E. Craig, Frank R. Dreisbach, Robert L. Kenimer, and **Floyd E. Rankin** will be honored with a retirement party Sat., April 19, in the Activities Center. A social hour, with cash bar, will begin at 6:30 p.m. Dinner will be served at 7:30 p.m. The cost of the dinner, including gift, will be $8 per person or $15 per couple. Contributions for gifts only are welcome. Please make checks payable to Gale S. Fairheart, Mail Stop 476, by March 28.

Procurement Urges Proper Paperwork

The Acquisition and Financial Management Division reports several recent cases of well-meaning employees accepting contractor services without a contract or purchase order. Frank Godfrey of that office said employees could be held personally liable for bills received in such cases. Fortunately, he said, Acquisition was able to ratify those actions, but that is not always possible.

"You run the risk of personal liability and subjecting yourself to criminal penalties," Godfrey said. "There's no reason to court disaster when it's possible to get what you need--even in emergencies--simply and quickly. Just call the appropriate phone number in the back of the telephone directory that's listed under Procurement-Supplies."

Thanks

Vernon Saunders and his wife, Bettie, thank all of their friends for the memorable retirement party. "The gifts and mementos are only surpassed by the many years of friendship and association shared with each of you."

Ward Schoonover writes, "To all whose work and presence helped to make my retirement party such a splendid event, I want to say thank you. My memories of NACA-NASA are pleasant ones and this party was the icing on the cake. Our past association makes good material for a better tomorrow."

Julie Stainback and **Betty Downing** wish to express their thanks and gratitude to the many friends and associates who particiated in their retirement luncheon. "The kind words and good wishes were heartening and the gifts were greatly appreciated," Stainback said.

Profile

Continued from page 6.

Seminary in Baltimore, had temporarily interrupted his education to give Herb a hand until he could get himself in shape to try out some artificial limbs, which he has recently begun using. And speaking of Herb's children, his twenty-four-year-old daughter, Marye, recently "presented me with my third grandchild, Andrew," Herb told me proudly. Herb also told me--toward the end of one of our conversations--"I've certainly enjoyed my association with the Langley Activities Association; in fact, I've really enjoyed my association with Langley and its people."

The feeling is mutual, Herbie Boulter.

Al Sabol is grateful to all his friends who honored him with a dinner, a "roast," and gifts at his retirement party.

– photos by Bob Nye

Cash awards and certificates for Tech Briefs were presented to these employees by Dr. John E. Duberg. In the left photograph, seated from left, are Miles L. Lockard; Arthur E. Phelps III; Duberg; Stephen C. Irick; and John C. Wilson. Standing are Dan M. Somers and William R. Hood. In the right photograph, seated from left, are Donald C. Bryan; Duberg; Charles F. Bryan, Jr.; and Jack G. Barbour. Standing are Lysle P. Parlett; Frank R. Niessen; and John F. Garren, Jr. National distribution is made of the quarterly "NASA Tech Briefs" journal, which is published through the NASA Technology Utilization Program.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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FOR SALE

Articles

Sterling silver flatware, odd patterns, $20 each or 35 pieces for $600; oak sideboard with beveled-edge mirror, $260; solid brass scales, $65. Call Sabo, 723-2166.

Maple bunching coffee table, $35; maple end table, $40; tilt-top table w/hand painted flowers, $50; brass fire lighting kettle, $30; fireplace fan, $3; pair of table lamps w/antique brass finish, $40. Call 220-0093.

Vehicles

1968 Chevrolet, 1/2 ton pickup, 8' bed w/'74 350 eng, 8 cyl. s/t new clutch plate, point and battery, AM/FM 8-track, like new, radial tires, $1,200 neg. Call 723-0210 after 4 p.m.

1965 Olds Cutlass F-85, 72,000 miles, PS/PB/AT/AC, VGC, recent brake job (2 years/8,000 miles ago), $350 or best offer. Call 868-8817.

Antique classic, 1950 Pontiac Silver Streak, EC, one owner, 79,000 miles, $1,995. Call 642-6016.

FOR RENT

Sandbridge: new cottage with liv./kit./din. area, 4 BR, washer, dryer, dishwasher, fireplace, 1/2 block from beach and Back Bay, AC, phone, 6-car parking; summer rates $400/wk. Call Kent, extension 3095 or 420-8391.

Beach cottage on white sand dune beach, sleeps 11, completely furnished; shallow beach is excellent for children; clams and sailboat included; relaxing isolated area. Call Martin 693-4241.

WANTED

Persons interested in forming car pool from Seaford area to West area, 9 a.m. to 5 p.m. shift. Call Katie Haas, extension 3020.

Persons interested in joining car pool from Norfolk to West area on 7:30 a.m. shift. Call Hudgins, extension 3072.

To join car pool from Marlbank in York County to West area on 8 a.m. shift. Call Ray Mineck, extension 2701.

Car pool, riders or ride from Pines of York Apts. to Building 1192, 8 a.m. shift. Call Brenda, extension 3848.

Umpires needed for NASA Slow Pitch Softball League. Games are played Monday through Thursday at 5:15 p.m. Call Jim Taylor, extension 2001, if interested.

LOST

Would the person who borrowed the Amprobe Mod. RS-100 clamp-on Ammeter from Building 1267, please return it to W. Smith, Building 1267.

Man's all wool black, maroon and white plaid scarf, lost from coat rack in cafeteria on February 27. Call Vinton Land, extension 4631.

cafeteria menu

WEEK OF MARCH 10

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Shrimp in a Basket; Chicken Chow Mein. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Beef Pot Pie; Fried Filet of Fish; Beef Balls Stroganoff. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Swiss Steak; Ham & Cheese Omelette. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Vegetable Soup; Braised Chicken Livers; Meatloaf; Pork Chops. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Tomato Rice Soup; Fish Dinner; Beef Enchiladas; Chicken & Spanish Rice. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

WEEK OF MARCH 17

MONDAY: Ham & Lima Bean Soup; *St. Patrick's Day Special*: Corned Steamship Round of Beef; Savory Baked Chicken; Breaded Veal Steak. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: Vegetable Beef Soup; Roast Turkey Dinner; Stuffed Fresh Bell Peppers; 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. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Tomato Rice Soup; Fish Dinner; Beef Enchiladas; Chicken & Spanish Rice. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Stress Film Scheduled

The film "Managing Stress" will be shown March 14 as part of the "Brown Bag Special" film series.

Sponsored by the Learning Center and the Federal Women's Program, the film will be shown at 11:30 a.m. and 12:15 p.m. in Building 1212, Room 200. All employees are invited to see the film during lunch.

Thanks

"Skinny" Watkins writes, "I wish to thank my friends for planning the fine retirement party for me. Thanks also to my many Langley co-workers and contractor friends for attending. The program, gifts and surprises made it a very memorable and happy night for me—one that will not be forgotten."

Thomas Harper writes, "I'd like to thank the many friends and associates who provided a memorable evening for me at my retirement party. The many kind words were truly heartwarming and the gifts were greatly appreciated."

Key Positions

Jim J. Jones *has been designated* Head, Aerothermodynamics Branch, Space Systems Division.

National Aeronautics and
Space Administration

Langley Research Center

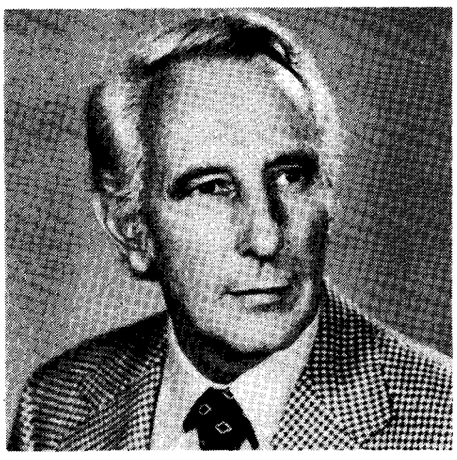
NASA

Langley Researcher

Volume 19 Issue 6

March 21, 1980

Kilgore Named NASA Associate Administrator



Edwin C. Kilgore, Director for Management Operations at Langley since 1975, has been named Associate Administrator for Management Operations at NASA Headquarters, effective immediately.

Kilgore will be responsible for coordinating agency-wide institutional management and for the overall management of institutional resources for NASA programs at 11 field centers. He has been Acting Associate Administrator for Management Operations at NASA Headquarters since August 1979.

Kilgore began his NASA career in 1944 as a development design engineer in Langley's Engineering Division. He was named Technical Assistant of the Machine Design Branch in 1954 and Assistant Chief of the Engineering Service Division in 1960.

Appointed Chief of the Flight Vehicles and Systems Division in 1962, he directed the engineering, design and development of multi-stage rocket vehicles and spacecraft. From January to June 1968, he was Assistant Chief of Engineering and Technical Services, implementing proposed research missions and programs. He became Deputy Chief of Engineering and Technical Services in June 1968, sharing responsibility for setting policies to operate and manage centralized engineering support to all Langley research organizations.

Kilgore had an important role at Langley in the conceptual planning, design and resolution of problems for several space projects, including Lunar Orbiter, the S-55 Micrometeoroid Satellite, the Scout launch vehicle, and early satellite projects Echos I and II.

From 1970 to 1975 Kilgore held several management positions at NASA Headquarters, including Deputy Associate Administrator (Management) in the Office of Aeronautics and Space Technology and Acting Associate Administrator for that office. In 1974 he was appointed Deputy Associate Administrator for Center Operations, a management office responsible for all NASA field center operations.

A native of Coeburn, Va., Kilgore received a bachelor of science degree in mechanical engineering from Virginia Polytechnic Institute and State University in 1944.

He received the Roger W. Jones Award for Executive Leadership from American University in 1978, NASA's Medal for Outstanding Leadership, an Honorary Group Achievement Award of the Rocket Motor Review Board for helping achieve a record of 97 consecutive successes for the Scout rocket and a NASA-Lunar Orbiter Project Group Achievement Award for Outstanding Performance.

Kilgore and his wife live in Hampton. They have two married daughters.

Lorincz Selected for Rotary Foundation Exchange Program

David J. Lorincz, an Aerospace Technologist (Architect) in the Plant Engineering Division, has been selected to participate in The Rotary Foundation Group Study Exchange Program. Sponsored by Rotary International, Lorincz will spend the next five weeks in Japan exchanging design methods and construction techniques with Japanese architects, engineers and other professionals. He will also visit various universities.

The Rotary Foundation Group Study Exchange is an educational program that provides outstanding young business and professional men with opportunities to study another country, its people and institutions; promotes good will between countries and furthers international understanding; and involves Rotarians in a specific and practical international service project.

Lorincz began his NASA career in June 1977 after receiving a bachelor of architecture degree from the Virginia Polytechnic Institute and State University. He is the Technical Project Engineer responsible for the design and construction of Langley's new Graphics Building; the future addition to the Systems Engineering Building; and the modifications to the Visitor Center.

– photo by Bob Nye

Fred W. Bowen (third from left), Acting Director for Management Operations, presented the first car pool parking permit to Clarence P. Young, Jr., Systems Engineering Division, on March 14. A Car Pool Incentive Program has been implemented at Langley to encourage car pooling as a method of energy conservation. The Center is reserving car pool parking spaces for employees participating in the program; these spaces will be in effect when employees report to work Monday, March 24. Members of Young's car pool, from left, are John L. Gilbert; James W. Ramsey, Jr.; John J. Warhol, Jr.; Robert A. Bruce; and Kenneth D. Hedgepeth.

Remembering the Blizzard of '80

The Great Blizzard of '80 will be remembered for a long time in Tidewater. Most of us kept close to home, watching the awesome power and capriciousness of nature on a rampage.

But a small number of Langley people will remember the freakish storm as three days of hard work, bitter cold and frustration. They are the workers who manned the snowplows and shovels and finally opened the Center for the rest of us.

Snow removal preparations began during the early hours of Saturday, March 1. Langley began the battle with two dump trucks equipped with snowplow blades, one motor grader, a front-end loader and two bladed tractors.

Actual street operations began about 4 p.m. Saturday and continued around the clock through Monday, March 3, except for six hours at the peak of the blizzard Sunday night when almost nothing could move.

Webb Service Company people manned the equipment and spent 315 man-hours trying to keep the Center open. The operators of three open vehicles endured temperatures in the 'teens and winds above 30 mph. The continuing storm forced some of the workers into double shifts on back-to-back days.

Frustrations at the shifting, blowing snow were compounded by equipment failures. Continuous operation and unusual snow depths finally caused removal of one dump truck and the loader from service on Sunday. Working all that night, Webb personnel were able to adapt the snowplow blade to a smaller truck and put it back in service Monday morning. Webb Manager Michael Britten and Ernest Todd each worked 21 straight hours on Saturday and Sunday; fellow workers Robert Blanks and Herman Phelps worked double shifts during the storm period.

On Monday, Ray Sease, Day Manager of the High's Carpet Care custodial contract, called his people to begin sidewalk and step clearance. Only five of 15 employees were able to get to work, but they spent the next nine hours shoveling snow from building entrances. By Monday evening they were exhausted--but most areas were cleared.

NASA supervisors from the Plant Engineering Division--William Johnson, Charles Evans and Thomas Hall--worked almost around the clock without compensation during the storm and they were quick to express their appreciation and admiration for the dedicated snow removal crew in what were, without exaggeration, extremely trying conditions.

Walter Hoggard, Langley's Emergency Preparedness Officer, thinks all Langley employees reacted well to the emergency. People were careful and there were no major injuries or accidents.

"Compared to conditions which existed off base, and reportedly at other Federal installations in the area," Hoggard said, "our efforts were a real class act."

Nicks Honored at Reception

A farewell reception for Deputy Director Oran Nicks will be held tonight at the Langley Activities Center, Building 1222. The reception will begin at 6 p.m. Nicks, Deputy Director at Langley since 1970, resigned February 29. For more late reservation information, call Frances Arnn at extension 2462.

Blanchard to Address AIAA

Aeronautical research investigations performed during the past several years on the Kasper wing, Piper Tomahawk, Outbound-Tail Configurations and articulated leading edges will be discussed at the next meeting of the American Institute of Aeronautics and Astronautics.

The meeting will be held March 25 in the Cafeteria beginning with a social at 4:15 p.m. At 4:45 p.m. Willard S. Blanchard, Jr., will present "Some Notes on Doing Aero Research with Dynamically-Similar Radio-Controlled Model Aircraft." Blanchard will use slides and movies during his talk.

Blanchard, a Langley employee for 26 years, flew 52 missions as a World War II B24 pilot with the 15th Air Force. He has been a certified FAA flight instructor since 1947.

For reservations, call Buddy Cary, extension 4546, or Bob Calloway, extension 2483.

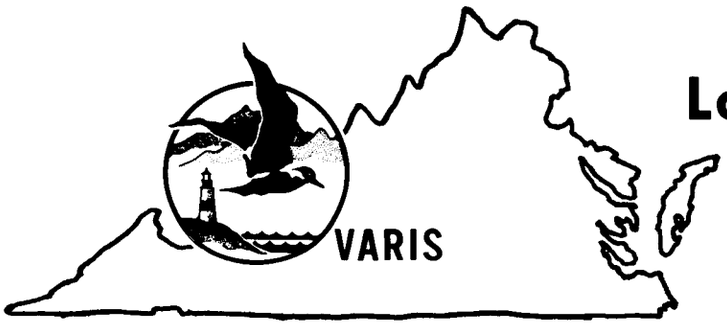
Directories Wanted

The Historical Program Office is looking for old copies of Langley telephone directories--especially those dated prior to 1967. Persons having old directories are urged to contact Dick Layman, extension 3511.

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 Aids State in Creation of Resources System

One of the lesser publicized acts of the recent General Assembly was the go ahead for the creation of a satellite-aided, central resources information system called VARIS.

The Legislature's appropriation of almost $500,000 for an initial two-year development of the Virginia Resources Information System follows an extensive planning program in which NASA and Langley played key roles.

Among a lengthy list of potential applications, VARIS, a central storehouse of knowledge, will:

- Provide the latest data on such things as water quality, soil capability, mineral and energy resources, air pollution wildlife trends, weather, beach erosion and the condition of man-made resources such as lakes, parks and highways.
- Produce significant savings for the State by conserving time and costs in gathering information.
- Assure better decisions by planning commissions and developers, for instance, who will be using standardized, continuously updated resource information.
- Help the Legislature make accurate and up-to-date laws on the uses of Virginia's resources.

These and a very long list of other potential applications could save millions of dollars over the planned six-year development span for the system, which is projected to cost no more than $2 million for the total development.

Among VARIS's tools are Landsat and several meteorological satellites, as well as airborne remote sensing devices. Langley's involvement came through providing technical assistance on how to make use of those instruments.

In 1978, the General Assembly passed a resolution calling for the study of a resources information system. During that time, Director Donald Hearth and Secretary of Commerce and Resources Maurice Rowe began to explore ways in which Langley could aid in the study of such a system. In 1979, Hearth dispatched Warren Hypes of the Environmental Field Measurement Branch, Marine Applications Technology Division, to work in Richmond to provide technical assistance on the development of a Landsat data bank.

Hypes became a member of an Executive Branch task force set up to study VARIS and he was an integral member of the planning team. With the help of the Eastern Regional Remote Sensing Applications Center (ERRSAC) at the Goddard Space Flight Center, Hypes was able to set up a troubleshooting program to demonstrate the satellites' uses. The task force found six state agencies with specific resource information problems and set about solving them. The problems were in forestry, land cover and use, surface mining, hydrology and watershed management. Eleven people from the agencies were shown how to reduce Landsat data at a one-week ERRSAC training course. As a bonus, they got their resource information.

Detailed surveys of numerous agencies, counties and other potential users were conducted to expand the list of possible VARIS applications. Throughout, the object was to integrate, process and disseminate all the resource information that the potential users thought they could use. The list quickly grew.

User needs became the motivating factor. As passed by the Legislature, VARIS will evolve into an open-ended system, where new data base categories will be added as users cite specific needs.

For the first two years, VARIS will operate on an initial scope of establishing the hardware and the staff (about four people for the first biennium) and gradually building its data base and capabilities.

By the end of the third biennium, in 1986, VARIS will be fully operational.

Hearth said VARIS is "a good example of how a research laboratory like Langley can, with a minimum of effort, provide real help to the state government." His method was to place a man within the government to facilitate the transfer of technological information. That approach worked for Hearth in the past: during his years at Goddard in the early 1970's, he helped place a NASA representative in the office of Baltimore's Mayor to advise the city on how new technology could be put to use.

"That seemed to work out pretty well," Hearth said, "and this looked like a golden opportunity to do something similar on a specific project. With the support Secretary Rowe gave our efforts, they were bound to be a success. Technology transfer is, after all, a part of our charter, and it is exceedingly important. It does the nation zero good if we do a lot of research, say at Langley, and that information doesn't get out where it can be used. Our job is incomplete without the dissemination of that information. And Warren did a superb job passing on that information."

Workshop Held Here

A Cost Estimating/Cost Risk Assessment Workshop was held at Langley March 11 and 12. Representatives from NASA Headquarters and field centers attended the workshop, which was hosted by the Project Planning and Control Office of the Projects Management Systems Division.

According to Frederick L. Moore, Acting Head of the office, the workshop was held to exchange ideas and expertise in areas of automated cost estimating used in the overall planning of new projects.

Thanks

Charles Miller thanks the friends and co-workers who made his retirement luncheon "an event to remember." Miller said, "The presentations and gifts were super and I wish the best for all."

A Langley Portrait

WHITCOMB: Aeronautical Research and the Better Shape

— by Brian Welch

Dick Whitcomb's desk is one of those tired-looking battleship gray affairs about six feet long, four feet deep and completely lined around three sides with stacks of papers, documents and books, leaving him with a three-by-three-foot space in the middle for calculations and ready reference. It is the desk of a man whose principal work is done in the mind or on a nearby scrap of paper; whose idea of the moment can be quickly examined by comparing it with the latest data on air flow or by adjourning to the wind tunnel down the hall.

Dr. Richard Travis Whitcomb is, at 59, a legendary NASA aerodynamicist. Under glass on a low table behind his desk sit three of the most coveted awards in his profession: the Collier Trophy, awarded to him in 1955 for the Area Rule, an idea which revolutionized supersonic flight; the National Medal of Science, presented to him by President Nixon in 1973 for various aeronautical discoveries and inventions; and the Wright Brothers Memorial Trophy, a glittering silver model of the Wright Flyer mounted atop a piece of quartz, which was also given to him for significant public service to aviation.

The owner of the trophies and the comfortable desk is a man who looks as distinguished--even when relaxed--as the citations make him out to be. To look him in the face is to greet the powerful effect that his immense, riveting blue eyes, snow white hair and sharply-honed intellect have on the uninitiated. He is flight theory personified, a textbook reference in the flesh, a man whose stately appearance and engaging, friendly manner overwhelms the externals of a small burn hole on his shirt, an open collar, the trouser wrinkles of a lifelong bachelor, and the manner of a man much more concerned with transonic air flow than with washing the car.

He retired from Langley on February 29, but will continue to use his functional deck-cum-library for another three months as a special consultant. It is not the same desk at which he sat with his feet propped up in December 1951 and had a flash of inspiration which resulted in the Area Rule. He and his co-workers in the Transonic Aerodynamics Branch don't even use the same eight-foot wind tunnel anymore: the original slotted-throat tunnel, the first of its kind anywhere and the one for which a team of Langley researchers (Dick Whitcomb among them) won the 1951 Collier Trophy has been replaced by an improved tunnel. It too operates at transonic (across the speed of sound) speeds in an eight-foot-wide test section, and is commonly called "Whitcomb's Tunnel."

The location and continuity of his research remain unchanged. He has never worked professionally anyplace else except on the shore of the Back River in Hampton, Virginia, surrounded by other landmark wind tunnels from the days of NASA's progenitor, the National Advisory Committee for Aeronautics, within easy hearing distance of supersonic fighters, which he made practical, as they wheel above Langley Air Force Base right next door.

A 1943 Fortune Magazine article convinced Whitcomb to apply for a job at what was then the Langley Memorial Aeronautical Laboratory. "This was the place to come for

applied research," he said. Since then he has spun a brilliant career about the heights of three landmark ideas, all of which worked, all of which were tinkered with in the same sister tunnels, all of which were radical departures from conventional aerodynamic theory and all of which couldn't have come at a better time.

The first of his coups was the Area Rule, which came to him, "like a flash of light," at a time when the Air Force was trying, without great success, to achieve practical supersonic flight in the early 1950's. The only Mach (speed-of-sound) flights had been with rockets, which are not practical for airplanes.

"The X-1 had flown by that time," Whitcomb said, "but that was with sheer brute force. That phrase--'the sonic barrier'--kept coming up, and we were thinking, 'What are they talking about? Bullets go through the speed of sound all the time.'"

By mid-1951, Whitcomb and others had been making fundamental studies of that problem for six months. The first tunnel capable of transonic speeds, the first of the two eight-foots, was keeping John Stack and other Langley scientists busy churning out data no one had ever seen before. They had already found, to their puzzlement, that the sum of each component's drag (wings, fuselage, etc.) was less than what they were experiencing in the tunnel with an entire model. Models expected to fly supersonic in the tunnel wouldn't.

Then, in November and December of 1951, Whitcomb was inspired by the premier aerodynamicist of the time, Adolf Busemann, who had designed the swept-back wing in 1935. At a Langley staff symposium in November, Busemann stood up to discuss his thoughts on the basic nature of transonic air flow. Whitcomb had also been approaching the problem from a fundamental viewpoint, and was instantly caught up in Busemann's remarks.

"I was very impressed," he said. "Busemann had some very keen insights, and it was one of his intuitive thoughts, based on aerodynamic theory, that really got me going." Theory held that air flow around a wing involves an exact inverse

proportion, in which the density of the air changes exactly as the rate of speed.

"This meant," Whitcomb said, stage-whispering for effect, "that at Mach one, the mass, which is speed times density, cannot be increased. As Busemann said, it is 'a pipe-fitter's flow,' where the air passing over the wing and around the fuselage at near Mach one speeds cannot be compressed anymore, and as a result the effect of the airplane on air flow rapidly increases at the threshold of Mach one. This is the primary reason for large drag increases (the 'sonic barrier') at sonic speeds."

Back at his office, Whitcomb referred to shock wave pictures from the tunnel and grew even more agitated. "They were giving me fits," he said. "None of them looked as they should.

"And so I sat there at my desk, feet propped up, and suddenly it dawned on me, the basic idea of the Area Rule." The basic idea was as simple as giving the air someplace to go so it wouldn't push back on the wing. It was as simple as putting wings on a Coke bottle.

"I had a Coke bottle shape that day," he recalled. "Then, the next day, I arrived at a rule of thumb, a sort of basic principle: Transonic drag is a function of the longitudinal development of the cross-sectional areas of the entire plane."

When the next symposium came, Whitcomb got up in the same forum from which he had gotten his inspiration and talked about his idea for 20 minutes. When he finished, there was only one person with the stature to address such monumental findings. Busemann rose and said, "Some people come up with half-baked ideas and call them theories. Whitcomb comes up with a brilliant idea and calls it a rule of thumb."

He was in. The name Area Rule, for cross-sectional area and rule of thumb, was applied at that meeting. "Now I had to go prove it," Whitcomb said.

He built a basic model, now in the Smithsonian Institution, on which he could modify fuselage shapes. One version, with an indentation in the fuselage equal in area drag to that of the wing, completely eliminated shock wave drag on the wing.

Whitcomb's experiments, highly classified at the time, made it possible for the United States to produce the first fleet of supersonic fighters. An F-102 which could not break the sound barrier before modification later went through Mach 1 while still climbing. "It was a classic before and after," he said.

In the interim between the Area Rule and his next major discovery, the supercritical wing, Whitcomb devoted himself to helping design a practical commercial supersonic aircraft: an SST. In the late 1950's, Whitcomb and many other aeronautical experts attempted to devise a supersonic transport that would be efficient and competitive. In late 1963, NASA gave the major aircraft manufacturers contracts to analyze the various designs.

"Even though we had worked for years to reduce the drag, there was still lots of it," Whitcomb said. "The planes would need very powerful engines, and the companies said they would be too costly. This was a real disappointment. I didn't consider it progress when we came up with an airplane with that kind of cost. I felt as if I had wasted my time. So I got out of that area."

As became his pattern, Whitcomb marched right back to the basics and started over. With the Area Rule he had improved the ability of a supersonic aircraft to slice through the wall of air before it. With his next project, the supercritical wing, he would reduce the drag of aircraft operating at high sub-sonic speeds by reducing air friction and turbulance across an aircraft's major aerodynamic surface.

In 1964, when he began to contemplate the wing, his design was light years away from the familiar curves that had characterized airfoils since the 1930's. They had been more rounded on the top than bottom, a shape which caused lift. Yet Whitcomb was finding, in the course of three years of patient shaping with a file and precious weeks of wind tunnel time, that the flatter the wing got on top, the nearer he came to a smoother flow.

He disdained the usual research system, which he described as "going through the chain of drawings, shops and all that sort of thing," and usually ended up filing the wind tunnel models himself. He did all of his own basic calculations, and with the time-tested trial-and-error method and the help of a team of researchers arrived in 1967 at the final overall airfoil shape.

"Some people come up with half-baked ideas and call them theories. Whitcomb comes up with a brilliant idea and calls it a rule of thumb."

When Langley was preparing to mount a supercritical wing on an F-8 jet, Whitcomb brought a cot to the tunnel during last-minute tests and lived there around the clock.

"When I've got an idea, I'm up in the tunnel," he said. "The eight-foot runs on two shifts, so you have to stay with the job sixteen hours a day. I didn't want to drive back and forth just to sleep, so I ended up bringing a cot out here."

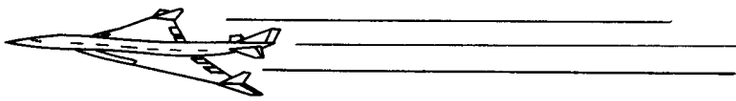
When Whitcomb was leaving for the Dryden Flight Research Center in 1970 to see the supercritical wing fly, his team of engineers and technicians gave him a four-foot wooden file, with advisements that it was just the thing for such a large model. Neil Armstrong, meeting Whitcomb in 1974, smiled and said, "Oh, the master filer."

From there it was on to winglets, elegant, upward curving wingtips which save about five percent of an airplane's fuel costs by reducing drag. Whitcomb says the oil embargo of 1973–74 was his inspiration for that design.

Now he is putting the finishing touches on two projects which have kept him busy since 1975: improvements in wing and nacelle (engine housing) interference and the utilization of his supercritical wing as a natural way to induce laminar, or smooth, air flow for increased efficiency. When those projects are completed, so will be Richard Whitcomb's illustrious career.

But in retirement, Whitcomb does not intend to sit in a chair and rock. For some time now he has been teaching himself solid state physics, and converting the extra bedroom in his apartment into a laboratory and workshop. He won't say what he is working on in his spare time, other than to hint that it is energy-related and keeps him up late at night. But if he ever says it will work, his colleagues over the years will undoubtedly recommend belief.

His is an unbroken string of technical triumphs. He says it best himself: "I always wanted to have an impact. I did that."



A Day at the Crashes

– by Brian Welch

At ten minutes before noon, Dwight McSmith leaned over a second-floor railing outside Building 1297 and contemplated the yellow and black Piper Aztec on the concrete apron 20 meters away.

In less than 90 minutes, if the wind didn't pick up, he would preside over the smashing of that airplane into the concrete at the Impact Dynamics Research Facility. In the shadow of the hulking crash gantry, which looks and is used much like an outsized swing set, McSmith was gearing up for his 23rd crash test as operations supervisor.

Group leader Jimmy Richardson and his ground crew were out on the concrete giving the Aztec a final interior checkout. They judged the cameras, extensometers, strain gauges, load cells and, most importantly, the triaxial accelerometers, to be ready. They connected--but did not arm--the pyrotechnic devices on the wings and fuselage which would release the

surrounding cable network in stages, automatically, once the test began.

Keith Wray and the men on the gantry 240 feet aloft in a frigid March wind waited for instructions to man the hoists. Surveyors, borrowed from the Research Facilities Engineering Division, lined up their transit 100 meters east of the gantry. Their job would be to align the suspended Aztec to within the diameter of a screw head just before release.

In the control room, McSmith donned a headset and stuffed a walkie-talkie into his belt. Throughout the test he alternated between the two so he could reach everybody who needed to hear from the man in the control room.

Jack Spears and a team of technicians from the Instrument Research Division stood in the back of the control room with several others, most of whom began to filter out when the precise launch timetable started clicking into action. Spears and his team were needed in the final 15 minutes to calibrate the data processing equipment, verify good data through to the recorders, and set instrumentation readings to zero so they could take 90 channels of information in three-fourths of a second at the peak of the crash.

The crowd beyond the fences was thickening at 12:30 when McSmith and Richardson agreed the plane was ready to be lifted. They first raised it a few meters vertically so Richardson could retract the landing gear through a special compressed nitrogen system substituted for the original hydraulics. He applied the compressed nitrogen to the valves at the port wingtip and the landing gear snapped crazily into place.

"We're draggin' a bit," McSmith said over the headset. "We might still make one o'clock though." But he conferred with Claude Castle, the project engineer, and moments later they decided a 5-minute delay would be in order. On McSmith's hardhat is a decal which reads, "Take Time to be Safe."

At 12:45 the instrumentation people were ready, and McSmith immediately gave the order to take the plane up. Richardson took over then, directing the pullback cables and telling the swing cable operators to hold fast for the moment. As the ground crew chief gave a steady stream of instructions--"Ease up a little more, north restraint."--McSmith noticed the south swing cable pulling up, and broke in to order all hoists stopped.

"Sorry for the override, Jimmy," he said. "Now let's get it level and start again."

The south swing cable lowered the port wing several centimeters, and the pullback cables began to move again. Richardson maneuvered them so the two cable systems were always 90 degrees apart. The positioning--or floating, as they call it--close to the ground was crucial. He had to maintain that 90 degree separation--integral to the swing and impact calculations--in addition to getting the proper pitch. By pulling from the rear, lowering from the front and repeating the process, he arrived at a predetermined point in the swing cables. That point had been carefully calculated so that, with the right length of swing cable deployed, the Piper would, once aloft, be at exactly the right position for launch.

After floating the Piper a couple of times, Richardson was satisfied. Slowly, like a huge slingshot, it was then pulled back 160 feet up into the release position. Near the top, the pyro-firing lanyard cable seemed to be edging close to the vertical tail.

"South restraint, I need a little more rope," Richardson said.

"Roger."

"Yeah, a little more slack," McSmith agreed. "Keith, what are you seeing?"

From the gantry, Wray answered, "That blame 16-inch cable is still laying close." He paused. "Now it's slid over."

"Okay," McSmith said, "Transit Three, how we doing?"

"Looks like she's right on, Control."

"Roger. Okay, let's get the slack out of the nylon lines. Ready to tie off bottom lines."

"Roger."

As the Piper reached its perch, the crowd edged in closer, optically primed and ready for anything.

"T minus five minutes and counting, five minutes and counting," Castle announced over the PA system.

"Jimmy, are you ready?" McSmith asked.

"Ground crew happy, Control."

"Roger." McSmith moved up to the control panel. He advised a team of cameramen about adjusting for gathering clouds. "We've lost about two f-stops, I'd say."

". . . . fifteen, fourteen, thirteen . . ."

McSmith armed the pyrotechnic system with a key, switched on power to activate the release and data link systems, unlocked the aircraft release switch and gave life to instruments and camera lights aboard the Piper. In all, 21 cameras were readied for action. As this was done, Castle reached the count of three in his cadence. At two, McSmith poised his thumb over the release switch, and at one he mashed it.

What seemed like slow motion really wasn't. Milliseconds into the launch, automatic cable separators severed the

Continued on page 7.

Crash Test

Continued from page 6.

pullback lines much like a guillotine, and the Aztec was essentially into its first and last free flight. Like an immense pendulum, it swung along a precise arc into a perfect impact less than one meter from the target X. The crunch was authoritative, as over two tons of metal and fiberglass careened across an unyielding 8-inch-thick reinforced concrete pad.

The Piper crumpled and actually contracted like an accordion for a split second, shattering the windows and bending the tubular inner frame. A triangular metal support beneath the co-pilot seat snapped under the loads, tore through the floor and outer shell and scraped along the concrete. Three instrumented anthropomorphic dummies in the cabin were thrown violently forward, giving the accelerometers readings of better than 60 g's.

Three seconds into the swing, the plane made initial contact; three quarters of a second after that moment, the umbilical and swing cables blew off, the instruments had recorded their data, the cameras the scene, and the Aztec was at rest some 50 meters from where it first hit.

Amid the applause and din of the control room, McSmith turned to Castle for a silent handshake, his face a study in satisfaction.

Members of the crash team came from all quarters to view the culmination of several months work. Wham. Over in less than four seconds. Now they would spend another several weeks painstakingly analyzing the plane to see what the crash had wrought.

Victor Vaughan, the project engineer and jack-of-all-trades (including film splicing) who retired last month, came up to see the plane that had been christened for his dedication to detail. "The Catenary Canary," named after Vaughan's relentless concern for catenary effects--or sagging--in the cables, is the latest in a series of test planes which have borne names like "Pile-It Error," "The Blew Max" and "Oops!"

"Hey, Dwight," Vaughan called out, "I want you to have a word with those pilots."

McSmith smiled and said he'd do that as he checked the effects of a 65 mph crash at a 30-degree pitch.

He was still checking those effects an hour later, long after the crowd had left.

Langley Retirees to be Honored With Parties

Meredith W. Ballard, Walter E. Frayser, E. Stanley Trimble, Jr., William H. Verser and **George E. Wyatt** of the Operations Support Division will be honored with a retirement party Friday, April 4, in the Activities Center. The social hour will begin at 5:30 p.m. (free beer/cash bar); dinner will be served at 6:30 p.m. The cost is $6.50 per person. For reservations send remittance to Edgar Collier or Jack Fowler, Mail Stop 166A, by March 31.

Grace Shackelford, Scientific and Technical Information Programs Division, will be honored with a retirement luncheon Wednesday, April 2, in the Activities Center at 11:30 a.m. The cost, including gift, will be $6. Contributions for gift only are welcome. For reservations, send check to Eloise Johnson, Mail Stop 149, by March 26.

Dr. Robert W. Fralich, Structures and Dynamics Division, will be honored with a retirement luncheon in the Activities Center Wednesday, March 26, at 11:30 a.m. The cost, including gift, is $6 per person or $11 per couple. Send check or cash to Debbie Turner, Mail Stop 190, by 4:30 p.m. today.

Robert S. Freeman, James W. Mayo, Austin D. McHatton and **Thomas N. Bartron**, Systems Engineering Division, will be honored at a retirement party Tuesday, April 1, in the Activities Center. A cash bar social will begin at 6:30 p.m. and the buffet dinner at 7:30 p.m. The cost is $6 per person. Gift contributions of $1 for each retiree are welcome. Please designate gift recipient and make checks payable to Anne F. Bristow, Mail Stop 433, by March 27.

Jim A. Penland, High-Speed Aerodynamics Division, will be honored with a retirement social (cash bar and hors d'oeuvres) at the Langley Officers' Club Friday, April 11, from 6:30 to 9 p.m. The cost, including contribution to gift, will be $6.50 per person or $12 per couple. Contributions for gift only are welcome. Please make checks payable to Shirley Lawson, Mail Stop 160A, by March 31.

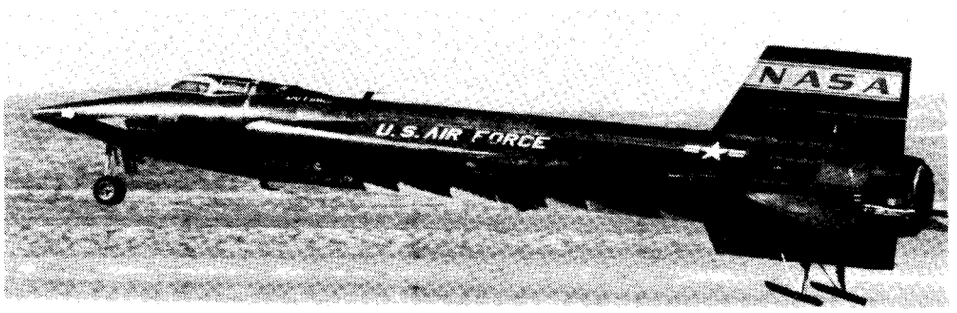
Visitor Center Honors X-15 Anniversary

A special program on the X-15 research aircraft will be presented at the Langley Visitor Center from March 23 through March 30. March 25 marks the twentieth anniversary of the first research flight of the X-15, the first manned vehicle to actually fly into space.

The X-15, a rocket-powered vehicle 50 feet in length with a 22-foot wing span, was launched from a B-52 aircraft. The man-managed rocket engine provided the thrust for the first 80—120 seconds of flight. The remainder of the normal 10- to 11-minute flight was powerless and ended with a 200-mile-per-hour glide landing. Ultimately, the three X-15 aircraft which were flown achieved a record altitude of 354,200 feet and a record speed of 4,520 miles per hour.

Manned space flight was the immediate benefactor of X-15 research. It stimulated aerospace vehicle technology and greatly accelerated America's ability to put a man in orbit. It also showed the capabilities and limitations of the human pilot in an aerospace vehicle.

The Visitor Center program includes a film with actual footage from the X-15 flights, a X-15 model and a brief background lecture. The program will be presented weekdays at 12 p.m. and Saturday and Sunday at 3 p.m.



The X-15 research aircraft was the first manned vehicle to fly into space.

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Happenings

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, March 26, at 4 p.m. in the Activities Center.

HAPPY HOUR will be held Friday, March 28, from 4 to 6:30 p.m. in the Activities Center.

Film Planned

The film "Transactional Analysis" will be shown March 28 as part of the "Brown Bag Special" film series.

Sponsored by the Learning Center, the film will be shown at 11:30 a.m. and 12:15 p.m. in Building 1212, Room 200.

All employees are invited to see the film during lunch. For more information, call the Learning Center, extension 2611.

Job Openings

80-38 – AST, Earth Sciences Utilization; GS-1301-14 or 15; Office of Director for Space; Marine and Applications Technology Division; Environmental Field Measurements Branch; Closes March 28, 1980; NASA-Wide.

80-39 – Engineering Technician; GS-802-9 or 10; Operations Support Division; Tunnels Operations Branch; Technical Support Section C; Closes March 28, 1980.

80-40 – Supervisory Engineering Technician; GS-802-11 or 12; Operations Support Division; Laboratories Operations Branch; Technical Support Section B; Closes March 28, 1980.

80-41 – Supervisory Engineering Technician; GS-802-10 or 11; Operations Support Division; Mechanical Support and Utilities Operations Branch; Fluid Systems Section; Closes March 28, 1980.

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FOR SALE

Articles

Kenmore range, 30", clean, GC, $75. Call Wade at 868-6281.

Sears rototiller, 5 hp, GC, $110. Call 898-7674.

General Electric stove, EC, $130. Call 838-8521 after 5 p.m.

Sears glass fireplace screen, cost $120 new, LNC, fits 33—39 inches wide by 28—32 inches high, $55. Call 642-6016.

Everett spinet piano, mahogany finish, just tuned, GC, you haul, $525. Call Youngblood at 877-1224.

Vehicles

1973 Ford Grand Torino station wagon, PS, PB, AT, luggage rack, regular gas. Call Martin, extension 3911 or 693-4241.

FOR RENT

Sandbridge: new cottage, liv/din/kit area, 4 BR, washer, dryer, dishwasher, fireplace, AC, 1/2 block from beach and Back Bay, phone and 6-car parking; summer rates $400/wk. Call Kent, extension 3095 or 420-8391.

New house on Sound at Frisco, NC: 4 BR w/dishwasher, $300/wk. in season. Call 877-3736 between 5 and 6 p.m.

LOST

Man's heavy wool gray tweed overcoat, plaid scarf and gloves from coat rack in cafeteria February 25. Call Robert Sleeper, extension 2273.

FOUND

Spirit level in Building 1209. Call Tom Durkin, extension 4662, to claim.

cafeteria menu

WEEK OF MARCH 24

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Shrimp in a Basket; Chicken Pot Pie. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Yankee Pot Roast; Pork Chops over AuGratin Potatoes; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Meatloaf; Spanish Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers; Beef Balls Stroganoff; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Barbecued Chicken; Ham & Cheese Omelette. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF MARCH 31

MONDAY: Ham & Lima Bean Soup; Hot Roast Pork Sandwich; Teriyaki Baked Chicken; Stuffed Fresh Bell Peppers. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: Tomato & Rice 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 & Rice Soup; Braised Beef & Vegetables; Veal Parmesan; Quiche Lorraine. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Hot Ham & Cheese; Roast Beef & American Cheese.

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

National Aeronautics and
Space Administration

Langley Research Center

NASA

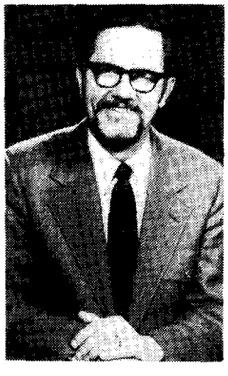
Langley Researcher

Volume 19 Issue 7

April 4, 1980

Director's Comments

Hearth Details Replacement Strategy



During the past several months, the Center has experienced a larger-than-normal turnover of its supervisors. Since last October, approximately 45 line supervisors (from unit leaders to the Center's Deputy Director) have either left or indicated they will leave in the next few months. Most departures have been through retirement and were anticipated. The large number of retirements at this particular time is apparently a result of the combination of the age of many of the Center's supervisors and their earned retirement/salary benefits.

Taken all together, the departure of this group of fine people is a great loss--a loss in capability and a loss in experience. It also presents to all of us distinct challenges--changes in leadership, changes in personalities, patience while new people are selected, patience while the new supervisors get "up to speed," and a selection process that is both fair and one that will result in the selection of the best available person in a timely manner. This situation also presents an opportunity--an opportunity for other people to take on increased responsibility, to be promoted, and, most importantly, to assume positions to help lead the Center, its people, and its programs into the 1980s.

In recent weeks, I have frequently been asked 1) if Langley will continue its policy of "growing its own?," and 2) if Center Management continues to have the authority for supervisory selections, particularly for Senior Executive Service (SES) positions? The short answer to both questions is Yes! The longer answers are:

1) There are two methods of selection; i.e., "Competitive Placement" (formerly known as Merit Promotion), an advertising process, and "Lateral Reassignment" in which a person is transferred into the position (but only if either their grade or potential grade in their current position is the same as that of the new position). Under either method, a person from outside of the Center may be selected for a vacant supervisor position. However, I am committed to fill most (not necessarily all) of the current and future vacancies with Langley people.

Continued on page 2.

NASA FY '81 Budget, 'Painful but not Crippling'

Four Major Langley Projects Affected

NASA's share of the reduced Federal budget for FY 1981 was described this week by Deputy Administrator Dr. Alan Lovelace as being "painful, but it is not crippling."

Testifying before a Congressional committee on Tuesday, Lovelace outlined details of the $219 million reduction in the total NASA budget, emphasizing that the amended budget "will allow a viable, balanced national space and aeronautics program to continue."

The budget cuts will have a direct effect on four major Langley projects: Aircraft Energy Efficiency (ACEE), the Earth Radiation Budget Experiment (ERBE), the Halogen Occultation Experiment (HALOE) and the Long-Duration Exposure Facility (LDEF). Lesser effects will be felt in Technology Utilization, salaries and overhead, and personnel staffing.

Funding for the ERBE Project has been reduced by $12 million, which will effectively delay the program by one year, according to Lovelace. ERBE Project Manager Cal Broome says that planning has already begun to slow, but not stop, development of instruments for the project.

The ACEE Project funds have been cut $12.5 million, $7 million from the Laminar Flow Control (LFC) portion of ACEE, managed at Langley, and $5.5 million in the Energy Efficient Engine Project, managed at the Lewis Research Center.

Langley's ACEE Manager, Dr. Robert Leonard, says that planning has been going on for several weeks to stretch out the LFC work. The basic technology effort will continue, but there will be a two-year delay in flight demonstrations and ground evaluations in the long-term effort to establish technical feasibility.

HALOE funds have been reduced $1.5 million, one-fourth of the original FY 81 budget request. Project Manager Claude Coffee, Jr., is studying what precise effect the cut will have on program development.

A $1 million reduction in Spacecraft Systems Technology will delay the LDEF launch by at least one year, which will cause some difficulties in the continuity

Continued on page 8.

Hearth's Strategy

Continued from page 1.

2) The decision process on supervisory selection will be the same in the future as it has been in the four and one-half years that I have been at Langley. The first decision has to do with whether the vacancy will be filled through either Competitive Placement or Lateral Reassignment. Normally, I make that decision for Branch Head, and above, positions based upon line managements' recommendations. It is the responsibility of the Personnel Division to insure that the process, as it is implemented, is fair and satisfies the appropriate regulations and procedures. The second major decision is the selection of the new supervisor. That decision is made by the immediate supervisor. However, the next supervisor up the management chain must concur. For example, if the vacant position is for a Branch Head, the Division Chief makes the decision, but the Program Director must concur. In all cases, I monitor the selection process in order to be satisfied with the process itself, the range of candidates considered, and the promptness of the process. The procedure outlined above also applies to SES positions that report to me. For example, I select Program Directors, and Dr. Lovelace (NASA's Deputy Administrator and my supervisor) concurs. I discussed this subject with Dr. Lovelace within the past month, and he agrees with the process and has assured me that neither he nor anyone else in Headquarters will dictate the selection of any particular individual for any SES position that reports to me.

The following summarizes the status of Division Chief (and above) vacancies that have occurred since last fall:

Deputy Director

This position will be filled through Lateral Reassignment. I have reviewed a list of candidates with Dr. Lovelace and will start interviews shortly. I hope to have made the selection by late April. The new Deputy should then be onboard in May or June.

Associate Director

I have decided to defer action on this position for a few months.

Director for Structures

This position will be filled through Competitive Placement. The vacancy announcement closed on March 21. I expect a selection in late April/early May.

Director for Electronics

This position will be filled through Lateral Reassignment. I have reviewed a list of candidates with Dr. Lovelace and will start interviews shortly. Selection will be shortly after the new Deputy is selected.

Director for Management Operations

This position will be filled through Competitive Placement. The vacancy announcement will open on April 7 and close on April 25. I expect a selection in mid-May.

Assistant Director for Systems Engineering and Operations—Chief of Systems Engineering Division

These positions were filled through Lateral Reassignment in December 1979. Hugh Clark was selected as SE&O's Assistant Director, and Bob Swain took Hugh's place as Chief of SED.

Chief of Space Systems Division

Gerry Walberg was selected in February to replace Walt Olstad. This was through Competitive Placement.

Chief of Plant Engineering Division

Through Lateral Reassignment, Fil Cuddihy was selected, in early March, to replace Baxter Carr as Chief of PED.

Chief of Scientific and Technical Information Programs Division

Through Competitive Placement, Burnie Peters was selected as Chief of STIPD in early March.

Chiefs of Materials Division, Aeroelasticity Division, and Structural Mechanics Division

All three of these positions will be selected through Competitive Placement. The vacancy announcements open on April 7 and will close on April 25. I expect these selections to be shortly after the new Director for Structures is chosen.

As you can see, we are making progress in filling the Program Director and Division Chief positions. The same is true at the Branch, Section, and Unit levels. I am pleased with the people selected to date and am confident that the people yet to be selected will also be first rate.

As an incentive to expand the number of car pools at Langley, the Langley Exchange will hold monthly drawings through December to present $20 to a registered car pool participant. In this photograph, Warren Greene of Kentron International, the March winner, is presented a $20 check by Kathi D. Porter of Management Support Division. Because of the energy crisis, Langley is encouraging car pooling as a method of energy conservation. As of press time, 513 car pools have been registered, with 1,890 participants.

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.

Einstein Remembered at Langley CNC Colloquium

Few scientists have achieved the same impact on society as has Albert Einstein. His revolutionary ideas influenced the direction of science and many important Twentieth Century physicists.

Some of Einstein's theories of relativity as they exemplify the artistic nature of science will be presented at a colloquium sponsored by NASA's Langley Research Center and Christopher Newport College on Tuesday, April 8.

Dr. Banesh Hoffmann, Professor Emeritus of Mathematics at Queens College in New York, will speak on "Einstein Remembered" in the Langley Activities Center. 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.

"By presenting Einstein the man and some of his works, the talk will show that great science is one of the creative arts and transcends logic. Too many people think of science as something cold and logical," Hoffmann said. Einstein's famous equation, $E = mc^2$, as it exemplifies this creative art, will also be discussed during the lecture.

Born in England, Hoffmann graduated with honors from Oxford University in 1929. In 1932 he received a Ph.D. from Princeton University, where he was a research associate.

He was later appointed research associate and instructor in theoretical physics and applied mathematics at the University of Rochester. In 1935 he became a member of the Institute for Advanced Study in Princeton, N.J., where he worked with Albert Einstein and Leopold Infeld. Their research proved for the first time that gravitational field equations automatically determine the motion of bodies. It has become a classic in the theory of relativity. In 1937 Hoffmann became a charter member of the Queens College faculty.

The author of over 150 research papers and articles on relativity, quantum theory and objective testing, Hoffmann has appeared on numerous television and radio programs to outline Einstein's theories of relativity. He has written eight books, two on the life of Einstein, and has received several awards for his research and writing. He holds a patent on the Orthoepic Alphabet used to teach reading.

Hoffmann is a fellow of the American Physical Society and the American Association for the Advancement of Science and is a member of many scientific organizations.

He serves on the Editorial Advisory Board of "The Writings of Albert Einstein," the Advisory Council of the National Energy Foundation and is a consultant to the National Consortium on Testing.

Employees attending the colloquium should charge their time to Job Order A1980.

Home Life Reduces Travel Accident Rate

The Home Life Insurance Company has notified the NASA Employees Benefit Association that the cost of Plan II of the Travel Accident Policy has been reduced from 65 cents per thousand to 60 cents per thousand. Plan II is the most popular plan covering employees with travel accident insurance for both personal and official business.

Premium notices will be distributed for Travel Accident Insurance on Monday, April 14. Participants are warned that there is no grace period for this insurance. The current period expires midnight, April 30. If the annual premium, due by May 1 for next year, is not paid by that 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 14 through April 25 to accept premium payments. If you prefer, you may mail your check to NEBA, Mail Stop 136.

Nicks Thanks Friends

The following letter was received from Oran W. Nicks, Langley's Deputy Director since 1970. Nicks resigned from NASA in February to become Executive Director of the Research Foundation at Texas A&M University.

To Langley Friends:

On behalf of myself and my family, I would like to thank all of you who made my going away party such a memorable occasion. I was overwhelmed with the thoughtful presentations and gifts; they will serve to remind me of the fine working relationships we enjoyed during my years with NASA.

Working with you at Langley has been a wonderful experience; I hope that we will continue our association as I join the university partner of our effective aerospace team.

Oran W. Nicks

Key Positions

H. Scott Wagner has been selected Assistant Chief, Marine and Applications Technology Division, under Merit Promotion Announcement 80-1.

James D. Smith has been selected Supervisory Engineering Technician, Technical Support Section C, Tunnels Operations Branch, Operations Support Division, under Merit Promotion Announcement 80-2.

O. Earl Shortt has been selected Supervisory Engineering Technician, Technical Support Section D, Tunnels Operations Branch, Operations Support Division.

Robert M. Peterson has been selected Supervisory Electronics Technician, Research Aircraft Support Section, Operations Branch, Flight Mechanics Division.

NASA Scientists Uncover Icy Arctic Secrets

by Mary Sandy

Ice is a far more complex substance than the cubes that cool summer drinks.

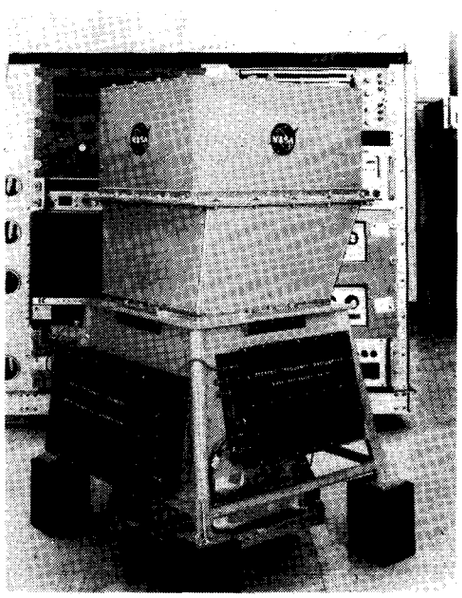
Researchers from NASA's Langley Research Center helped make some recent discoveries about polar ice that will alter old beliefs and may lead to future economic and social benefits for the world.

A research team from Langley recently participated in a three-week study of the Arctic polar oceanic front and the polar ice pack. The study, dubbed "NORSEX," was a cooperative effort of the United States, Canada, Norway and Switzerland to learn more about the ice front that strongley influences global climate.

One major finding of the expedition is that the ice caps that cover Earth's poles are not the stable and static crusts that scientists once thought them to be.

Dr. Linwood Jones, principal Langley scientist on the NORSEX mission and one of the people who got Langley involved in ice research, says there are actually ten major categories of ice, determined by roughness, thickness and age.

"First-year ice," according to Dr. Jones, is between one and two meters thick, while "young ice" (less than a year old) is less than one meter in thickness. "Multi-year ice" has survived for several seasons and the repetitive melt-freeze cycle makes it stronger than young ice. Another important characteristic of ice is whether it is solid or broken.



– photo by Richard Shaw

The multi-frequency microwave radiometer measures the minute quantity of electromagnetic energy radiated by ice. The instrument was developed by Richard F. Harrington of the Flight Electronics Division.

Langley scientists have developed two high-precision microwave sensors that are the most accurate in use today. One is a multi-frequency microwave radiometer (a passive sensor) that measures the minute quantity of electromagnetic energy radiated by ice. Langley's Richard F. Harrington, developer of the radiometer, says, "If we measure the physical temperature independently, then we can determine the ice age which, in turn, indicates its thickness and strength."

The second remote sensor is a radar scatterometer developed by Dr. Jones. The instrument transmits a radar signal to the ice surface to determine the percentage of reflection. With this measurement, both the roughness and age of the ice can be inferred.

The polar regions are important to many areas of the world. By monitoring ice changes, scientists think they can gain insight into long-range changes in climate. Results from ice research, for example, can influence crops and food production by enhancing knowledge of future growing seasons. There can also be long-range impact on such fields as energy requirements, transportation, construction and clothing.

The U.S. and Canada have identified year-round shipping as a field that can be potentially aided by ice studies. Liquid natural gas and oil tankers that move through polar ocean routes can particularly benefit. Microwave-based ice data will also aid the Arctic fishing industry, a primary resource of the region. Microwave sensors can determine areas where icy polar waters and the meandering Gulf Stream meet, which is where fish are most abundant.

Polar ice influences Earth's weather because of the global heat cycle. Most heat is absorbed at the equator, transported to the polar regions by atmospheric and oceanic circulation, and radiated into space from the poles. Ice is, therefore, instrumental in insulating the oceans and limiting global heat loss.

Before satellites were developed, scientists believed that the ice cover was basically solid and that global heat loss could be calculated merely by knowing the extent of the ice cover. But within an ice pack, large areas of open water can form and refreeze in as little as 12 hours. These open areas (called polynias and leads) can dramatically affect Earth's heat loss. When the open areas comprise less than one percent of the ice cap, heat loss through them equals that from the remaining ice surface. Better knowledge of ice conditions will improve the ability to make one-to-three-day weather forecasts.

Dr. Jones explains, "Weather in polar regions is strongly affected by sea ice cover. Polar weather moves toward the equator, affecting the more populated midlatitude regions."

Before development of the two Langley instruments, infrared and visible cameras were used in ice research. They were not very effective because the polar regions are usually dark in the winter, and there is generally a total cloud cover at the marginal ice zone. Microwave sensors overcome these problems because they can "see" through darkness and can penetrate clouds. NORSEX scientists, using the instruments, were able to observe subtle ice and ocean characteristics for the first time.

Nine flights over three ice regions were made during NORSEX: five over the marginal ice zone north of Spitzbergen Island (due north of Norway); three over the polar oceanic front near Bear Island (south of Spitzbergen); and one over the Greenland ice sheet (the only investigation of fresh water).

Instruments from three sources were used during the project. Langley scientists flew aboard Earth Survey 2, a C-130 aircraft from NASA's Johnson Space Center. The Nimbus 1 satellite did microwave sensing and mapping of the ice. Ground truth measurements were provided by the ship Polar Circle from Norway's University of Bergen. Simultaneous verification increased the value of the results.

The Langley crew encountered icebergs at Greenland and one glacier about 1,000 feet thick where it met the water. Based on a growth rate of one-half to one meter a year, this ice was estimated to be more than 600 years old.

"The icebergs were an awesome sight," Dr. Jones said. "You see the white of the ice sharply contrasted by the reddish blue of the deep water,

while the surrounding water is so clear that you can see the turquoise color of the ice beneath." During some of the 300-foot-altitude plane flights, icebergs were higher than the aircraft.

Donald Oliver was the laser and scatterometer operator of the three-man Langley crew. Earth Survey 2 has a back ramp that opens to expose the microwave sensors. "The temperatures were extreme," Oliver says, "usually around minus 20 degrees Centigrade."

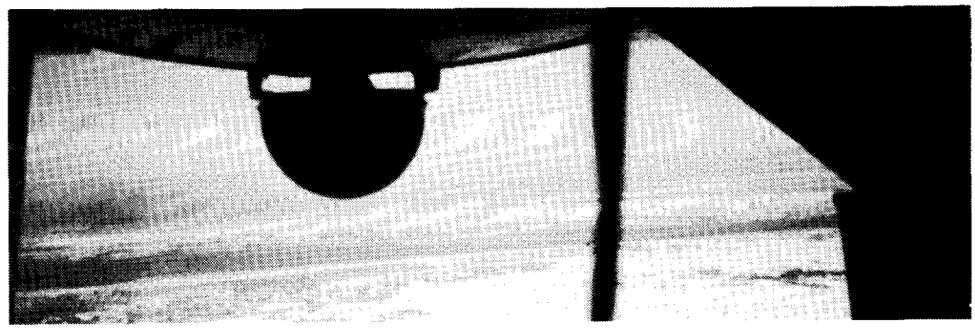
For Oliver, however, the experience was well worth the exposure to cold. "The view was spectacular--especially when we were flying the low-altitude laser runs. The pure white ice was frozen in random geometric patterns. It looked so close--as if you could touch it."

All of the NORSEX participants will meet this fall to exchange data. The Langley scientists are enthusiastic about the future of microwave-based ice experimentation. According to Dr. Jones, "By the mid-80's we hope to have a satellite to measure real-time ice changes and, by 1995 or so, we hope to have true predictive capabilities."

Other participants in the mission were NASA's Goddard and Johnson Space Centers and the Jet Propulsion Laboratory; the Geophysical Institute, University of Bergen, Norway; U.S. Geological Survey, Tacoma, Wash.; Atmospheric and Environment Service, Canada; Michelson Institute, Bergen, Norway; and University of Bern, Switzerland.

Mary Sandy is a Public Relations Specialist at the Langley Visitor Center. Sandy works for Bionetics Corporation, which is under contract to Langley.

The flight crew of the NORSEX ice mission, pictured in front of the Earth Survey 2 at Longyearbyen Airport are (from left) Dr. Linwood Jones; Keith Coover, Johnson Space Center; Donald Oliver; Richard Harrington; and Steve Ruiz, Johnson Space Center.



The scatterometer seen in the tail of the Earth Survey 2 aircraft transmits a radar signal to the ice surface to determine the percentage of reflection. With this measurement, both the roughness and age of the ice can be inferred. The instrument was developed by Dr. Linwood Jones of the Flight Electronics Division.

Alternate Shuttle Thermal System to be Studied

NASA is requesting proposals from private industry to conduct a design study of alternate thermal protection systems for the Space Shuttle Orbiter.

Proposals for the nine-month assessment are due in late April and the study should begin in late June. It will be managed by Langley and is expected to cost approximately $900,000.

The major goal of the study is to determine if a more durable system, requiring less maintenance and a lower life-cycle cost, is or can be made available, based on improvements in thermal protection system technology.

Alternate systems to be studied will include, but are not limited to, metallic, ablative and reinforced carbon/carbon concepts.

The present Orbiter thermal protection system uses ceramic reusable insulation over most of its exposed surface. The insulation has low mass and can withstand the extremely high heating that occurs during re-entry into the Earth's atmosphere, but it has low strength and is brittle in nature.

The ceramic system was selected in the early 1970s as the best then available. No detailed assessment of alternate systems has been conducted since that time, however. The new study will bring into focus any technological advancements in reusable surface insulation that may have occurred during the past eight years.

The study will include evaluation of various kinds of thermal protection systems; provide a detailed assessment of potential benefits and problems that might result from application of alternate thermal protection system concepts; establish guidelines to cope with varied loading conditions and handling, inspection and maintenance; and identify deficiencies in present technology that may require further research and development.

– photo by Hubert Lloyd

William H. Garrison of the Fabrication Division is the first Langley employee to lease a van from the Tidewater Regional Transportation (TRT) Commission. Carol Dixon of TRT recently presented the keys to Garrison, who chauffeurs six employees to and from Williamsburg each day. Garrison said the van is very plush and his riders seem to enjoy the trip. He hopes to increase the number of passengers and will offer a free-trial ride to anyone interested in van pooling. Riding with Garrison are Langley employees Jim Daus; Howard Price; Bill Conkling; Bill Salyer, backup driver; and contractor employee, John Avilies.

Langley Retirees to be Honored with Parties

The Mechanical Development Section Fabrication Division, will host a stag retirement party for those who have retired in the past year. The honored guests will be: **Danny Hutts, Lee McDaniel, Bill Young, Mercer Christian, Durwood Davis, Carl Wagner, Sam Pollard, Rudy Heinatz, Bill Cutchins, Francis Charles, Bob Graham, Allen Vanesse, David Jones, Tandy Powell** and **Cleve Hall**. The party will be held Friday, April 25, at the Holiday Inn, Jefferson Avenue, Newport News. A cash bar social will begin at 6 p.m. and a roast beef dinner will be served at 7 p.m. Cost will be $8.50 per person (no gift). Reservations must be made no later than April 18. Make Checks payable to George Trombley at Mail Stop 222.

Robert L. Girouard, Research Facilities Engineering Division, will be honored with a retirement party Wednesday, April 9, at Ft. Monroe Officers' Club. A cash bar social will begin at 6:30 p.m. and beef and burgundy buffet at 7:30 p.m. Cost is $8 per person or $14 per couple (includes contribution for gift). Contributions for gift only are welcome. For reservations, send check to Mary Henderson, Mail Stop 436, by April 7.

John W. Burgess, Operations Support Division, will be honored with a retirement luncheon Friday, April 11, in the Activities Center at 11:30 a.m. The cost of the luncheon including gift will be $6.50 per person or $12 per couple. Contributions of $1 for gift only will be accepted. Please make reservations by cash or check payable to Tommy Steele, Mail Stop 499, by Tuesday, April 8.

Harold H. Jordan, Operations Support Division, will be honored with a retirement party in the Activities Center Friday, April 18. A cash bar social will begin at 6 p.m. and dinner at 7 p.m. The cost is $7.50 per person. Contributions for gift only are welcome. For reservations, send check or cash to Robert Graham, Mail Stop 166A, by April 11.

James E. Stitt, Director for Electronics, will be honored with a retirement social Friday, May 2, at 6:30 p.m. in the Activities Center. There will be a cash bar and hors d'oeuvres. The cost is $5.50 per person, $10 per couple. Contributions for gift only are welcome. Send check or cash to Nancy Rodgers, Mail Stop 117, by April 25.

Charles B. King will be honored with a retirement luncheon Friday, April 25, at 11:30 a.m. in the Activities Center. The cost will be $6.50, including gift. Contributions of $1.50 for gift only will be accepted. Send check or cash to Mark Shuart, Mail Stop 188A, by April 18.

Officers and Guards Saluted

The officers and security guards of Howard Security Services, Inc. are to be commended for their outstanding performance in providing the Center with essential security protection during the Blizzard of '80.

"During this critical and hazardous period, the officers and guards who were on duty Saturday, March 1, remained on duty through Tuesday, March 4. These dedicated individuals worked around the clock without sleep or food," Winfred L. Jones, Contract Manager, said.

Under the leadership of Lts. Robert H. Haselwood, Silvester Brown, Jr., and Thomas A. Skipwith, an emergency command post was implemented and all essential communications, vehicle patrols and guard posts were established and scheduled with available officers and guards. "As a result of their personal efforts, all contract requirements were met throughout the storm period. This accomplishment can only be attributed to the exceptional leadership of these officers and the professionalism and dedication of the guards," Jones said.

Guards remaining on duty during the four-day period were Merle L. Debolt, Frank L. Chambers, Donald I. Shuler, Robert F. Barkle, Herbert H. Lake, Garrel E. Hailey, Horace G. Pace, Ernest E. Richardson, Gilbert Gradillas, Kenneth W. Bickett, Daril L. Caldwell and Norman Watson.

Shuttle Service Stops

Some of the latest actions to promote fuel savings at Langley will include:

- Halting the Shuttle Service as of Friday, April 11. Studies have shown that the two van shuttles, which carry on the average 13,200 passengers per year, are less efficient than taxis, which carry 20,100 passengers per year. The vans also use more gas: they average 242 gallons a month compared with 120 for the taxis, according to Gary Evans of the Plant Support Branch.

- Purchasing 100 bicycles which will be distributed in the west area. The bicycles, along with racks, are expected to be available by May 1. The radio-dispatched taxis will still be available, but their number will be reduced this spring and on through the fall, when comfortable weather should entice walkers.

Happenings

EASTER EGG HUNT. The annual LAA Easter Egg Hunt will be held Saturday, April 5, at 10 a.m. at the Activities Center. There will be five prize eggs for each age group. Children should bring a basket or bag for hunting eggs.

CONTRACT MANAGEMENT MEETING. The Hampton Roads Chapter of the National Contract Management Association will meet April 10 at 6:30 p.m. at the Newport News Holiday Inn. Dr. John W. Demidovich, Professor of Computer Systems Analysis, School of Systems and Logistics, Air Force Institute of Technology, Wright Patterson Air Force Base, will speak on "Management and Acquisition--Having an Affair with Your Mind." Anyone interested in the government procurement and contracting process is welcome. For more information, call Dan Jacobs, 838-7243.

NASA
Langley Research Center
Hampton, Virginia

APPRENTICE PROGRAM

is now accepting applications for:

- MACHINISTS
- MODELMAKERS
- LABORATORY TECHNICIANS
- WIND TUNNEL TECHNICIANS
- SHEETMETAL MECHANICS

QUALIFICATIONS:
An ASSOCIATE IN APPLIED SCIENCE DEGREE which emphasized mechanical procedures or two years of post high school education with a major emphasis in MATH, PHYSICAL SCIENCE, ENGINEERING, OR ENGINEERING TECHNOLOGY.

CONTACT:
STAFFING AND SPECIAL PROGRAMS BRANCH
NASA
National Aeronautics and Space Administration
Langley Research Center
Hampton, Virginia 23665

TELEPHONE: 804-827-3007

An Equal Opportunity Employer

HAPPY HOUR will be held Friday, April 11, from 4 to 6:30 p.m. in the Activities Center.

GENERAL ASSEMBLY. The Activities Association will hold a General Assembly meeting April 14 at 9 a.m. in the Activities Center. Lunch will be served following the meeting. All delegates and alternates should attend.

DOG TRAINING CLASS. The James-York Dog Training Association, Inc. will register new classes in kindergarten puppy training and basic obedience Thursday, April 17, at the Hampton Armory on North King Street, Hampton. Registration will be at 7 p.m. with classes from 7:30 to 8:30 p.m. Please bring dog's up-to-date shot record. For further information, call 874-5706 or Garl Gentry, extension 3611.

BROWN BAG SPECIAL. A Brown Bag Special film will be shown at 11:30 a.m. and 12:15 p.m. in Building 1212, Room 200, on Friday, April 11. "If You Don't, Nobody Else Will" reinforces the concept that learning is the life-long responsibility of each individual. The challenge is issued to each individual to join a very select group and take responsibility for a personal program of self-development.

LAA TRAVEL. Enjoy a six- or seven-day vacation starting May 28 with a cruise from Norfolk to Nassau. There are optional two- or three-day "stay over" packages with cruise priced from $395 per person; quad accommodations are available. Packages include fly-back from Nassau to Norfolk and are all inclusive, except food during the "stay over."

Other discounted travel packages from Tidewater include Las Vegas from May 16 through 19 with choice of hotels; Rome/Munich from July 20 through August 4 with optional passion play at Oberammergau; and Hawaii from October 6 through 16 which includes visits to three islands.

For additional information and brochures, call the Activities Office, extension 3139, or Ernie Greene, extensions 2312 or 838-0567.

Flint to be Visitor Center Distinguished Lecturer

Colonel Walt Flint, Curator of Astronautics at the National Air and Space Museum, will give the second lecture in the Visitor Center's Distinguished Lecturer Series Friday, April 18, at 8 p.m. Flint, the 1980 AIAA Distinguished Lecturer on Manned Space Flight, will discuss "The History of Manned Space Flight." Using National Air and Space Museum artifacts to illustrate his talk, he will chronicle our past achievements in astronautics and describe plans for America's future in space.

The free lecture will be held at the Visitor Center. Langley personnel and their families and guests are invited to attend.

Flint has been the Curator of Astronautics at the National Air and Space Museum since 1975. A former Air Force officer, he was Director of the Air Force's Strategic Missile Division from 1971 to 1973. On assignment to NASA, he served as Manager of the Apollo Program Management Center from 1968 to 1970 and was Program Control Officer at the Apollo Program Office from 1966 to 1968. From 1963 to 1966 he was Chief of the Atlas/Titan Office at the Air Force Systems Command and from 1958 to 1963 was Director of Test Operations at Cape Canaveral, Florida. He has a bachelor of science degree in engineering and master of science degree in instrumentation and aeronautics. An Air Force Command Pilot, he has over 4,500 hours of flight time.

Former members of the Space Task Group, and other Langley employees who worked in the manned space program, will be honored guests at the lecture and at a special reception preceding the lecture. The closed, cash bar reception will be held in the Visitor Center theater at 7 p.m. A cash bar social will be given for all attendees following the lecture.

As seating capacity is limited, those wishing to attend must pick up a ticket at the Visitor Center by April 15. Space Task Group personnel who wish to attend the reception in their honor should call Kathy Cockburn, extension 2855.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Plant Your Garden

The NASA Vegetable Gardens Club has opened the 1980 season.

If you wish to plant a garden at NASA, send your name, mail stop, office phone, home phone, size of plot desired (20' x 20' or 20' x 40') and color of corn to be planted (if any) to M. Jack Neubauer, Mail Stop 249B. Please state whether you are willing to plant club-provided flower seeds along one border. A waiting list will be maintained when plots are filled.

Hearing Loss Seminar

"Avoiding Hearing Loss," the second in a series of health seminars presented at Langley, will be held Thursday, April 10, from 8:30 to 11:30 a.m. in the Activities Center.

Henry Hecker, Audiologist and President of Hearing Evaluation and Noise Protection Association, Inc., will discuss ear noises and the effect of hearing on human communicative ability.

Budget

Continued from page 1.

of program management, according to Lovelace.

NASA's Technology Utilization Program has been reduced by $1 million, but the exact effect on Langley's TU work has not yet been determined.

Research and Program Management funds for Langley will be reduced by about $1.5 million. How this will affect Center activities is being studied.

In his summary, Lovelace told the Congressional committee that "reductions on NASA's programs will be significant," but they "do not constitute permanent losses . . . . I believe they reflect the best possible set of near-term spending reductions in support of the President's anti-inflation program."

swap and shop

FOR SALE

Articles

Everett spinet piano, mahogany, just tuned, GC, $525; first 20 issues of "Backpacker" magazine. Call Youngblood, 877-1224, after 4 p.m.

Electric hot water heater, EC, $75. Call Carol Olsen, 898-4727.

Minn Kota electric trolling motor, model 15, $50 OBO. Call 851-4675.

Stallion riding lawn mower, 7 hp, 32" cut, adjustable cutting height, and trailer, $250 or best reasonable offer; two 10-gal. aquariums, $7 each. Call 722-0710 after 5 p.m.

Vehicles

1968 Plymouth station wagon, GC, $295. Call Youngblood, 877-1224 after 4 p.m.

Sunfish sailboat: AMF 1979 model with Trailex trailer model TX 200 (lightweight); boat has been used approximately seven times; both in EC, $1,100. Call 596-3394.

Animals

Cocker Spaniel puppies, AKC reg., blonde, one male, two fem. es, $10[illegible] each. Call Miller, 898-6944.

FOR RENT

Sandbridge: New cottage, liv-din-kit, 4 BR, washer, dryer, dishwasher, fireplace, 1/2 block from beach and Back Bay (freshwater), AC, phone, 6-car parking; summer rates $400/wk. Call Kent, extension 3095 or 420-8391.

FOUND

One gold pierced earring in front of the Cafeteria, Building 1213. Call Barry Hogge, extension 2201, to claim.

WANTED

Persons interested in joining car pool from Norfolk to West area on 7:30 a.m. shift, call Hudgins, extension 3072.

cafeteria menu

WEEK OF APRIL 7

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Pineapple Chicken; Pork Chops Over Spanish Rice. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad Sandwich; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Beef Balls Stroganoff Over Noodles; Spanish Pot Roast. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Country Style Steak; Little Smokies Casserole. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Shrimp in a Basket; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Meatloaf; Chicken a la king. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF APRIL 14

MONDAY: Ham & Lima Bean Soup; Savory Baked Chicken; Pork Steak; Quiche Lorraine. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island 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; Half-pound Chopped Steak. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

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

FRIDAY: French Onion Soup; Fish Dinner; Chicken Chow Mein; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Recent Retiree

John W. Burgess, Operations Support Division, retires today.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 8

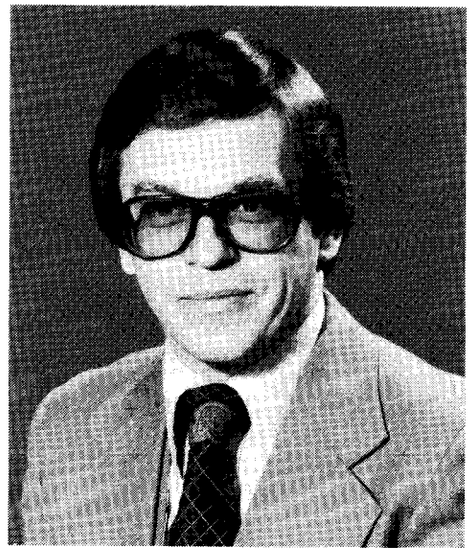
April 18, 1980

McCormick Receives Arthur Flemming Award

Dr. M. Patrick McCormick, Head of the Aerosol Measurements Research Branch, Instrument Research Division, has been presented the Arthur S. Flemming Award by The Downtown Jaycees of Washington, D.C.

Honored as one of 10 outstanding young Federal government employees of 1979, McCormick received the award for his outstanding achievement in the development of instrumentation and measurement techniques for the analysis of particulate aerosols in the atmosphere, for leading the scientific community in making correlative measurements of atmospheric aerosols in the northern and southern hemispheres with ground-based and airborne lidar, and for his alertness in making the earliest measurements of the aerosols injected into the stratosphere by eruption of the Volcanos Fuego in 1974 and La Soufriere in 1979.

This is the 32nd year that The Downtown Jaycees have presented the Flemming Award to recognize those who



have performed outstanding and meritorious work for the Federal government. The award was presented to McCormick at the Jaycees' awards luncheon in Washington, D.C., April 11.

A native of Canonsburg, Pa., McCormick graduated from Canonsburg High School in 1958. He received a bachelor of arts degree in physics in 1962, graduating with honors from Washington and Jefferson College in Washington, Pa. He earned a master of arts degree in physics in 1964 and a doctorate in physics in 1967 from the College of William and Mary in Williamsburg.

McCormick began his NASA career in August 1967 as an aerospace technologist in Langley's Instrument Research Division. In January 1970 he was named senior systems engineer for Fairchild Hiller in Germantown, Md. McCormick returned to Langley in May 1970 as Head, Photo-Electronic Instrument Section in the Instrument Research Division. In June 1975 he was appointed to his present position, where he develops techniques and performs studies and measurements on atmospheric aerosols and gases. He is the experiment scientist and science team leader of two satellite experiments which are orbiting earth and providing new data on stratospheric aerosols and ozone.

The author or co-author of over 50 technical publications, McCormick has received seven NASA Group Achievement Awards. He is a member of the Optical Society of America, American Geophysical Union, Joint Organizing Committee of GARP on Aerosols and Climate and Committee on Laser Atmospheric Studies of the American Meteorological Society. He has been the co-chairman and a member of the organizing committee for many scientific conferences and workshops on atmospheric research.

McCormick is President of Washington and Jefferson College's General Alumni Association and President of the National Wrestling Officials Association which promotes officiating consistency throughout the nation. He represents

Continued on page 6.

Breakfast Honors Langley Secretaries

Langley secretaries will be honored with a special breakfast Tuesday, April 29, at 8:30 a.m., in the Activities Center.

The theme for the Secretaries' Day Program will be "Communication," featuring a mini fashion show titled "Clothing Speaks."

Guest speaker at the breakfast will be Dr. Carol Siemon, Acting Director of Counseling Services at Christopher Newport College since August 1979. She will speak on "You Can't *Not* Communicate."

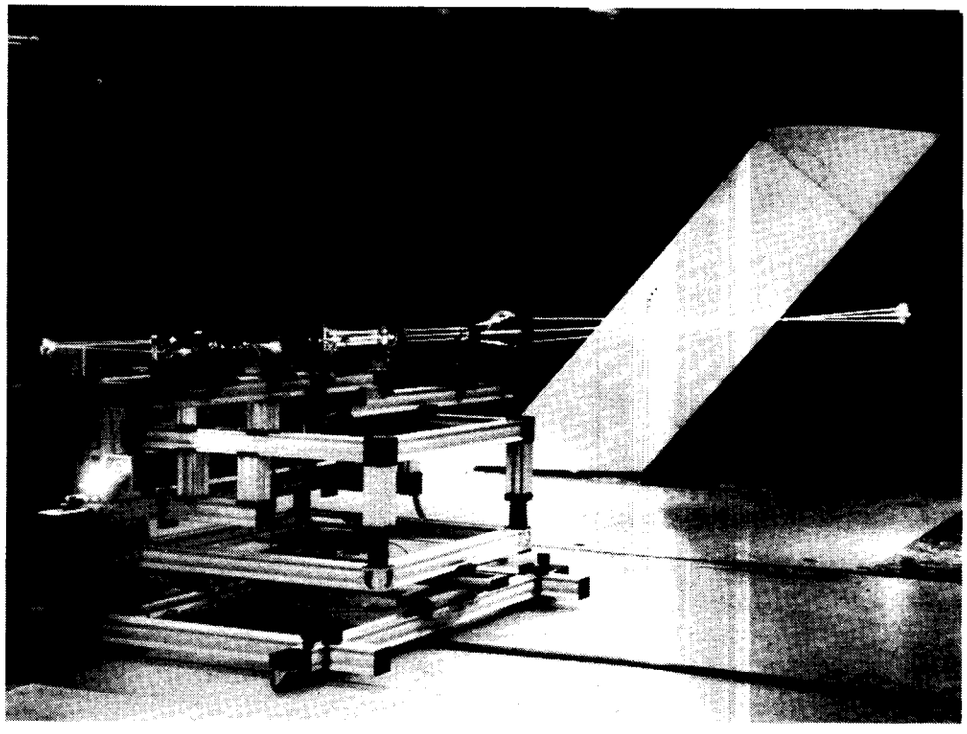
Siemon received a master of science degree in rehabilitation counseling and a doctor of philosophy degree in guidance and educational psychology, both from Southern Illinois University.

Prior to her appointment at Christopher Newport College, Siemon was an elementary school teacher, a part-time editor of social studies textbooks, a counselor in a community mental health agency and a counseling psychologist.

Siemon's special interests include working with women and men in transition and in mid-life crises, personal growth counseling, stress management, assertion training, communication skills training, marital relationship counseling, and individual and group psychotherapy.

The menu for the third annual breakfast will be sausage, scrambled eggs, hash brown potatoes, 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 Bob Nye

An argon laser velocimeter is shown undergoing proof-of-concept testing recently in the V/STOL tunnel. By injecting kerosene vapors into the tunnel flow, researchers are able to measure particle velocities at the trailing edge of the wing. This system is the first to measure the flow along three axes of direction from one point, and is also the largest tunnel application of such a system to date. The Measurement Physics Branch of the Instrument Research Division is developing and coordinating laser velocimeter use in several tunnels around the Center.

Langley to Host Mechanisms Symposium

Aerospace and aircraft design engineers from throughout Europe and the United States will assemble at Langley on May 1 and 2 for the 14th Aerospace Mechanisms Symposium. The symposium will be held in the Activities Center, Building 1222, beginning at 8:15 a.m.

The symposia, sponsored by the California Institute of Technology, the Lockheed Missiles and Space Company, Inc., and NASA, are the only meetings in the world specifically devoted to the problems of design, fabrication and operational use of aerospace and aircraft mechanisms. They provide a stimulating forum of technical interchange among people active in aerospace technology and have gained, over the past years, national and international prominence.

Twenty-six papers will be presented during the symposium, covering a variety of topics, including aircraft mechanisms and Space Shuttle Orbiter mechanisms. Authors will discuss irregularities that occur during design and development of mechanisms, and participants and attendees will exchange viewpoints.

In addition to the mechanism papers, a Langley speaker will discuss the National Transonic Facility, a unique wind tunnel designed to test advanced transport aircraft models at aerodynamic conditions representative of their actual cruise flight conditions.

The symposium Chairman is Dr. Charles W. Coale of Lockheed. Alfred L. Rinaldo of Lockheed is Operations Chairman and James H. Parks, retired Langley Manager, is Host Chairman and Master of Ceremonies. Tom F. Bonner, Jr., of the Systems Engineering Division, is the symposium organizer.

Secretaries Week

April 20 - 26

Langley Employees Support Bloodmobile

Two hundred thirty-four pints of blood were donated at the March 19 visit of the Red Cross Bloodmobile.

The next opportunity to give blood will be June 4.

Achieving gallon status were:

5 gallons – Lewis A. Horsley, Merle S. Ott and Nelson Seabolt.

4 gallons – James L. Dillon and Jarrell R. Elliott.

3 gallons – George Trombley, Joseph Dixon, Alphonzo Rackley, David J. Gordinier, Joe Woolsey and Curtis Bennett.

2 gallons – William E. Sanders, Daniel Soloman, Wayne Matthews, Jerry H. Allen and John A. Tanner.

1 gallon – Theresa C. Walker, Tommy C. Steele, David P. Nicholls, Benjamin Guenther, Norman McRae, John Singleton, Charles Nichols, Carl E. Freeman and Robert Calloway.

Donating blood for the first time were Ann Suit, Vernon Watkins, Lonnie Combs, Chris Harris, Richard Paquin, Judith Shore, Joe Washington, Thomas Jordan, Janet Cucura, Evangeline Wheeler, JoAnn Harris and Jim Branstetter.

NASA Coordinator for the Bloodmobile was Robert L. "Scotty" McArthur. Red Cross Coordinator was Fran Williams.

Film Earns Award

The NASA motion picture "Planet Mars" received the Bronze Plaque at the 11th International "Nikola Tesla" festival of Scientific and Technical Films, 1980, at Belgrade, Yugoslavia. The award was presented in the Scientific Research Category.

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.

'New Discoveries in Old Virginia' Featured at Colloquium

A lost township, *Wolstenhome Towne*, and its fort, as well as homesteads and a complete plantation, all dating from the early 17th Century, have been discovered at Carter's Grove Plantation near Williamsburg. These archaeological revelations, which have received national and international attention, will be discussed at the Langley colloquium Monday, April 28.

Ivor Noel Hume, Resident Archaeologist for the Colonial Williamsburg Foundation, which owns and exhibits Carter's Grove Plantation--now the site of the newly found township--will speak on "New Discoveries in Old Virginia" 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.

Noel Hume 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. Free tickets are available at the Coliseum box office.

These new, unexpected discoveries near Williamsburg have not only opened a door to the understanding of life and death in early Virginia, but have contributed important facts to a wide variety of subjects, from the evolution of armor and ladies' hair styles, to shoemaking and the mechanics of English colonization, both in America and in Ireland.

Noel Hume's talk coincides with an exhibition of these discoveries which will open at the National Geographic Society's headquarters in Washington, D.C., April 22 and will remain there until March 1981. He will preview a story to be more widely told in a television film due for release later this year, using approximately 300 color slides to illustrate the presentation.

Born in London, Noel Hume was educated at Framlingham College and St. Lawrence College in England. During World War II he served with the Indian Army.

In 1949 he joined the staff of Guildhall Museum in London as an archaeologist. From 1953 to 1954 he was also an honorary curator of the John Evelyn Museum in London.

Noel Hume first came to Colonial

Williamsburg in 1956 as an archaeological consultant on leave from Guildhall Museum. In February 1957 he resigned from Guildhall to accept the appointment as Chief Archaeologist at Colonial Williamsburg. In 1959 he became a Research Associate of the Smithsonian Institution, an honorary position he still holds. He became Colonial Williamsburg's Director of the Department of Archaeology in 1964 and was named Resident Archaeologist in 1973.

The speaker is well-known, both here and in England, for his books on archaeology and his articles in leading magazines and journals. He has written radio and television feature scripts on archaeology and natural history for BBC and has given many talks on these subjects on radio and television networks, plus contributing radio news stories on special events, including the Jamestown Festival and Williamsburg. He was writer/director for the Colonial Williamsburg film on archaeology, "Doorway to the Past," writer and on-screen narrator for "Search for a Century," the Colonial Williamsburg Foundation film on archaeology at Carter's Grove.

– photo by Don Ward

A healthy curiosity goes hand in hand with science, as these Langley researchers, scientists and administrators demonstrated this week when a liquid natural gas-powered car was exhibited at the Center. Developed by Beech Aircraft, the LNG-fueled Pontiac Phoenix has an 18-gallon cryogenic tank in back which is a spin-off from the Apollo days. Roy Adkins of Beech said converting the car to LNG takes about 8 hours, but the fuel now sells for between 26 and 42 cents per gallon. Beech is also exploring the possibility of powering aircraft with natural gas.

Flint Speaks Today

Colonel Walt Flint, Curator of Astronautics at the National Air and Space Museum, will speak on "The History of Manned Space Flight" at 8 p.m. today in the Visitor Center.

Langley personnel and their families and guests are invited to attend the lecture. For tickets, call Kathy Cockburn, extension 2855, by 4:30 p.m. today.

How to Please Your Secretary

(Editor's Note: The following article appeared in a recent issue of The New York Times. It was written by Miranda Morse, a pen name for a freelance writer who was a secretary for 20 years.)

You've finally found a top-notch secretary. She's poised, intelligent, has a sense of humor, excellent skills—and takes the work as seriously as you do. Congratulations! You're ready for Morse's Rule of Twenty:

1. Always glance at your watch when she arrives in the morning—it'll keep her on her toes. (Exception: when she gets in early, pretend not to notice.)

2. Having her serve your coffee is one of the delightful prerequisites of executive life; don't disturb the chain of command by occasionally bringing *her* a cup.

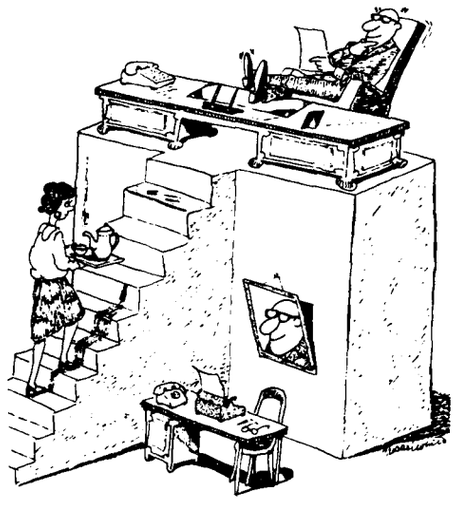
3. Tell her all about your plans for vacationing at St. Tropez. It's the little personal touches that humanize the boss/secretary relationship.

4. Don't ask her if she had a nice weekend—she may start to tell you about it, and you have a lot of important things to attend to.

5. Dictate your letters right off the top of your head. A good secretary expects to do three or four revisions.

6. When she's typing a 25-page document that has to go out by noon, buzz her and ask her to handle some small detail for you. She'll appreciate the change of pace.

7. Ask her to do your personal banking. It will give her something to



aspire to when she sees your bank balance.

8. Refer to her as "my girl." It'll keep her feeling young at heart.

9. When she's totaling your luncheon expense record while brown-bagging it with a tuna sandwich, comment enthusiastically on the virtues of homemade food.

10. If she's eating in, buzz her about halfway through her lunch hour and say: "As soon as you're free . . ." This will help her to realize the urgency of the day's tasks.

11. Pay no attention to complaints that she can't read your handwriting—your mother can read it, so it can't be that bad. Besides, if you had taken the time to learn to write legibly, you wouldn't be where you are today.

12. Ask her to make photocopies of articles that interest you personally. She'll be impressed by your broad range of concerns.

13. When she's trying to meet a deadline, don't offer to pick up your own phone calls. It might set a dangerous precedent.

14. Don't hesitate to have your spouse and children ask her to do their personal typing. It promotes that "one big happy family" feeling.

15. Ignore her hints that her salary is not keeping up with inflation. After all, how can you stay abreast of inflation if the people on the lower levels keep getting more money?

16. Do a lot of silent pondering while she's in your office with her shorthand book. The long pauses will give her time to admire the depth of your thinking.

17. Insist that she help out the other secretaries when they fall behind. She'll enjoy the camaraderie of the steno pool.

18. When she calls in sick, make her realize how much it inconveniences you. This will encourage her not to malinger.

19. Leave that all-important letter until 4:52 P.M. Don't mention it ahead of time, though, or she'll think up some reason why she has to leave at 5:00.

20. When she hands in her resignation, don't waste time on introspection. Remember that many secretaries are just plain capricious. As Freud once said so perceptively, "What do these women want?"

Lightning Technology Symposium to be Held at Langley

Two hundred representatives from the United States and a number of foreign countries will participate in an International Symposium on Lightning Technology April 22 through April 24 at Langley. The symposium is sponsored by the Federal Aviation Administration, the Florida Institute of Technology and NASA.

During the three-day symposium, 34 papers will be presented on several facets of lightning technology, including phenomenology, instrumentation and measurement, detection and tracking, protection of ground systems, interaction and simulation, and testing. Open forums will be held on the protection of ground systems and simulated lightning testing.

The attendees will be welcomed to the symposium by James E. Stitt, Director for Electronics, at 9 a.m. in the Langley Activities Center, Building 1222.

Dr. Karl Berger, who established the Lightning Research Station at Mount San Salvatore, Switzerland, will give the keynote address.

For 30 years, Berger conducted lightning experiments at the Lightning Research Station which provided a large amount of scientific data on lightning characteristics. He devoted his technical career to research on high-voltage and lightning transients. In 1928 he developed early cathode ray tube oscillographs in preparation for high-voltage and lightning research.

Berger has published numerous articles on lightning physics. For eight years, he was chairman of the Lightning and Sferics Subcommission of the International Commission on Atmospheric Electricity, a commission within the International Council of Scientific Unions.

Change Your Clocks

Daylight Savings Time begins Sunday, April 27, at 2 a.m. Remember to turn your clocks forward one hour before retiring Saturday, April 26.

Langley Environmental Office Meets Goal, Closes

The office at Langley that literally got NASA's environmental program off the ground during the 1970's has successfully completed its mission and closed its doors.

The Environmental Quality Projects Office (EQPO) was established at Langley in 1972 to lead NASA's efforts to plan and implement an environmental quality program. With its assignment completed, EQPO has turned future work over to the NASA Headquarters Office of Space and Terrestrial Applications.

In the early 1970's, in response to a growing national concern for protecting the quality of the environment, NASA decided it could help by monitoring and interpreting environmental data from satellite-borne experiments.

Langley was chosen as the NASA "focal center" for the work because of its leadership in remote sensing research and in advanced instrumentation developments. At the same time, other NASA centers were given similar responsibilities: Johnson Space Center, earth resources studies; Goddard Space Flight Center, meteorological research; and Ames Research Center, aircraft flight programs.

EQPO, while physically located at Langley, reported directly to NASA Headquarters, coordinating the research of several NASA centers and making program and budget recommendations to Headquarters.

The Langley share of environmental quality research has grown from a $50,000 program employing about 25 people to a $20 million program that--at its height--had more than 200 people, not counting the Environmental Quality Projects Office itself. EQPO never numbered more than 17 people at Langley, but they were in the middle of many projects.

John Mugler, last head of EQPO, is quick to point out that the contribution of his relatively small staff was primarily administrative: to formulate, package and promote the kinds of environmental research projects they thought NASA could do best.

The most visible evidence of the NASA work has been the orbiting of environmental experiments aboard a continuing series of satellites.

While public attention was focused on the diplomatic significance of the Apollo-Soyuz mission in 1975, a Langley experiment aboard the Apollo spacecraft was quietly taking environmental measurements in the stratosphere. SAM (Stratospheric Aerosol Measurement) was one of many experiments that flew on the mission, but it marked the beginning of the NASA space flight program for environmental research as formulated by EQPO.

The first mission dedicated to monitoring environmental quality was the Nimbus-G satellite, launched in September 1978. Three Nimbus experiments investigated air pollution: one was contributed by the United Kingdom, and two are products of EQPO-sponsored work at Langley. One Langley experiment, LIMS (Limb Infrared Monitoring of the Stratosphere) is providing infrared measurements of ozone, water vapor, nitrogen dioxide and nitric acid; the second Langley experiment, SAM II, is taking a closer look at aerosols in the atmosphere.

SAGE (Stratospheric Aerosol and Gas Experiment) added to the alphabet soup of satellite-launched experiments in early 1979. Its sole mission is to determine the distribution of stratospheric aerosols and ozone on a global scale.

Satellite measurements of the Earth allow a broad view of pollution and weather systems that transport it. Pollution that begins in one region may often affect either the environmental quality or the weather of another region but, without the long-distance view of an orbiting spacecraft, it may not be obvious.

— photo by Bob Nye

Don Lawrence and Mugler, seated, compare notes on their years in the Environmental Quality Projects Office. As the first and second heads of the EQPO, respectively, they guided the office from its modest inception in 1972 until its successful conclusion last month. Mugler has been reassigned as Lawrence's assistant in the Atmospheric Environmental Sciences Division.

A favorite example cited by Bob Rhinehart, EQPO technical assistant for eight years, is a satellite picture of Gary, Ind., and the eastern shore of Lake Michigan, taken one recent winter. Wihout that picture, it would have been very difficult to convince a steelworker in Gary that pollution from his plant and others contributed to a snowstorm on the shore of Lake Michigan, 75 to 100 miles northeast of Gary.

The photo was as clear as a roadmap. Particulates from the steel mills had combined with water vapor and could be seen as cloud-like plumes extending from Gary straight into a huge cloud over the eastern half of the lake. Exactly parallel to the cloud, for many miles inland, was a white blanket of freshly fallen snow.

In spite of impressive technological achievements by NASA in designing remote environmental sensors and putting them into orbit, Mugler puts those achievements into perspective by explaining that "the satellite flight programs are a means to an end, not the end product itself."

The success of the multi-center research program that has

Continued on page 6.

McCormick

Continued from page 1.

college officials at the Annual Wrestling Sports Committee's Rules Interpretation Meeting and has authored many articles on officiating. He has refereed 12 NCAA Division 1 tournaments (four years as chief official) and numerous college and high school championship tournaments during his 16 years of officiating.

McCormick and his wife, the former Judy Moyer, live in Hampton with their two children, Lynn and Michael.

EQPO

Continued from page 5.

evolved is measured in the vast amount of useful information that NASA experiments have made available to the scientific community and to agencies like the EPA, the National Oceanic and Atmospheric Administration, the United Nations and others.

The growth of NASA's program has also been good for the agency and for Langley, according to Mugler. "Because of our focal center responsibilities," he says, "Langley has been able to build an aggressive, and still enlarging, atmospheric and water quality program.

"Our water quality program is still maturing, heading toward dedicated experiments on future spacecraft. With a budget of about $1 million a year, it is a major research and technology effort using theoretical models, laboratory studies, data from aircraft and limited supporting data from satellite programs like Landsat, Seasat and Nimbus-G. NASA had a head start in studying the atmosphere—and water quality is harder to measure—so the water program is where the atmospheric program was a few years ago."

Both air and water programs will get a boost during the 1980s from experiments to be flown in Earth orbit with the Space Shuttle. In fact, a Langley experiment fostered by EQPO is scheduled as one of the first to fly. The second Shuttle flight--the first with science experiments aboard--will carry MAPS (Measurement of Air Pollution from Satellites). It will take a look at carbon monoxide in the lower atmosphere.

The Shuttle will also carry HALOE. This experiment is being designed at Langley to survey and map the distribution of several environmentally significant gases in the atmosphere called halogens.

Three more Langley products which will contribute to environmental studies are proposed for Shuttle flights: Shuttle LIDAR (Light Detection and Ranging) is planned for an extensive series of flights; NOSS, the National Oceanic Satellite System, is scheduled to carry, among other things, an experiment with a water color sensor; and UARS (Upper Atmospheric Research Satellite) would study a wide range of chemistry and other factors unique to the upper atmosphere.

Continuing research and a growing reservoir of satellite information will give testimony to the effectiveness of the Environmental Quality Projects Office long after its disestablishment.

– photo by Fred Jones

In 1979 Sanger M. Burk, Jr., was presented the NASA Handicapped Employee of the Year Award (posthumously). Burk worked in the Flight Mechanics Division. On Friday, April 4, Langley Director Don Hearth presented Mrs. Burk and sons, Stuart and Darrell, the certificate and letter signed by President Carter. Mrs. Burk and sons are shown here receiving the NACA wings from James S. Bowman, Jr., FLTMD. The wings were among many mementos presented to the family by friends and co-workers at the spin tunnel and throughout NASA.

Management Urges Traffic Safety

With warm weather fast approaching, there will be more pedestrians crossing streets on the Center and more visitors to add to the crowd. In addition, as an energy conservation measure, the number of bicycles has been doubled which will result in further need for caution by cars and other vehicles.

Two accidents last year resulted in personal injuries. For the most part, the accidents were caused by the failure of vehicle operators to obey traffic regulations, to maintain control of their vehicles and their inattention to driving safety.

A recent survey conducted with radar surveillance disclosed that some drivers are exceeding the posted speed limits on the Center, threatening the safety of pedestrians and other drivers as well. Excessive speed is a potential cause of most serious accidents.

For these reasons, within the next several weeks, radar units will be used to curb excessive speed. Drivers who violate the posted speed limits will be stopped, identified, and warned of the seriousness of their actions. Disciplinary actions range from reprimand by immediate supervisor to suspension of driving privileges on the Center.

In addition to moving violations, there are certain standing violations, such as improper parking, that have also become a problem on the Center. The most dangerous parking violations are vehicles parking in the fire lanes and on streets in a manner that obstructs the normal flow of traffic. The "No Parking" areas on the Center are imposed for the safety of all personnel and are plainly marked.

For the protection of all personnel and visitors, we again ask that you comply with the posted speed limits and parking regulations on the Center.

Happenings

HAPPY HOUR will be held Friday, April 25, from 4 to 6:30 p.m. in the Activities Center.

BASKETBALL COMPETITION. The LAA Sureshot Basketball Competition will be held Saturday, April 26, at 10 a.m. in the Activities Center. All NASA and contractor parents are invited to bring their children. Awards will be given to the winners of three age groups: 9–10, 11–12 and 13–15.

HONEY BUNCH. The NASA Langley Apiculture Club will meet Monday, April 21, from 7 to 9 p.m. in Building 1209, Room 180. The program will include a discussion on "Honey Bee Diseases." For additional information, call Ronnie Henk, extension 4637.

Second Commuter Bus Available

A second commuter bus 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 7 a.m. to 3:30 p.m. shift.

The bus schedule is stated below; additional stops will be considered upon request.

5:50 a.m.	Gloucester Safeway Shopping Center
5:55	White Marsh at Rich's sign
6:00	Ordinary at restaurant
6:05	Hayes at rescue squad lot
6:10	Gloucester Point Post Office
6:45	Arrive at NASA

For fare information, call George Turner, extension 3581.

Bruce Graham, driver of the bus for the 8 a.m. shift, still has seats available on his bus. Contact him on extension 2103 if interested in this service.

9th Intercenter Meet Planned

NASA's 9th Intercenter Running Competition, sponsored by the Dryden Flight Research Center, will feature both a 2-mile and a 10-km race. These events, which must be conducted between April 20 and May 10, are open to all NASA employees, including co-ops at work; retirees, on-site contractor and university personnel; and dependents.

The races will be held at 12 p.m. at the Bethel High School track and at 5 p.m. on Cinder Road (near the Activities Center) on the days listed below:

Tuesday, April 22	–	2 miles
Tuesday, April 29	–	10 km
Tuesday, May 6	–	2 miles
Thursday, May 8	–	10 km

For those unable to run on the above dates, Saturday, May 3, has been scheduled at Langley on Cinder Road. The 2-mile race will start at 10 a.m. and the 10-km race at 11 a.m.

Each participant who finishes will receive a ribbon for their accomplishment, in addition to helping Langley score points. A special award will be given to the winner in the following age groups:

Men	Women
29 and under	29 and under
30 – 34	30 – 39
35 – 39	40 and over
40 – 44	
45 – 49	
50 – 54	
55 and over	

For further information, call John Hoppe, extension 2466.

Thanks

Ernestine F. Martin writes, "I wish to express my appreciation and thanks to the individuals who planned my retirement luncheon, attended the occasion and contributed to the beautiful gifts. The opportunity to visit with so many friends and co-workers made it a truly memorable affair."

Langley's Campaign Begins May 5

Safety Record Needs Improvement

The NASA safety record has been a growing concern to all levels of management in recent years. Despite a reduction in our level of staffing, the number of accidents and mishaps with associated loss of time has increased.

According to Walter C. Hoggard, Systems Safety, Quality and Reliability Office, the Safety and Occupational Health personnel at Langley have developed a plan to reverse this alarming trend and are asking the support of the entire staff in achieving a major improvement in our overall safety record.

"Management intends in forthcoming weeks to give major emphasis to our facility safety inspections and line supervisors are being encouraged to hold periodic safety meetings with employees," Hoggard said. The Safety and Health staff will assist supervisors in development of appropriate programs for such discussions. Training films and aids are available.

Sexual Harassment Seminar Held

"Men and Women Working Together: Harmony or Harassment?" was the theme of a seminar for managers and supervisors presented March 21 at Langley. Speakers for the occasion were Marguerite C. Finnerty, consultant to the Office of Personnel Management and a partner in the consulting firm of Human Assets Management, and Arlene Levine, an instructor at Thomas Nelson Community College and a partner in Human Assets Management.

Since more men and women are working together in today's society, supervisors and managers should insure that the work environment is a harmonious one. Lack of harmony, in some instances, could take the form of sexual harassment. Levine and Finnerty discussed the problems that can arise in the work environment which could be designated "sexual harassment," the effects of sexual harassment on the indivisual and the work environment, courses of action for the victim and the organization, responsibility of supervisors and managers, legal ramifications and OPM's policy on sexual harassment.

Video tapes of the seminar are available in the Learning Center.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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GE washer, GC, $50. Call 838-4024 anytime.

Truck radio, G.M., AM, push button, EC, $20. Call 851-6640.

New tiller, 6 H.P. Jet, Tecomseh engine, convenient swing-away handles, furrow attachment, EC, $295 firm. Call 898-6319.

Stallion riding lawn mower, 7 hp, 32" cut, adjustable cutting height, and trailer, $250 or best reasonable offer; two 10-gal. aquariums, $7 each. Call 722-0710 after 5 p.m.

Vehicles

Bicycle: boy's 24 inch, 10 speed, 3 years old, EC, $45. Call 877-0493.

1960 Chevrolet El Camino, GC, very reliable engine, small 283, V-8 block, AC, 3-speed trans. (column) $2,000. Call 827-9127.

1977 Honda Accord, 5-speed, AC, AM/FM radio, mag wheels, EC $4,975. Call Melton, 722-8824.

1979 Ford Mustang, Hatchback, PS, PB, AT, V-6, AM/FM radio, EC, $4,800 negotiable. Call Hardison at 826-8181 after 5 p.m.

Pickup, '78 Ford F150, 4-wheel drive, PS & PB, 4½-inch lift kit, roll bars, 6-foot bed, $5,400. Call 723-6495 after 4:30 p.m.

Real Estate

Williamsburg waterview lot, 1+acre, underground utilities, water sports on river. $15,000. Call 220-0677 after 5 p.m.

Woodland Terrace: rancher, 3 BR, LR, DR, 1½ BA, lrg. eat-in kit, 12x21 FR, exc. location w/no thru traffic, $51,500. Call 851-6989 after 5 p.m. weekdays.

Animals

Cocker Spaniel puppy, female, buff color, AKC, shots, 7 weeks old. Call Miller, 898-6944.

FOR RENT

Windsor Great Park: 4 br, 2½ Ba, LR, DR, FR w Fp, eat-in kitchen, ref., dishwasher, disposal, drapes, good neighborhood schools, $400/mo, available June. Call extension 3518 or 874-1856 after 6 p.m.

Sandbridge: New cottage, liv-din-kit, 4 BR, washer, dryer, dishwasher, fireplace. ½ block from beach and Back Bay (freshwater), AC, phone, 6-car parking; summer rates $400/wk. Call Kent, extension 3095 or 420-8391.

WANTED

Driver for car pool 7:30--4:00 or 8:00--4:30, West Area, from Robanna Shores in Seaford. Call Elksnin 827-4666.

One and one-half acres plus with woods, reas., near Williamsburg or Yorktown with site for building and garden, good road, elect. avail. Under $12,000. Call 898-6719.

Car pool members from Denbigh area who are interested in going from NASA to the Health Spa three afternoons a week after work. Call Don Brown, extension 2352.

Persons interested in joining car pool from Norfolk to West area on 7:30 a.m. shift, call Hudgins, extension 3072 or Norfolk 587-9023.

cafeteria menu

WEEK OF APRIL 21

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Shrimp in a Basket; Chicken Pot Pie. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad: Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Spanish Pot Roast; Pork Chops; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Meatloaf; Swiss Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers; Beef Balls Stroganoff; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Barbecued Chicken; Ham & Cheese Omelette. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF APRIL 28

MONDAY: Ham & Lima Bean Soup; Hot Roast Pork Sandwich; Teriyaki-baked Chicken; Quiche Lorraine. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island 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: Tomato & Rice 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 & Rice Soup; Braised Beef & Vegetables; Veal Parmesan; Pork Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

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

AIAA Notice

Employees who want to ride a Langley-sponsored bus to the AIAA's "Global Technology 2000" annual meeting in Baltimore are urged to make reservations, through their Directorate offices, by April 25. Buses will make round-trips May 6, 7 and 8.

Executive Opportunity

Employees at the GS-15 level who are interested in being considered for a 12–18 month TDY development assignment at NASA Headquarters under the NASA Executive Development Program should contact Joyce Wright, extension 2611, for more details.

Retirement Party

James E. Stitt, Director for Electronics, will be honored with a retirement social Friday, May 2, at 6:30 p.m. in the Activities Center. There will be a cash bar and hors d'oeuvres. The cost is $5.50 per person or $10 per couple. Contributions for gift only are welcome. Send check or cash to Nancy Rodgers, Mail Stop 117, by April 25.

National Aeronautics and
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Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 9

May 2, 1980

Petersen Named Langley Deputy Director

Richard H. Petersen was named Deputy Director of Langley Tuesday by Director Donald P. Hearth. As Deputy Director, Petersen will fill the number two position at the Center formerly held by Oran W. Nicks, who left Langley to become the Executive Director of the Research Foundation of Texas A&M University in College Station, Texas.

Petersen, 45, is Chief of the Aerodynamics Division of the Ames Research Center, where he directs a 200-man team conducting research in aerodynamics and fluid mechanics in seven major wind tunnels.

Petersen graduated from Purdue University in 1956 with a bachelor of science degree in aeronautical engineering, with highest distinction. In 1957 he was awarded a master of science degree in aeronautics by the California Institute of Technology. For his professional career, Petersen has worked at Ames except for two years in private industry from 1973 to 1975, one year as a Sloan Executive Fellow at the Stanford Graduate School of Business from 1972 to 1973, and one year on temporary assignment to NASA Headquarters from 1965 to 1966.

Petersen's initial work at Ames was in theoretical and experimental aerodynamics, particularly in the supersonic and hypersonic speed ranges. In more recent years he has directed research programs in aircraft noise, hydrogen-fueled aircraft, short take-off and landing aircraft, and computer analysis of aircraft performance, as well as spacecraft studies and budget and facility planning. He has published a number of technical papers on aeronautical subjects.

In announcing the selection of his deputy, Hearth said, "Dick Petersen has an outstanding record of technical achievements and managerial experience. He will be a major asset to the Langley Team."

Reached by telephone in California, Petersen stated, "It is a great honor to be given this opportunity at the Langley Research Center. I look forward with pleasure to working with Don Hearth and with my many good friends at Langley."

Continued on page 6.

'Global Technology 2000'

Thirteen Employees Take Part in AIAA Meeting

Thirteen Langley employees will participate in "Global Technology 2000," the American Institute of Aeronautics and Astronautics' International Annual Meeting and Technical Display, May 6 through May 8, in the Baltimore Convention Center.

John C. Vaughan III and William Conner will present a paper on "Technology Requirements and Readiness for Large Aircraft," at the Very Large Vehicles Session, Tuesday, May 6, at 1:30 p.m.

Langley Director Don Hearth will participate in the Overview Session on Air Transportation, Wednesday, May 7, at 9 a.m. He will discuss "What Next in Commercial Transports?"

That same morning, the Fluid Dynamics Session will feature Percy J. Bobbitt on "Modern Fluid Dynamics of Subsonic and Transonic Flight" and Robert L. Trimpi on "Modern Fluid Dynamics of Supersonic and Hypersonic Flight," and the Aeroacoustics Session will feature a paper by Cornelius Driver and Dominic Maglieri titled "Some Characteristics of Supersonic Cruise Vehicles and Their Effect on Airport Community Noise."

Dr. Michael Card will discuss "Large Space Structures: Facts and Fantasies" at the SDM: The Pacing Technologies, II Session at 1:30 p.m. In the concurrent Aircraft Systems Session, Richard R. Heldenfels will present a paper on "Expectations in Aircraft Structures and Materials Technology through the Year 2000."

William H. Phillips will co-chair the Mechanics and Control of Flight Session, Thursday, May 8, at 9 a.m. Clinton V. Eckstrom will discuss "The Feasibility of Recovering a One-Million-Pound Booster." Jarrell R. Elliott is organizer of the session.

Bobby G. Batten is organizer of The Challenge of Societal Needs to Technology Session, which will cover the innovative cooperation between government operations, industry and academia to meet societal needs. The session will begin at 1:30 p.m.

The Technical Display will include three NASA exhibits: the Aircraft Energy Efficiency Project, the Large Space Systems Technology Program and theater lecture/demonstrations on NASA's space and aeronautics programs. The display,

Continued on page 6.

—photo by Bob Nye

Ed Howe, Campaign Coordinator; Jane Hess, Vice-Chairman; and Director Don Hearth, Chairman, display the 1980 U.S. Savings Bond poster, "Take Stock in America!"

Langley Launches Savings Bond Campaign

Langley will be conducting the 1980 U.S. Savings Bond Campaign from May 5 through May 30.

Center Director and this year's Savings Bond Campaign Chairman, Don Hearth, has appointed Jane Hess of the Technical Library Branch as his Vice-Chairman. Ed Howe, Chief, Financial Management Division, is the Center's Savings Bond Coordinator and Joyce Fly, Payroll Section, FMD, will maintain and update campaign records. All Directors, Division Chiefs and Project/Program Managers have been asked to serve as campaign chairmen for their respective organizations.

Langley's goal is to achieve 75 percent participation and to retain the Minuteman Flag held for the last eight years.

Hess said employees will be contacted by bond chairmen who will supply further details about Savings Bonds. In stressing the need for non-participants to enroll and present bond buyers to increase their rate of individual savings, Hess said, "I urge you to give your support to our campaign. It is a **positive** way to help our country and a **great way to make your own future brighter.**"

Patton Receives SAE Award

James M. Patton, Jr., Head of the Operations Branch, Flight Mechanics Division, has received the Award for Excellence in Oral Presentation from the Society of Automotive Engineers.

The award was presented for his outstanding presentation of the technical paper, "Spin Flight Research Summary," during the 1979 SAE Business Aircraft Meeting and Exposition.

Kelley Wins April Drawing

Henry L. Kelley, Subsonic-Transonic Aerodynamics Division, is the April winner of $20 given to a registered car pool participant by the Langley Exchange. Monthly drawings will continue through December as an incentive to expand the number of car pools at Langley.

For car pool matching, change in car pool membership or car pool registration, contact Kathi Porter, extension 3511. When reporting a change in membership, please provide the car pool permit number.

Langley to Host Federal Laboratory Consortium

The Spring 1980 conference of the Federal Laboratory Consortium for technology transfer will take place at Langley May 6 through 8. The conference will be held in the Activities Center, Building 1222, beginning at 8 a.m. each day.

The Consortium, comprised of over 185 federal research and development installations, will be attended by approximately 100 representatives from NASA, Department of Defense, Department of Energy and other federal agencies.

The FLC, a key part of the National Science Foundation-sponsored Federal Laboratory Program, aims to develop and implement ways to help apply agency resources to the solution of domestic problems at the state and local government levels.

Dr. Joseph E. Clark, Executive Office of the President, Office of Science and Technology Policy, will give the keynote address. He will speak on intergovernmental science, engineering and technology policy and plans.

Langley is a participating laboratory in the Consortium through the Technology Utilization Office. Program Manager of the FLC is John McFall of Langley's Marine and Applications Technology Division, who is on a two-year assignment to the National Science Foundation.

Moving?

When ordering boxes for relocation purposes, please order **only** 18" x 12" x 10" boxes, Stock Number 8115-00-179-0579. Movers can expedite their work by having uniform boxes to load and transport.

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

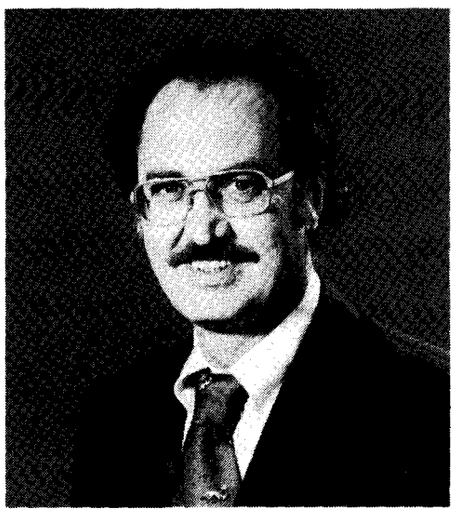
The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex, or national origin. All materials submitted are subject to editing.

Phillips Awarded Thompson Fellowship

Dr. Donald H. Phillips, a physicist in the Laser and Spectroscopy Branch, Instrument Research Division, is the 1980–81 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 staff. The Fellowship allows researchers who have demonstrated continued growth in research to spend up to 12 months at an educational or research institution. It is named in memory of Dr. Floyd L. Thompson, Langley Director from 1960 to 1968. Thompson joined the Langley staff in 1926, retired in 1968 and was a consultant to the NASA Administrator until January 1973.

Phillips will spend one academic year at the Applied Physics Division of Harvard University conducting research to improve the theoretical methods used to investigate complex physical systems. Some of the systems of interest to NASA are the chemical reactions that occur on the surface of atmospheric particles (aerosols), corrosion and fatigue sites in materials for aircraft and spacecraft and impurities in semiconductors for aircraft display panels.



"Development of an improved theoretical method will allow a better understanding of the physical systems," Phillips said. "The method would be applicable to a wide range of problems, in addition to those of interest to NASA, including the development of better catalysts for coal conversion, hydrogen fuel production and photovoltaic devices."

Phillips began his NASA career in June 1963 as an aerospace technologist in the Applied Materials and Physics Division. From 1970 to 1978 he was assigned to the Environmental and Space Sciences Division, now called the Atmospheric Environmental Sciences Division. In 1978 Phillips began his present work, investigating the reactions of atmospheric gases which are important in pollution chemistry. He has specialized in radiation damage, electronic properties of materials and theoretical chemistry.

A native of Tennessee, Phillips graduated from Alcoa High School in Alcoa in 1959. He earned a bachelor of science degree in physics from Tennessee Technological University in 1963. He received a master of science degree in 1968 and a doctor of philosophy degree in 1971 in physics from Virginia Polytechnic Institute and State University.

The author or co-author of over 30 technical papers, Phillips is a member of the American Physical Society, American Chemical Society and the American Association for the Advancement of Science. He has received two Outstanding Performance Awards.

Phillips and his wife, Jan, live in Hampton, with their daugher, Jenifer. He has two daughters from a previous marriage. Donna attends Mary Baldwin College and Deborah is a senior in high school.

Langley to Observe Sun Day May 4

Sunday is Sun Day--just for the sun of it.

Langley will observe Sun Day May 4 by inviting the public to tour solar heating and cooling systems at various facilities from noon to 3 p.m.

During Sun Day engineers will be at six locations near the Langley Visitor Center to answer questions and describe the variety of systems. Engineers will be stationed at the Systems Engineering Building solar field, at the viewing stand nearby, the Tech House, the Photo Lab, the unfinished Graphics Building and the Visitor Center.

The public will be able to talk with the engineers, see the different solar collectors close up, and see a film in the Visitor Center on the operation of the Tech House.

Since 1976 the Center has operated a solar collection field which helps supply a significant portion of the heating and cooling for the 50,000-square-foot Systems Engineering Building.

The Center has also operated the innovative Technology Utilization House, which used solar collectors to supply primary heating and cooling during a one-year live-in experiment with a family of four from August 1977 to August 1978. The house is also equipped with a solar hot-water heating system.

Other solar systems at Langley include one which heats hot water for the Photographic Laboratory and another which will supply energy to a 3,500-square-foot building when it is completed in August of this year.

The largest solar collection field, the one which supplies the Systems Engineering Building with hot and cold air, is comprised of seven different kinds of flat-plate collectors and one evacuated tube vacuum-type collector.

Through this diversity of equipment, researchers are able to compare the efficiency of various collectors and increase their knowledge of solar collector technology.

The Plant Engineering Division is coordinating the Sun Day observance.

Retirement Parties

Dr. John E. Duberg, Associate Director, will be honored with a retirement party Friday, June 6, in the Activities Center. A social/cash bar will begin at 6 p.m.; dinner will be served at 7 p.m., followed by a program. The cost is $11.50 per person. Contributions for gift only are welcome. Please call Mary Mesic, extension 3395, by May 19.

Joseph H. Judd, Flight Mechanics Division, will be honored with a retirement social (cash bar and light hors d'oeuvres) at the Activities Center, Friday, May 16, from 4:30 to 6:30 p.m. The cost, including gift, will be $3.50 per person. Contributions for gift only are welcome. For reservations, send check to Joe Jewel, Mail Stop 247, by May 9.

Virginia Lazenby, Office of the Director, will be honored with a retirement luncheon Friday, May 23, at 11:45 a.m. in the Activities Center. The cost, including gift, is $6.25 per person. Contributions of $1 for gift only are welcome. Make checks payable to Mary Mesic, Mail Stop 110, by May 16.

Research Sheds Light on Ammonia Source

--by Scott Sage

A research program at Langley may have shed new light on efforts to understand the concentrations, sources and chemistry of ammonia in the atmosphere. The research, begun in February 1979, uses advanced electronics instrumentation and computer modeling of atmospheric chemistry.

As part of this study, Langley researchers believe they have detected a 10 fold increase of ammonia in the Tidewater area during March and early April 1979. The enhanced levels of atmospheric ammonia are thought to have been caused by the conversion of agricultural ammonium nitrate fertilizers to ammonia by the action of microorganisms in the soil.

Ammonia, while only a trace atmospheric gas, is an important element in the delicate chemical and radiation balance of the atmosphere.

The presence of ammonia in the atmosphere, chiefly due to microbiological reactions in the soil, was previously thought to be greatest in late summer when soil temperatures are at their highest. According to Langley research scientist Dr. Joel S. Levine, however, the production of ammonia from agricultural fertilization, which occurs in late February and early March, had not been taken into account. Ammonia produced in this way is released into the atmosphere as an invisible gas.

Ammonia Role Important

Although present in low concentrations, Levine points out that atmospheric ammonia may play several important roles:

- Ammonia contributes to the chemical production of solid atmospheric particles called aerosols. They can affect the transmission of radiation within the Earth-atmosphere system through the distribution of incoming solar radiation and outgoing infrared radiation from the Earth's surface, both important determinants of climate.

- Scientists have long recognized that ammonia plays a part in the so-called greenhouse effect which warms the surface of the Earth. Some warming occurs because gases such as carbon dioxide, water vapor and ammonia can absorb and then re-emit infrared radiation, or heat waves, given off from the Earth's surface. This absorption prevents the heat from escaping into outer space.

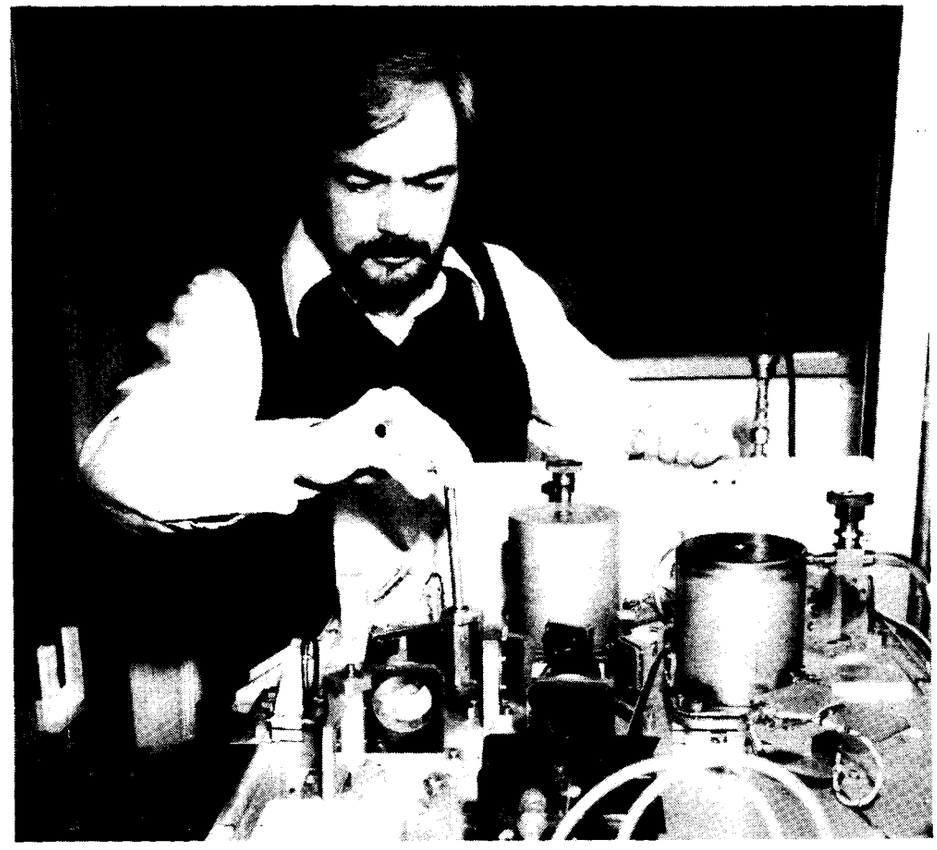
- Ammonia may control the formation of sulfuric acid, the dominant acid in acid rain, which adversely affects the environment. Fish populations of some regions have been almost eliminated or severly diminished because of increased acidity in the lakes. President Carter has asked Congress for a 10-year, $100 million federal acid rain assessment program.

- There is speculation that ammonia may lead to the formation of nitrogen oxides (NO_X), gases containing nitrogen and oxygen atoms. NO_X leads to the destruction of the ozone layer which protects the Earth from harmful solar ultraviolet radiation. So little is known about ammonia concentrations in the atmosphere, however, that no definitive statements can be made as to the importance of NO_X production from ammonia.

- Man may also be increasing the amount of ammonia in the atmosphere by the combustion of coal. With the switch to greater dependence on coal by the United States and other countries, it will be important to better understand ammonia, its chemistry and its effect on the environment.

Accurately measuring the vertical distribution of the extremely small ammonia concentrations throughout the atmosphere has not been possible until recently. The highest readings from the Langley measurements showed about 10 ammonia molecules in every billion molecules of air. Measurements are now possible because of instrument and technological improvements by a group of researchers, including Frank Allario, James Hoell, Robert Seals and Burnie Williams at Langley, and others at Airborne Instrument Laboratories on New York's Long Island.

Continued on page 5.



– photo by Bob Nye

Burnie Williams adjusts input flip mirrors on the Infrared Heterodyne Radiometer, located in bldg. 1201. When in operation, a beam of reflected sunlight enters the instrument from the left, providing clues to the concentrations of ammonia in the atmosphere. Williams is an engineering technician with Langley's Operations Support Division.

Continued from page 4.

The ammonia measurement program, under the direction of Hoell, uses an instrument called an Infrared Heterodyne Radiometer (IHR). The IHR, in essence, looks at the Sun through the atmosphere and analyzes parts of the solar spectrum to measure the concentration of ammonia and other trace gases. Information is then analyzed by a detailed computer model of atmospheric chemistry, which reproduces the measurements with more than 100 different simultaneous chemical reactions.

Effects to be Examined

Levine expects the effects of ammonia on atmospheric chemistry and climate to be examined more closely after he and his colleagues present evidence based on their work to the scientific community. Two papers, with Levine and Hoell as senior authors, were recently accepted for publication in Geophysical Research Letters and will be presented at the May 22-27 meeting of the American Geophysical Union in Toronto.

Tommy Augustsson, who is working on a doctoral dissertation at Old Dominion University, does the computer programming and analysis of the ammonia measurements, and is a co-author of the papers. Levine and Hoell work in Langley's Atmospheric Environmental Sciences Division and Instrument Research Division, respectively.

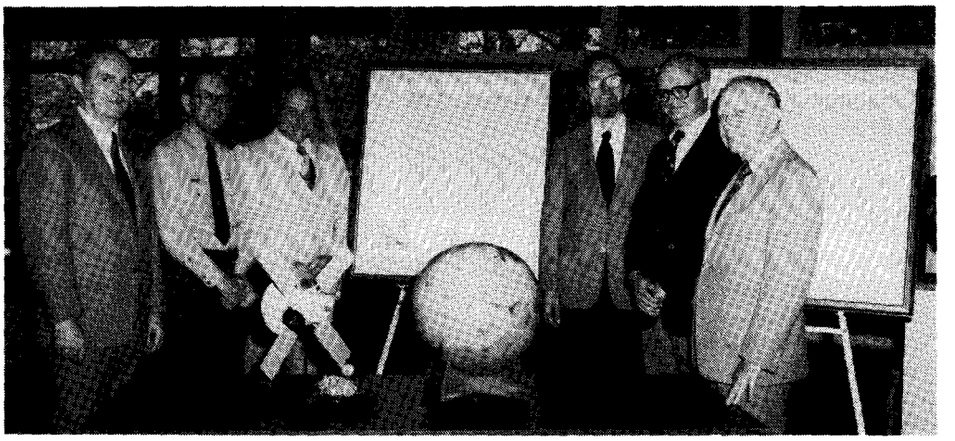
Scott Sage is a nuclear engineering and journalism student at Iowa State University. He visited Langley for a week in February as part of the university's Extern Program. Under the program, students are invited to the office of an alumnus to observe and work in their field of interest. Sage worked with Keith Henry in the Office of Public Affairs.

Have Your Blood Pressure Checked

May is National High Blood Pressure month. Why not have your blood pressure checked!

The Medical Center staff, located in Building 1149, will check blood pressures any day during May from 1 to 3:15 p.m.

High Blood Pressure? Treat it--and live.



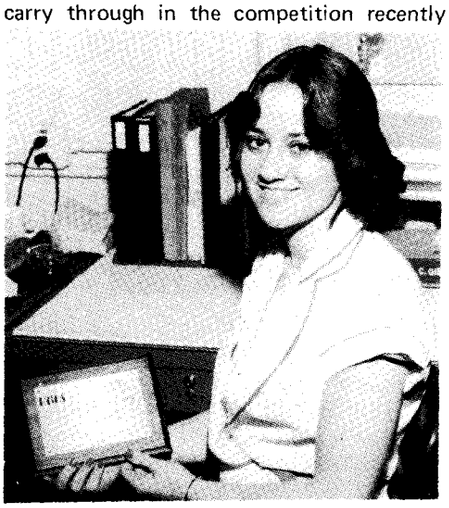
–photo by Hubert Lloyd

LRC HELPS PUT YORKTOWN ON MAP. Director Donald P. Hearth and Calvin Broome, the last head of the Viking project, met with officials associated with Yorktown recently to present each of them with NASA's version of a map of Yorktown. The 30 x 40 inch map shows an area on the surface of Mars that includes the landing site for Viking 1 and, 50 kilometers to the northwest, the Crater Yorktown. Yorktown, Lexington and others were chosen as the names for craters to commemorate the American Revolution and the towns which played a major role in the struggle for independence from 1776 to 1781. Four copies of the map, prepared by the U.S. Geological Survey with Langley Viking funds, were presented in a ceremony at the Yorktown Victory Center. From left are Jack Smoot, representing the Trustees of Yorktown; Jim Sullivan, Colonial National Memorial Park; H. Tabb Smith, York County Board of Supervisors; Dr. Hearth; Broome; and Lewis McMurran, Jamestown-Yorktown Foundation.

Langley Co-op to Represent Virginia in National Business Skills Competition

She has yet to complete her second year of shorthand instruction, but in a few weeks Brenda Gibson of Hampton will be representing Virginia in a national business skills competition.

The Kecoughtan High School senior is one of four high-school secretarial science co-ops at Langley. She has been working in the Training and Educational Services Branch since September, and feels her experience at NASA helped her carry through in the competition recently at Old Dominion University.



Hundreds of high school students participated in the Future Business Leaders of America (FBLA) Regional Leadership Conference at the University. Gibson placed second in the shorthand competition, but will represent the state at the national competition because the first place winner will be unable to attend.

Gibson said her work at NASA allowed her to gain real experience in shorthand and other secretarial skills. "I've gotten a lot of practice," she says wide-eyed, with a smile. "I was pretty nervous when I took my first letter," she admits. "It wasn't textbook. But I'm not so nervous now. The more you take, the more comfortable you feel."

At the national competition July 14 at Washington's Capital Hilton, Gibson will be up against 49 of the best high school practictioners of business skills in the country. The shorthand competition will consist of taking dictation for two letters, each at 120, 110 and 100 words per minute. The students will then have 40 minutes to type all six letters and will be judged for quality and quantity.

Vietnam War Prisoner to Speak at Colloquium

Vice Admiral James B. Stockdale, U.S. Navy Retired, who was held in solitary confinement for most of his seven and one-half years of imprisonment in Vietnam, will be the guest speaker for the Langley colloquium May 12.

The lecture, "Prevailing in the Absence of Technology," will be held 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.

In his talk, Stockdale will discuss the highly successful communications system devised, without the use of any technology, by the prisoners of war. According to Stockdale, the simple, yet effective and secure communications system, built out of necessity to survive and maintain organization among the prisoners, was a system which proves that each man carries with him a highly complex, versatile, and often underrated communications system, the human brain.

The first 20 of his 36 years of active military service were highlighted by his engineering test flying and classroom teaching at the Naval Air Test Center, Patuxent River, Maryland, and by his preeminence as a fighter pilot and Air Wing Commander at sea aboard aircraft carriers. He had more flight time in the supersonic F-8 single-seat fighter than any man in the world when he led the United States' initial strikes against North Vietnam from a carrier deck in the Tonkin Gulf in August 1964.

Over a year later, during another tour in Vietnam, he was shot down and captured. Despite repeated torture and years of restraint in leg irons and handcuffs, Stockdale maintained contact with his fellow Americans by clandestine means, setting standards and policy for the prisoners' organization and united resistance. By the time he was released in 1973, after nine years of service in Vietnam, his combat leadership in the air over Hanoi and his leadership by example in the dungeons below had made him the most highly decorated officer in the United States Navy. His personal combat decorations include two Distinguished Flying Crosses, three Distinguished Service Medals, four Silver Stars, two Purple Hearts and the Congressional Medal of Honor.

Following the war, Stockdale placed great emphasis on writing and teaching. As President of the Naval War College, he introduced the discipline of philosophy into that institution's graduate level curriculum, originating and teaching a course, "The Foundations of Moral Obligation'" As the fifteenth president of The Military College of South Carolina--The Citadel--Stockdale will offer a similar lecture course for credit to senior cadets, using assigned reading in classical philosophic texts and selected novels that concern self-reliance, courage, endurance, duty and their importance in the life of man.

Stockdale graduated from the U.S. Naval Academy in 1946, the U.S. Naval Test Pilot School in 1954, the graduate school of Stanford University in 1962, and holds six honorary doctoral degrees.

Langley employees attending the colloquium should charge their time to Job Order A1980.

Federal Women's Week to be Observed

The Federal Women's Program will observe Federal Women's Week by sponsoring a two-day seminar, "Challenges to be Met," Wednesday and Thursday, May 14 and 15, in the Activities Center.

On Wednesday, May 14, at 9:30 a.m., Dr. Sarita Gattis Schotta, Executive Director of the President's Advisory Committee for Women, will speak on "An Agenda for the 80s." At 1:30 p.m., a training session on "Programs Available to Langley Employees" and "How to Fill Out a SF-171," will be led by John J. Cox of the Personnel Division. The afternoon session will be repeated at 3 p.m.

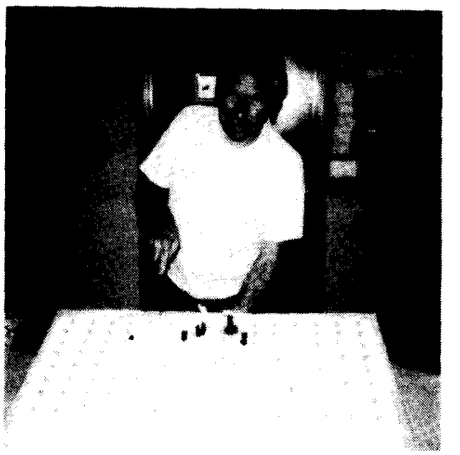
The Thursday session, "Sexual Harassment and the Work Environment," will be directed by Dr. Carolyn C. W. Hines and Wesley Wilson of C & W Associates, Ltd. The session will be held from 8:30 a.m. to 4 p.m., with a break from 11:30 a.m. to 1 p.m.

Petersen Named

Continued from page 1.

Petersen will take over his new position in July.

He and his wife, Joandra, have two children--a son who is a college freshman and a daughter who is a high school junior.



Frederick J. Hines, Jr., Operations Support Division, cuts the cake presented to him by the Century Bowling Lanes for exceptionally good sportsmanship. Hines graciously shared his award with everyone in the NASA Tenpin Bowling League.

Bowling Standings

With three weeks left in the bowling season, the NASA Tenpin Bowling League standings are as follows:

Team	W	L	Pct.
Calculon	81	47	.633
Ballers	76	52	.594
Thunderbolts	75	53	.586
ACD	71	57	.555
Pinwigglers	70	58	.547
Alley Cats	68½	59½	.535
Flyers	67½	60½	.527
Mixed Nuts	66½	61½	.520
Short Circuits	66½	61½	.520
CSC	66	62	.516
Question Marks	65½	62½	.512
Beer Tasters	63	65	.492
Bombers	60½	67½	.473
Aces	56	72	.438
Hits & Misses	53½	74½	.418
Medallions	52	76	.406
Beavers	47	81	.367
Rebels	46½	81½	.363

Key Position

Roger A. Breckenridge has been selected Head, Electronic Devices Research Branch, Flight Electronics Division, under Merit Promotion Announcement 80-22.

AIAA Meeting

Continued from page 1.

the largest industrial exhibition of aerospace technology in U.S. history, will be held open for three additional "public days," through May 11.

Happenings

HAPPY HOUR will be held Friday, May, 9, from 4 to 6:30 p.m. in the Activities Center.

LAA ARTS AND CRAFTS SHOW will be Saturday, May 17, from 12 to 5 p.m. in the Activities Center. Handiwork on display will include country carvings, jewelry, ceramics, macrame, porcelain dolls, decoupage, weaving, paintings, quilts, stained glass and crochet. A nursery will be provided and refreshments will be available in the lounge.

CONCESSION CENTER. The LAA Concession Center, Building 1222A, will open May 13. Located on the picnic grounds, the Center will be open Monday through Friday, from 11 a.m. to 1 p.m. Hamburgers, hot dogs, barbecues and drinks will be served. In addition to the food, golf and tennis balls will be on sale.

RUNNING MEET. There is still an opportunity to enter the 9th Intercenter Running Meet. Two races will be held tomorrow on Cinder Road near Building 1199. The 2-mile race will start at 10 a.m. and the 10-km race at 11 a.m. Two races will be held on each of the following days at 12 p.m. at Bethel High School and 5 p.m. on Cinder Road: Tuesday, May 6—2-mile race; Thursday, May 8—10-km race. For further information, call John Hoppe, extension 2466.

GENERAL ASSEMBLY. The LAA General Assembly will meet Monday, May 12, at 9:30 a.m. in the Activities Center. Lunch will be served following the meeting. All delegates and alternates are urged to attend.

LAFB OPEN HOUSE will be held Saturday, May 3, from 10 a.m. to 4 p.m. There will be displays of military equipment and a variety of fighter, transport and experimental aircraft; demonstrations by "The Thunderbirds," and military working dogs and the world's largest fire truck; and performances by the Tactical Air Command Band and "Shooting Stars," a U.S. Navy parachute team.

TENNIS. The Championship and Women's Ladder tournaments are scheduled for May 3 and 4 and May 10 and 11, respectively. Application blanks are available at the tennis court complex. Applications for membership in the 1980 NASA Tennis Club can be obtained from Leonard Clark, extension 2377, or Bob Murray, extension 3585.

ALOHA!! HAWAIIAN LUAU. "Noka" presents "Pineapple Smash" with the "Tiki Dolls." Enjoy an authentic Hawaiian roast pig (Pua'a) Lomi Lomi Salmon, Hawaiin music, Polynesian and Tahitian dances and many other delights at the Hawaiian Luau Saturday, June 28 on the Activities Grounds. The blessing and placing of the pig (Pua'a) in the ground will be held at 1 p.m., dinner will be at 6 p.m. Reservations are required. See the May 16 *Researcher* for more details.

ART OF SPEECH GIVING. Join the TAC Air Toastmasters to develop the arts of giving and evaluating speeches, chairing an organization or a committee and other communication skills. The club meets every second and fourth Wednesday of the month at the Langley Officers' Club at 7:15 p.m. Membership is open to both men and women. For more information, call Gale Wilson, extension 3856, or Bob Miserentino, extension 2817.

LAA Travel

Fifty travelers have made reservations for the Scandinavian tour that will depart from Norfolk September 16 and return September 25. Reservations are still being accepted pending confirmation of additional ground transportation in Scandinavia.

This is the last call for the Las Vegas charter leaving from Norfolk May 16 for a four-day stay.

There are still spaces available on the Hawaii tour departing from Patrick Henry Airport October 6 for a stay of 11 days. The tour includes visits to three islands--Maui, Hawaii and Oahu--with an optional two-night stay in San Francisco.

Cruise from Norfolk to Nassau May 28 through May 31. The trip can be extended for a two- or three-day stay in Nassau before flying back; prices are from $395 per person (four in a cabin).

Call the Activities Office, extension 3139, or Ernie Greene, extension 2312, or 838-0567, for brochures or details.

Thanks

John Sewall wishes to thank all who came and contributed to his retirement luncheon at the Poquoson Marina Friday, March 14. "The gifts were very thoughtful and are much appreciated."

—photo by Don Ward

Jack Van Ness (left), Head of the Office of External Affairs, accepts a Delta L-1011 model to be displayed in the Langley Visitor Center. Presented to the Visitor Center by Mavis Wright and John Zohn, marketing representatives of Delta Airlines in Washington, the model will hang in the "Evolution of Flight" exhibit.

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Space Administration

Langley Research Center
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swap and shop

FOR SALE

Articles

Conn E-flat alto saxophone w/case, mouthpiece, GC, $315. Call Satterthwaite, extension 4641 or 253-0392 (Williamsburg) after 5 p.m.

Sears riding lawn mower, 10 HP, 3 speeds, 36" cut, easy handle adjustables, electric starter, lights and amp. meter, 2 years old. $425. Call 826-0619.

Real Estate

Custom built brick home: 2,400 Sq. ft.; three large bedrooms; 2 full baths; fireplace in LR and den; formal dining room with chair rail; large eat-in-kitchen with electric range, double ovens, dishwasher, garbage disposal; double garage; built-up patio with roof, leading from large den. Carpet in LR, DR, hall and den. 14 Albany Drive, Hampton, Va. Call 826-0619.

Two Cemetery Lots $650 for both, Parklawn Memorial Park. Call 877-5116.

Vehicles

1978 Kawasaki KZ 1000, garage kept, EC, gazebo cover, 3,900 miles, $2,000. Call Jim, extension 3325 or 587-9069 (Norfolk).

1973 Plymouth Sport Suburban station wagon, GC, PS, PB, AT, luggage rack, regular gas. Call Miller, extension 2452 or 826-2018.

1971 Boat, Penn Yan tunnel drive, 23', 215 HP inboard, 14" draft, 2 bunks, head, large fishing cockpit, one owner, EC, $5,500. Call Tynan, 898-7015.

FOR RENT

Sandbridge: New cottage, liv-din-kit, 4 Br, washer, dryer, dishwasher, fireplace, ½ block from beach and Back Bay, AC, phone, 6-car parking; summer rates $400/wk. Call Kent, extension 3095 or 420-8391.

FOUND

Man's umbrella found in Building 1192. Call Payroll, extension 2660, to identify.

WANTED

Electric car enthusiast would like to buy used medium or economy-size car with or without transmission; engine not needed. Call extension 3993 or 838-4813 (nights).

Persons interested in joining car pool from Norfolk to West area on 7:30 a.m. shift, call Hudgins, extension 3072 or Norfolk 587-9023.

Writer seeking recollections and anecdotes by long-term Langley employees on the NACA days when electricity was in short supply at Langley. Information will be used in historical feature story on past research here. Call extension 2934, or 595-4636 after 7 p.m; ask for Brian.

cafeteria menu

WEEK OF MAY 5

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Pineapple Chicken; Pork Chops. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

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

WEDNESDAY: Worcestered Beef & Vegetable Soup; Fried Chicken Dinner; Little Smokies Casserole; Country-Style Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers; Crab Cutlets; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Chow Mein; Meatloaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF MAY 12

MONDAY: Vegetable Soup; Savory Baked Chicken; Pork Steak; Quiche Lorrain. Snack Bar: Pizza; 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; Roast Beef & American Cheese.

WEDNESDAY: Ham & Three-Bean Soup; Roast Turkey Dinner; Baked Tuna & Noodle Casserole; Half-pound Chopped Steak. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Vegetable Soup; Veal Parmesan; Broiled Beef Liver; Beef-Kabobs. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: French Onion Soup; Fish Dinner; Barbecued Chicken; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Seminars Planned

Two "Keeping Well" health seminars are scheduled during the next two weeks. Sponsored by Langley and Thomas Nelson Community College, the seminars will be held in the Activities Center from 8:30 to 11:30 a.m. on the dates indicated.

Friday, May 9

"Keeping Your Back in Good Condition" will be presented by Dr. William F. Delaney, Orthopedic Surgeon, and Stephen M. Linkous, R.N., Environmental Health Hygienist.

Tuesday, May 13

"Insight into Vision: Visual Health" will be led by Dr. John A. Watters, Jr., Ophthalmologist.

Film on Behavior to be Shown

The Training and Educational Services Branch will sponsor a special film showing for NASA employees, contractors and their families. "Your Erroneous Zones" will be shown Wednesday, May 14, in the Activities Center at 7:30 p.m.

This film is narrated by Dr. Wayne Dyer, an educational psychologist and author of the best selling book, "Your Erroneous Zones," upon which this film is based. Unhealthy behavior patterns such as guilt, worry, fear, self-rejection and approval-seeking constitute negative or erroneous zones. Dyer discusses methods by which erroneous zones are identified and a variety of plans designed to eliminate them, allowing you to function effectively and enjoy life.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

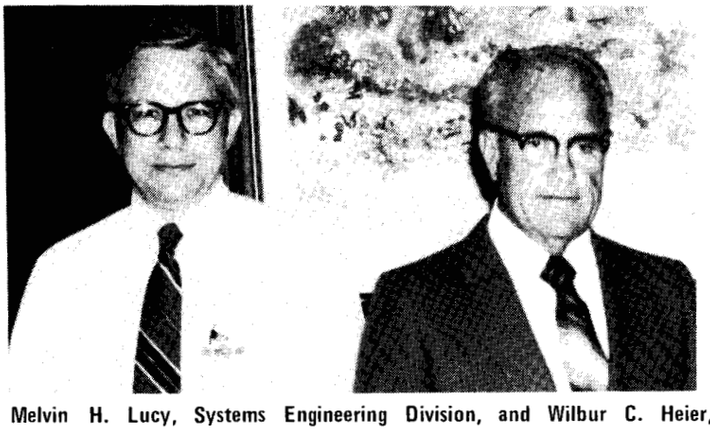
SPECIAL AWARDS ISSUE

May 12, 1980

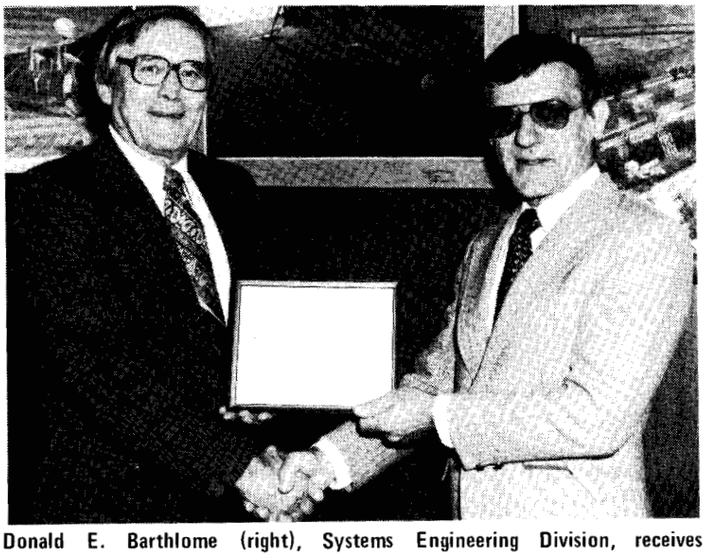
Langley Employees Presented Awards

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 NASA's aerospace technology program.



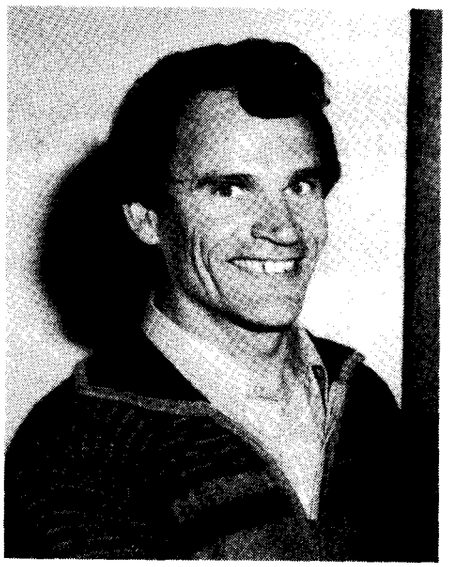
Melvin H. Lucy, Systems Engineering Division, and Wilbur C. Heier, retiree, have received checks and Certificates of Recognition for their invention "Molded Composite Pyrogen Igniter for Rocket Motors."



Donald E. Barthlome (right), Systems Engineering Division, receives congratulations from E. Barton Geer, Director for Systems Engineering and Operations, for an invention titled "Therapeutic Hand Exerciser."

Robert L. Fox, John D. Buckley and Robert J. Swain of the Fabrication Division received Certificates of Recognition and checks for two inventions, "Induction Heating Gun" and "One Step Dual Purpose Joining Technique."

William R. Hood, Operations Support Division, has been presented checks and Certificates of Recognition for two inventions titled "Detection of the Transitional Layer Between Laminar and Turbulent Flow Areas on a Wing Surface" and "Detection of Boundary-Layer Transitions in Wind Tunnels."



Dr. Wolf Elber of the Materials Division has received a check and Certificate of Recognition for his invention "Means for Controlling Aerodynamically Induced Twist."

Roy V. Harris, Jr. (left), Chief of the High-Speed Aerodynamics Division, presented a Certificate of Recognition and monetary award to L. Robert Jackson for the disclosure of an inventive contribution titled "Multiwall Thermal Protection System."

Special Achievement Awards

A Special Achievement Award is granted for performance exceeding job requirements. The award may be either for sustained superior performance or for a one-time special act or service in the public interest, connected with, or related to official employment.

Awards have been presented to **Earl P. Conkling, F. Dolan Clontz, John R. Gleason** and **Dean W. Sparks**, Operations Support Division; **Virginia D. Vohringer** and **Cynthia S. Belsches**, Systems Engineering Division; **Daryl R. Crandlemire, Ashby G. Lawson, Maywood L. Wilson, William Ritosa, Peggy W. Harmon, William B. Ball, Cecil W. Stephens, Jackie E. Cain** and **David F. Johnston**, Fabrication Division.

In addition to the Langley employees pictured, Special Achievement Awards have been presented to:

Carroll T. Tiller, Plant Engineering Division, "in recognition of significant contributions made to the design and construction activities associated with the Refuse-Fired Steam Generating Facility Project;"

Edna G. Davidson, Business Data Systems Division, "for highly effective and professional execution of secretarial duties, including providing sound counsel and training to young persons beginning their working careers and serving as a vital cohesive force supporting the achievement of high quality team and individual performance of fellow workers;"

James A. Osborn, Research Facilities Engineering Division, "for excellent performance in developing the controls approach for the National Transonic Facility;"

Jean G. Cridlin, Marine and Applications Technology Division, "for outstanding performance in developing a quick retrieval branch filing system, excellency in viewgraph preparation and efficient handling of branch correspondence;"

Charles E. Kelly, Acquisition Division, "for special service with regard to development of the Request for Proposals, evaluation of proposals, selection of the contractor, and finally the actual negotiation of the contract for the Earth Radiation Budget Experiment;"

Miriam A. Hall, Instrument Research Division, "for outstanding assistance in organizing and coordinating the technical program of the 1979 International Electron Devices Meeting."

Daniel J. Milburn, Fabrication Division, "for superior service in manufacture of laminar flow control wing panels;"

James W. Geouge, Fabrication Division, "for innovative manufacture of two-dimensional airfoils for cryogenic testing."

John R. Gleason (second from left), an Army employee assigned to the Operations Support Division, is presented a Special Achievement Award by Earl F. Stahl, Chief of OSD. The award was presented "For outstanding contributions during site preparations and conduct of simulated aircraft crash fire tests at Dugway Proving Ground, Utah, which facilitated the timely acquisition of fiber release data for the Graphite Fibers Risk Analysis Project." Also pictured are Thomas L. Coleman (left), Director of the Army Structures Laboratory, and George L. Meidinger of OSD.

MAYWOOD L. WILSON– "For outstanding technical contributions and high standards of craftsmanship in superior research and space hardware."

ASHBY G. LAWSON– "For outstanding technical contributions and high standard of craftsmanship in superior research and flight hardware."

PEGGY W. HARMON– "For excellence in electronics packaging development."

DAVID F. JOHNSTON– "For excellence in printed circuit board fabrication development."

CECIL W. STEPHENS– "For original and innovative contributions in the development of complex heat transfer models."

DARYL P. CRANDLEMIRE– "For excellence in electronics control technology."

JACKIE E. CAIN– "For exceptional service in the manufacture of the source calibration model."

WILLIAM B. BALL– "For excellence in electronics fabrication."

WILLIAM RITOSA– "For innovative efforts and leadership in the tooling manufacture of the On-Going Laminar Flow Control Model Project."

CYNTHIA S. BELSCHES– "For sustained superior performance in carrying out duties as the Engineering Analysis Branch secretary with special recognition given for the outstanding support provided to the National Transonic Facility Work Package and Task Managers and the Cryogenics Technology Conference authors."

Suggestion Awards

The Langley Suggestion System was established to increase productivity, efficiency, economy and other improvements in Center operations. Employees are recognized and rewarded, either individually or collectively, for idea-type contributions which are adopted.

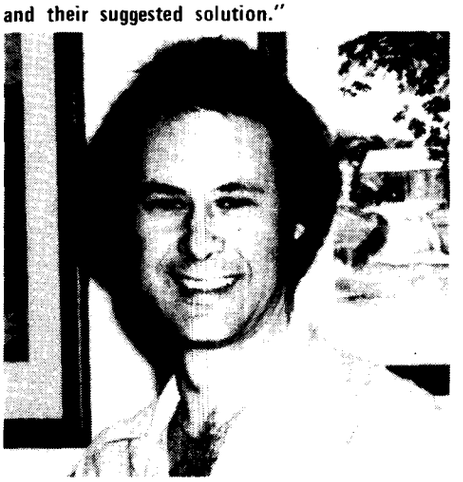
Suggestion Awards have been presented to **James M. Arbuckle**, Fabrication Division; **James L. Dillon**, High-Speed Aerodynamics Division; and **Robert F. Bryant, Jr.**, and **Edward C. Durham**, Operations Support Division.

In addition to the Langley employees pictured, Suggestion Awards have been presented to the following:

James S. Jarrell, Operations Support Division, "E. B. Insert-piping fit-up clamps;" **C. Donald Babb, Ida K. Collins, William A. Corlett, Roger H. Fournier, Dorothy T. Howell, Juanita D. Parker, David S. Shaw, Charles D. Trescot, Donald L. Wassum** and **Carolyn B. Watson**, High-Speed Aerodynamics Division, "power reduction in Unitary Plan Wind Tunnel."

F. DOLAN CLONTZ– "For exceptional high quality of leadership shown, in the maintaining and troubleshooting of main drive electrical systems located throughout the East Area."

DEAN W. SPARKS– "For work on the Emergency Locator Transmitter Test Program, which contributed significantly to the timely identification of several significant problems and their suggested solution."



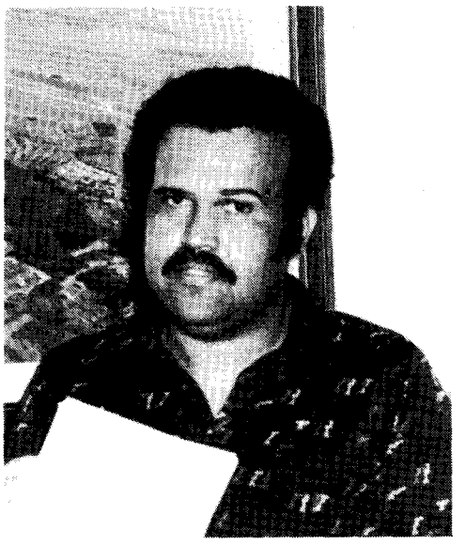
ROBERT F. BRYANT, Jr.– "Preliminary Force Data Workup, M = 6, 20" Tunnel."

EARL P. CONKLING– "In recognition of extraordinary interest, dedication, creative concepts and unique technical accomplishments associated with the successful completion of the .03 scale B-747 Airframe Noise Flight Test Program."

VIRGINIA D. VOHRINGER– "For sustained superior performance as division secretary of the Systems Engineering Division and in recognition of special skills and knowledge in the daily operation of the division office."

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



EDWARD C. DURHAM– "aluminum test cabin entry door."

JAMES M. ARBUCKLE– "pull line installation for use in pulling wire or cable through non-metallic tubing or sleeving."

JAMES L. DILLON– "Preliminary Force Data Workup, M = 6, 20" Tunnel."

Tech Brief Awards

The quarterly "NASA Tech Briefs" journal, distributed nationwide, stimulates technology transfer by disseminating information on new developments stemming from aerospace research.

Receiving cash awards and certificates for recent contributions to the Tech Briefs journal were **Thaddeus Basta, Jr., John M. Franke, James F. Meyers, Robert S. Rogowski, Philip C. Kassel, Jr., Johnny E. Jordan, Joseph S. Heyman, Don M. Robinson** and **Jag J. Singh**, Instrument Research Division; **Edward V. Browell, G. Louis Smith** and **Thomas D. Bess**, Atmospheric Environmental Sciences Division;

Judd R. Wilkins and **Carmen E. Batten**, Marine and Applications Technology Division; **James Bene, Carroll W. Rowland, Barry D. Meredith, Roger K. Crouch, L. J. Lina, James B. Robertson, Roger A. Breckenridge, Richard H. Couch, Robert L. Stermer, Charles D. Nichols, E. Thomas Freeman** and **Charles W. Stump**, Flight Electronics Division;

Edmund J. Conway and **Wilford E. Sivertson, Jr.**, Space Systems Division; **James R. Schiess**, Analysis and Computation Division; **Darrel R. Tenney, Wayne S. Slemp, Anne K. St. Clair** and **John D. Whitcomb**, Materials Division; **Lucio Maestrello**, Acoustics and Noise Reduction Division;

Harold G. Bush and **Lana M. Couch**, Structures and Dynamics Division; **Samuel M. Dollyhigh**, Aeronautical Systems Division; **Charlie M. Jackson, Jr., Sharon H. Stack, Clyde L. W. Edwards** and **David S. Shaw** High-Speed Aerodynamics Division; **James Scheiman** and **Renaldo V. Jenkins**, Subsonic-Transonic Aerodynamics Division; **Windsor L. Sherman**, Flight Dynamics and Control Division; and **Francis R. Dreisbach**, retiree.

In addition to the employees pictured, Tech Brief Awards were presented to:

Chris Gross and **D. B. Juanarena**, no longer at Langley, for "Electronically Scanned Pressure Measurement System;"

DON M. ROBINSON and CARROLL W. ROWLAND– "Optical Coupling of Multiple Tunable Diode Lasers."

Chris Gross for "An Electrically Scanned Pressure Sensor Module with In-Situ Calibration Capability;"

Stewart L. Ocheltree and **William W. Hunter, Jr.**, Instrument Research Division, for "Application of Laser Diodes to Laser Velocimetry;"

Andronicos G. Kantsios, Instrument Research Division, for "Infrared Scanners for Detection of Thermal Gradients in Home Outside Walls;"

W. Lane Kelly IV, Flight Electronics Division, for "LED Display for Solo Aircraft Instrument Navigation;"

Archibald L. Fripp, Jr., Flight Electronics Division, for "Technique for Mounting Pyroelectric Detector Arrays;"

Ashby G. Lawson, Fabrication Division, for "Measuring Water Properties from a Moving Boat."

William J. Small, High-Speed Aerodynamics Division, for "Arbitrary Aircraft-Geometry Generator."

Terry L. St. Clair, Materials Division, for "High-Temperature Adhesives for Polyimide Films."

PHILIP C. KASSEL, JR. and JOHNNY E. JORDAN– "Velocity Measurement System."

ROBERT S. ROGOWSKI and EDMUND J. CONWAY– "A Method for Detecting Nitrogen Dioxide in a Gas by Chemiluminescence."

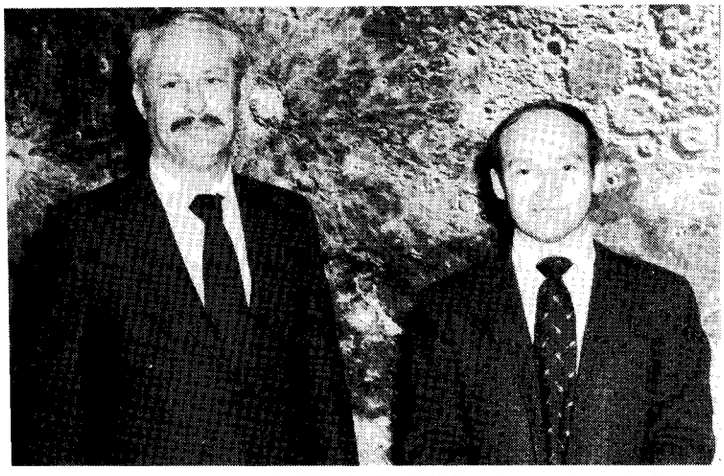
ROGER K. CROUCH, L. J. LINA (no longer at Langley) and BARRY D. MEREDITH– "LED Display for Solo Aircraft Instrument Navigation."

JOSEPH S. HEYMAN– "A Solid State Phase Insensitive Ultrasonic Transducer."

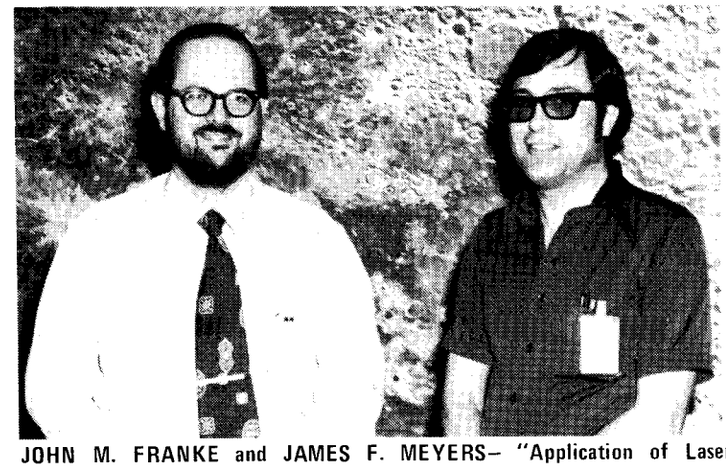
CARMEN E. BATTEN– "Electro Optical System for Visible-Infrared Ratio Reflectance Measurements."

WILFORD E. SIVERTSON, JR.– "Radar Target for Remotely Sensing Hydrological Phenomena."

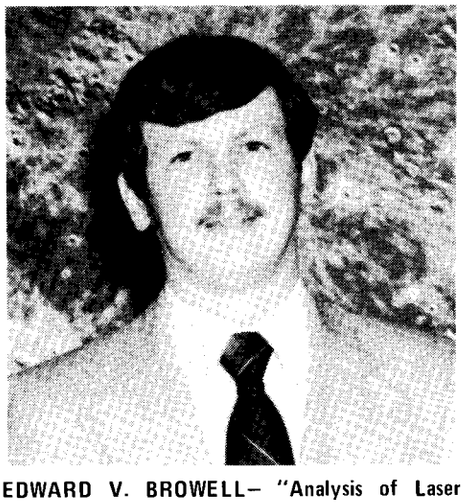
JUDD R. WILKINS– "Specimen Housing Unit for Cinemicrographic Studies in the Vertical Plane."



G. LOUIS SMITH and THOMAS D. BESS– "Estimation of Regional Heat Flux from Scanning Radiometer Measurements."

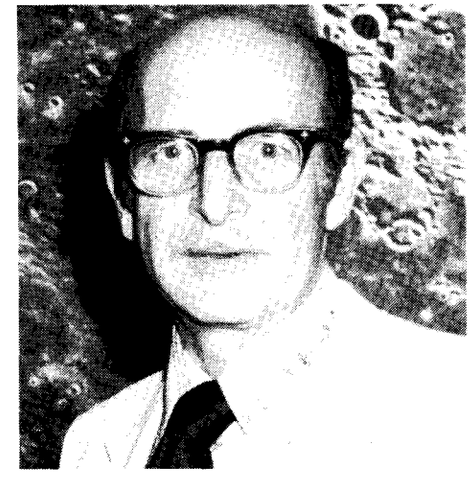


JOHN M. FRANKE and JAMES F. MEYERS– "Application of Laser Diodes to Laser Velocimetry."
Franke also received an award for "Laser Beam Color Separator."

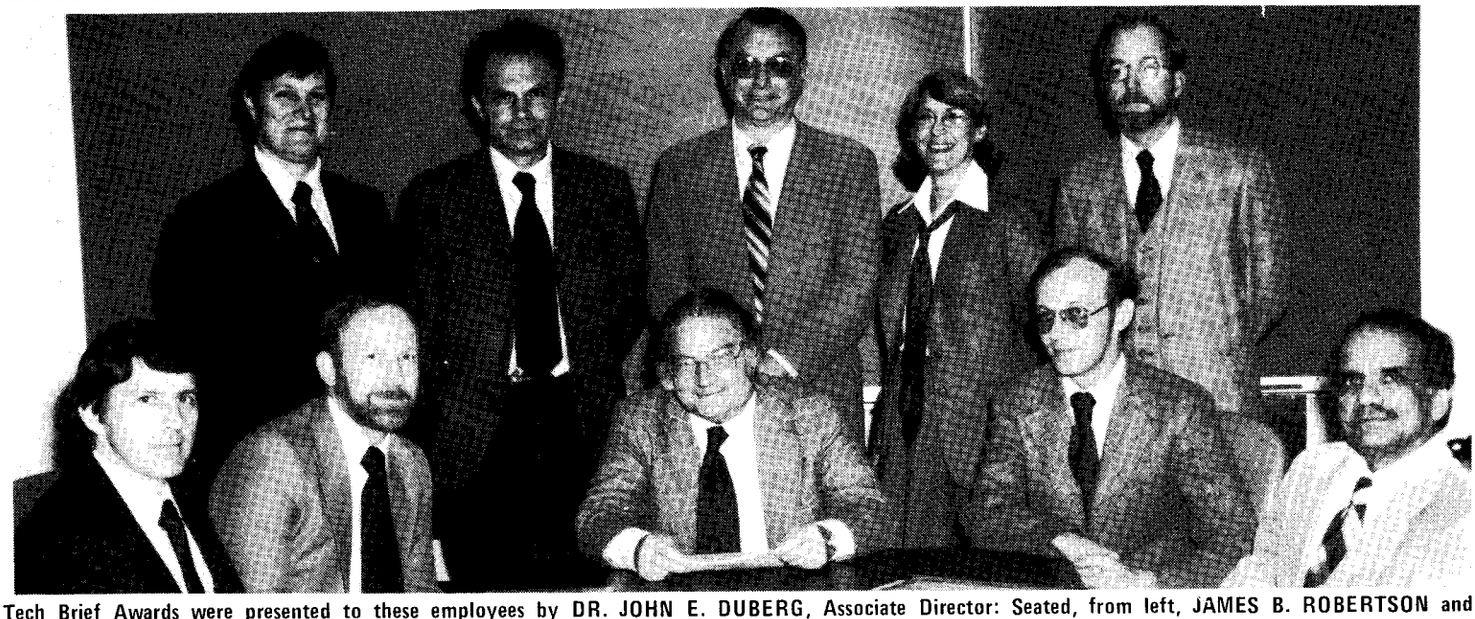


EDWARD V. BROWELL– "Analysis of Laser Fluorosensor System for Remote Algae Detection and Quantification."

THADDEUS BASTA, JR.– "Electronically Scanned Pressure Measurement System."



JAMES BENE– "Slurry-Powder Sintering Furnace."



Tech Brief Awards were presented to these employees by DR. JOHN E. DUBERG, Associate Director: Seated, from left, JAMES B. ROBERTSON and ROGER A. BRECKENRIDGE, for "Technique for Mounting Pyroelectric Detector Arrays;" DUBERG; JAMES R. SCHIESS and JAY J. SINGH, for "Unresolved Mossbauer Hyperfine Spectra;" standing, DARREL R. TINNEY, for "Single-, Two-, and Three-Phase Binary- Alloy Systems;" LUCIO MAESTRELLO, for a confidential paper; HAROLD G. BUSH, for "Mechanical End Joint for Structural Columns;" LANA M. COUCH, for "Shock-Swallowing Air Sensor;" and RICHARD H. COUCH, for "Teleprinter Test Unit."

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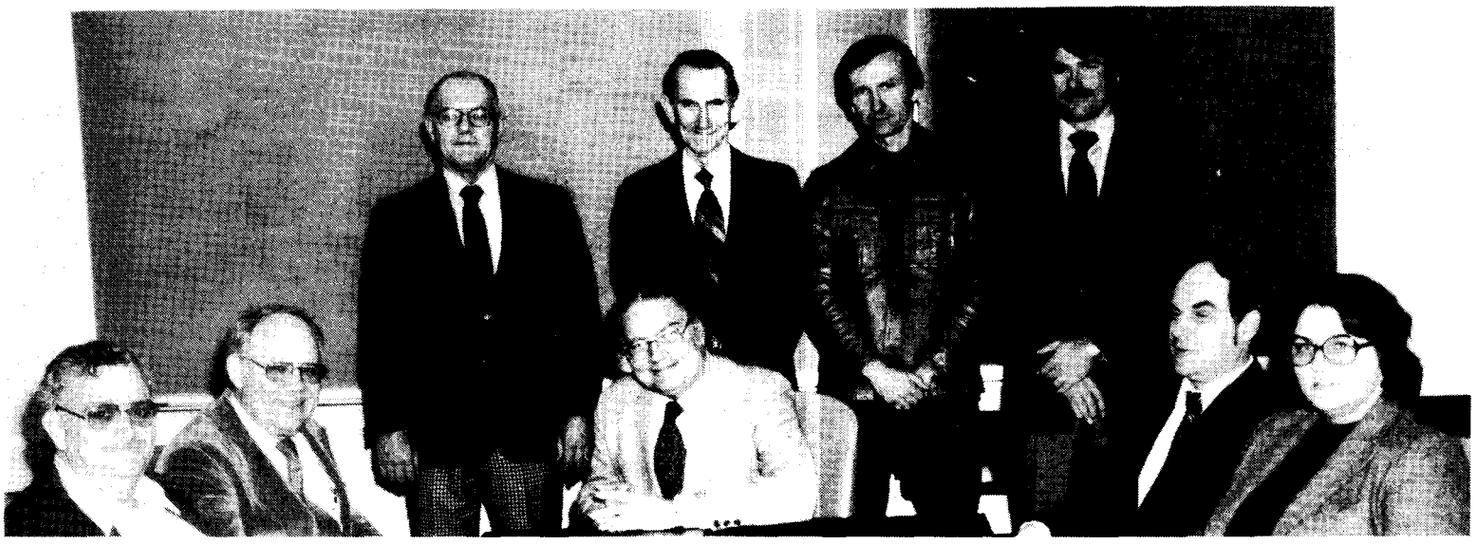


Tech Brief Awards were presented to the following employees by DR. JOHN E. DUBERG, seated in center. From left, ROBERT L. STERMER and CHARLES D. NICHOLS, for "Transformer Coupled Bubble Domain Detection Methods;" FRANCIS R. DREISBACH, E. THOMAS FREEMAN and CHARLES W. STUMP, for "Film-Advance Monitor; "JOHN D. WHITCOMB, for "Analysis of Fatigue Damage in Composites;" and WAYNE S. SLEMP and ANNE K. St. CLAIR, for "High-Temperature Adhesives for Polyimide Films."

Cash awards and certificates for Tech Briefs have been presented to these employees by DR. JOHN E. DUBERG, seated in center. From left are SAMUEL M. DOLLYHIGH, CHARLES M. JACKSON, JR. and DAVID S. SHAW, for "Noninterfering Support for Aerodynamic Models;" JAMES SCHEIMAN, for "Improved Split-Film Vector Anemometer;" RENALDO V. JENKINS, for "A Thermocouple for Hot, Oxidizing Environments;" WINDSOR L. SHERMAN, for "Airplane Stability Programs for Pocket Calculators;" and SHARON H. STACK and CLYDE L. W. EDWARDS, for "Arbitrary Aircraft-Geometry Generator."

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 10

May 16, 1980

18th Century Science Lecture Featured at Colloquium

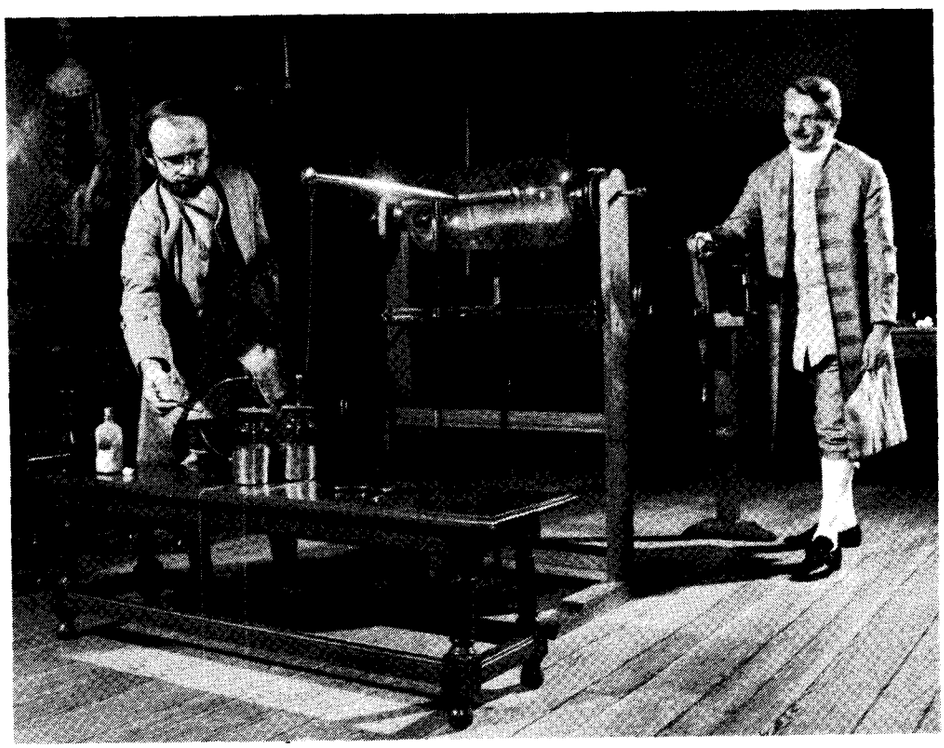
While researchers at Langley prepare for the science of the 21st Century, they have an opportunity to experience an authentic 18th Century hour complete with demonstrations of antique scientific apparatus presented by costumed lecturers.

Drs. John McKnight and Hans C. von Baeyer, professors of physics at the College of William and Mary, will give "A Science Lecture of the 18th Century" at the Langley colloquium Thursday, May 22, in the Activities Center. The lecture will begin at 2 p.m., followed by a short question and answer session. The speakers will move to the adjoining Langley Room at 3 p.m. for an informal discussion.

During the presentation, McKnight and von Baeyer will offer a Course of Experiments on electrical fire; the common air pump; and the orrery, a mechanical planetarium.

These distinguished professors have presented this lecture demonstration at institutions such as Cornell University, Syracuse University and the University of Rochester. They are now filming the demonstration with the Colonial

Continued on page 2.



Hans C. von Baeyer (left) and John McKnight use an electrostatic machine to charge Leyden jars to produce the electromotive force.

Equal Opportunity Committee Steers Improvements

A Langley anniversary has been observed wihout great fanfare, but with far-reaching consequences for all employees.

The Langley Equal Opportunity Steering Committee, established by Director Don Hearth and chaired by former Deputy Director Oran Nicks, recently completed its first year's work with a long list of recommendations already woven into the texture of Center policy. The Steering Committee remains vital as it enters its second year, recommending still more policy improvements and renewing itself with fresh membership.

When Hearth established the Committee in early 1979, it was one of the first such groups in NASA. Hearth gave the Committee three assignments:

- Assist the Director in insuring that equal opportunity is an integral part of every aspect of personnel policy and practice.
- Implement Center policy, establish meaningful objectives, and insure that adequate support is provided by Langley management at all levels.
- Periodically review the Center's Affirmative Action Plan and assess program accomplishments.

"I believe a great deal was accomplished during the first year of Committee operation," said Chairman Oran Nicks. "Certainly, it provided an opportunity for a large number of employees, as well as senior management, to explore and study the many issues at hand. I feel confident that a good framework has been established for subsequent years."

With Associate Director John Duberg as Vice Chairman, the Steering Committee included the Center Program Directors, plus Jerry Hansbrough, Head, Office of Equal Opportunity Programs,

Continued on page 3.

NASA to Look at Automated Decision-Making

Considerable interest has developed recently in space-mission-related machine intelligence and robotics technology. The particular areas of interest to NASA are automated decision making and problem solving.

To assist NASA technology planners in defining future research programs, Langley will host a "Conference on Automated Decision-Making and Problem Solving" May 19 and 20 in the Activities Center, Building 1222.

The purpose of the workshop is to explore related topics in artificial intelligence, operations research and improved control theory, and to assess existing techniques, determine development trends and identify their potential for applications in NASA programs.

Alfred J. Meintel, Jr., of the Flight Dynamics and Control Division, is Chairman of the conference and Walter W. Hankins, FDCD, is Coordinating Chairman.

According to Hankins, attendees at the two-day workshop will include representatives from universities, private industry, NASA and other government agencies.

Moore, Williams Paper Judged Best

A paper, written by Frederick L. Moore and Louise H. Williams of the Projects Management Systems Division, was judged the best paper in the Hardware Cost Estimating Workshop at the Second International Parametrics Conference.

Moore presented the paper, "Parametric Cost Estimating at NASA's Langley Research Center," at the conference held in Cherry Hill, N.J., April 28 through May 1.

During the conference, sponsored by the International Society of Parametric Analysts and RCA/Price Systems, Williams was elected Vice President of ISPA.

"...Service to Humanity is the Best Work of Life," reads the last line of the Jaycees' Creed. Recognized for his outstanding and meritorious work for the Federal government, M. Patrick McCormick (second from left), Head of the Aerosol Measurements Branch, Instrument Research Division, was presented the Arthur S. Flemming Award by The Downtown Jaycees of Washington, D.C., April 11. McCormick was honored as one of 10 outstanding young Federal government employees of 1979 and was the only NASA employee to receive the award. Pictured with McCormick at the Jaycees' awards luncheon in Washington are his son, Michael; his wife, Judy; and Langley Director Don Hearth.

Science Lecture

Continued from page 1.

Williamsburg Foundation, under a National Science Foundation grant.

McKnight received his doctor of philosophy degree in physics from Yale University. Von Baeyer, who received his doctorate from Vanderbilt University, is also Director of the Virginia Associated Research Campus in Newport News.

LFCU Positions Filled

Three board members and two Credit Committee members were elected at the annual meeting of the Langley Federal Credit Union.

Elected to the Board of Directors were Burnett W. Peters, Jr., Scientific and Technical Information Programs Division, James R. Dinkins, Office of the Director, and Jean Yokum, LFCU.

Elected to fill two Credit Committee positions were Joyce M. Wright, Personnel Division, and Howard R. Puckett, Jr., Office of Director for Management Operations.

GWU Offers Course

The George Washington University at NASA will offer CSci 298—Research (Microprocessor Based Design) during the summer semester. Registration will be May 20, in the GWU Office, Building 1220, Room 127, from 9 a.m. to 12 p.m. Students who wish to graduate at the end of the summer semester should register at this time.

For more information call the GWU Office, Extension 3020.

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.

EOC Improvements

Continued from page 1.

and Personnel Division Chief Bill Williams as Ex-officio members.

MAJOR CONCERNS

A major goal of the Committee's work was to broaden the usual scope of equal opportunity to make certain that all employees would benefit from an enlightened study of the general state of opportunities available at Langley. Immediately after inception, the Steering Committee selected six areas of personnel management considered to be of major concern in any strong implementation of an Affirmative Action Plan.

The six areas of concern were promotions, supervisory positions, goals for workforce composition, executive development, upward mobility, and cooperative education.

Subcommittees were established, each charged with making a complete analysis of its particular subject of concern. To insure continuing attention from top management, each Subcommittee was chaired by a Director: Richard Heldenfels, Promotions; Bart Geer, Supervisory Positions; James Stitt, Goals for Workforce Composition; Howard Wright, Executive Development; Paul Holloway, Upward Mobility; and Robert Bower, Cooperative Education.

Each Chairman then selected employees as members of his Subcommittee. The employees were chosen as individuals, not as representatives of particular organizations, and each member served as an independent, objective and responsible person, helping enhance the Center's equal opportunity activities.

The total of 52 Subcommittee members represented a cross-section of Langley employees: top management and line workers, professionals and clericals, men and women, young and old, black and white.

Two members were co-op students, Markham Terry of VPI&SU and Melvin Ferebee of Georgia Tech, and advice was readily available from specialists in Personnel and Equal Opportunity Programs.

And they all put in some long hours and serious thought on their particular subjects. Each Subcommittee met at least once a quarter, in addition to research and analysis conducted outside the formal meetings. The Steering Committee itself, required to meet at least twice during the year, actually met five times, totaling more than 15 hours of formal discussions.

FIRST-YEAR IMPROVEMENTS

Recommendations already implemented during the first year include:

- Early identification of high-potential employees, including the development of training plans and selection of appropriate work assignments.
- Use of Group Leader assignments, for experience and for evaluation of supervisory potential.
- Consideration of special assignments for increased Center-wide exposure.
- Developing a mechanism for quicker hiring.
- Recommending a checklist for all supervisors, to make them aware of all implemented recommendations.
- Suggesting that all supervisors discuss appropriate job vacancies with all potentially qualified candidates.
- Seeking solutions that would involve shift changes or other methods to allow qualified night shift employees to take advantage of training opportunities.

Director Hearth has also accepted the Committee's recommendation that the Personnel Division can now continue the work begun by Holloway's Subcommittee on Upward Mobility, Geer's Subcommittee on Supervisory Positions and Wright's Subcommittee on Executive Development. These three groups will be discontinued, however. Subcommittee members have pledged their continuing support in the implementation of ideas.

WORK CONTINUES

The remaining three Subcommittees will continue their work, and two new Subcommittees have been established, primarily to help find more qualified high-grade employees and appropriately consider them to meet requirements of the Equal Opportunity Program.

During 1980, the Committee will help to:

- Increase the quality and quantity of minorities and females in the Co-op Program, involve Divisions more directly in the process, and appoint a counselor for each co-op student.
- Seek authority to Promote AST co-ops to the GS-9 level after six months of satisfactory service.
- Bolster the technician co-op candidates by expanding the Apprentice Program to additional schools.
- Make Langley employees better informed about promotion opportunities and procedures.
- Continue to identify potential supervisory opportunities three years before they occur, and provide planning to strengthen the potential of candidates.
- Encourage line managers to motivate employees to prepare for future vacancies, and especially to explore potential opportunities between Directorates.
- Have Personnel explore the feasibility of new programs to upgrade non-professional positions.

During the Equal Opportunity Steering Committee's first year of work, these Langley employees served as members of the six Subcommittees:

Promotions: Ira Abbott, PED; Barbara Durling, SDD; Philip Glaude, FD; Carlton King and Ernest Rowe, OSD; Brenda Spencer, MSD; and Matthew Winston, ASD.

Supervisory Positions: Fred Bowen, Management Operations; Lana Couch, SDD; Albert Gribble, ACD; William Mace, FED; William Phillips, FD; Earl Stahl, OSD; and Robert Swain, AESD.

Goals for Workforce Composition: Edmund Brummer, Projects; Patricia Cole, Structures; James Dinkins, SE&O; James Harris, ACD; Ray Hook, SSD; Mary Korycinski, HSAD; and Bland Stein, MD.

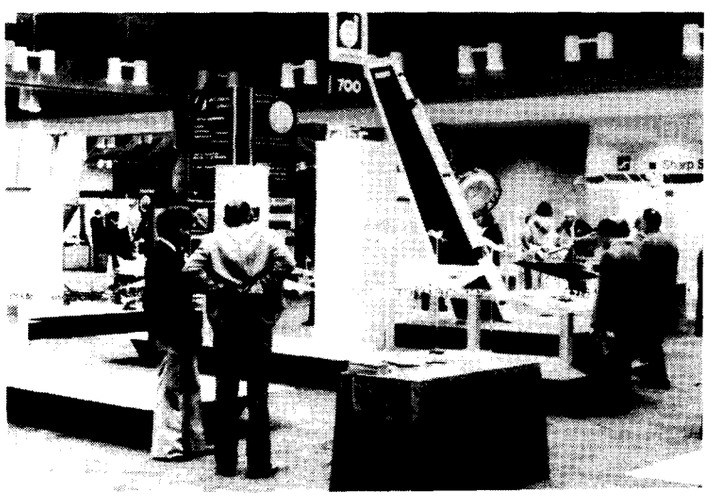
Executive Development: Horace Bellamy, OSD; Janet Campbell, MATD; Angelo Guastaferro and Robert James, LSST; Jess Ross, MSD; Robert Schade, FMD; and Louis Vosteen, ACEE.

Upward Mobility: Pat Cooke, Project; Al Diaz, PMSD; Robert Evans, FD; Roy Harris, HSAD; Gilbert Haynes, FED; Jean LaNeave, Space; and Alice Massey, PRD.

Cooperative Education: William Brooks, MD; John Buckley, FD; Melvin Ferebee and Joseph Stickle, FMD; Jenny Howard, STAD; Charles Jackson, HSAD; Robert Lee, MATD; George Meidinger and Rodney Russell, OSD; Judy Shinn, SSD; and Markham Terry, FED.

– photos by Brian Welch

It was a busy week for representatives of NASA's Educational Programs Offices at Langley, Lewis, Ames and Headquarters. They were in Baltimore for the AIAA's Global Technology 2000 exhibition, coordinating and manning the NASA display for six days. During that time around 8,000 people, aerospace technologists and the public alike, toured the largest technical display of its kind in American history. Above, left, Hal Mehrens, Langley Educational Programs Officer, strides across the NASA display area on the first day of the exhibition to check on one of endless details. In the foreground is a model of an advanced turbo prop-equipped airliner. Above, right, George Vogt of the Lewis Center lectures the public on NASA's aerospace efforts. The lecture presentations were unique at the exhibition, and drew standing room only crowds during the public viewing days. Below, right, Garland Tillery, an aerospace education specialist working out of Langley, and Mehrens look over the exhibit as they await more tour groups. A major portion of the exhibit, which was largely devoted to aircraft energy efficiency and large space structures, is being reassembled in the new wing of Langley's Visitor Center.



Thanks

Ed Brummer thanks all of his friends for the memorable retirement party, the many gifts and the valued associations he enjoyed throughout his career at Langley.

Lillian Boney writes, "I would like to express my appreciation to all my friends for the enjoyable retirement luncheon March 20. The gifts and mementos are greatly appreciated and will always remind me of the wonderful people I have been associated with over the years at Langley. Thanks again for everything."

Lee McDaniel extends his heartfelt thanks to all of those who contributed in any way to his NASA retirement party on April 25. "The kind words and even the gentle jibes were appreciated. I shall always cherish the memories that I have of NASA and fellow workers of the Fabrication Division."

Jim Stitt wishes to thank everyone who planned and participated in a most memorable retirement party, and to express appreciation to his many friends for the pictures, plaques, memorabilia and beautiful gifts.

Matthew Carli writes, "I would like to thank my many friends and co-workers for making my retirement party one of the happiest nights of my life. Also, I wish to thank all of those who could not attend the party but contributed to the beautiful gifts and mementos. My many years of association with all the people at Langley will always occupy a warm spot in my heart."

Lenore Hulcher writes, "I am deeply humble and sincerely grateful to each member of NASA who gave blood in my name when the Bloodmobile came to the facility March 19. I was deeply touched, because for the second time in nearly two years you gave for me and showed what wonderful and caring people you are. God bless each of you."

Alberta Saunders thanks all the friends who honored her with a retirement luncheon March 26. "My sincere thanks for the gift and mementoes. I will cherish them and my association with each of you for many years."

Headquarters Personnel Changes

Brian M. Duff is the new Director of Public Affairs at NASA Headquarters. He is responsible for agencywide activities involving the general public, the news media and the educational community.

Duff has more than 17 years of management communications and media services experience, including 10 years of government public affairs experience.

Ann P. Bradley has been named Deputy Associate Administrator for Management Operations. She joined NASA in 1973 and had been manager of the NASA Resident Office at the Jet Propulsion Laboratory since August 1979.

C. Robert Nysmith has been appointed Acting Deputy Associate Administrator of the Office of Aeronautics and Space Technology. In this position, Nysmith will be responsible for the general management and direction of the OAST programs. He was Director of the OAST Administration and Program Support Division prior to his recent appointment.

Robert E. Smylie has been named Associate Administrator for Space Tracking and Data Systems. He replaced Dr. William C. Schneider who retired from NASA March 1.

Smylie began his NASA career in 1962 and was Deputy Director of the Goddard Space Flight Center from 1976 until his recent appointment.

In his new position, Smylie will be responsible for planning, development and operation of global tracking networks, facilities and systems for communications and data acquisition and processing for all NASA space flight programs.

Be a Money Maker

Langley Federal Credit Union has begun a new service for its members--Money Maker Certificate Accounts. These new accounts are unique in that no other financial institution presently offers anything like them.

The Money Maker Certificate Accounts cater to the monthly saver. By agreeing to set aside $100, $200, $300, $400 or $500 per month, you can earn a substantial dividend at maturity up to 10 percent.

Money Maker Certificates are issued for a term of 18 months and interest is compounded quarterly. A substantial penalty is imposed if terms of the agreement are not met or if funds are withdrawn prior to maturity.

NOAA-B Satellite Featured at Visitor Center

The National Oceanic and Atmospheric Administration's satellite NOAA-B, slated for launch May 21, will be the subject of a special Visitor Center program May 20—25. A slide program and films on satellite technology will be presented. One of the films, "Eyes in Outer Space" by Walt Disney, will have special appeal to children. NOAA-B is the third spacecraft in a series of satellites that monitor Earth's atmosphere from space.

NOAA-B will join TIROS-N and NOAA-6 in orbit 540 miles above Earth. When it achieves its near-polar orbit, it will become NOAA-7, replacing TIROS-N, which will be placed on standby status. In the past two years TIROS-N and NOAA-6 have given meteorologists, oceanographers, hydrographers and other scientists increased knowledge about solar energy, the atmosphere, surface sea ice, water and weather conditions.

In an orbit which allows the satellite to view every part of Earth twice in a 24-hour period, the satellites in this series do earth scanning, collect remote observations from data platforms, measure solar particle radiation in space, make atmospheric soundings, and disseminate data in real time. The spacecraft can discern cloud distribution both day and night, snow and ice distribution and sea surface temperatures. It can also collect atmospheric data, including temperature, water vapor amounts and ozone content.

More than 120 nations receive information from the TIROS-N series of satellites as they pass in range overhead. The data acquired are vital to accurate continental, regional and local forecasts.

The NOAA-B program will be offered at the Visitor Center at 12 p.m. on weekdays and at 1 p.m. and 3 p.m. on Saturday and Sunday.

Recent Retirees

Virginia M. Lazenby, Office of the Director, retired April 18.

Edgar D. Freeman, Fabrication Division, retired April 22.

Robert J. Tapscott, Aeronautical Systems Division, retired April 25.

William M. Haraway, Jr., Jack G. Barbour, Fabrication Division; **Ralph P. Bielat**, Subsonic-Transonic Aerodynamics Division; and **Joseph H. Judd**, Flight Mechanics Division, retired May 2.

Join the Payroll Savings Plan

Langley's Campaign Ends May 30

– *photo by Bob Nye*

Lewis Research Center Administration staff members visited Langley May 6 to exchange ideas on subjects of mutual interest to both centers. While at Langley, the Lewis staff presented Langley with a small ironwood tree planted in Lewis earth as a demonstration of the return of the child of earth to "Mother Langley." Fred W. Bowen, Langley's Acting Director for Management Operations, and Edward A. Richley, Lewis' Acting Director of Administration, are shown at the ground breaking ceremony in front of Building 1151.

Tennis Club News

Final round matches in the Men's and Women's Ladder tournaments saw Charles Bryant retain his top position by defeating Jerry Creedon, 6–2, 6–3 and Carol Smith overcome Joanne Re's steady baseline play, 6–2, 7–5. Semi-final results were Creedon over Dennis Bartlett, 1–6, 6–3, 6–3; Bryant over John Whitcomb, 6–0, 6–2; Smith over Gretchen Lingenfelser, 6–0, 6–2; and Re over Jeanette Dunham, 6–2, 6–2.

Pairings for the continuation matches have been mailed to all Ladder Tournament entrees. Other members interested in participating should contact Jack Neubauer, extension 4576. The Senior Men's tournament will be held on June 7–9. Members 45 years and older are eligible.

The 1980 officers are Bob Murray, president; George Lawrence, vice-president; Leonard Clark, secretary; Bill Weaver, treasurer; Burnell McKissick and Evelyn Myers, board members.

In Memoriam

R. Franklin Wells, who was an electronics engineer in the Instrument Research Division, died May 1 in Riverside Hospital. He was 47.

Wells began his government career in 1956 following his graduation from the University of Virginia, where he received a bachelor of science degree in mechanical engineering.

Retirement Parties

Robert E. Johnson, Plant Engineering Division, will be honored with a retirement party Friday, June 6, at the Langley Officers' Club. A social/cash bar will begin in the Virginia Room at 6:30 p.m.; dinner will be served in the Williamsburg Room at 7:30 p.m., with a program to follow. The cost is $9 per person/$17 per couple. Contributions for gift only are also welcome. For reservations, send check to Nancy Shields, Mail Stop 446, by May 30.

Earl Popp, Instrument Research Division, will be honored with a retirement dinner Tuesday, June 3, at Sammy's Steak House, 12399 Warwick Boulevard, Newport News. Cocktails will be served at 6 p.m. and dinner at 6:30 p.m. The cost, including gift, is $7.50 per person or $13.50 per couple. Contributions of $1.50 for gift only are welcome. For reservations, send cash or check to Roger Phelps, Mail Stop 238, by May 23.

Dr. John E. Duberg, Associate Director, will be honored with a retirement party Friday, June 6, in the Activities Center. A social/cash bar will begin at 6 p.m.; dinner will be served at 7 p.m., followed by a program. The cost is $11.50 per person. Contributions for gift only are welcome. Please call Mary Mesic, extension 3395, by May 19.

Virginia Lazenby, Office of the Director, will be honored with a retirement luncheon Friday, May 23, at 11:45 a.m. in the Activities Center. The cost, including gift, is $6.25 per person. Contributions of $1 for gift only are welcome. Make checks payable to Mary Mesic, Mail Stop 110, by 4:30 p.m. today.

Key Positions

Aubrey M. Raiford and **J. Thomas Barclay** have been selected Supervisory Engineering Technicians in the Mechanical Development Section, Mechanical Technology Branch, Fabrication Division, under Merit Promotion Announcement 80-18.

William A. Brooks, Jr., has been designated Acting Head, Materials Application Branch, Materials Division.

Harvey G. McComb, Jr., has been designated Acting Head, Structures and Dynamics Division.

Happenings

HAWAIIAN LUAU. Tickets are now on sale at the Activities Office for the Hawaiian Luau to be held at the Activities Center Saturday, June 28. The cost will be $10 per adult, $5 for children under 12. The Luau will include a free Hawaiian drink, dinner and the show, featuring "Pineapple Smash and the Tiki Dolls" and the outstanding Flaming Sword Dance. Persons attending are requested to wear Hawaiian-style clothes. Everyone is invited to watch the placing of the pig (Pua's) in the ground at 12:30 p.m. and the removal of the pig from the ground, blessings and procession to prepare the pig at 5 p.m. Reservations for the Luau at 6 p.m. are required. Persons having toured Hawaii are especially invited to participate in the festivities.

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, May 19, from 7 to 9 p.m. in Building 1209, Room 180. Following a short business meeting, the Virginia State Apiarist, Homer Powers, will speak on "The Bee Inspection Report for Virginia and Brazil." Direct your inquiries to R. Henk, extension 4637.

CARNIVAL QUEEN CONTEST has begun. Deadline for submitting names to the Division Chiefs or Activities Association delegates is May 23. The Queen will receive $100 and first and second runners-up will receive $25 each. The 1980 Carnival will be held August 22 and 23. Call Fran Sabo, extension 3611, for further details.

HAPPY HOUR will be held May 23 from 4 to 6:30 p.m. in the Activities Center.

LAA ARTS AND CRAFTS SHOW will be held tomorrow in the Activities Center from 12 to 5 p.m. A variety of handiwork will be displayed, including jewelry, ceramics, macrame, painting, quilts and porcelain dolls. A nursery will be provided and refreshments will be available in the lounge.

Sailing Classes Offered

The Langley Yacht Club will sponsor sailing classes starting in June for both juniors (from age 10) and adults. Classes are open to military and civilian federal employees and their dependents.

A fleet of twelve boats (Sunfish and FJs) will be available and classes will be taught by fully qualified instructors who are active racing sailors. Class size will be limited to provide better instruction.

Junior classes will begin June 16 and July 21 and will run for five weeks with three-hour classes morning and afternoon, Monday through Friday. Classes will include beginning, intermediate and advanced levels of sailing.

Adult classes will begin June 10, July 8 and August 5 and will meet in the evening two days a week for four weeks.

Cost for juniors will be $65 for LYC members and $80 for non-members for 75 hours of classes. Adult classes will cost $45 for LYC members and $55 for non-members. Applications are available at Building 607 (Langley Yacht Club—MWR Marina) Wednesday through Sunday. For further information call 851-6327 or 851-1057.

Values, Behavior Films Planned

The Training and Educational Services Branch will sponsor two special film showings during June for NASA employees, contractors and their families. The films will be shown in the Activities Center at 7:30 p.m. on the dates indicated below.

Wednesday, June 4 — "What You Are Is Where You Were When"

In this film on value programming, Dr. Morris E. Massey, Associate Dean of the College of Business, University of Colorado, discusses the age group in which the individual's personality is first developed; what changes people after their values have been established; and how value processing is affected by family, friends, religion, school and the media. Information gained from this film will help you to understand other people's points of view and to understand and deal with your own and other people's value judgments.

Wednesday, June 18 — "What You Are Isn't Necessarily What You Will Be"

This film is the sequel to Massey's first presentation, "What You Are Is Where You Were When." Massey elaborates on the "significant emotional event" and how it can change behavioral patterns.

Due to the popularity of these films, tickets will be required. Free tickets may be obtained from Paula Land in Building 1195, Room 136, on a first-come, first-served basis.

— photo by Bob Nye

Approximately 250 secretaries and supervisors attended the secretaries' breakfast Tuesday, April 29, in the Activities Center. The theme for the program was "Communication," featuring a mini fashion show on "Clothing Speaks." The secretaries modeled fashion appropriate for the office--fashions that will give a good impression not only of the secretary, but of the organization as well. Secretaries pictured are Jean La Neave, Merci Hobbs, Pat Dinwiddie, Blanche Johnson, Sandra Chaney, Mozetta Cooper, Pat Redwood, Sharon Fairheart, Linda McKnight, Anne Terry, Marie Ashe, Kathi Porter and Barbara Fryer.

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Thanks

Paul Huber thanks his Langley friends for the retirement luncheon. "The congeniality and warm fellowship and the time of recollection and generous gifts contributed to an occasion I shall never forget. I hope you will remember that I am still around and want to see you whenever possible."

Austin McHatton, Jim Mayo, Bob Freeman and **Tom Bartron** write, "We would like to express our appreciation to all our friends who provided such an outstanding farewell for us on April 1. The pleasant memories of Langley and our association with each of you will long be cherished. We thank you very much."

Barbara L. Weigel writes, "I'd like to express my thanks and appreciation to all who made my retirement luncheon a grand occastion. God Bless You All."

Joe Alford, Manny Boxer, Al Braslow and **Bill Conner** wish to thank all their friends whose efforts and presence made their retirement party a memorable one. "The 'roasts' were well-done, the gifts deeply appreciated."

Robert W. Fralich writes, "I wish to express my thanks to the many friends who arranged and participated in my retirement luncheon. The gifts and mementos are greatly appreciated."

Abraham Leiss writes, "Having recovered from such an outstanding send-off that equaled a successful Scout launch celebration, I wish to thank all those who participated as both guests and planners and wish that all of you may continue your successful career at NASA. I wish you well."

swap and shop

FOR SALE

Articles

'69 Buick engine chassis service manual, all series $5; '74 Ford car shop manual, all series $9; truck cap, 54 x 69 GC, $75, ½ hp Sears compressor sprayer, GC, $95; Singer monogrammer for slant needle zig-zag machine, w/letter cams, $5. Call Hewes, 596-4742.

Twin iron beds and springs, $10. Call Kelly, 898-5589.

Zenith color TV console 25", needs some repairs, $100. Call 826-0619.

Vehicles

1967 Ford Galaxie 500 hard top, good tires, needs motor; best offer. Call Kelly, 898-5589.

1977 Honda Accord, AC, AM/FM, Mag wheels, new Michelin radials, EC, $4,975. Call Wayne Melton, 722-8824.

Real Estate

Five to six acre tracts on private, secluded 14 acres; stocked pond; ideal retirement site; landscaped; underground elec. and telephone service included; $35,000 to $38,000; Gloucester Co. Call 693-3583.

Choice cemetery lots in Veterans Memorial Gardens, priced for quick sale. Call 826-0619.

FOR RENT

New water front cottage, liv-din-kit, 4 Br, 2 porches, dishwasher, located on Pamlico Sound near Cape Hatteras Lighthouse; summer rates $300/wk ($50 less for leaving it clean). Call 877-3736.

FREE

Garden space available free near Briarfield Road, 90'x200'; share vegetables with owner. Call 826-0619.

WANTED

Persons interested in joining car pool from Norfolk to West area on 7:30 a.m. shift. Call Hudgins, extension 3072 or Norfolk 587-9023.

To join or form car pool from Princess Ann area of Virginia Beach to West side for 7:30 or 8 a.m. shift. Contact B. Jackson, extension 3631 or 340-0333.

Clyde McLemore thanks his friends for the great retirement dinner, gifts and mementos. "This was really a highlight of many enjoyable experiences at Langley. I have enjoyed the work at Langley and will miss all of you. Thanks again."

cafeteria menu

WEEK OF MAY 19

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Shrimp in a Basket; Chicken Pot Pie. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Spanish Pot Roast; Pork Chops; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Meatloaf; Swiss Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Barbecued Chicken; Ham & Cheese Omelette. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF MAY 26

MONDAY: HAPPY MEMORIAL DAY!!!!!

TUESDAY: Bull Island 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: Tomato & Rice 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 & Rice Soup; Braised Beef & Vegetables; Veal Parmesan; Pork Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

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

Key Positions

Lawrence W. Taylor, Jr., has been selected Head, Flight Dynamics Branch, Flight Dynamics and Control Division, under Merit Promotion Announcement 80-27.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 11 May 30, 1980

Mace, Goetz Named Langley Directors

New directors of two major research organizations at Langley have been selected by Director Donald P. Hearth.

Pending formal approval, William D. Mace will become Director for Electronics and Robert C. Goetz will be Director for Structures. Mace is now Chief of the Flight Electronics Division; Goetz is Special Assistant to the Chief of the Structures and Dynamics Division. Both are long-time members of Langley's research staff.

In making the announcements, Hearth stressed the excellent qualities of many of the candidates for the two positions. "My problem was in choosing from among several A-plus people," Hearth said.

Mace will manage all electronics research and development activities at the Center, including operation of computer systems, electronic instrumentation for aircraft and spacecraft, flight dynamics and control, flight electronics, electronics support to other organizations, aviation electronics research planning, and the Terminal Configured Vehicle Program to improve aircraft operations in terminal areas. He will direct the work of almost 600 people.

Robert C. Goetz

Goetz will head the organization responsible for research work in materials, structural mechanics, aeroelasticity, and acoustics and noise reduction. He will manage the work of approximately 260 people.

Mace began his Langley career in 1948 as an aeronautical research engineer in the Instrument Research Division. He was appointed Head of the Sensor Development Section in 1962 and Head of the Measurement Research Branch in 1963. He became Technical Assistant to the Assistant Director in 1966 and Assistant Chief of the Flight Instrumentation Division (now Flight Electronics Division) in 1970. He was appointed Chief of that organization in 1975.

A native of Waverly, Virginia, Mace received a bachelor of science degree in physics from the College of William and Mary in 1948. He served in the U.S. Air Force from 1943 to 1945.

He has received three Outstanding Performance Awards, a Special Achievement Award and a NASA Exceptional Service Medal.

Mace and his wife, Betty, live in Hampton. They have two children.

Goetz joined the Langley staff in July 1959 to conduct research in hypersonic aeroelasticity in the Dynamic Loads Division. He was an officer in the U.S. Air Force, assigned to Langley, from October 1959 to November 1962.

He served on the Technical Evaluation Team of the NASA Space Shuttle Source Evaluation Board in 1972 and as a structures specialist in the Aeronautical Systems Office from 1972 to 1973.

Goetz was appointed Head of the Flight Loads Section of the Structures and Dynamics Division in 1973 and Head of the Dynamic Loads Branch in 1974.

Under the NASA Executive Development Program, Goetz was assigned to the Office of Aeronautics

William D. Mace

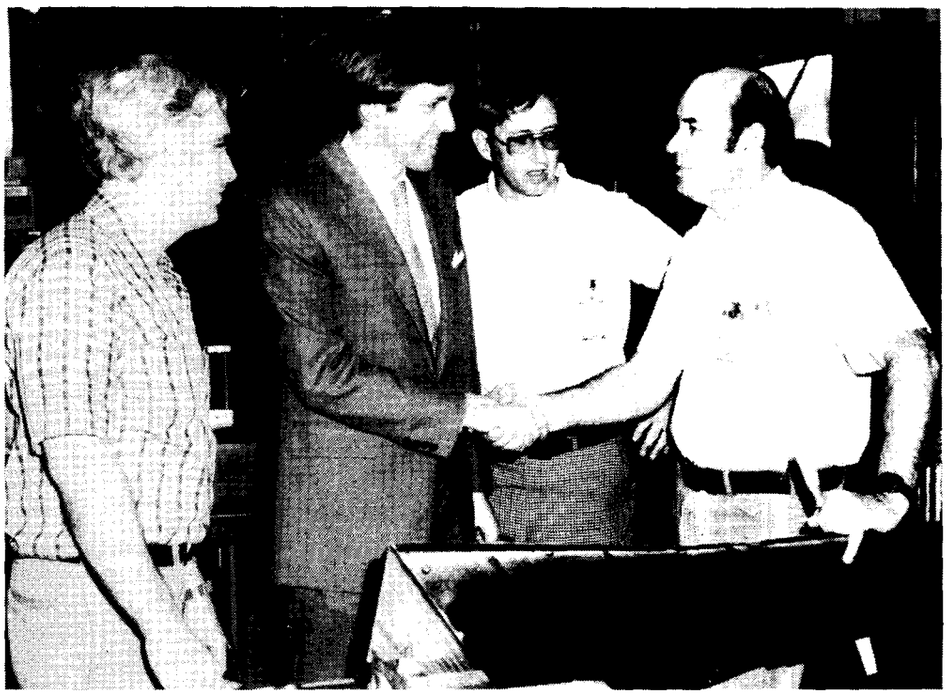
and Space Technology at NASA Headquarters, where he was manager of structures and dynamics research from 1979 to 1980.

Upon his return to Langley, he became Special Assistant to the Chief of the Structures and Dynamics Division, responsible for planning and coordinating new thrusts in structures and dynamics research. He also serves as a special consultant for the Space Shuttle Program.

Goetz was born in Miami, Florida. He received a bachelor of science degree in aeronautical engineering from Georgia Institute of Technology in 1959 and a master of science degree in engineering mechanics from Virginia Polytechnic Institute and State University in 1967.

The author of over 30 publications and presentations on hypersonic aeroelasticity, Space Shuttle dynamics and aeroelasticity, dynamic loads and flutter, Goetz has received several awards, among them a Sigma XI Award for his master's thesis. He is a member of the American Institute of Aeronautics and Astronautics, where he serves on the Structural Dynamics Committee.

Goetz and his wife, Josemarie, live in Williamsburg with their two children.



— *photo by Don Ward*

Virginia's Attorney General J. Marshall Coleman (second from left) visited Langley Thursday, April 24. During a tour of Langley facilities, Coleman was shown the energy efficient transport wing (lower portion of this photograph) being fabricated for tests in the 8-Foot Transonic Tunnel. Explaining the EET wing of the wind tunnel model are R. Wayne Barfoot, Dwight D. Stroupe and C. Calvin Davis of the Mechanical Development Section, Fabrication Division.

LFCU Back in Loan Business

The Langley Federal Credit Union eased back into the loan business as of May 15.

Jean Yokum, General Manager, said the Board of Directors has decided it would again make car loans. Car loans are exempt from the new credit constraints that require financial institutions to deposit 15 percent over and above its base to the Federal Reserve Board.

New car loans will be 14.5 percent with 75 percent purchase price financed for 36 months. Used cars will be financed at 15 percent on NADA loan value for up to 36 months, depending on the car's age.

Personal signature loans were increased from the $500 limit, in effect since last fall, to $1,000. Share pledge loans are available in any amount.

Safeguard Government Property

A recent letter to the Personnel Office asked that some guidance be given to employees regarding their responsibility to safeguard government property and equipment.

All Federal employees have an obligation to see that government materials are not used for non-government purposes. An employee who sees the questionable removal of government property has an obligation to report such a removal to either his supervisor or the Security Branch. No one wants to see a system where all of our employees are supposed to watch or spy on one another, but we do owe it to our employer, the United States Government, to see that proper use is made of government materials and equipment.

Since all of us are taxpayers, we owe it to ourselves to see that tax money is spent only for the purpose it was intended.

Whitehurst Discusses U. S. Defense Program

Virginia's Rep. G. William Whitehurst will trace the U.S. military strength from World War II to the present and compare today's Soviet defense and R&D efforts to our own at the Annual AIAA Awards Banquet.

In his talk "Five Minutes to Twelve," Whitehurst will share his concerns on U.S. military posture. He feels that although the United States is stepping up to its defense program, it is late in doing so.

The AIAA Awards Banquet will be held Saturday, June 14, in the Activities Center. A social will begin at 6 p.m. and dinner will be served at 7 p.m. followed by the program.

Whitehurst is a member of the House Armed Services Committee, its R&D Subcommittee and the Select Committee on NATO.

For reservations, call Buddy Cary, extension 4546, or Wally Sawyer, extension 3181.

Is there an engineer in Building 1209 who rides a bicycle with training wheels? It is rumored the employee works in the Structural Engineering Section.

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 Named Employer of the Year

Langley has been named Employer of the Year by the Hampton Vocational Industrial Clubs of America.

Willis H. Ward, Jr., Operations Support Division, accepted the award at the annual VICA Employer-Employee Banquet May 19 at the Fort Monroe Officers' Club.

Langley provided training for high school students in electrical work, hot gas research, industrial research, model making, machine shop and photography.

Roy Heath, Langley Programs Coordinator in the Staffing and Special Programs Branch of the Personnel Division, said Langley has employed two high school students from Hampton in the Industrial Cooperative Training Program this year. Charles Jenkins, a student at Bethel High School, works in the Operations Support Division. Lynn Jernell, from Kecoughtan High School, recently resigned from the program. Five other students participate in the program from Newport News high schools.

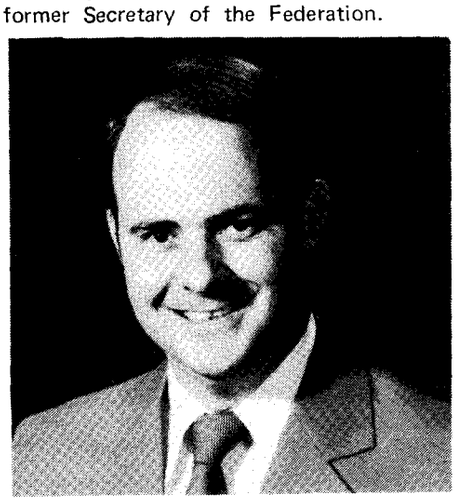
Students are permitted to work 16 hours a week at Langley. They take their regular academic classes in the morning and receive on-the-job training in the afternoon.

– photo by Ben Smith

Jacques Cousteau, the oceanographer and environmentalist, met Langley's Exploratron robot last week at Harborfest in Norfolk, and was reportedly pleased to see the little feller sporting a Cousteau Society T-shirt. The next day his son, Jean-Michel, shot some footage of Captain Cousteau escorting Exploratron aboard the Calypso, the Society's venerable research vessel. Pictured with Cousteau and Exploratron are (left) Jay Scott, a recent addition to the Educational Programs Office, and Garland Tillery, an aerospace education specialist who, along with several others from Langley, helped staff the NASA exhibit at Freemason Harbor. An estimated 100,000 people saw the display during the weekend festivities.

Visitor Center Director Elected Vice President

George E. Hicks, Director of the Langley Visitor Center, was elected Vice President of the Virginia History and Museums Federation at its annual April meeting in Fredericksburg. Hicks is former Secretary of the Federation.



Hicks, together with Robert Sullivan, Director of the Peninsula Nature and Science Center, and Dr. Thomas Krakauer, Executive Director of the Roanoke Valley Science Museum, presented a seminar on Long-Range Museum Planning at the meeting. The presentation will be published at the request of Lawrence Reger, Director of the American Association of Museums.

Hicks sees long-range planning as a relatively new museum management tool, though it "has long been an integral part of business and industry," he said. He cautioned, however, that the differences between profit motivated private industry and public service oriented museums and cultural institutions must be considered. Citing long-range planning as "decision making with an eye to the future," he described the master planning process as "the responsibility of the chief executive to chart the course of the institution, navigate the hazards and place trust in professional skills--and pray for good weather."

To undertake the self-perpetuating activity of long-range planning, a charter is needed, Hicks said. The institution's governing council needs to commit itself to the planning process and also commit

Continued on page 8.

Researchers Track Volcanic Plume

Since May 18, when Mt. St. Helens blew 1,500 feet from its crest with the force of a ten-megaton nuclear bomb, Langley's Aerosol Measurements Research Branch (AMRB) has become something of a nerve center for varied missions to track the transcontinental plume.

Airplanes, weather balloons, sounding rockets and a satellite conceived at Langley and launched aboard a Scout rocket have been used to track several distinct stratospheric clouds with dense particle concentrations over the United States and Canada.

By Wednesday, May 28, NASA and contractor employees had flown four lidar and particulate sampling missions aboard a P-3A Orion from Wallops Flight Center, spent six nights in a trailer near Building 1299 monitoring data from the 48-inch mobile lidar unit, and had begun the process of unraveling data from SAGE, the Stratospheric Aerosol and Gas Experiment satellite.

A U-2 from the Ames Research Center and an RB-57 "Hustler" from the Johnson Space Center flew several missions over the middle and western regions of the nation and added their findings to the growing bank of knowledge. Dr. Jim Rosen of the University of Wyoming phoned in periodically to report measurements from his balloon flights above Laramie which gave particulates versus altitude. The National Weather Service and the National Oceanic and Atmospheric Administration helped guide the various research flights with predictions of air motions, and the Smithsonian Institution's vast scientific network was made available for information on the volcano's activities.

Mt. St. Helens became an active volcano in late March. By the time these photos were taken in April, a mild eruption had already deposited a layer of ash on the mountaintop.

Oversea cables were sent from AMRB to foreign members of the SAGE science team as the plume developed. Over Memorial Day weekend another source of information was added when sounding rockets were launched from Wallops to fly through clouds over this area.

As if anticipating the eruption, SAGE was in the perfect position to watch the volcanic plumes spread globally. It came down out of the northern latitudes and swept over the U.S. and Canada from May 20 to May 29.

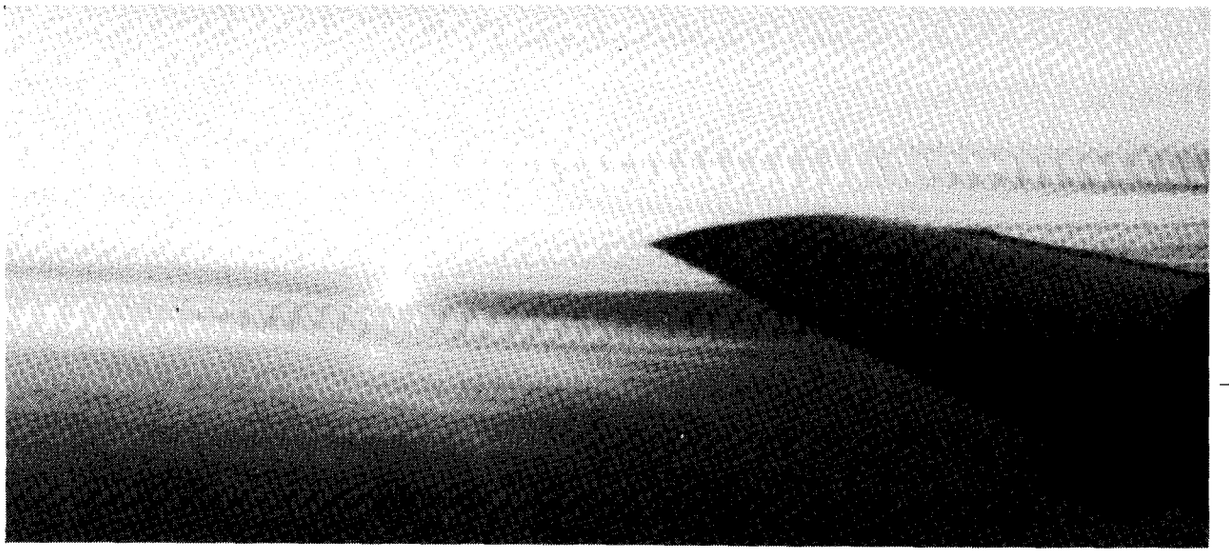
During this time researchers back on Earth measured concentrations at various altitudes of from 600 to 800 microscopic particles per cubic centimeter--compared with a typical stratospheric reading of only one-half particle per cubic centimeter.

Dust clouds--some of them in four and five layers--were found passing over the continent in several different paths. One cloud broke up over Montana and Wyoming, a portion drifting north over Ontario and Quebec, the rest taking a more southerly route over the Midwest and lower Northeast.

Another cloud stalled for a few days over 23 kilometers above the Nevada-Idaho border. Early this week the cloud was caught in a stratospheric wind reversal and actually drifted out over the Pacific Ocean.

By Thursday dust clouds were still readily detectable in the stratosphere over the U.S. This far east of the volcano the clouds are all but invisible to the naked eye, but not to the lidars on Earth and the solar radiometer aboard SAGE.

The lidar--or light detection and ranging systems--are essentially laser radars. Pulses from the laser shoot up into the atmosphere and strike molecules and particulates, causing them to backscatter a portion of the laser light. This backscatter is collected by the telescope and channeled to photomultiplier tubes, which in turn convert the return light to a voltage from which the signal can be read on an oscilloscope. Through this technique



The Sun pokes through what could have been a layer of volcanic dust at dusk on May 21. The photo was taken from the Wallops P-3A Orion near Philadelphia at an altitude of 18,000 feet.

– photo by Bob Taylor, courtesy Wallops Flight Center

researchers can map vertical profiles of the atmosphere to approximately 40 kilometers high.

The compact airborne system aboard the P-3A at Wallops is being operated by William H. Fuller, Jr. and Bill R. Rouse from AMRB, and William H. Hunt and Forrest C. Diehl of Wyle Laboratories.

David C. Woods of AMRB operated the in situ particulate sample on the first two flights. Samuel Sokol of the Spacecraft Instrumentation Branch does the aircraft mission coordination during the flights.

Back at Langley another lidar unit--the larger 48-inch mobile system--is being operated by Joseph H. Goad, Jr. of AMRB and Chet Bartusiak of Wyle Labs.

The SAGE data are still coming into Langley from the Goddard Space Flight Center, so the satellite's data have not yet been fully reviewed, according to Dr. M. Patrick McCormick, head of AMRB. McCormick said that, based on observations of two previous volcanos, he expects SAGE will probably find that at least 10,000 to 100,000 tons of ash have been ejected into the stratosphere by Mt. St. Helens.

This should represent more stratospheric output than either of the other two volcanos previously monitored by AMRB--La Soufriere in the Carribean and Sierra Negras in the South Pacific.

McCormick has spent most of the past two weeks with a phone in his ear. Between checking his sources around the nation and coordinating the activities of the men at Wallops he has been busy plotting the couds and comparing the findings of the many research missions.

He said it is too early to tell what specific effects--if any--the plume will have on the climate of the Earth. The ash in the stratosphere has become part of Earth's aerosol layer, which could have a definite bearing on the amount of sunlight which reaches the Earth's surface and the amount of reflected sunlight which eventually passes back into space. Aerosols--airborne particulates--are usually less than one millionth of a meter (one micrometer) in diameter. Some particles from Mt. St. Helens were found to be approximately two to three micrometers in diameter by the RB-57 flights.

Because the stratosphere does not cleanse itself very well those particles will be there for a number of years. In that time the particles will contribute to redder sunsets and add a significant percentage increase in the amount of stratospheric aerosols worldwide.

Just a Bit of Showbiz

– by Allan Hanrahan

A pair of Fabrication Division "thespians" make their show business debut in June, in two different productions on national television.

Mary Ann Curtis was at Busch Gardens while a television special, "New Country at the Old Country," was being taped. The special features Greg Evigan, the star of "B. J. and the Bear;" Dennis Weaver; the Oak Ridge Boys; Larry Gatlin; and--for a scene or two--Mary Ann:

"They had already made us move (out of camera range) twice," she said, "and I thought they wanted us to move again, but they took us over and told us where to sit and what to do."

A confirmed autograph seeker, Mary Ann had a field day after the taping.

A short feature about the special has already appeared on "P. M. Magazine" on May 19, and the special itself airs sometime in June with Mary Ann looking forward to her debut "if I don't get cut out," she grinned.

Coincidentally, one of Mary Ann's co-workers in the Planning Resource Control Office, Fred Ferrari, has a small part in the television movie, "King Crab," also slated for telecast in June.

For the most part the movie was shot in Hampton and Phoebus, and in one scene, a crap game filmed in Fuller's in Phoebus, a character named Mike, played by the actor Harry Gould, is psyching up the dice when Fred Ferrari speaks his big line: "Come on Mike, shoot them dice!"

Unfortunately, all of the many pictures--taken by Fred's daughter--of Fred and the Stars in the movie, such as Barry Newman, failed to "turn out" because of some shortcoming in the processing or malfunction in the camera. (Get your 1940's style Kodak box camera out of mothballs, Fred. Those things always worked.)

One of the other extras in the movie jokingly reported that Fred "managed" to get himself in a number of scenes, so if his dramatic efforts do not end up on the cutting-room floor we should have ample opportunity to see how Fred's acting debut fares.

Happenings

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley Wednesday, June 4, 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.

NAGS. The Hampton Roads Branch of the National Association of Government Secretaries will sponsor a workshop "Broaden Your Scope" Saturday, May 31, at the Hampton Holiday Inn. Joyce Price, Curriculum Coordinator for the Riverside Hospital School of Nursing will speak on "Health is Wealth." Toni M. Hodge, with a 15-year career as a buyer, will talk on "Look at You" and will display suitable garments for a professional wardrobe. Registration fee is $10 for members, $12 for nonmembers. Registration begins at 8:45 a.m. For further information, call Shirley Davis, extension 2759, or Mary Korycinski, extension 2658.

KEEPING WELL SEMINAR. The last in the series of health seminars will be held Tuesday, June 3, from 8:30 to 11:30 a.m. in the Activities Center. Ray Russell, Senior Case Manager for the Alcohol Safety Action Program, will discuss "Identifying and Coping with Persons who Have Alcohol Problems." Supervisors are encouraged to permit employees to attend the seminar.

HAPPY HOUR. There will not be a Happy Hour June 6. The next Happy Hour will be held June 20 from 4 to 6:30 p.m. in the Activities Center.

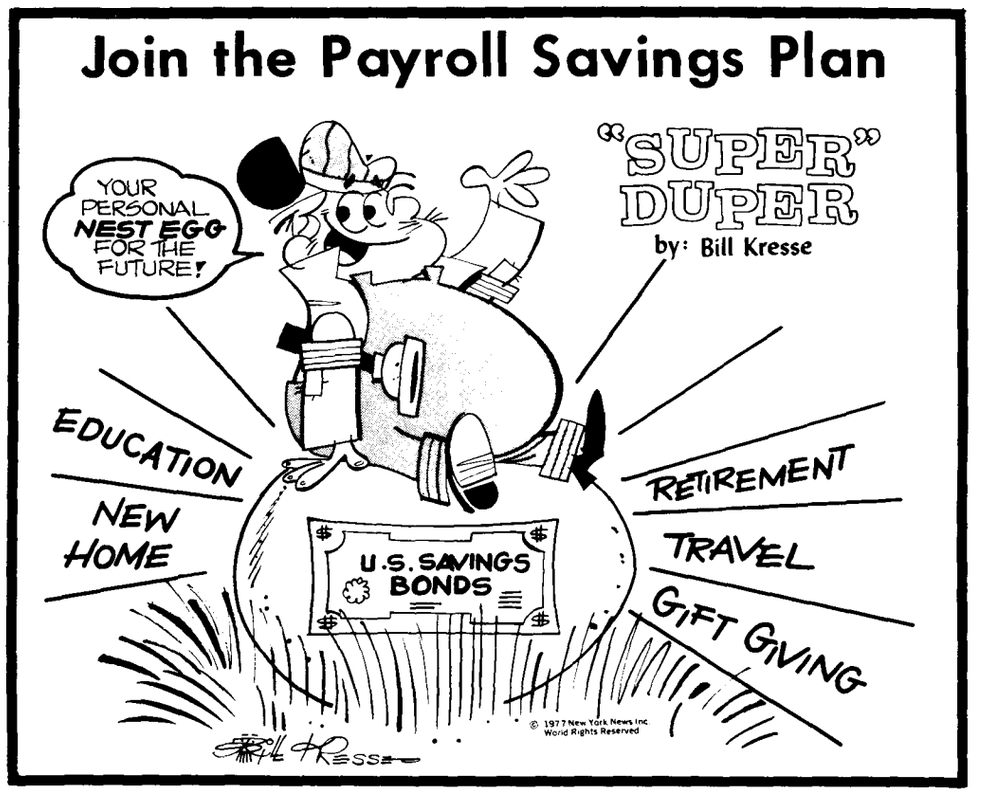
CONGRATULATIONS to Ernald B. Graves, Office of Director, and Denise M. Stephenson, Atmospheric Environmental Sciences Division, who will be married June 7.

Key Positions

John L. McCarty has been designated Head, Landing Dynamics Office, Structures and Dynamics Division.

Donald L. Ewton has been selected Supervisory Engineering Technician, Composite and Dynamic Models Section, Aerospace Model Development Branch, Fabrication Division, under Merit Promotion Announcement 80-36.

Wendell G. Ayers has been selected Head, Environmental Field Measurements Branch, Marine and Applications Technology Division, under Merit Promotion Announcement 80-38.



Retirement Parties

Dr. John E. Duberg, Associate Director, will be honored with a retirement party Friday, June 6, in the Activities Center. A social/cash bar will begin at 6 p.m.; dinner will be served at 7 p.m., followed by a program. The cost is $11.50 per person. Contributions for gift only are welcome. Please call Mary Mesic, extension 3395, or Priscilla Balanis, extension 2471.

Ken Margolis, Technical Assistant to the Acoustics and Noise Reduction Division, will be honored with a retirement party on June 7 at the Langley Officers' Club (Chesapeake and Columbus rooms). A social/cash bar will begin at 7 p.m.; heavy hors d'oeuvres will be served, followed by a program. Cost is $7.50 per person ($1.50 for gift only.) Please make checks payable to Barbara Fryer, Mail Stop 462.

William A. Brooks, Jr., Chief, Materials Division, will be honored with a retirement dinner Wednesday, June 11, at the Langley Officers' Club. A social/cash bar will begin at 6:30 p.m. followed with the dinner at 7:30. The cost, including gift, is $10 per person, $18.50 per couple. Contributions of $1.50 for gift only are welcome. Please make checks payable to L. A. Teichman, Mail Stop 188M, by June 2.

Alfred L. Jones, Flight Electronics Division, will be honored with a retirement party Tuesday, June 17, at the Activities Center. A cash bar will open at 6 p.m. and an outdoor seafood buffet will begin at 7 p.m. The cost, including gift, will be $9 per person and $17 per couple. Anyone unable to attend is welcome to contribute to the gift. Please make arrangements with Jimmy Johnson, extension 3631, Mail Stop 490, by June 10.

Robert L. "Scotty" McArthur, Office of Occupational Health Services, will be honored with a retirement luncheon Thursday, June 5, at 11:30 a.m. in the Activies Center. The cost, including gift, will be $6 per person. Contributions of $1 for gift only are welcome. For reservations, send a check to Virginia Jones, Mail Stop 293, by 4:30 p.m. today.

Thanks

Al Curtis, Charlie Hahn and **Jimmy Morris** thank their friends for the wonderful retirement party and gifts.

LAA Plans Carnival Activities

Poster Contest

Enter the Carnival Poster Contest! The winning poster will be used to advertise the Carnival.

Prizes will be awarded for the most original poster to two age groups—adults and children 16 and under. In addition, the person submitting the winning entry will receive one book of raffle tickets.

Submit your entry to Fran Sabo, Mail Stop 286, by June 20.

Carnival Wekend

The Langley Activities Association will sponsor the 1980 Carnival August 22 and 23 on the picnic grounds.

Special activities are being planned, including the crowning of the 1980 Carnival Queen, sky divers, musical groups and different types of ethnic dancers.

The Grand Prize for Friday night will be $1,200 and for Saturday night a cruise for two plus $200. A microwave oven will be given away Friday and $500 of gasoline will be given Saturday. Smaller prizes will be awarded every half hour during the Carnival.

Todhunter Wins May Drawing

Ronald G. Todhunter, a registered car pool participant in the Car Pool Incentive Program, won the May drawing for $20 presented by the Langley Exchange Council.

Todhunter, employed by Kentron International, is assigned to the Flight Electronics Division.

The Car Pool Incentive Program was established in February to expand the number of car pools at Langley. Monthly drawings will continue through December.

Recent Retirees

Ruth H. Hute, Flight Dynamics and Control Division; **Davis H. Crawford**, Space Systems Division; **Earl G. Popp**, Instrument Research Division, and **Marvis M. Lupo**, Scientific and Technical Information Programs Division, retired May 16.

Raymond J. Ward, Plant Engineering Division, and **Alfred L. Jones**, Flight Electronics Division, retire today.

Results of Intercenter Running Competition

The spring running competition held April 20 through May 10 saw Langley finish fifth in both the 2-mile and 10-kilometer events.

Spouses and dependents were eligible to enter this meet, and total participation from 11 NASA centers soared to 1,085 in the 2-mile race and 501 in the 10 km. This abundance of enthusiasm and participation brought the Johnson Space Center first place in both events (they had 399 in the 2 miles), the Ames Research Center took second place in both, while the Dryden Flight Research Center took third in the 2-mile and the Jet Propulsion Laboratory took third in the 10 km.

On the local scene, Langley had 67 men and 18 women run the 2-mile race and 44 men and six women run 10 km. Runners who demonstrated great speed and earned extra points by placing in the top 10 of their age groups are (M indicates position for the 2-mile run and K denotes position for the 10 km): Rich Booth—7M, 4K; John Hoppe—5M; Jim Fields—6K; Don Humes—3M, 4K; Al Graham—8M, 9K; Joe Drozdowski—9M; Ray Haynes—9K; Jim Robinson—5M, 6K; Joe Kubalak—6M, 4K; Pamela Rarig—9M, 4K; and Dianne Steward—8K.

The next Intercenter Meet will take place in the fall; however, the Runners' Club will sponsor June and August events.

National Aeronautics and
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Visitor Center Director

Continued from page 3.

the necessary personnel and resources to the undertaking. "One of the earliest steps," says Hicks, "involves a candid assessment of where the institution is at that very moment in time .... What are the factors limiting programs, growth, audience, etc.?"

Other requirements discussed by Hicks for effective master planning include an institutional mission statement, an identification of institutional objectives and a collection policy consistent with the institution's mission. The key planner must be actively involved in the museum's management.

Because the future is always indefinite, Hicks and his colleagues emphasized that "long-range planning involves risk-taking management, especially for the budget-based, non-profit institution."

Thanks

Charles B. King writes, "I sincerely appreciate the warm fellowship, mementos and gifts received at my retirement party. I am very thankful for the opportunity to have worked on the NACA/NASA team and for the splendid cooperation and support I received from my co-workers during my career."

William "Bill" H. Verser expresses his appreciation and gratitude for the retirement dinner given in his honor and for the many gifts.

Randy Leaman writes, "Your warm friendship over the past years, the great retirement party and nice gifts are things I shall always remember and value. I want to thank each of you for your part."

swap and shop

FOR SALE

Articles

Electric hot water heater, EC, $75. Call 898-4727.

Vehicles

Chris Craft, 28' cabin cruiser, sleeps 4; stand-up head; engines and trans. in good condition; kept under cover. Call 838-0173 after 5 p.m.

FOR RENT

Portsmouth: 3 BR, LR, DR, kit, 1 bath, util. room, fenced yard. $275/mos. Call Burden, extension 2631, or Windsor 242-6741.

Waterfront: spacious older home on Chesapeake Ave.; duplex incl. 4 lg. rooms on 1st floor; 2 bdrms & 1 bath on 2nd floor; 3 large porches; oak floors; refrig. & stove incl.; $385/mos. incl. sanitation & hot water. Minutes from LAFB. Savai. July 1, Call 722-7755 or 244-2991.

Sandbridge: new cottage-liv-kit-din area 4 BR, washer, dryer, dishwasher, fireplace, ½ block from beach and Back Bay (freshwater); AC, phone, 6-car parking; summer rates $400/wk. Call G. O. Kent, extension 3095, or 420-8391.

"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. $155/wk. Call Fogle 2217.

Foxhill: 3 BR, 1 bath, garage, fenced backyard, ref., washer; low Vepco; available 9/1/80 to 6/1/81, $300/mos. Call 851-3589.

FOUND

One pair prescription glasses, metal frames, brown leather case, in Building 1192E. Call Grace Girton, extension 2641.

Woman's bracelet in Building 1195C parking lot. Call extension 2001.

WANTED

Ride from Denbigh to West area on 8 a.m. shift; will pay $8/wk. Call Gail Dawkins, extension 2579, or 874-5370.

Person interested in joining car pool from Colonial Place area of Norfolk to West area on 8 a.m. shift. Call Dan Giesy, extension 3917, or Norfolk 625-7558.

cafeteria menu

WEEK OF JUNE 2

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

TUESDAY: Manhattan Clam Chowder; Beef Balls Stroganoff; Fried Filet of Fish; Pork Chops. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Ham & Cheese Omelette; Little Smokies Casserole. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers; Baked Ham; Roast Beef au jus. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Worcestered Beef & Vegetable Soup; Fish Dinner; Chicken & Spanish Rice; Meatloaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF JUNE 9

MONDAY: Ham & 3-Bean Soup; Quiche Lorraine; Savory Baked Chicken; Beef Kabobs. Snack Bar: Pizza; 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: French Onion Soup; Roast Turkey Dinner; Half-pound Chopped Steak; Baked Tuna-Noodle Casserole. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Vegetable Soup; Veal Parmesan; Pork Steak; Beef Enchiladas. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken Chow Mein; Stuffed Fresh Bell Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

Key Positions

George L. Roderick has been selected Assistant Head of the Structural Integrity Branch, Materials Division.

National Aeronautics and
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Langley Research Center

NASA

Langley Researcher

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Employees Among Delegation to Visit China

Two Langley employees will be among a 10-member delegation of U.S. aeronautical research and development officials who leave for China today.

Roy V. Harris, Jr., Chief of the High-Speed Aerodynamics Division, and James L. Copeland, Head of the Simulation and Applications Section, Analysis and Computation Division, will represent Langley when the delegation meets with Chinese officials in Beijing (Peking) and tours several Chinese aeronautical research facilities June 15 through 28.

The U.S. delegation, composed largely of NASA officials, is headed by Dr. Alan Lovelace, NASA Deputy Administrator. The visit to China is the first step in an exchange between NASA and the Chinese Aeronautical Establishment, which is to send a counterpart delegation to the United States in the fall. The purpose of the exchange is to become familiar with each other's civil aeronautics research and development activities in preparation for exploring prospects for NASA/Chinese cooperation in this field.

"This is a go-and-see trip," Copeland explained. "We will look for areas of mutual benefit for possible future technical interchange."

James L. Copeland

Selected as a delegate because of his expertise in flight simulation, Copeland will brief the Chinese on "Ground-based Simulation Hardware and Software" and "Langley's Terminal Configured Vehicle Program." Copeland expressed delight in his selection: "I feel it is one of the highlights of my career to represent NASA in the area of flight simulation."

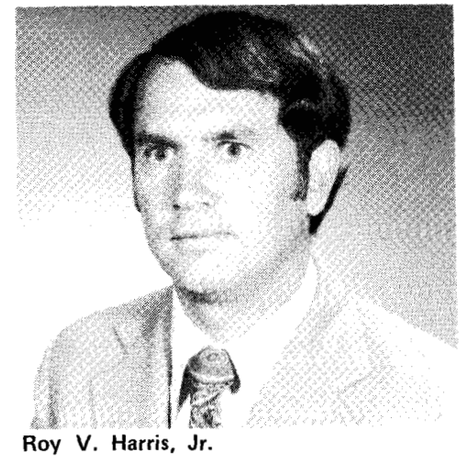
The delegates were selected from various aeronautical disciplines, such as aerodynamics, propulsion, structures, simulation and wind tunnel testing. "The distribution of these disciplines was spread among the NASA centers," Harris said. "I was selected to represent NASA in the areas of aerodynamics and wind tunnel testing." Harris will give a lecture on "Wind Tunnel Measurements and Correction Techniques" during the two-week stay in China.

Harris feels "it is a terrific opportunity to go to China to tour their aeronautical facilities. The Chinese culture is different from any that I have ever experienced and I am looking forward to the visit very much."

Harris, who is nationally recognized as an authority in the field of supersonic aerodynamics and has made major contributions in the development of analytical techniques for aircraft design and evaluation, joined the Langley staff in 1958 as an aerospace research engineer. From 1959 to 1962 he was an Air Force officer assigned to NASA. He was appointed Head of the Advanced Configuration Branch in 1963 and assumed his present position in 1974.

A native of Georgia, Harris earned a bachelor of science degree in aeronautical engineering from Georgia Institute of Technology in 1958. The author of over 30 technical publications, he holds a patent on a supersonic aircraft.

Harris is a member of the Engineers' Club of the Virginia Peninsula and is an Associate Fellow of the American Institute of Aeronautics and Astronautics. He was recently elected to a three-year term as a Director of the Institute. In 1968 he



Roy V. Harris, Jr.

received the AIAA Lawrence Sperry Award and the NASA Exceptional Service Award.

Copeland began his Langley career in June 1958 as an aerospace engineer. He was named Head of the Simulator Development Section in 1972 and assumed his present position in 1972.

A native of Tennessee, he attended David Lipscombe College and received a bachelor of science degree in mathematics from Tennessee Polytechnic University in 1958. He served in the U.S. Air Force from 1951 to 1955.

The author of three technical publications, Copeland has received several Special Achievement and Group Achievement awards. He is a member of the American Institute of Aeronautics and Astronautics, where he is Chairman of the Working Group for Simulation Facilities.

Cooperation between NASA and Chinese agencies is conducted under the overall protection of the U.S.-China Agreement on Cooperation in Science and Technology, signed by President Carter and Chinese Vice Premier Deng Xiaoping on Jan. 31, 1979.

In addition to Harris, Copeland and Lovelace, members of the U.S. delegation are: Dr. John F. McCarthy, Director of the Lewis Research Center; William S. Aiken,

Continued on page 8.

– photo by Bob Nye

During the Red Cross Bloodmobile visit Wednesday, June 4, Robert L. "Scotty" McArthur was presented a Certificate of Appreciation for "outstanding cooperation with the Red Cross Blood Program." McArthur, who has worked with the Red Cross since 1973 in support of Langley's Blood Donor Program, retired in February after 29 years of government service. Presenting the award is Pat Poslik, Coordinator of Volunteer Health and Safety Services for the Red Cross.

NASA Receives Civil Service Award

NASA has received the Udall/Derwinski Award for excellence in implementing the Senior Executive Service provisions of the Civil Service Reform Act. The award was presented in January by the Office of Personnel Management.

Dr. Robert A. Frosch, NASA Administrator, recently received this letter of congratulations from President Carter.

"I want to congratulate the National Aeronautics and Space Administration on receiving the first Udall/Derwinski Award for excellence in civil service reform implementation.

"Civil service reform is the most effective method we have for bringing better management and increased productivity to the Federal Government, and my sincere thanks go to the men and women of your agency for the exemplary role they have played in making that reform a reality.

"The leadership and professionalism demonstrated by NASA in establishing its Senior Executive Service and in designing and administering performance appraisal systems are helping to ensure the success of such programs throughout Government.

"My congratulations on a job well done."

Bond Drive Ends

The Savings Bond Campaign ended Friday, May 30, with 52 percent participation by Langley employees.

Jane Hess, Vice-Chairman of the Savings Bond Campaign, wishes to express her appreciation to Joyce Fly, Payroll Office; the campaign canvassers; James Daus, Graphics Branch; Cecil Burtner, Fabrication Division; the Langley Activities Association; Andy Swanson, BDSD; Wayne Williams, STIPD; and to all the individuals who provided support and suggestions.

The drawings for the two $50 U.S. Savings Bonds for new participants and increased allotments will be held next week. The winners as well as the rate of participation by organization will be reported in the *Researcher* on June 27.

Langley Breaks Bloodmobile Record

Langley broke all previous records Wednesday, June 4, when employees, contractors and retirees donated 337 pints of blood during the Red Cross Bloodmobile visit.

Achieving gallon status were:

11 gallons - George Kerner.

9 gallons - C. H. Hudson.

7 gallons - Raymond Midden, John Benthall, Taylor Fraser, Jr., and Walter Gregory.

5 gallons - Robert Ferguson.

4 gallons - Durward Foster and Glenn Gates.

3 gallons - Joseph Hickman, Jerry Pitsilides, Robert Kenimer and Daniel Vigliotti.

2 gallons - Ralph Angel, Clyde Lane, Mark Shuart, Jesse Timmons and Warner Smith.

1 gallon - Robert Connell, Gene Bowen, Mary Odom, Benjamin Guenther, Janice Holt, Raymond Taylor and Lavinia Wooldridge.

Donating blood for the first time were William Purcell, Dennis H. Petley, William Alexander, Octavia Judge, Fred Whitehead, Linda Ferguson, James McMillan, Linwood E. Williams, Nancy Myerick, Velma Martin, Marilyn Wynn, Kathryn Smith, Lucille Parks, Karen Spriggs, Earl Conkling, Ruth Martin, Pamela Bradley and JoAnn Hudgins.

NASA Coordinator for the Bloodmobile was Robert L. "Scotty" McArthur. Red Cross Coordinator was Jennie Scheiman.

Speakers Bureau

Doug Garner gave a hardware demonstration and talk on "Fluidics Research at Langley" May 8 at the annual meeting of the Steam Automotive Club of America in Pleasant Garden, N.C.

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.

Safety Trends Encouraging

"Langley's safety record is something in which we can all take pride for each employee plays a role in our record," said Center Safety Officer Walter C. Hoggard in announcing the first quarter safety figures.

In the first quarter of 1980, Langley had 11 reportable injuries/illnesses. The Department of Labor considers any treatment other than first aid to be reportable.

Of those 11 cases, seven resulted in a total of 62 lost work days. This compares to the 1979 first quarter record of 17 total cases, nine of which resulted in 20 lost days.

Hoggard said the majority of lost time cases "were preventable and represented the types of accidents that could have just as easily occurred in the home or in our front yards. The need for each of us to exhibit care and caution is apparent."

Hoggard added that none of the lost time was a result of accidents involving research activities. He said the overall safety record is improving.

SAFETY RECORD BY ORGANIZATION

Directorate	Total Cases	Lost Time Cases	Lost Time Days
Office of Director	0	0	0
Aeronautics	1	1	32
Electronics	0	0	0
Space	0	0	0
Structures	0	0	0
Projects	0	0	0
Management Operations	1	1	1
Systems Engineering and Operations	9	5	29

TYPES OF LOST TIME INJURIES

Employee tripped in street

Employee slipped on ice (2)

Employee fell, snow covered steps

Employee tripped on stairs

Employee fell from ladder

Two employees suffered back strain, no apparent cause

Denver Pays Tribute to Manned Flight

NASA and the U.S. Air Force will be featured in a one-hour television special Sunday, June 15.

The special, "The Higher We Fly," stars John Denver and is a tribute to the history of manned flight. It will be aired on the ABC network, Channel 13, at 7 p.m.

A segment of the program features Denver in a Space Shuttle simulator flight at the Johnson Space Center, physiological flight training at Andrews Air Force Base and an orientation flight in an F-15 Eagle at Langley Air Force Base.

A montage of NASA's best library film footage representative of the entire space program, will be shown while Denver sings "Brighter the Star."

Retirement Party

Richard R. Heldenfels, Director for Structures, will be honored with a retirement party Friday, June 27, at the Activities Center. The cash bar social will begin at 6:30 p.m.; dinner will be served at 7:30 p.m. followed by the program. The cost, including gift, is $8 per person. Anyone wishing to contibute to the gift only may do so by forwarding $1.50 per person. For reservations, call Barbara Fryer or Homer Morgan, extension 3577, by June 20.

Anderson Honored

Dr. Alvin F. Anderson, Head of the Office of Research Grants and University Affairs, was awarded a Certificate of Accomplishment by Saint Paul's College May 11.

The award was presented for "outstanding contributions as an educator, a writer, an administrator, a civic, social and religious leader, and as a non-paid consultant in the area of community affairs."

Anderson has been a trustee of the college, located in Lawrenceville, Va., since 1979.

– photo by Bob Nye

A delegation from the People's Republic of China visited Langley Monday, May 19. The visit was sponsored by the American Institute of Aeronautics and Astronautics. In this photograph, Robert R. Howell (center), Subsonic-Transonic Aerodynamics Division, gives a briefing and tour of the National Transonic Facility. Accompanying the delegation are Langley's Dr. Judy L. Shinn (behind Howell), interpretor, and Director Don Hearth. The group was invited to the United States by the AIAA to tour various aerospace companies and universities and to attend the AIAA annual meeting. Among the organizations visited by the Chinese, in addition to the Langley and Lewis centers, were the Georgia Institute of Technology, Lockheed Georgia Company, General Electric Company, Computron, Inc., Massachusetts Institute of Technology and Grumman Aerospace Corporation.

Dawn, A Girl on the Go

—by Allan C. Hanrahan

This is it, folks, high school graduation time, and for most of us it is a time for looking back to a warm June evening when we clutched diplomas and thought, unconsciously, that we would be forever eighteen.

For DAWN DIANE TATTERSON, eighteen years old last March, it is a time for looking ahead because tomorrow afternoon, June 14, she graduates from Bethel High School and looks forward to the future.

"I want to work with computers--big computers," she states, because "I'm fascinated by numbers," she added. "Either that or a secretarial position."

Presently a Clerk-Typist in the General Supply and Warehousing Section of the Management Support Division, she is well on the way to achieving her latter goal if she so desires, having acquired an education in secretarial skills such as office procedures, typing, and shorthand--to name a few, as well as experience gained here at the Center since October, 1979, under the auspices of the Cooperative Office Education (COE) program, a position for which she had to compete against very qualified individuals, by the way. The Program ends in August and Dawn is not certain at present what she will do after that. Then too, her parents are both Captains in the Salvation Army and are subject to be transferred on a week's notice. Dawn said that when they are next transferred it will perhaps be to Dallas, Texas.

For right now, though, she is enjoying her life: her religious affiliation with the Salvation Army; her family; her friends; her recent school life, which included memberships in the radio and chess clubs ("We had a ball helping with the radio programs," she laughed) and present memberships in Future Business Leaders of America and the COE organization. She also enjoys her job acquired through the COE and her supervisor, Arthur (Buddy) Grist, had good words for that program: "It gives them (high schoolers) an opportunity; it shows drive 'to do.'"

He also had some good words for Dawn, concluding with, "She is independent."

Dawn's wheels, a big, blue Ford van, give her independence and the distinct impression was gained that Dawn relishes active movement. Of course, she came by that honestly; following her birth in Fairmont, West Virginia, she was reared in West Virginia, Virginia, and Kentucky.

"We've lived almost everywhere (in those three states)" she said with a grin.

Then there were camping trips with her parents and younger brother; "In the summer they really like to go," she related.

It was on just such a trip four years ago--in North Carolina it was--that the van in which Dawn was riding with her family and some family friends hit a signpost and rolled down a hill. There were many injuries and one of the most unfortunate and permanent ones was to Dawn's spine, resulting in her confinement to a wheelchair.

Dawn was not averse to discussing the subject, neither did she dwell on it. She accepts it with a matter-of-fact attitude, no doubt buttressed by her religious faith, and put the subject in its place by stating, "I don't feel disadvantaged."

—photo by Bob Nye

Of her other interests and hobbies Dawn answered, "I'm into everything. . . bowling, tennis, swimming, anything that I can do that doesn't involve walking."

She foregoes taking advantage of her wheelchair status, even insisting on waiting her turn in line on occasions when she really would not have to. On the other hand, she considers her condition an advantage on those occasions when she has to be carried a short distance to or from her wheelchair and some nice-looking young man does the carrying. As for the wheelchair itself, she was once offered an electric one, but after a short trial refused it simply because she did not like it.

"I felt so useless," she exclaimedd. "I can't do that--just sit around with my hands in my lap." She explained that for many people, those with ailments that require an electric wheelchair for mobility, they are great, but for her it was neither necessary nor wanted.

Her van, modified with hand controls and a wheelchair lift (demonstrated in the photograph), along with the other accommodations to the limitations of the physically handicapped made by society in the last few years, have given her a great degree of mobility and independence. Equally important to Dawn and others in similar circumstances are the mental accommodations made to their limitations. Seen in that vein Dawn is not a handicapped employee but rather a very competent young worker who happens to work from a wheelchair.

So, if the American populace continues to make physical (and mental) changes on behalf of the handicapped we shall all be the better for it.

Male Joins Female Candidates in Contest

For the first time in the history of Langley's annual Carnival Queen contest, a male contractor employee is competing for the 1980 title.

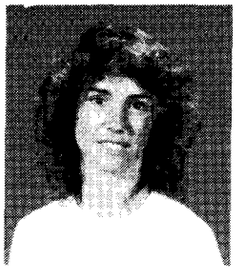
Jon Hall of Computer Science Corporation said he feels "privileged" to have been selected to represent the company in the contest. Nominated by his team leader, Hall won over two women and another man "by an overwhelming margin."

"I see no reason why a man can't compete for the title," Hall explained. "I am running for the same reasons as the female candidates--to try and win a contest and to win the $100 prize. This isn't a beauty contest. The purpose of the contest is to benefit the Langley Activities Association by selling a large number of tickets. I plan to do just that."

Last year the winner of the Carnival Queen contest sold over 1,200 raffle tickets. Hall said he will have to sell at least that many tickets to win, and added, "I hope I do."

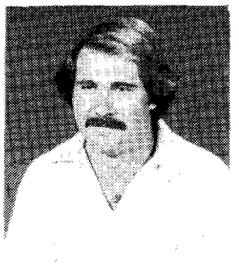
The 1980 Carnival Queen will reign over the LAA Carnival Friday and Saturday, August 22 and 23, and will assist in the drawings for prizes and other planned events.

Other candidates for Carnival Queen include Debbie Bagley, Space Systems Division; Kimberly Cannon, Office of the Director; Mary Ann Curtis, Fabrication Division; Judy Hanson, Instrument Research Division; Janice Holt, Operations Support Division; Gail Lanning, Flight Electronics Division; Virginia Marks, Flight Dynamics and Control Division; Velma Martin, Aeronautical Systems Division; Pam Moorefield, Personnel Division; Gail Mundell, Acquisitions Division; Lori Nichols, Subsonic-Transonic Aerodynamics Division; Vivian Parrous, Atmospheric Environmental Sciences Division; Susan Paxton, Structures and Dynamics Division; Margaret Robbins, Financial Management Division; Paula Smith, Materials Division; and Carmen Torres, Calculon Corporation.


Debbie Bagley

Kimberly Cannon

Mary Ann Curtis


Jon Hall

Judy Hanson

Janice Holt

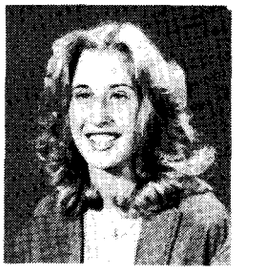
Gail Lanning

Virginia Marks

Velma Martin

Pam Moorefield

Gail Mundell


Lori Nichols

Vivian Parrous

Susan Paxton

Margaret Robbins

Paula Smith

Carmen Torres

The Langley Aero Club, an Opportunity to Fly

Are you an aviation enthusiast with a desire to fly?

If so, join the Langley Aero Club and experience the enjoyment and satisfaction of flying.

"The club offers a good opportunity for people, especially those who work in aeronautics, to get an appreciation for what it's like to fly," said Joseph W. Stickle, Assistant Chief of the Flight Mechanics Division, who has been flying in the club for five years.

The Langley Aero Club, which functions primarily as a training club, is open to all NASA employees, military personnel, contractors, retirees and their dependents. "There are approximately 175 members at the present time; however, only 15 or 20 are NASA or contractor employees," Stickle said. "We would like to see more NASA employees participate in the club. It really is worthwhile. We have the aircraft, courses and instructors available right here on the base for those interested in flying."

– photo by Bob Nye

Joseph W. Stickle, Assistant Chief of the Flight Mechanics Division, stands among the fleet of planes owned by the Langley Aero Club.

Flight training and ground courses are taught by 14 fully qualified instructor pilots who can train pilots in seven different ratings: private pilot, commercial pilot, instrument rating, flight instructor, flight instrument instructor, multi-engine rating and multi-engine instructor. All of the training is approved by the Federal Aviation Administration.

In addition to being FAA certified, the school is VA qualified for those eligible. "Once a person gets his private pilot's license, he can get VA support for the more advanced ratings, if he is eligible for veterans' benefits," Stickle explained. "This is truly a great incentive to get the advanced ratings."

That is the path Stickle took in getting his advanced ratings. After earning his private pilot's license, he went on to get his instrument rating. He has finished the written exams for both commercial and flight instructor ratings and is now ready for the flight tests.

Since the club was organized in 1957, it has grown from one to nine club-owned aircraft which are located on the flight line near the golf course. Included in the family of planes are six Cessnas, two Piper Cherokees and a Piper Arrow. All of the aircraft comply with Air Force and command directives as well as FAA regulations and directives for operations and maintenance. These procedures insure that club pilots are furnished with safe and airworthy aircraft.

Learning to fly is expensive but certification through the Langley Aero Club is probably cheaper than through most private companies, according to Stickle. A $35 initiation fee is required when joining the club and dues are $10 per month. It costs between $900 and $1,100 to obtain a private pilot's license, with the advanced ratings costing more. Hourly rental rates for recreational flying range from $17 to $88, depending on the aircraft model.

"Flying is definitely worth the expense involved," Stickle said. "It is a different world and I love every minute of it. I enjoy the freedom it gives me from the airlines, especially on short trips. I have met some great people at small, out-of-the-way airports. They are so courteous and willing to help. Flying really is a different world."

Want to fly? Attend the meetings held on the third Tuesday of each month at 7 p.m. in the Base Recreation Center, or call Bill Simpson, club manager, 851-8837, for more information on the flying programs offered by the Langley Aero Club.

Summer Fellowships Underway

Approximately 38 university professors are once again spending a productive summer at Langley, using the center for a variety of research and study projects.

Thirty of the professors are recipients of Summer Faculty Fellowships, sponsored each summer by NASA and the American Society for Engineering Education (ASEE). The fellows have come to Langley from universities as near as Christopher Newport and William and Mary, and as far as North Dakota State and Texas A&M.

During 10 weeks at the center, the fellows will conduct research projects that are of mutual interest to them and to NASA, working with Langley staff members in the fields of aeronautics or space technology.

The eight Hampton Institute faculty members are part of the fifth Summer Research Fellowship Program, sponsored by Langley and the college. They will work with scientists and engineers on projects concerned with chemistry, computer science, several fields of engineering, mathematics and physics. Some of the projects may be continued when the fellows return to their campus.

Several special lectures will be given during the summer, and the program will end with an evaluation session on August 8.

A get-acquainted picnic for the fellows and their families is scheduled for Sunday, August 15, from 3 to 6 p.m. at the Activities Center picnic grounds.

Inventors Honored at Awards Luncheon

Thirteen Langley inventors were honored for receiving United States patents in 1979 at the annual Inventors' Luncheon Friday, May 30.

Awards were presented by Dr. Donald P. Hearth, Langley Director. Guest speaker for the luncheon was Dr. Richard T. Whitcomb, the first recipient of the NASA Inventor of the Year Award.

This is the first time a husband and wife team has received a patent award. Anne K. and Terry L. St. Clair were presented a plaque for their patent on crystalline polyimides. Terry St. Clair also received an award for mixed diamines for lower melting addition polyimide preparation and utilization.

Other inventors receiving awards were: Dr. John E. Lamar, for a vortex-lift roll-control device; William R. Young and Charles W. Stump, for an apparatus for measuring an aircraft's speed and height; William T. Davis and David C. Davis, for a fatigue failure load indicator; Dr. Willard W. Anderson and Nelson J. Groom, for a magnetic suspension and pointing system; Billy R. Ashworth, for a seat cushion to provide realistic acceleration cues to aircraft simulator pilot; Dr. Judd R. Wilkins, for an electrochemical detection device; and Robert Miserentino and Bruce Flagge, for displacement probes with self-contained exciting medium.

– photo by Bob Nye

Front row, from left: Dr. Richard T. Whitcomb, William R. Young, Charles W. Stump, Nelson J. Groom, Dr. Judd R. Wilkins, Billy R. Ashworth and Dr. John E. Lamar. Back row, from left: David C. Davis, William T. Davis, Dr. Terry L. St.Clair, Anne K. St.Clair, Bruce Flagge, Robert Miserentino and Dr. Willard W. Anderson.

Happenings

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, June 25, at 4 p.m. in the Activities Center.

HAPPY HOUR will be held Friday, June 20, from 4 to 6:30 p.m. in the Activities Center.

CARNIVAL POSTER entries are due June 20. A $50 Savings Bond will be awarded for the most original poster in two age groups – adults and children under 17. Submit your entry to Fran Sabo, Mail Stop 286.

OPEN HOUSE will be held until 4 p.m. today at the Activities Center in honor of Sue Juanarena, LAA Manager/Bookkeeper, and Kim Regan, Office Assistant, who are leaving the Association today. Friends are invited to stop by for coffee and refreshments.

HONEY BUNCH. The NASA-Langley Apicultural Club will meet on Monday, June 16, from 7 to 9:30 p.m. in Room 180, Building 1209. Planning for the annual Bee Club banquet in July will be included in the business meeting. Captain Bill Boytim, entomologist with Langley Air Force Base, will present a program on pesticides.

DOG TRAINING. The NASA Dog Training School has been reactivated and offers kindergarten puppy training (KPT), basic, advanced basic and elementary field (for retrievers) classes. Training classes will be conducted informally throughout the summer on Saturday mornings. Persons who have attended KPT and basic classes and wish to continue should contact Doris Bryan, 898-6273, after 5 p.m. Formal 12-week classes will be scheduled for the fall.

NAGS. The National Asociation of Government Secretaries will meet Tuesday, June 17, at Captain George's Restaurant at 6:15 p.m. Ann McAtamney, owner of Dominion Travel Service, will speak on "How to Plan Your Vacation Trip." She will offer suggestions on finding the best vacation bargains, selecting the best means of transportation, selecting package tours and planning itineraries. Call Reachie Hall, extension 2150, or Shirley Davis, extension 2757, for reservations.

LAA TRAVEL. A second bus has been obtained to provide additional transportation in Scandinavia. There are a few spaces left on this tour scheduled for September 16 through 25. Visit Hawaii October 6 through 16, to three islands: Maui, Hawaii and Oahu, plus a two-night San Francisco option. Cruise from Norfolk to Bermuda on the Mardi Gras, September 16 through 23. For more information and brochures, call Ernie Greene, extension 2312, or 838-0567.

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swap and shop

FOR SALE

Vehicles

Toyota, 1974 Corona station wagon, 73,000 miles, AT, AM-FM radio, new tires, EC, $2,100. Call 898-4170.

1965 Olds Cutlass F-85 with power steering, power brakes, AC, 73,000 miles, very good running condition, new battery, recent brake job, needs body work but very reliable trans; $300 or best offer. Call 868-8817.

FOR RENT

NASA Vegetable Gardens plots, several left. Call Jack Neubauer, extension 4576.

Kitty Hawk: Outer Banks cottage with 4 BR, 3 BA, sleeps 12, CA, DW, wrap-around deck, fully furnished, 500 feet from ocean with view, few open weeks left, $425/wk. Call 898-3563.

Grandview: cottage in private neighborhood, one block from beach with access to private beach, very clean, furnished, rent by month $450 or by year $250/mo. Call 851-7142.

FOUND

Pliers found at NASA Vegetable Gardens plots. Call Bill Wells, extension 3984.

WANTED

Driver to join car pool from Gloucester Point to West area on 8 a.m. shift. Call Hudgins, extension 4544.

Persons interested in joining a car pool from Gloucester to West area on 7 a.m. shift, call Jenkins, extension 2592, or 642-5992.

To join car pool from Williamsburg to West area. Gas prices are killing me. Call John Rourke, extension 2483, or 220-0344.

Persons interested in forming car pool from Windsor Great Park-Sonoma Woods area to NASA, call Gregg Strohkorb, extension 3615.

cafeteria menu

WEEK OF JUNE 16

MONDAY: *Old Fashioned Bean Soup; Spaghetti* Dinner; Teriyaki-baked Chicken; Pork Chops. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

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

WEDNESDAY: Worcestered Beef & Vegetable Soup; Fried Chicken Dinner; Little Smokies Casserole; Swiss Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Shrimp in a Basket; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Barbecued Chicken; Meatloaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF JUNE 23

MONDAY: *Ham & 3-Bean Soup; Pineapple* Chicken; Half-pound Chopped Steak; Broiled Beef Liver. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island Clam Chowder; Baked Lasagna; Fried Filet of Fish; Knockwurst Reuben. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Quiche Lorraine; Braised Beef & Vegetables; Roast Turkey Dinner. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey-noodle Soup; Veal Parmesan; Beef Kabobs; *Stuffed Fresh Bell* Peppers. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: French Onion Soup; Fish Dinner; Savory-baked Chicken; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Hawaii Comes to Langley

Enjoy a fun-filled evening at the Hawaiian Luau Saturday, June 28.

Hawaiian music, Polynesian and Tahitian dances and the outstanding Flaming Sword Dance are among the many festivities planned for the evening. The entertainers are professional performers who travel throughout the country promoting Hawaiian tours for United Airlines.

The menu for the Luau includes Hawaiian-style roast pig, Teriyaki steak, Lomi Lomi Salmon, watermelon salad, sweet potatoes, fried rice and coconut pudding. A cash bar, featuring Mai-Tai and Pina Colada drinks, will be open during the evening. A free Mai-Tai drink will be given to each ticket holder.

Sponsored by the Langley Activities Association, the Luau will be held at the Activities Center at 6 p.m. The cost will be $10 per adult, $5 for children under 12. Tickets are on sale at the Activities Office.

China Visit

Continued from page 1.

Jr., Chief Engineer, Office of Aeronautics and Space Technology, NASA Headquarters; Dr. William F. Ballhaus, Director of Astronautics, Ames Research Center; Richard A. Rudey, Chief of the Aerothermodynamics and Fuels Division, Lewis; Dr. Leonard A. Harris, Manager of Materials and Structures, Research and Technology Division, Office of Aeronautics and Space Technology, NASA Headquarters; Peter G. Smith, International Relations Specialist, International Affairs Division, NASA Headquarters; and USAF Col. Norris Krone, Jr., Director of the Air Vehicle Technology Office, Defense Advanced Research Project Agency.

Thanks

Jim Parks writes, "The Ayatollah Parks belatedly blesses all who contributed in any manner to my retirement festival. Without negotiation, you shall forever be held hostage among my fondest memories. Thanks."

Herb Hardrath thanks all his Langley friends for their attendance and contributions to his recent retirement party. He said the evening was memorable and the mementoes will be treasured.

Floyd Rankin wishes to thank all his friends and co-workers who planned and participated in making his retirement party one of the highlights of his life. "The gifts and mementoes are greatly appreciated and will always remind me of the wonderful friends I have at Langley."

National Aeronautics and
Space Administration

Langley Research Center

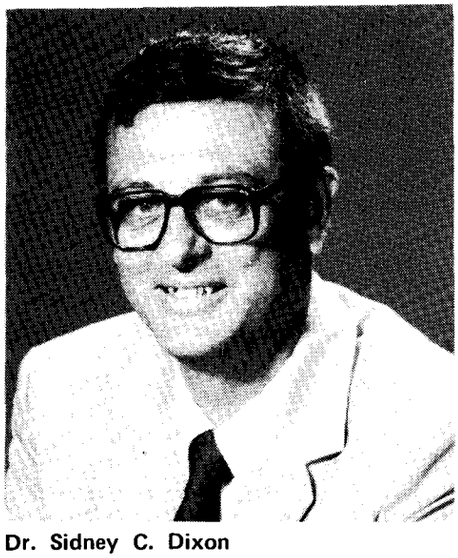
NASA

Langley Researcher

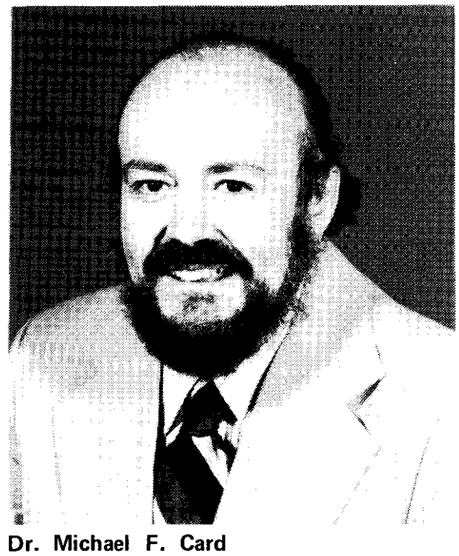
Volume 19 Issue 13 June 27, 1980

Structures Directorate

Dixon, Card, Blankenship to Head Divisions



Dr. Sidney C. Dixon



Dr. Michael F. Card

Charles P. Blankenship

Two managers from Langley and one from the Lewis Research Center have been nominated by Director Donald Hearth as Division Chiefs in the Structures Directorate.

Pending formal approval, Dr. Sidney C. Dixon will become Chief of the Loads and Aeroelasticity Division; Dr. Michael F. Card will be Chief of the Structural Mechanics Division; and Charles P. Blankenship will become Chief of the Materials Division.

Dixon is now Head of the Thermal Structures Branch and Card is Head of the Structural Dynamics Branch, both in the Structures and Dynamics Division. Blankenship is Head of the Materials Applications and Composites Branch in Lewis' Materials Division.

Because of the wide diversity of research, including both fluids and statics, within the Structures and Dynamics Division, it is being separated into two new divisions--Loads and Aeroelasticity and Structural Mechanics--to allow each division's management to concentrate on one area.

Dixon will head the organization responsible for research in advanced structural concepts and designs, flight loads, aeroelasticity, unsteady aerodynamics and thermoelasticity.

Card will manage the division that does research in structural dynamics, solid mechanics, failure analysis and composite mechanics.

Blankenship will head the division that conducts research on advanced structural materials such as metals, polymers and composites; structural characteristics of materials; damage tolerance and integrity of aerospace vehicle structures; and applying advanced materials to aircraft and space vehicles.

Dixon began his Langley career in 1958 as a research engineer in the Structures Research Division. He became Head of the Design Studies Section in 1970 and Head of the Thermal Structures Branch in 1974. He has been responsible for research in aerothermal loads, thermal-structural analysis, and structural concepts for supersonic and hypersonic cruise vehicles and Earth-to-orbit space transportation systems.

A native of Durant, Okla., Dixon received a bachelor of science degree in mechanical engineering in 1955 and a master of science degree in applied mechanics in 1963, both from the University of Virginia. He earned a doctorate in engineering mechanics from Virginia Polytechnic Institute and State University in 1967. He was in the U.S. Navy from 1955 to 1958.

The author of more than 20 technical publications, Dixon is a member of the American Institute of Aeronautics and Astronautics.

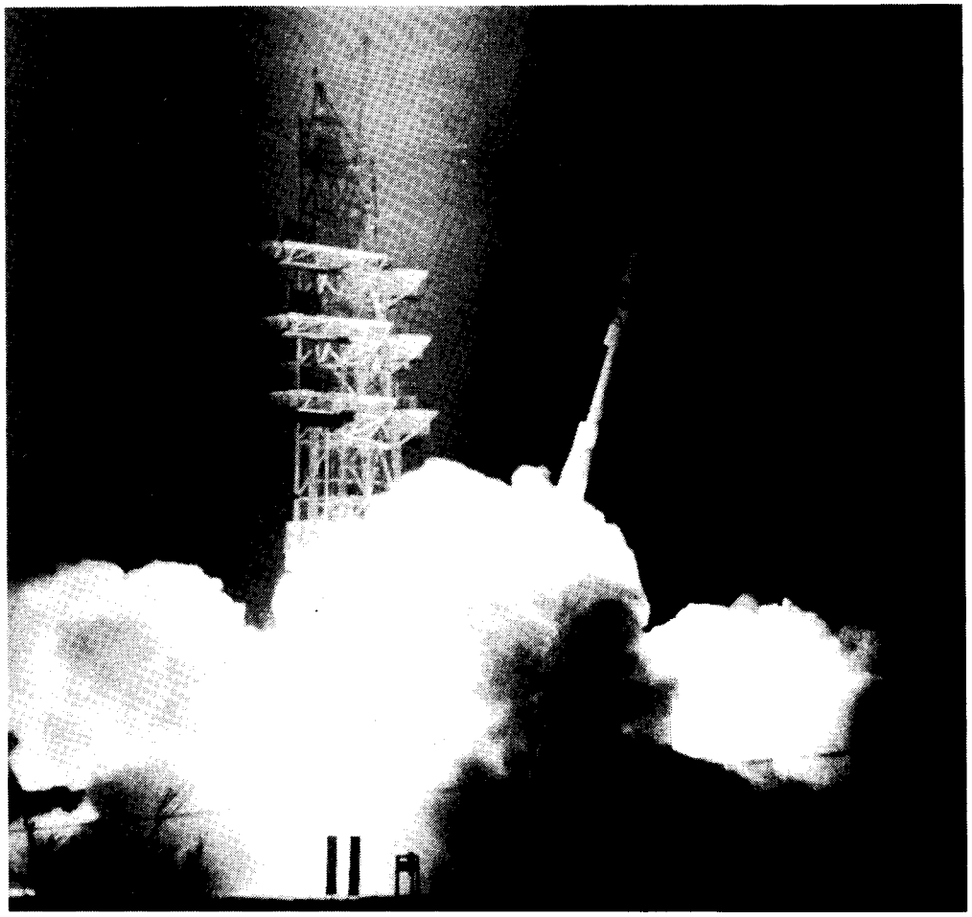
He and his wife, Marion, live in Gloucester Point. They have three children.

Card joined the Langley staff in 1958 and was appointed Head of the Structural Evaluation Section in 1970.

He was selected by the President's Commission on Personnel Interchange in 1972 as one of three NASA employees to participate in the Executive

Continued on page 3.

Scout Observes 20th Anniversary of First Launch



1960 - 1980

After 20 years of flight, 101 missions and NASA's most successful launch vehicle record, Scout has taken its place alongside other readily identifiable products of Langley research.

Ask an old hand to sum up Langley's record since 1917 and words and phrases like "airfoil," "NACA cowling," "Full-Scale Tunnel," "Mercury," "transonic regime," "Viking" and now Scout will follow as an answer.

Scout is one of those permanent legacies of this Center which point to continued excellence. Excellence even in the face of failure and frustration. The first three years of Scout's operational life were not flawless. So difficult were the problems of the early missions that a basic 4R (return, reinspection, refurbishment and recertification) was required in 1963 after the 23rd launch, which was a disappointing failure.

After that time, when someone decided the record could be improved, the success rate shot up to 60 percent. It's gotten even better since them. Thirty-seven consecutive successful launches; a ninety-five percent success rate overall for the operational vehicles.

Scout milestones include a place in the Air and Space Museum, the first frog catapulted into orbit, the first multi-national launching, the first international launch of a U.S. satellite, and a blessing by Pope Paul VI on a team of scientists--two of them from Langley--in 1966.

Viking Fund to Further Mars' Exploration

A Viking Fund has been set up to provide additional funds to evaluate Mars data, augment the operation of the Deep Space Network, continue experiments on the Martian surface and investigate furture exploration of the planet.

Under the leadership of a long-time space researcher and reporter, Eric Burgess, the San Francisco section of the American Astronautical Society will attempt to raise $1 million in public contributions for Viking activities by July 20, the fourth anniversary of the spacecraft's landing on Mars.

According to Stan Kent, Chairman of The Viking Fund, the money will allow operation of Viking for the next decade, giving scientists a long-term view of Mars' environment.

Kent feels the time has come for private funding of space projects such as Viking data analysis. "The technicalities of private cooperation with NASA will include the sharing of functional responsibilities with the agency and providing supplemental funding for Viking programs as the need arises. This has already been worked out and cleared," he said.

The Viking Fund is to be dedicated in a ceremony in Washington, D.C., sometime in late July.

Persons who want to demonstrate support for the space program and become part of this great era of planetary exploration, can send their contribution (minimum amount of $1) to: The Viking Fund, P.O. Box 7205, Menlo Park, Calif. 94025.

All contributions are tax deductible; all contributors will receive acknowledgement of their gift, regular updates on the fund's and Viking's progress and an invitation to the dedication ceremony.

Abel Wins Drawing

Irving Abel of the Structures and Dynamics Division is the June winner of $20 given to a registered car pool participant by the Langley Exchange Council.

Monthly drawings will be held through December as an incentive to expand the number of car pools at Langley.

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.

Division Chiefs

Continued from page 1.

Interchange Program. While in the one-year program, he worked at TRW Systems.

He became Head of the Structural Mechanics Branch in 1974 and Head of the Structural Dynamics Branch in 1979. He serves as team leader for interdisciplinary research in large space systems technology and has done research on advanced aircraft and spacecraft structures, dynamics of space payloads, nonlinear analysis techniques, and dynamics of the space shuttle system.

The author of many papers on the structural mechanics of metallic and composite plate and shell structures, Card is a member of the American Institute of Aeronautics and Astronautics and is Chairman of its Structures Technical Committee. He is a member of the ATLASS program planning group, where he serves as Chairman of the Analysis and Integrated Design Team and as a member of the System Studies Team.

Born in Seattle, Wash., Card received a bachelor of science degree in aerospace engineering from the Massachusetts Institute of Technology in 1958. He earned master of science and doctor of philosophy degrees in engineering mechanics from Virginia Polytechnic Institute and State University in 1964 and 1970, respectively.

Card and his wife, JoAnn, live in Williamsburg. They have three children.

Blankenship joined the Lewis staff in 1961. He was a U.S. Air Force officer, assigned to Lewis, until 1964. From then until 1968 he was a materials engineer conducting fabrication development projects for nuclear propulsion system components.

He was appointed Head of the Materials Processing Section in 1968, Head of Materials Projects Section in 1972, Chief of the Materials Applications Branch in 1977 and Chief of the Materials Applications and Composites Branch in 1979. In these positions, Blankenship has been involved in management of material technology programs for various power and propulsion systems, including high temperature super alloys for aircraft turbine engines, structural ceramics for automotive turbine engines and high temperature iron alloys for automotive stirling engines, and for research in polymer and metal matrix composite materials.

Blankenship was born in Bluefield, W. Va. He received a bachelor of science degree and a master of science degree in metallurgical engineering from Virginia Polytechnic Institute and State University in 1960 and 1962.

The author of over 20 technical papers on high temperature materials and their applications, Blankenship is a member of the American Society for Metals.

He and his wife, Gayle, live in Rocky River, Ohio, with their two sons.

– photo by Bob Nye

John L. Shipley, Chief of the Army Aeronautical Research Group at the Army Structures Laboratory, is presented the Army Meritorious Civilian Service Medal by Maj. Gen. Story C. Stevens, Commander of the U.S. Army Aviation Research and Development Command. The award, the second highest Department of the Army award given to a civilian, was presented for "exceptionally meritorious service from 1971 to 1979 while serving as Chief, AARG . . . Shipley provided adept guidance to the joint Army/NASA Rotor Systems Research Aircraft Project Office, ensuring that the Army's objectives for the project were attained . . ."

MacCready Awarded Collier Trophy

Paul MacCready, a California aeronautical scientist and former world soaring champion, has been awarded the Collier Trophy for the greatest achievement in aviation for 1979.

MacCready's 55-pound, human-powered airplane, The Gossamer Albatross, successfully crossed the English Channel, a distance of 23 miles, from Folkestone, England, to Cape Gris Nez, France, in two hours and 54 minutes.

Bryan Allen, a Californian with considerable skill in bicycle racing and hang gliding, piloted the ultralight aircraft, using only his leg muscles as power.

MacCready and his team made aviation history in August 1977, when an earlier craft, The Gossamer Condor, stayed aloft for 69 minutes.

The Gossamer Albatross and The Gossamer Condor, now on permanent display in the National Air and Space Museum, were designed and built by MacCready.

Speakers Bureau

Richard E. Davis and **Dwayne E. Hinton** gave a talk on Energy Efficient Aircraft and Remote Sensing to students of Dunbar-Erwin Elementary School May 30.

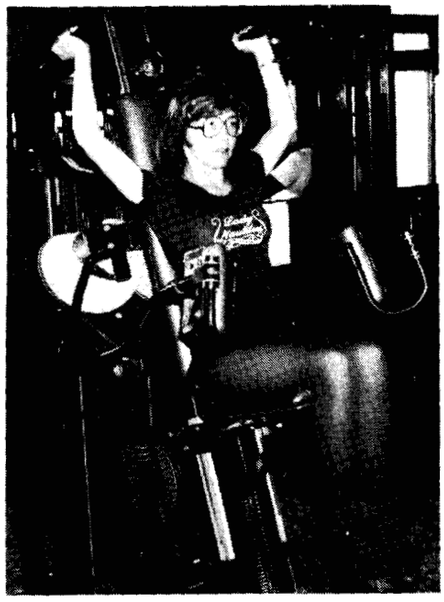
Behind the Desk - Behind the Weights

by Allan C. Hanrahan

Perhaps unknowingly, **SALLY ANN O'NEILL** subscribes to that style of life advocated for man (and woman) some twenty-four hundred years ago by Socrates, as set down in Plato's *Republic, Book III: "Then, to the mind when adequately trained, we shall be right in handing over the more particular care of the body . . ."*

Somewhat diminutive Sally Ann O'Neill, her mind already more than "adequately trained" now maintains her physical well-being by indulging in one of her chief interests, which is "pumping iron," and as she imparted this information the calm, deliberate gaze and dispassionate deameanor of the lawyer that she is were broken by a smile and the bright twinkle in her eye.

The seeming incongruity of one of only five female attorneys in all of NASA working out with weights was quickly dispelled during our first conversation in early April because Sally is really only endeavoring to follow the admonition of *". . . keeping a sound mind and a sound body" (Francis Bacon)*, and is not attempting to invade the world of woman body-building by attempting to become a female Arnold Schwarzenegger. Coincidentally, after our first conversation, and in keeping with Victor Hugo's famous line regarding an idea whose time has come, articles about women body-builders appeared in the April Eighteenth issue of *The Times Herald* and the May issue of *Esquire*. And unknown to this writer until later, an article on the same subject had appeared in the March Seventeenth issue of *Sports Illustrated*.



While on the subject of periodicals, Sally's preference is for *Time* and *Newsweek*, both of which she reads "from cover-to-cover," she said, in order "to keep up-to-date with contemporary society" and because both magazines touch heavily on international relations, an interest engendered by her M.A. degree in Political Science earned at Memphis State University in 1972. Then too, she is interested in faraway places; her most recent vacations were to St. Martin for a week in February and before that, Bermuda.

When she has the time, Sally also enjoys reading historical novels, an interest cultivated by history courses taken while she was an undergarduate at Elon College, earning her B.A. degree in Social Science in 1970.

Interestingly, each year Elon College selects two of its alumni who have graduated within the last ten years for the "Outstanding Young Alumni of the Year" award in recognition of that person's accomplishments since graduating. Guess who one of the selectees was this year? That is right, Sally O'Neill, the first woman graduate so honored.

Now, it is granted that pumping iron and playing tennis doubles every Monday evening at the Centre Court Racquet Club are physiologically beneficial, and it is admitted that sailing on the Chesapeake Bay can be exciting, and it is conceded that doing needlepoint, crewel, and cross-stitching are relaxing and restful, but such activities do not garner honors such as "Outstanding Young Alumni." That comes from such accomplishments as advanced education: In addition to her B.A. and M.A. degrees--earned with honors, it was learned after our conversation--Sally earned her Juris Doctor Degree in 1977 from the Marshall-Wythe School of Law of the College of William and Mary.

She now reaches back and helps

other aspiring law students by sitting as a judge on various three-judge panels in support of the appellate advocacy program at the Law School. (This entails hearing oral arguments and questioning student advocates to provide them with practical experience in appellate advocacy.)

Sally's outside activities, past and present, also include serving as President of the William and Mary Women's Law Society, memberships in the Law Student Division of the American Bar Association, American Trial Lawyer's Association, Publications Council of the College of William and Mary, and Phi Alpha Delta Legal Fraternity. In addition, she was Candidate Clerk, Moot Court Board. She is presently the Recording Secretary-Treasurer of the Peninsula Sigma Sigma Sigma Alumnae Chapter, which sponsors such projects as supporting the Robbie Page Memorial Fund, which itself finances a children's rehabilitation program at the North Carolina Memorial Hospital in Chapel Hill.

Sally still finds time to maintain a limited outside law practice (approved and sanctioned, of course) and handles mostly domestic relations matters. As she put it: "I enjoy working with the clients on a one-to-one basis . . . . I just enjoy helping people out."

Continued on page 5.

Profit Sharing Plan Profitable to Jackson

Participating in an employee's profit sharing plan may not prove to be beneficial to some people, but to Lawrence "Sarge" Jackson, it did--over $10,000 worth.

Jackson was recently presented a check for $10,792 by B. D. Ashe, Inc., for his share in the company's profit sharing plan which he joined in 1970. Bobby Ashe, president of the company, said, "Sarge helped in making the company what it is today. We are very grateful for his loyalty, dedication and workmanship."

Jackson has worked in landscaping and grounds maintenance, under contract to Langley, for over 16 years. Twelve of these years he was employed by Ashe and is now crew leader/supervisor with Webb's Service Company. He also works for the Hampton School Board.

While working for B. D. Ashe, Inc., Jackson received five "Employee of the Year" awards. Ashe said Jackson is highly respected by fellow employees and the community for his continued dedication to his work and family. "Sarge is an employee who deserves special recognition," Ashe said. "He is the product of a good, old-fashioned, hardworking American male. It is a delight to honor Sarge as our most outstanding employee."

Jackson, a long-time resident of Hampton, retired from the U.S. Army in 1963. He is married and has two adult children.

– photo by Bob Nye

Lawrence "Sarge" Jackson (left) receives a check and letter of recognition from Bobby Ashe, president of B. D. Ashe, Inc.

Profile

Continued from page 4.

Sally considers her position as an Attorney in the Office of Chief Counsel to be one of helping people; she has been at the Center since the summer of 1977, after graduation from Law School, but worked here the previous summer as a law clerk. Prior to that she had worked for a short time as a legal aid intern for the Commonwealth's Attorney in Newport News and before that as a student assistant for a private attorney. Over the years she has worked as a research and editorial assistant, intern in a community action agency, bank teller, and even taught the fifth and sixth grades for four years in Memphis, Tennessee.

Briefly stated (law pun intended), this young native of Saratoga Springs, New York, who grew in Sycamore, Illinois, has packed a lot of living and a lot of accomplishment into her thirty-one years.

Rocky Mountain Spotted Fever is Dangerous

Rocky Mountain Spotted Fever can be one of the most severe of the infectious diseases. Caused by a small microorganism called a rickettsiae, RMSF is transmitted to humans by the bite of a tick.

Dr. G. Fred Kelly, Director of the NASA Occupational Medical Center, reported that there were 90 cases of RMSF in Virginia during 1979. "Antibiotics are effective and early treatment usually brings recovery," Kelly said. "However, without antibiotic therapy, the mortality rate is more than 20 percent."

The most common tick involved in the transfer of RMSF is the American Dog Tick, but Kelly said other ticks found in Virginia have also been implicated.

The fever occurs five to eight days after exposure and is characterized by sudden onset of chills, headache, rash, general aching and malaise. The rash starts about the wrist and ankles and spreads to the arms, thighs, back, chest, forehead, abdomen, soles of the feet and palms of the hand. As the disease progresses, the spots become deep red or purplish in color and do not disappear on pressure. The average case lasts about three weeks.

According to Kelly, the fever can be prevented by taking the following precautions:

- When in a tick infested area, use a good insect repellant and wear protective clothes.
- Search the total body every three or four hours for attached ticks whenever in a tick infested area or near tick infested household pets. The tick must remain attached for four to six hours before RMSF can be transmitted.
- Examine household pets after they have been outside.
- Use a flea and tick collar on pets to help prevent tick infestation; however, dipping the pet periodically is more effective.

When a tick is found on a pet or human, it should be removed by first applying antiseptic solution such as alcohol to the tick and pulling firmly with a pair of tweezers to remove the head as well as the body. Care should be taken not to crush the tick. "The bite should be treated with an antiseptic solution and the hands should be washed thoroughly with soap and water," Kelly advised.

Summer time is outdoor fun time. Don't let a tick spoil your summer.

Michener on Space, Prudence and the Lessons of History

by Brian Welch

James A. Michener has built a career around sketching vast historical panoramas in books like "The Source," "Caravans," "Hawaii," "Centennial" and, of course, "Chesapeake."

Now the famed author and historian is convinced that a great tide of history is upon us; that the first indications of that tide were the technological marvels of the Apollo Program, both in space and on Earth; and that the true force of that tide is represented by the possibilities of America's Space Shuttle.

Or by the successes of Russia's space station program. Or by the ambitions for space of nations like Japan and India.

Michener said during a recent visit to Langley, "It all depends, on how prudent our nation is in recognizing the forward thrust of history, and in staying on top of it."

Michener describes himself as "not competent to comment on the technical issues involved." But he does feel himself qualified to comment on the social and historical implications of either meeting the challenges of space, or of letting some other nation do it.

"Surely," he said, "some other nation will if we don't."

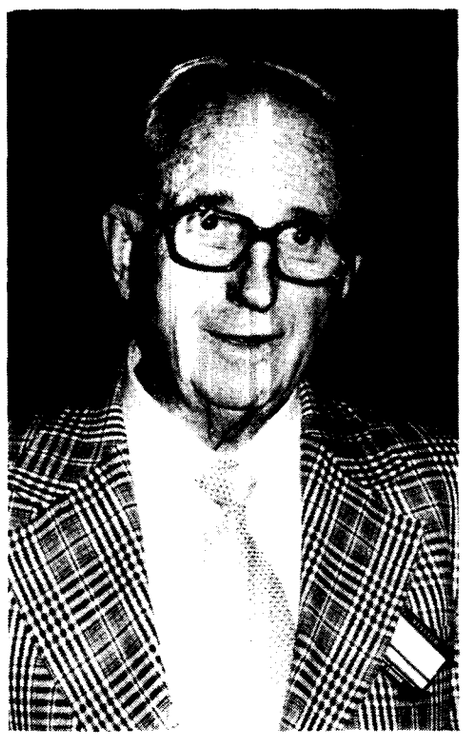
Michener, in a recent essay for *Omni* Magazine, summed up the historical tides in this way: "Toward the middle of the Fifteenth Century, nations faced problems comparable to those faced by individuals like Columbus, Vasco da Gama and Sebastian Cabot. They had to decide whether they wanted to participate in the exploration of the world and, if so, to what degree of commitment. Those nations like Portugal and Spain that made early and fast decisions gained empires of fantastic riches. Others, like disunited Germany and Italy, which did not perceive the possibilities, suffered grave disadvantages and never caught up. England and France were very tardy, but in the end the first made a stunning recovery, the latter never did."

Michener's interest in history is largely twofold. First, it is his vocation and livelihood to study areas of past experience and relate them to contemporary concerns. Second, he was there at JPL when the very first picture came back from Viking, and since that day he has been an ardent, vocal supporter of America's space program.

A member of the NASA Advisory Council, he says he has always held an interest in outer space exploration, but not until Viking was he motivated enough to schedule speaking engagements and public appearances on behalf of the space program.

"I knew the Moon was do-able," he said. "It was basically an engineering task. But when I saw those pictures come back from Mars, I knew that any society that can do that can do damn near anything."

Again, Michener himself is most eloquent in describing for Omni his reaction to Viking: "When we sent an unmanned object hurtling into distant space, and when it began sending back signals--a chain of numbers, to be exact--that could be reassembled here on Earth to provide us with a photograph of the surface of Mars, I was struck dumb with wonder. And when computers began adjusting the chain of numbers,



augmenting some, diminishing others, so that the photographs became always clearer and more defined, I realized that we could accomplish almost anything out in the farthest reaches of space."

Michener, thinking more of the future than of the past, said America's position in space today is roughly analogous to that of Portugal in the early Fifteenth Century. A small nation of limited resources and manpower, Portugal was able to compete for centuries with the other great Imperial Powers of Europe, largely because of the foresight of one man: Prince Henry the Navigator. In 1421, at age 27, Prince Henry assembled Europe's leading map makers, captains, astronomers, scholars and instrument makers and through them pioneered a new science of navigating the seas.

Portugal became a colonial power and one of Europe's leading seafaring nations.

"We have the same early commitment that Portugal had. We have and have shown the daring. The capacity is there. The resources are there. The investment is there. But I don't know if the interest is there among our leaders. Apollo was just a gathering together of the map makers and the scholars. The real movement now is toward utilizing space. And I believe without question that if a nation misses the great movements of its time, it misses the foundations on which it can build for the future.

"A prudent nation," he said, "will utilize new developments. The vitality of our society is the insurance of our society."

Michener's statements seem to be more of a reminder than a warning. At a recent meeting of NASA public affairs officials at Wallops Flight Center, Michener addressed the group, and told them: "My view of history is that often activities like the exploration of space must wait a bit due to events that overshadow, like war, pestilence, energy and economics. Columbus had the same problem when he was trying to convince Spain to finance his explorations. But hang in there. Don't retreat. It will happen."

Credit Union Lowers Interest Rates

Loan policies at the Langley Federal Credit Union were changed, effective June 16. General Manager Jean Yokum stated that the credit union is now able to resume full service lending.

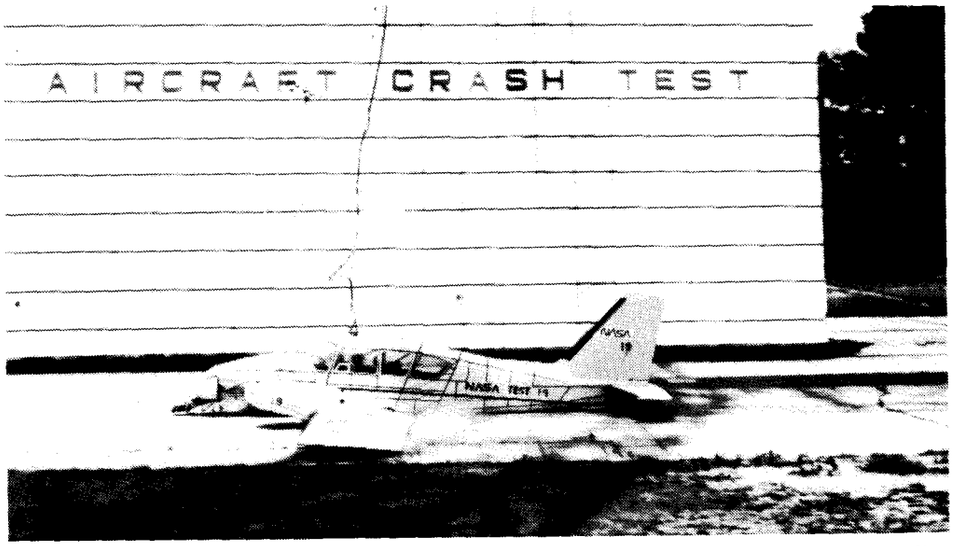
New rates will be 11.75 percent Annual Percentage Rate for new cars, 12.5 percent APR for FHA Title I loans and 14.5 percent APR for unsecured personal loans. Yokum said the best news for credit union members is the lowering of the interest rate for share pledged loans to 10 percent APR.

The new lower rates will automatically be changed for members who have signed agreements at a higher interest rate.

Rates and details about other new loan policies are available at any of LFCU's three locations.

Recent Retiree

Nancy C. Ferro, Financial Management Division, retired May 30.



– photo by Bob Nye

Twenty-five consecutive crashes without an accident. That would be both a strange statement and a deplorable safety record for any other team, but for the people at the Impact Dynamics Research Facility (IDRF), that means complete success. Since 1974, when the old Lunar Landing Research Facility was redesignated the IDRF, 25 airframes have been successfully crashed in a continuing program to define what really happens in the first few seconds of impact. A scene above from Crash Test 19 (two helicopters and four other aircraft not a part of the test series bring the total to 25) shows a Piper Aztec christened "The Energy Crunch" as it met the pavement recently at 60 miles per hour.

Happenings

UPDATE ON VIKING AND SEAFOOD FEAST. Plans are being made to commemorate the fifth anniversary of the Viking 1 launch which took place on August 20, 1975. The Viking Project Manager, Project Scientist and Program Scientist will provide an Update on Viking in the past years and speak of plans for the future. In the evening there will be the traditional Viking Seafood Feast. August 15, 1980 is the date to circle on your calendar. Contact Betty Quigley, Cary Spitzer or Jack Van Ness for more information.

HAWAIIAN LUAU. Tickets are still available for tomorrow's Luau. If interested, call the Activities Office, extension 3939.

HAPPY HOUR will be held Friday, June 18, from 4 to 6:30 p.m. in the Activities Center.

NEW LAA EMPLOYEES. Tess Donadio is the new LAA Manager/Bookkeeper and Beth Wilson is the new Office Assistant.

ARTS AND CRAFTS will be displayed at the Carnival. Anyone interested in showing and selling handiwork, please contact Beverly Anderson, extension 2592.

COLONIAL WILLIAMSBURG discount tickets are now available at the Activities Center. The tickets are good for admission to all exhibits (except the Governor's Palace), lectures and films and for use of the historic area bus service. Adult tickets are $7.50, children (six to 12), $3.75.

TENNIS TOURNAMENT. The NASA Open Men's Singles Tennis Tournament, sponsored by the Langley Tennis Club, will be held at the Langley Activities Center July 10 through 14. This tournament is on the Daily Press' Grand Prix schedule and usually attracts good tennis talent. The first round will be played Thursday and Friday, July 10 and 11, beginning at 5 p.m. each day. Play will continue Saturday and Sunday; the final match will be played Monday at 5 p.m. If you wish information on how to enter the tournament, call Bill Weaver, extension 2977, or Burnell McKissick, extension 3874.

DISCOUNT TICKETS are available at the Activities Office for the following attractions: Busch Gardens, $8.25; New Market Theaters 1, 2 and 3, $2 plus small service charge; and Tidewater Dinner Theater, $12.50. Beginning July 2, "The King and I" will be performed at the dinner theater.

MEALS-ON-WHEELS is an organization which provides hot meals to homebound individuals who are unable to prepare meals for themselves. Volunteer drivers are the backbone of this service and are urgently needed. If you wish to volunteer or if you know of someone who may benefit from this community service, please call 874-2495, 898-8031, or 229-9250.

IT'S A BOY. Congratulations to Darlene and Thomas Hall on the birth of a son, Brian Thomas, on May 26. The proud father works in the Fabrication Division.

TENNIS CLUB. The Langley Tennis Club held a Senior Men's Singles tournament June 7 through 11, with 20 men, aged 45 or over, participating. Robert F. Murray, Flight Electronics Division, is the Senior's champion, winning the final match over James N. Mueller, High-Speed Aerodynamics Division. Other semifinalists were George F. Lawrence, Marine and Applications Technology Division, who lost to Murray, and Robert L. James, Jr., Large Space Systems Technology Program Office, who lost to Mueller.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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I have nine lives, but you have only one! Be careful!!

swap and shop

FOR SALE

Articles

Heavy duty Hotpoint washer and dryer; yellow; EC; $150 each; $250 both. Call 851-7659.

Fresh crabs; hard—$2.50/dozen or $12/bushel; soft—$10/dozen. Call 898-6019.

LEICAFLEX SL camera, shutter speeds of 1 to 1/2000th second, with 35 mm f2.8 lens, case, haze filter and lens shade; like new condition; $645. Call 599-4321.

Black & Decker skill saw (used once), $40; Sear's Coldspot 5,000 BTU air conditioner, $50; "Warm Ever" wood/coal stove, 50 gal. drum, front opening, used 3 mos., cost $150, will sell for $75; modern couch and chair, VGC, $65. Call 826-8542.

Vehicles

Small travel trailer with ref., AC, heater, water tank and holding tank; good condition. Will trade for larger trailer. Call Ramey, 244-4233.

1979 Honda Accord, 2 dr., 5 speed w/air, 25,000 mi., $6,200. Call Rick Hagan, extension 2341.

Real Estate

3 BR, 1-½ BA, Hampton Model, 7% assumption, $41,900. Call 599-4321.

FOR RENT

Furnished 3 BR house: fenced yard, central AC, washer/dryer, dishwasher; located in Southampton/Merrimac area. Available for 1 yr. beginning in Aug. 1980. $350/mo., plus utilities; security deposit required. Call Phillips, 722-6160.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, 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. $155/wk. Call Fogle, extension 2651.

New Point: cottage on shallow sand beach with dunes; sleeps 11, large screened porch, sailboat included, excellent view. A real bargain at $180/wk. Call Jim Martin, extension 3911.

Condo at Wintergreen: 2 BR, completely furnished; summer rates $60/day, $300/wk. Call Ladson, 877-3632.

Bryce Mt. chalet: LR, DR, kit., 5 BR, 3 BA, game room w/ping pong and pool tables, dishwasher, washer/dryer, disposal, elec. range, AC and heat, large deck; Apr—Nov, $300/wk., $50/day. Call E. B. Geer after 6 p.m./weekdays, 723-5842.

Tent: large circus type, 18'x20' for parties, receptions. $100—includes set-up, $65—do-it-yourself. Call 599-6293.

Marlbank: brick, 2 story, 2-½ BA, 4 BR, LR, DR, den, 2 FP, eat-in-kit., all appl. including washer/dryer/laundry rm., CA, WW & drapes, 2 patios, barn/storage. $500/mo. Call Wolf, 245-3264.

FOUND

Pair of sunglasses found in Conference Room, Building 1195C, Room 154. Call Linda Park, extension 3007.

WANTED

Driver to join car pool from Gloucester Point to West area on 8 a.m. shift. Call Hudgins, extension 4544.

Person interested in joining car pool from Williamsburg to West area on 8 a.m. shift, call Sue Miller, extension 2786.

Person interested in joining car pool from Colonial Place area of Norfolk to West area on 8 a.m. shift, call Dan Giesy, extension 3917, or Norfolk 625-7558.

Fireworks

The rockets lift above the square
To scatter colors in the night
While children clasp their ears
And, wide-eyed with delight,
Feel the noise
And see the blues and whites
And red and greens rend the night.

A. C. Hanrahan
Newport News

Malkin Leaves NASA

Dr. Myron S. Malkin, Deputy Associate Administrator for Space Transportation Systems (Technical) at NASA Headquarters, resigned June 13 to join Fairchild Industries in Germantown, Maryland.

Malkin was appointed to the position in January. Prior to this assignment, he was Director of the Space Shuttle Program since joining NASA in April 1973.

cafeteria menu

WEEK OF JUNE 30

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

TUESDAY: Manhattan Clam Chowder; Pork Chops; Fried Filet of Fish; Spanish Steak. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Meatloaf; Little Smokies Casserole. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY; Chicken Gumbo Soup; Braised Chicken Livers; Beef Balls Stroganoff; Roast Beef Au Jus. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY:

HAVE A HAPPY 4TH OF JULY WEEKEND!!!

☆★☆★☆★☆

WEEK OF JULY 7

MONDAY: Ham & 3-Bean Soup; Quiche Lorraine; Barbecued Chicken; Knockwurst Reuben. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: French Onion Soup; Roast Turkey Dinner; Beef Enchiladas; Half-pound Chopped Steak. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

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

FRIDAY: Vegetable Soup; Fish Dinner; Teriyaki-Baked Chicken; Stuffed Bell Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Key Positions

Ronald J. Lo Gioco has been selected Supervisory Engineering Technician, Technical Support Section D, Tunnels Operations Branch, Operations Support Division, under Merit Promotion Announcement 80-43.

National Aeronautics and
Space Administration

Langley Research Center

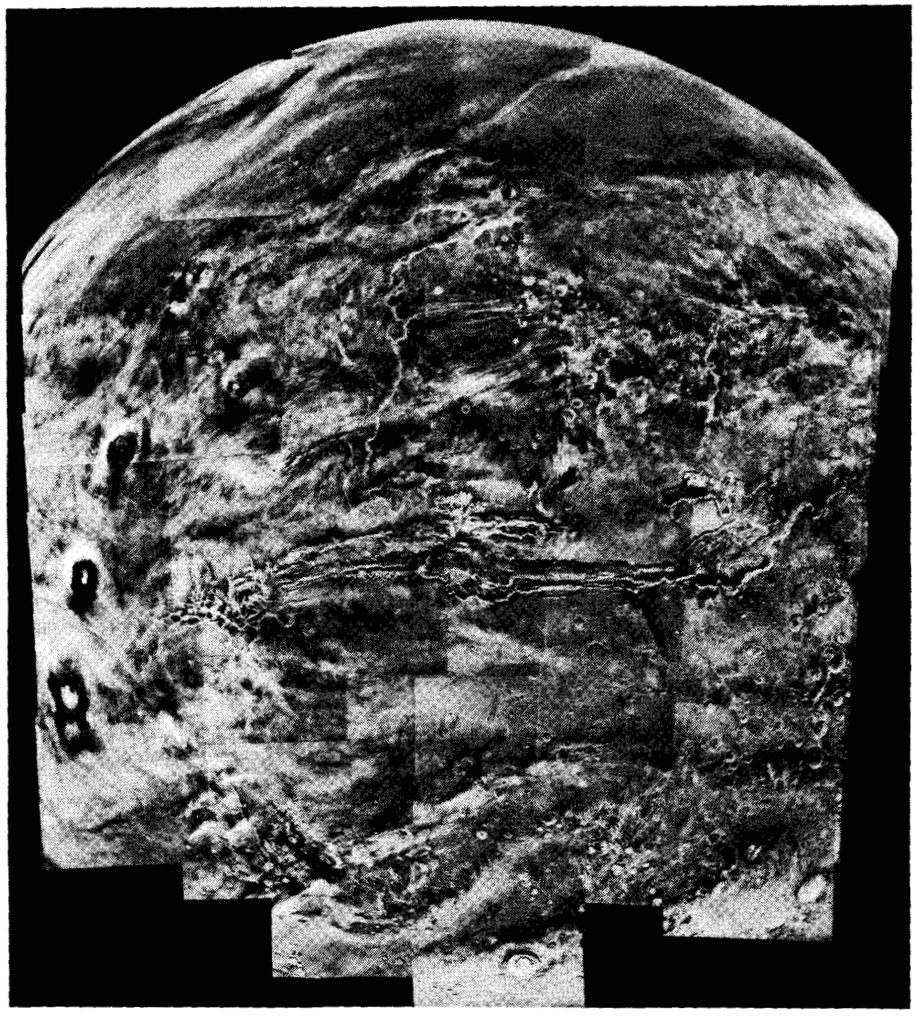
NASA

Langley Researcher

Volume 19 Issue 14

July 15, 1980

Viking Orbiter 1 Nears Shutdown



FINAL LOOK AT MARS. This mosaic of Mars is among the last photos that will be taken by Viking Orbiter 1. Valles Marineris stretches across the center and three volcanoes of the Tharsis Ridge are at left (from south to north, Arsia Mons, Pavonis Mons and Ascraeus Mons). A feature seen for the first time is the sharp line that curves north and east from Arsia Mons. It is either a weather front or an atmospheric shock wave. Four tiny clouds and their shadows are visible in the southernmost frame, just north of Lovell Crater. A rare sight, the clouds are almost 28 kilometers (91,000 feet) above the surface.

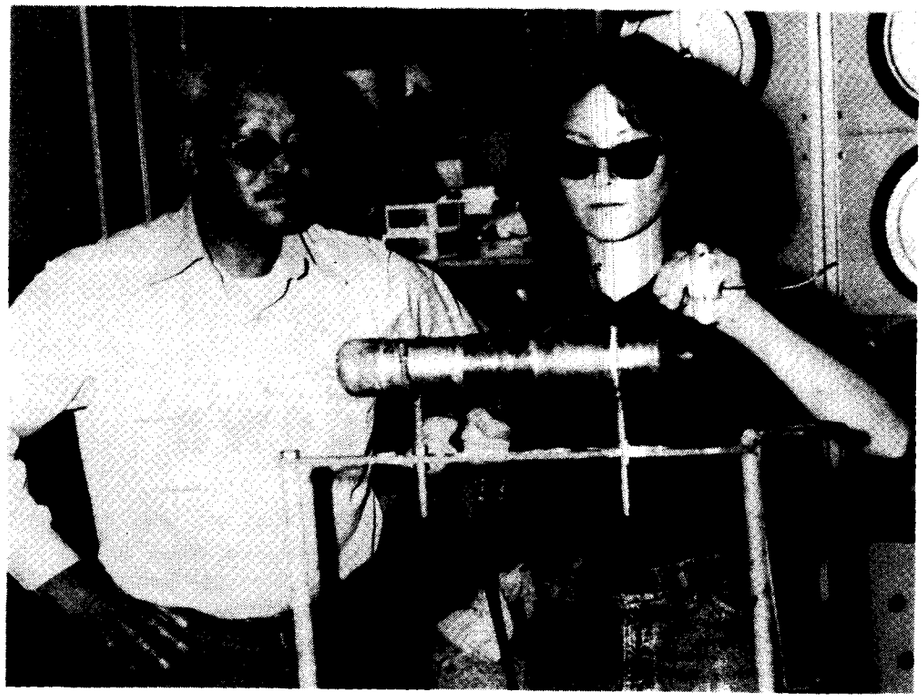
Like its sister ship two years ago, Viking Orbiter 1 is about to run out of gas. Its nitrogen control fuel is expected to be exhausted between now and July 30.

One day between now and then, mission controllers will boost Orbiter 1's apoapsis (high point) about 800 miles, to 34,800 miles, delaying the craft's fall to the Martian surface until the year 2019. This maneuver is necessary to prevent any contamination of Mars, protected by international agreement.

During its last active days, Orbiter 1 will take more photographs of the Tharsis Ridge, including its three huge volcanoes (see photo at left). Other photos will focus on Olympus Mons, largest known volcano in the entire solar system.

The two Viking spacecraft, each consisting of an Orbiter and a Lander, reached Mars in the summer of 1976. Viking 1 arrived in early June and its Lander touched the planet's surface July 20, four years ago this Sunday. Viking 2 went into Martian orbit in early August and its Lander reached the surface September 3.

After Orbiter 1 ceases operations, only Lander 1 will continue to communicate with controllers at the Jet Propulsion Laboratory. Lander 2 was shut down in March, but the first Lander may continue to work for NASA another 10 years.



– photo by Bob Nye

Karen S. Whitley of the Operations Support Division is the first female apprentice engineering technician to complete Langley's Soft Soldering and Silver Brazing Course. In this photograph, Whitley, who has just completed her first year in the apprentice program, is silver soldering sections of copper tubing for hydrostatic testing. Class instructor, Johnny McK. Williams, OSD, observes Whitley as she applies recently acquired skills and knowledge.

Langley Concerned About High Noise Levels

Considerable information has been provided the American worker in recent years regarding noise in the workplace and potential loss of hearing ability resulting from prolonged exposure to high noise levels. For some time Langley has been involved in surveying work areas to determine the extent of the problem here.

Survey results have provided a noise level baseline and corrective actions have been initiated in a number of work areas. In some instances, engineering modifications have been necessary, and in many others, administrative and procedural controls, such as roped-off areas and signs indicating high noise level areas, were instituted. Many Langley employees have no doubt noted warning signs that defined areas where hearing protection was required.

The Occupational Health and Safety Office, Bob Brown, industrial hygienist of Kelsey Seabold; and the Energy and Environmental Management Section of the Plant Engineering Division have developed a viable hearing conservation program to help employees guard against hearing loss.

Walter C. Hoggard, safety officer, said, "It is essential that we emphasize the responsibility of each individual employee in assuring that the controls are not ignored." Supervisors too must remember that the protection of their employees is an integral part of their job. Accordingly, Hoggard said it is Langley's task to enforce the rules that ear protection not only be available, but that it be used in the work areas designated.

Remember, rules are made for our protection. Don't take unnecessary risks with your health.

Farewell Party

A farewell party will be held for Gianni Gaetano of the Instrument Research Division Friday, July 18, in the Cafeteria at 4:30 p.m. The cost will be $5 per person. For reservations, contact Charles Bryant, extension 3446 or Mail Stop 238.

GWU Offers New Degree Program

The George Washington University's School of Engineering and Applied Science at Langley plans to offer a new set of courses leading to the Master of Engineering Administration beginning in the fall semester.

Interviews with Professor B. Silverman, MEA Advisor from the GWU campus in Washington will be at the Center Friday, August 8. If you are interested in entering this program or desire further information on the GWU programs, call the GWU-NASA Office, extension 3020 or 2219.

Key Positions

Richard W. Barnwell has been selected Head, Transonic Aerodynamics Branch, Subsonic-Transonic Aerodynamics Division, under Merit Promotion Announcement 80-26.

John W. Fowler has been selected Supervisory Engineering Technician, Fluid Systems Section, Mechanical Support and Utilities Operations Branch, Operations Support Division, under Merit Promotion Announcement 80-41.

Thomas E. Pinelli has been selected Assistant Chief of the Scientific and Technical Information Programs Division, under Merit Promotion Announcement 80-44.

Karen R. Credeur has been selected Head, Facilities Engineering Planning Section, Management Systems Branch, Plant Engineering Division, under Merit Promotion Announcement 80-45.

Louis F. Vosteen has been designated Acting Head of the Materials Application Branch in the Materials 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.

Langley Sets Bond Record

The 1980 U.S. Savings Bond Campaign, recently concluded, may be considered a success. Even though Langley was unable to reach its goal of 75 percent participation, several records were set over previous campaigns. Langley had the largest increase of employee participation (180 new participants) and the largest percentage increase during a campaign (6.3 percent). Thirty subscribers increased their level of savings.

The following organizations reached 100 percent participation:

Office of Director for Electronics

Graphite Fibers Risk Analysis Program Office

Office of Director for Aeronautics

Advanced Supersonic Technology Office

Office of Director for Management Operations

Office of Chief Counsel

Office of Occupational Health Services

Management Support Division Office

Administrative Services Branch

Management Analysis Branch

Technical Library Branch

Acquisition Division Office

Program and Resources Division Office

Institutional Programs Branch

Office of Director for Systems Engineering and Operations

Technical Early Planning Office

NASA/Army Rotor Systems Research Aircraft Projects Office

The 1980 percentage of participation for all NASA installations is as follows:

Installation	No. of Employees *March 31, 1980	Percent of Participation March 31, 1980	June 30, 1980
Kennedy Space Center	2,150	75	89
Nat'l Space Technology Lab.	100	63	75
Langley Research Center	2,855	46	52
Ames Research Center	2,656	50	53
Headquarters	1,482	34	37
Dryden Flight Research Center	463	46	49
Johnson Space Center	3,460	48	50
Lewis Research Center	2,898	29	30
Marshall Space Flight Center	3,784	20	21
Wallops Flight Center	452	36	36
Goddard Space Flight Center	3,530	33	33

*For this year's campaign, March 31, 1980 was considered the starting point for figuring the number of employees and percent of participation.

Verify LFCU Account

As required by the National Credit Union Administration, the Langley Federal Credit Union Supervisory Committee is conducting its periodic verification of all share accounts as of June 30, 1980.

If you do not receive a statement for verification by July 25, please contact the Supervisory Committee at P.O. Box 607, Langley Air Force Base, Virginia 23665.

In Memoriam

Mary E. Whipkey, an aerospace engineer in the Materials Division, died June 22 in Williamsburg.

Employed at Langley since January, Whipkey received a bachelor of science degree in chemistry from Seton Hill College in Pennsylvania in 1979 and was a graduate student at George Washington University.

Aerospace Penpoints
by Wesley Berryman

"the question of what came before the Big Bang is the most interesting question of all."

ROBERT JASTROW
Director of NASA's Goddard Institute for Space Studies

Scout Plaque Unveiled

A bronze plaque was unveiled July 1 commemorating the 20th anniversary of the first Scout launch.

During the dedication ceremony in the Langley Visitor Center, Director Donald P. Hearth told present and former Scout team members that Scout has had the best record of all launchers. He congratulated Lee R. Foster, Head of the Scout Project Office, and all previous managers "on a job very well done."

The citation on the plaque reads:

"The first Scout vehicle was launched July 1, 1960, from Area 3 at Wallops Island, Virginia. During its first 20 years, Scout has provided launch service for seven probe, 12 reentry and 82 orbital missions for a variety of space research activity encompassing many fields of science. Users include USA agencies and universities and 22 international programs with France, Germany, Italy, Netherlands, United Kingdom and ESRO.

"The Scout launch vehicle was designed, developed and managed by NASA-Langley Research Center and the Vought Corporation.

Dedicated July 1, 1980"

Back from China, Harris and Copeland Reminisce

VIP treatment, 20-course meals, 16 hours of tours, briefings and presentations and a country striving for aeronautical achievements--these are a few of the memories two Langley employees have of their recent two-week trip to China.

Roy V. Harris, Jr., Chief of the High-Speed Aerodynamics Division, and James L. Copeland, Head of the Simulation and Applications Section in the Analysis and Computation Division, were among a 10-member NASA delegation of aeronautical research and development officials who visited China in June.

"Most of the trip was of a business nature," said Copeland. "The purpose of our visit was to become familiar with Chinese civil aeronautics research and to look for possible areas of joint cooperation in the future. From 6 a.m. to 10 p.m., we had a steady schedule--a schedule we could not believe we had to keep."

Copeland explained that the delegation visited 20 different aeronautical and university research institutions during its stay in China. "After the first week, we divided into two groups. My group went first to Xi'am (Sian) and then to Shanghai. The other group rejoined us in Shanghai."

The groups visited the aeronautical research facilities in the morning and were briefed by the Chinese on the research they were conducting. In the afternoon, members of the NASA delegation gave lectures on counterpart programs.

"The Chinese facilities range from poor to excellent, such as we have at Langley," Harris remarked. "We saw some first-class facilities and some first-class researchers. China has people who could come to Langley, go right to work and be productive."

This impressed both Copeland and Harris since the Chinese have only had about four years to regear their university process since the Cultural Revolution. "When you consider the brief time they have had since the revolution, they have made great strides to catch up," Copeland explained. "They are now on the back side of the curve coming up and they have progressed very well under extreme difficulties."

According to Harris, China has been through many traumas. During World War II, China was occupied by Japan and the Communist Revolution, which began in 1949, led to Russian technicians and engineers building factories and plants. "In the technological sense, this left China high and dry because Russia only provided the Chinese with production capability without any research and development base," Harris explained. "When the Russians left, the Chinese went through difficult times. They had the factories but not the knowledge and understanding of them. They had to develop those kinds of things for themselves.

"Then came the Cultural Revolution in the mid 1960s, which created additional turmoil. It was during this period that the universities closed for seven years. Can you imagine what would happen in this country if we shut down the universities for seven years? I would hate to think where we would be in aeronautics today if we had taken a seven-year vacation, or how we would have faced the situation or pulled through it."

Harris feels the Chinese are definitely pulling through their misfortunes. He said they are trying to modernize in a hurry, to be as good as anybody else. They are buying equipment from West Germany, France and Japan and are negotiating with the State Department to purchase equipment from the United States.

Harris and Copeland saw some areas that may be beneficial for possible future technical interchange, but until the Chinese delegation has visited the United States, no commitments can be made.

A Chinese delegation will arrive in the United States in mid-September and will visit four NASA aeronautical research centers: Langley, Lewis, Ames and Dryden. The delegation will spend three to five days at Langley, according to Copeland. "The itinerary has not been established; however, we have a good idea of what they are interested in and I think we will be open to them in the areas that are not sensitive for some reason. I feel we will show them the Langley-generated research, as much as time will allow. We have a basis for discussing programs of mutual concern. We have seen their facilities and we know what their capability is and where their interests lie. We will structure their visit around those interests."

These name tags were used by Harris and Copeland during their trip.

When the Chinese visit the United States in the fall, Harris said it will be very difficult to give them the kind of treatment the Americans received in China. "We were really given the VIP treatment everywhere we went. The Chinese treated us royally. They were truly outstanding hosts."

If 15- to 20-course meals are one example of VIP treatment, then they did get it. Harris explained that breakfast was the smallest meal, but the mid-day meal and the evening banquet both consisted of 15 to 20 courses. "The Chinese serve each course to you and they get very offended if you don't taste everything," Copeland said. "Most of the food was delicious. Each course was a meal in itself; however, after getting into a routine, you learned to take only a taste of each course. Americans are normally served soup first, but the Chinese have soup next to the last course. Fruit is served last."

"The display of food was a work of art," Harris elaborated. "Each serving dish had fruits and vegetables carved into flowers

arranged around the meat for each course. It looked as though they had worked all day preparing each meal."

Harris and Copeland were very impressed with China: the culture, the beauty of the country and the goals of the people. As a result of their visit, they have a greater appreciation of the history of China, the problems the Chinese are overcoming, what they are attempting to achieve and their future goals.

What the Chinese want for their country is the ability to design, build and operate first-class airplanes, including transport and military aircraft. Harris said the civil air transportation system is developing, evident with the development of the Y-10, a four-engine jet transport airplane. "The Chinese developed the airplane. It is entirely their design, from the bottom up," Harris said. "They have been dependent in aviation on other people. They want to develop for themselves the technology to design and build their own aircraft. And they will do it."

What of joint aeronautical research activities between China and the United States in the future? Each country must assess where cooperative efforts might be and what can be the benefits of an exchange before any commitments can be made. Once the cooperative efforts are identified and the technology to be exchanged is established, it will be up to NASA and the Chinese to bring about this future endeavor.

Sykes Named Engineer of the Year

Walter Sykes of Klate Holt Company has been selected Plant Engineer of the Year by the Tidewater Virginia Chapter of the American Institute of Plant Engineers.

Sykes, contract manager for the company's facility and equipment maintenance contract at Langley, also received the Tidewater Chapter and Region 8 Plant Engineer of the Year Award in 1964. He was the first president of the Tidewater Chapter and is a member of the American Institute of Aeronautics and Astronautics and the National Contract Management Association.

Before coming to Langley, Sykes was plant engineer with Raytheon Company in Massachusetts and founder of the company's Plant Engineering Council.

Langley Colloquium

Jupiter Moons Featured

The exotic topography of Jupiter's four Galilean satellites, one of the most exciting and unexpected discoveries of space exploration to date, will be discussed at the Langley colloquium Thursday, July 17.

Dr. Thomas a Mutch, Associate Administrator for Space Science at NASA Headquarters, will speak on "The Surprising Moons of Jupiter" in the Langley Activities Center, Building 1222. The 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.

Mutch will review a sampling of Voyager pictures, illustrating the spectrum of surface features, such as explosive volcanoes, shifting plates of ruptured crust and displays of contorted surficial ice.

Mutch has been responsible for the planning, direction, and evaluation of all NASA space science programs since July 1979.

Until his NASA appointment, he had spent 19 years with the Geological Sciences Department of Brown University in Providence, R.I. He was an assistant professor from 1960 to 1965, associate professor from 1965 to 1970 and a professor from 1970 to 1979. From 1964 to 1965 he was assistant to the Dean and from 1965 to 1967 served as Associate Dean of the Graduate School. He chaired the Department of Geological Sciences from 1968 to 1971.

Since 1969 Mutch has made major contributions to NASA space science programs. He was a member of the Lunar Science Review Board from 1969 to 1973 and leader of the Viking Lander Imaging Science Team from 1969 to 1977. He chaired several NASA committees planning the post-Viking exploration of Mars.

Mutch was awarded NASA's Medal for Exceptional Scientific Achievement in 1977. He received the agency's Group Achievement Award three times for his work on the Lunar Science Team, the Viking Science Steering Group and the Viking Undergraduate Intern Program. The American Association for the Advancement of Science awarded its Cleveland-Newcomb Award jointly to Mutch and all Viking scientists in 1977.

The author or coauthor of over 30 papers and books on terrestrial and extraterrestrial geology, Mutch is a fellow of the Geological Society of America and a member of the AAAS.

A native of Rochester, N.Y., Mutch received a bachelor of arts degree in history from Princeton University in 1952, a master of science degree in geology from Rutgers University in 1957 and a doctor of philosophy degree in geology from Princeton in 1960. He served in the U.S. Army from 1952 to 1954.

Griffin Named to Headquarters Post

Gerald D. Griffin has been named Acting Associate Administrator for External Relations at NASA Headquarters.

In this position, Griffin will be responsible for policy level management, direction and coordination of the NASA Office of Public Affairs, International Affairs, DOD Affairs, Government/Industry Affairs and University Affairs.

Griffin began his NASA career in 1964 and has held management positions at the Kennedy Space Center, Dryden Flight Research Center, NASA Headquarters and the Johnson Space Center.

– photo by Bob Nye

LAA SAVINGS BOND WINNERS. Robert E. Fixx, Operations Support Division, and Althea O. Brown, Space Systems Division, each won a Series EE $50 Savings Bond in a drawing sponsored by the Langley Activities Association. Fixx was the winner in the increased participation category and Brown's name was drawn from the new participants' names. Presenting the bonds is Frances E. Sabo, secretary of the Langley Activities Association.

Willis Proud of Son's Design

George L. Willis, an engineering technician in the Operations Support Division, is proudly displaying pictures of an eagle in his office. Why?

His son, Gregory Willis, designed the eagle which has been selected as the official symbol for the Yorktown 1981 Bicentennial Celebration. The eagle, chosen by the Yorktown Bicentennial Committee from among several logo designs submitted by Willis, is red, white and blue with 13 stars spread over its body.

1781 · Yorktown · 1981

Willis, who received a bachelor of science degree in fine arts from Hunter College in New York, is an illustrator for the Yorktown Victory Center and Virginia Independence Bicentennial Commission.

The new symbol will go on all printed matter put out in connection with the celebration and will serve as a cover design for a folder that will outline events for the four-day Yorktown observance.

"This logo brings in all the things we are trying to communicate through the 1981 celebration," Randall W. Young, director of the Victory Center, said. "Our nation's symbols--the eagle and the flag--as well as a sense of pride and positive action come across immediately with the eagle depicted in flight."

Willis' mother, Myrtis, is the receptionist at the Riverdale Branch of the Langley Federal Credit Union.

Thanks

Robert Girouard writes, "I wish to express my deep appreciation and thanks to all the Langley, Credit Union and ASME associates, who so excellently honored my family and me at the recent retirement party. The warm friendship exhibited and the gifts received will always be a reminder of the wonderful years at NACA/NASA. It has been a challenging, broadening and rewarding experience being part of such a high-level, competent team. I look forward to continued activity and association with many of you in the future."

LAA Travel

There are only a few spaces left on the Scandinavia tour which departs from Norfolk September 16 and returns September 25.

Make reservations now to tour three Hawaiian islands from October 5 through 15. There is an optional two-night stay in San Francisco available on the return trip, October 16 and 17.

Take the VIP tour from Norfolk to Las Vegas September 19 through 22, priced from $408 per person or cruise from Norfolk to Bermuda September 16 through 23, or the Caribbean December 12 through 20 at discount prices.

For additional information, call the Activities Office, extension 3139, or Ernie Greene, extension 2312 or 838-0567.

GWU Relocated

The GWU/JIAFS personnel located in Building 1220 have been relocated to Building 1195. This will be a temporary move for approximately six months while Building 1220 is remodeled. The telephone numbers and mail stop are the same.

Question and Answer

Q. Do secretaries have the authority to open personal mail and distribution envelopes addressed to a specific individual?

A. William F. Lawson, Head of the Administrative Services Branch of the Management Support Division, responded to this question as follows:

"LMI 1500.4 states in part that it is the Center's policy to process the mail in an efficient and economical manner. To achieve this policy . . . personal mail must be kept to an absolute minimum. Employees are not to list the Center as a mailing address for their personal mail.

"Internal office procedures for the handling of mail are established by the supervisor. Most offices have the secretaries open the mail. This is a well-founded procedure based on the premise that: (1) She is responsible for the files and followup of the unit and (2) the mail received is official mail.

"On the occasions when an employee receives obviously marked personal mail, reasonable efforts should be made to deliver such personal mail unopened to the addressee."

Employees Recognized for Accomplishments

Certificates of Recognition

Certificates of recognition for inventions have been presented to the following:

Judd R. Wilkins, for "Indirect Microbial Detection;" **Stephen C. Irick**, for "A Hydraulic Actuator Mechanism to Control Aircraft Spoiler Movements Through Dual Input Commands;" **Pierce L. Lawing**, for "A Cooling System for an Aircraft Having a Cruise Range from Mach 2 to Mach 6;" **Jag J. Singh**, for "Mossbauer Spectrometer Radiation Detector;" **Wilford E. Sivertson**, for "Method of Locating Persons in Distress;" **Martin M. Mikulas** and **Marvin D. Rhodes**, for "Composite Sandwich Lattice Structure;" **David B. Rhodes**, for "Scanning a Focal Laser Velocimeter Projection Lens System;" **Frank Hohl**, for "Large Volume Multiple-Path Nuclear Pumped Laser;" **John M. Franke**, for "Direction Sensitive Laser Velocimeter;" **Wendell W. Kelley**, for "A Velocity Vector Control System Augmented with Direct Lift Control" and "A Pitch Stabilization System Utilizing Engine Pressure Ratio Feed-Back Signals;" **Ronald N. Jensen**, for "Solar Engine;" and **Billy R. Ashworth, Alton C. Hall** and **Clyde E. Clark**, for "Helmet Weight Simulator."

Special Achievement Awards

Special Achievement awards have been presented to the following:

Glinda S. Seay, "in recognition for outstanding performance relative to secretarial assistance for the Electronics Fabrication Development Branch."

Albert B. Stacey, Jr., William E. Stoops, Jr., James L. Leiffer, Philip M. McElveen, Vernon E. Watkins, Jr., and **James E. Justice**, for "a special act or service and contributions to the success of the Space Shuttle On-Orbiter Thermal Protection System Repair."

Bill R. Rouse, for "sustained outstanding performance in carrying out duties on the development of lidars to measure atmospheric parameters."

Mary Morgan Cox, for "special service for high quality performance in resource management for the construction of major and minor facilities programs."

Herbert F. Shackelford, Wilton B. Pollard and **Archie L. Johnson**, for "exceptional service in the manufacture of the two percent remote controlled orbiter model."

William J. Carroll, for "dedication and timely completion of free flight models for the low speed stability and control test program."

Charles S. Gilliland, for "outstanding achievement in developing the chromic acid anodizing technique for thermal control of the LDEF Project, which resulted in a process whereby a range of both absorptance and emittance of anodized aluminum may be obtained."

James C. Manning, for "developing and implementing a conceptual plan for standardizing laboratory data systems for the acoustics facilities which increased efficiency and operational versatility."

Nathan R. Johnson, for "outstanding performance as Technician-In-Charge in leading and coordinating routine and experimental maintenance and modifications on the TCV Boeing 737 airplane.

Marna H. Mayo, for "outstanding contributions to the research activities of the Flight Dynamics Branch."

Phillips Named Employer of the Year

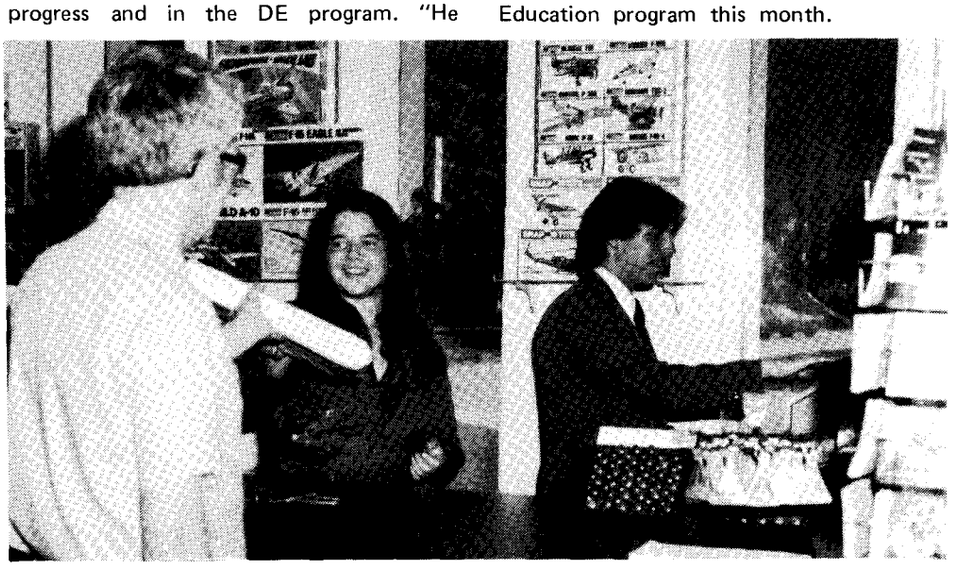
– by Mary Sandy

Brian Phillips has been named Employer of the Year by the Poquoson High School Distributive Education (DE) Club. Phillips, Assistant Manager of the Langley Visitor Center gift counter, was presented the award at the DE Club's Employer/Employee Appreciation Banquet in May. DE student Kelly Rollins, who works about 20 hours a week at the gift counter, nominated Phillips for the award.

In her nomination essay, Rollins cited Phillips as an effective and patient teacher of pricing, sales and display techniques. She expressed her appreciation of his interest in her progress and in the DE program. "He really encourages me to learn and achieve," she wrote.

Under the Distributive Education program, Rollins spends an hour a day in a class in retail management. Her afternoons are spent at the Visitor Center, where she puts her classroom lessons to work.

For Rollins, the program means "a chance to get practical work experience before graduating from high school." At the same time, she is pleased to be earning money to cover her expenses. Rollins was honored as the club's DE-II Student of the Year. Both Poquoson High School and Rollins mark their first anniversary with the Distributive Education program this month.



– photo by Hubert Lloyd

Brian Phillips (right) and Kelly Rollins help Arthur L. Newcomb, Jr., Flight Electronics Division, with a purchase at the Visitor Center gift counter.

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FOR SALE

Articles

Honey: local, extracted spring honey, light or dark, $3/qt. Call Harvey, extension 2576.

Camera: Leicaflex SL, 1 to 1/2000th sec. shutter speed, w/35mm f2.8 lens, lens shade, haze filter, and case, $645. Call 599-4321.

Tools: Craftsman Drill Press—$275; Craftsman Jointer—$250; Stanley Miter Box—$50. Call 898-8014.

Animals

Large brown gelding pony, bridle and saddle, like new, $300. Call Ramez, (Mathews) 725-7417.

Vehicles

1977 Monza Town Coupe, AC, AT, PS, 55,000 miles, EC, $2,600. Call Tom Yager, extension 2796 or 874-6819.

1978 Plymouth Arrow, 39 mpg, 4 new steel-belted radials, AM/FM, alum. wheels, $3,300, $600 below book. Call 723-5842.

Real Estate

Courthouse Green Townhouse: 3 BR, 1-1/2 BA, Hampton model, assume 7 percent VA loan balance of $20,000; secondary financing available. Total price—$41,900. Call 599-4321.

FOR RENT

York County: 4 BR, 2-1/2 BA, LR, DR, Fam. RM w/FP, Recreation RM or 5BR; 3/4 acre wooded lot, heat pump, available 8/1/80. $550/mo. Call 898-4132.

Poquoson: 2-story Colonial, 4BR, 2-1/2 BA, FR w/FP, DBL gar, screened porch, fenced bkyd, W/W carpet, shade trees. $480/mo. Call 868-6198.

Sandbridge: New cottage, liv-kit-din area, 4BR, washer/dryer, dishwasher, FP. 1/2 block from beach and backbay (freshwater). AC, phone, 6-car parking. Summer rates—$400/wk. Call G. O. Kent, extension 3095, or 420-8391.

WANTED

Ride to West area from Denbigh (near Shore Park) on 7:30 a.m. to 4 p.m. shift; will pay. Call Karen Campbell, extension 3681.

Recent Retirees

George O. Brooks, Jr., Plant Engineering Division, retired June 28.

Richard H. Rhyne, Structures and Dynamics Division, retired June 30.

Retirement Party

Dr. Richard T. Whitcomb, Transonic Aerodynamics Branch, Subsonic-Transonic Aerodynamics Division will be honored with a retirement party in the Activities Center, Saturday, July 26. There will be a cash bar and heavy hors d'oeuvres from 6 to 8 p.m. Cost is $10 per person or $19 per couple (includes contribution to the gift). For reservations, send check to Pat Reagon, Mail Stop 359, by July 12. Your participation in the gift only would also be appreciated.

Happenings

HAPPY HOUR will be held Friday, July 18, from 4 to 6:30 p.m. in the Activities Center.

KINGS DOMINION discount tickets are on sale at the Langley Activities Association Office. For a limited time only, tickets are available for $7.

FOOTBALL. Season tickets for the College of William and Mary football games are available for $16 at the Langley Activities Association office. The regular cost is $32. The first game will be played September 13 at Cary Field.

Think Safety

I don't have nine eyes, so I wear my safety glasses. Do you?

cafeteria menu

WEEK OF JULY 14

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Pineapple Chicken; Shrimp in a Basket. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Beef Balls Stroganoff; Pork Chops. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Ham & Cheese Omelette; Polish Sausage. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Roast Beef Au Jus; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken Chow Mein; Salisbury Steak. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF JULY 21

MONDAY: Ham & Lima Bean Soup; Teriyaki Beef Kabobs; Savory Baked Chicken; Half-pound Chopped Steak. Snack Bar: Pizza; 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; Roast Beef & American Cheese.

WEDNESDAY: French Onion Soup; Roast Turkey Dinner; Broiled Beef Liver; Knockwurst Reuben. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Stuffed Bell Peppers; Quiche Lorraine. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken & Spanish Rice; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Thanks

Carter Turnbull writes "I want to thank all my co-workers in Building 1209 for the lovely retirement luncheon and also the ladies for the banquet."

National Aeronautics and
Space Administration

Langley Research Center

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Langley Researcher

Volume 19 Issue 15 July 25, 1980

Stokes Named Management Operations Director

John F. Stokes has been named Director for Management Operations at the Langley Research Center. He is former Chief of the Projects Management Systems Division in the Projects Directorate.

Stokes' appointment was announced by Langley Director Donald P. Hearth, and was effective July 13.

As Director for Management Operations, Stokes will be responsible for all Langley institutional management operations, including personnel, programs and resources, acquisition, financial management, management support, scientific and technical information programs, business computer systems, chief counsel, patent counsel, technology utilization, industry relations, and occupational health services.

He heads one of seven major Langley organizations that advise the Center Director on specific matters of technical and operational management.

Stokes began his NASA career at the Goddard Space Flight Center in Greenbelt, Md., in 1962 as an aerospace technologist in flight systems. He became Goddard's Technology Utilization Officer in 1967 and wrote his master's thesis on "Difficulties in Technology Transfer" in 1968.

He was appointed Head of the Incentive Contracts Office in 1970, responsible for the administration of approximately 35 award-fee contracts for support services and major flight programs. In early 1974 he became Deputy Project Manager for Resources

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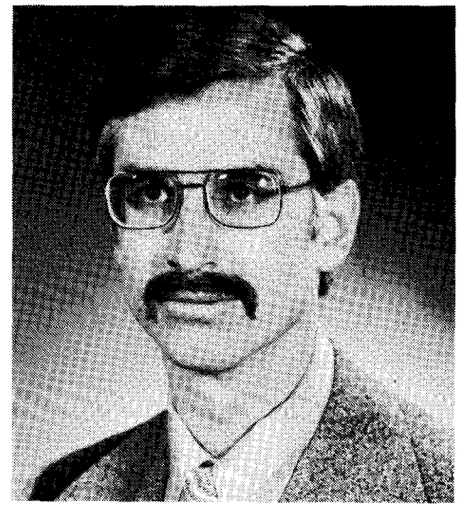
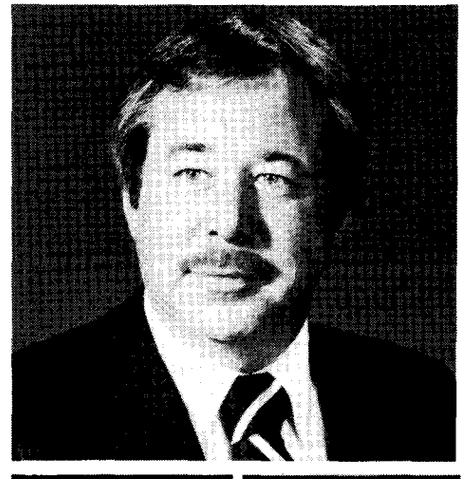




Bowen is Manager of California Office

Fred W. Bowen, Jr., Acting Director for Management Operations, has been named Manager of the NASA Resident Office at the Jet Propulsion Laboratory (JPL) in Pasadena, Calif.

He will be the focal point for all NASA institutional management interests at JPL, and report to the Associate Administrator for Management Operations, located in Washington, D.C.

In his new position, Bowen is responsible for negotiating and awarding contracts with the California Institute of Technology, which operates JPL, for the conduct of space, aeronautical and energy research. He is also responsible for reviewing, evaluating and implementing policy directives; participates in the evaluation of JPL

Continued on page 2.

Hohl, Pauls Chosen for Management Positions

Two new appointments to the Director's staff were announced this morning by Langley Director Donald P. Hearth.

Dr. Frank Hohl will be Chief Scientist and Sidney F. Pauls will be Staff Assistant. Hohl will assume his duties in August and Pauls' appointment becomes effective in September, when he returns from a temporary assignment at NASA Headquarters.

In announcing the appointments, Director Hearth stated: "The selections of Dr. Hohl and Mr. Pauls means that the center now has a complete staff through the Program Director level. Dr. Hohl and Mr. Pauls will both hold senior staff positions in the Office of Director. Dr. Hohl will have two principal duties as Chief Scientist. First, he will serve as the center's research conscience; that is,

Continued on page 3.

Dr. Frank Hohl **Sidney F. Pauls**

Stokes

Continued from page 1.

for the Explorer Satellite Projects and led a major study to verify the cost plan for a new start Explorer project. He served in that same capacity for the International Sun-Earth Explorer Project from early 1975 until he came to Langley in April 1977.

As Projects Management Systems Division Chief, he was responsible for managing all project resources, schedules, configuration management and documentation, technical administration, early planning for new projects, budget preparation and execution, and financial analysis. Among the major Projects Directorate programs are Aircraft Energy Efficiency, the Earth Radiation Budget Experiment, Large Space Systems Technology, the Scout launch vehicle and the Long-Duration Exposure Facility.

Born in 1940, Stokes earned a bachelor of science degree in electrical engineering from Catholic University of America in 1962. He earned a master of science degree in engineering administration from George Washington University in 1968.

While at the Goddard Space Flight Center, he received numerous awards for his contributions, including a Certificate of Outstanding Performance in 1973. He is a member of Tau Beta Pi national engineering honor society and the American Institute of Aeronautics and Astronautics.

He replaces Edwin C. Kilgore, who became Associate Administrator for Management Operations at NASA Headquarters.

Stokes and his wife, the former Louise Mae Foley of Washington, D.C., live in Williamsburg with their three children.

Bowen

Continued from page 1.

functional and institutional matters; and is the senior management contact for JPL and NASA on all institutional matters, including manpower, institutional budgets, work for other agencies, facilities, multi-program support, technical services, key JPL personnel changes, technology utilization, property and equipment, patents, and general contract administration.

As Langley's Acting Director for Management Operations for the past year, he has been responsible for all Center institutional management operations, including personnel, programs and resources, acquisition, financial management, management support, scientific and technical information programs, business computer systems, chief counsel, patent counsel, technology utilization, industry relations, and occupational health services.

In early 1979, Bowen was detailed from NASA to serve as Director for Administration for the President's Commission on the Accident at Three Mile Island. He received the Commission's Exceptional Service Award in late 1979 for his work.

From 1975 to 1979, he was Technical Manager for Management Operations at Langley, where he assisted the Director for Management Operations and had directorate-level responsibility for all technical activities. During this time he was a member of the NASA Task Team that developed the agency's Merit Pay and Performance Appraisal process.

At NASA Headquarters from 1972 to 1975, Bowen was Executive Assistant to the Associate Administrator for Aeronautics and Space Technology and then Executive Assistant to the Associate Administrator for Center Operations. In this position he was the principal staff advisor and coordinator for institutional aspects of NASA's 11 field centers.

At Langley from 1964 to 1972, he was Technical Assistant to the Viking Project Manager, a member of the Center's Research Staff Office and, during his first years at Langley, did research with spectroscopic and laser techniques to determine diagnostics of plasma accelerators.

He received a bachelor of science degree in physics from the College of William and Mary in 1964 and completed the course requirements for a graduate degree in physics before moving into technical management. He graduated in the first session of the NASA Management Education Program in 1976.

Bowen received Langley's Special Achievement Award for Sustained Superior Performance in 1980 for his work as Acting Director for Management Operations, and the Certificate of Recognition for Noteworthy Service in Public Administration as NASA's 1979 nominee for the William F. Jump Memorial Award.

Being at the right place at the right time is the feeling Fred Jones of the Photographic Branch had after capturing this sight. The friendly-looking raccoon, peering out the doorway of his house, lives right here on the Langley Center. Where? Jones won't tell.

Aerospace Penpoints
by
Wesley Berryman

I always wanted to have an impact. I did that.

Richard T. Whitcomb

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

Hohl, Pauls

Continued from page 1.

he will be concerned with the quality and character of Langley's research program and with the center's researchers. Second, he will have overall responsibility for Langley's university program, with the objective of making it the best possible program.

"As my Staff Assistant, Mr. Pauls will be responsible for coordinating centerwide program planning activities and for integrating Langley's program and institutional planning. In addition, he will provide staff support to Mr. Peterson and myself."

Dr. Frank Hohl is now Head of the Space Technology Branch, Space Systems Division, managing research on advanced space technology, including nuclear pumped lasers, galactic dynamics, plasma physics and space power.

Hohl began his NASA career in 1963 as an aerospace engineer. He served as a group leader; Head, Astrophysics Section; and Head, Space Physics Branch, before assuming his present job in 1976.

Before coming to Langley, he was a member of the technical staff at Bell Telephone Laboratories in 1962–63, and he served in the U.S. Air Force from 1954 to 1958.

Hohl graduated with high honors and a bachelor of science degree in electrical engineering from the University of Florida in 1961. He received a master of science degree in electrical engineering from New York University in 1963. He earned a master of science degree in physics in 1965 and a doctorate in physics in 1967, both from the College of William and Mary.

The author or co-author of almost 100 technical papers and reports, Hohl received NASA's Special Service Award for Exceptional Scientific Achievement in 1969 and the NASA Exceptional Scientific Achievement Medal in 1976. He holds a patent on a Volume Pump Nuclear Laser.

He is a member of the American Institute of Aeronautics and Astronautics, American Astronomical Society, American Association for the Advancement of Sciences and the International Astronomical Union.

Hohl is married to the former Margarete M. Schwellenbach. They and their three children live in Newport News.

Sidney Pauls is now Assistant Chief of the Programs and Resources Division. He has been on special assignment at NASA Headquarters since February, working in the OAST Administration and Program Support Division.

He began his Langley career in 1963, working on various space related projects before becoming Head of the Analysis and Planning Group, Programs and Resources Division, in 1970. Between 1972 and 1976, he was Head, Analysis and Programming Branch in what is now the Business Data Systems Division, and Assistant Division Chief.

He began his present job in 1976, responsible for helping provide centralized resources planning capability for institutional funds and research and development funds, preparing and managing operating plans and budgets to insure program execution and fund source integrity. His principal duties are R&D resources management, manpower planning and economic analysis.

Pauls has served as special assistant to the Langley Director and Deputy Director on matters concerning NASA Headquarters OAST and OSTA Program Offices.

He received a bachelor of science degree in economics from the College of William and Mary in 1958 and a master of science degree in management science from George Washington University in 1970. He did post-graduate work in systems analysis during 1973–74 at the Business Administration Center for Advanced Engineering Studies, operated by Harvard University and Massachusetts Institute of Technology.

He was a U.S. Army officer and an industrial consultant in industrial relations working simplification from 1958 to 1963.

He is the author of several special program planning studies and contractor reports. He received outstanding performance ratings for his work in 1975 and 1978.

Pauls and his wife, Betty, live in Poquoson with their two children.

– photo by Don Ward

General Yoon Ja Joong, Chief of Staff of the Royal Korean Air Force, and members of his staff visited Langley recently. During a stop at the Visitor Center, Langley Director Don Hearth presented Joong with a Landsat photograph of South Korea.

Langley Researchers Study Lightning From the Inside Out

– by Keith Henry

Whoever said lightning doesn't strike twice in the same place didn't travel to the National Severe Storms Laboratory in Oklahoma last month with researchers from Langley.

A Langley team of 19 people can testify that lightning not only struck twice, but three times, as they guided a modified F-106B jet fighter through intense southwest thunderstorms. The tests, in conjunction with the National Oceanic and Atmospheric Administration storms lab at Norman, Okla., are designed to study lightning from the inside out. Most of what is known about lightning is a result of lightning studies at ground level. Researchers want to know about lightning as it affects aircraft in flight.

As a result, an ambitious program to study lightning in the midst of thunderstorms has a fighter type airplane looking to get hit by lightning.

On the morning of June 17, after attracting no more than a few Oklahoma raindrops on the windshield in more than two weeks of trying, pilot Jerry Keyser was startled by the team's first lightning strike: "We (to include fellow research pilot Perry Deal) were inside a cloud, with visibility about 500 feet. There was heavy rain and moderate turbulence. It didn't look that bad. I probably didn't see the whole thing, but I did see a lightning bolt come out of the fog, horizontally, from right to left," gestures Keyser, a major on assignment from the Air Force. "It curved toward me," he continued, "and I instinctively jerked the stick back in an avoidance maneuver. The bolt looked like a headless and tailless snake. It was incredibly fast. Even before I began to react, the 6-to-8-inch diameter 'snake' had struck the noseboom and spiraled down the left side of the airplane and was gone. I had my sunvisor down, just in case, and it was still fairly bright. There was a 'zap, crackle,' but there was no radio noise to warn of its coming."

"I was vastly relieved to hear my good friend Jerry Keyser say 'We just got struck,' recalls mission director Norman Crabill, who for days had been elbow-to-elbow with storms lab radar controllers directing the craft into and through storm cells in pursuit of lightning. "It meant he was alive, the airplane was intact and that everything we had done to protect them had apparently worked. We had prepared extensively--including actually making tests on the ground with simulated lightning bolts--but this was the first real test."

A landing for an initial strike inspection was followed by an afternoon flight piloted by Deal that logged the project's two other direct lightning strikes. The second bolt also attached at the noseboom but split into streamers down both sides of the aircraft, one attaching to the top of the left wing, and the other attaching beneath the right wing. The third, after also striking the noseboom, "ducked under" to strike two probes located below the fuselage.

"We felt we had envisioned the lightning hazards pretty well," says Crabill, "not even a circuit breaker tripped. Although before our Oklahoma mission was over, some moderate turbulence did cause two hydraulic systems to fail."

Initial optimism about safety faded at least a little, however, when the project's lightning consultant inspected the aircraft minutely after the team's return to Langley and discovered that at least part of the second strike had skipped down the top middle of the left wing. To the uninitiated, each of the several attachment points might seem insignificant, no more than a rough, but shiny, spot on the wing that could have been caused by the twist of a knife point. But the top middle of the wing, away from the edges and wing tips, is not usually thought of as a lightning attachment zone, according to F-106 project engineer Bruce Fisher. "The thickness of the wing skin," he explains, "prevented a burn-through to the underlying fuel tanks. In addition, a low volatility fuel (JP-5) is used in the aircraft to provide an additional margin of safety."

The sleek fighter plane is on loan from the Dryden Flight Research Center in Edwards, Calif. Even if NASA hadn't already owned an F-106B, however, it still would have been Langley's top choice for such a demanding mission, to include the reason of its thick wing skins. The F-106 is the holder of the world's single-engine speed record, set in the late 1950's. It is still used today by the Air Force and 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.

Thunderstorms within a 100-mile range of Langley will be candidates for study when the flights resume this month. Meanwhile, repairs and more modifications are being made to the plane and results of the several on-board experiments flown in Oklahoma are being analyzed.

Langley researcher Felix Pitts is excited about preliminary results from his group's "direct lightning strike experiment." Simply taking the measurement was an engineering accomplishment. The group has gone to extremes to isolate the experiment's test equipment using, among other things,

– photo by Hubert Lloyd

Like a man standing in an open field, this UHF radio antenna was a perfect target when lightning struck the F-106B. Langley research pilot Perry Deal was flying the craft when lightning hit the noseboom and "ducked under" to hit the probe. The strike caused no functional damage. Most of the missing paint is gone due to rain erosion caused by moving through storms at 300 knots, but a little more than half way down the antenna some paint was removed or discolored by the strike.

fiber optics to transmit data, completely eliminating any electrical connection between the equipment and the custom-made lightning sensors or the plane itself (fiber optics transmit data as light through translucent plastic fibers).

To Pitt's knowledge, the strikes on the 17th marked the first time certain important electrical characteristics of lightning have been measured from an airplane during a lightning attachment. The results tentatively indicate that the lightning bolts measured had a realtively more active electric field (as compared to their magnetic field) than generally imagined. Significant changes in the electric field's rate of charge occurred on a sub-microsecond scale. This and other basic knowledge about lightning is important to help safeguard aircraft of the future against the many dangers of a lightning strike.

Present-day strides to improve aircraft performance and fuel efficiency threaten to remove some of the traditional lightning safeguards built in over the years. Digital avionics (electronic control systems and instruments), for instance, are logical replacements for the bulkier, heavier and less accurate systems in general use today. But because digital avionics work at low electrical levels--about one half a volt--they may be upset by electrical disturbance from lightning, needing to be reset, recalibrated or completely replaced.

Other lightning-related experiments carried aloft by the F-106B are a lightning "data logger" contributed by the Boeing Commercial Airplane Co., designed to measure the total current of a lightning bolt; a lightning optical signature experiment, contributed by the National Severe Storms Lab, designed to record amplitude and frequency of the visible light generated by lightning; a lightning x-ray experiment, contributed by a plasma physicist from the University of Washington, designed to test whether lightning produces x-rays which, in turn, could have an effect on aircraft equipment and passengers; and an atmospheric chemistry experiment, contributed by researchers from the Atmospheric and Environmental Sciences Division at Langley, designed to determine whether lightning produces environmentally significant gases.

Preliminary results from the atmospheric chemistry experiment confirm laboratory findings that lightning produces a measureable amount of nitrous oxide. The gas is thought to be instrumental in the depletion of Earth's ozone layer, which filters potentially harmful solar ultraviolet radiation.

"It's true that in our lab experiments," says Langley researcher Dr. Joel S. Levine, "lightning discharges were doubling the amount of nitrous oxide in a small, confined volume of air, but some thought we might not be able to detect any nitrous oxide production in the atmosphere because of the huge volumes of air, the narrow lightning channel and the rapid dispersion of gas. That's why, when some air smaples brought back by the F-106B showed enhancements of up to 15 to 25 percent or more, I was really surprised.

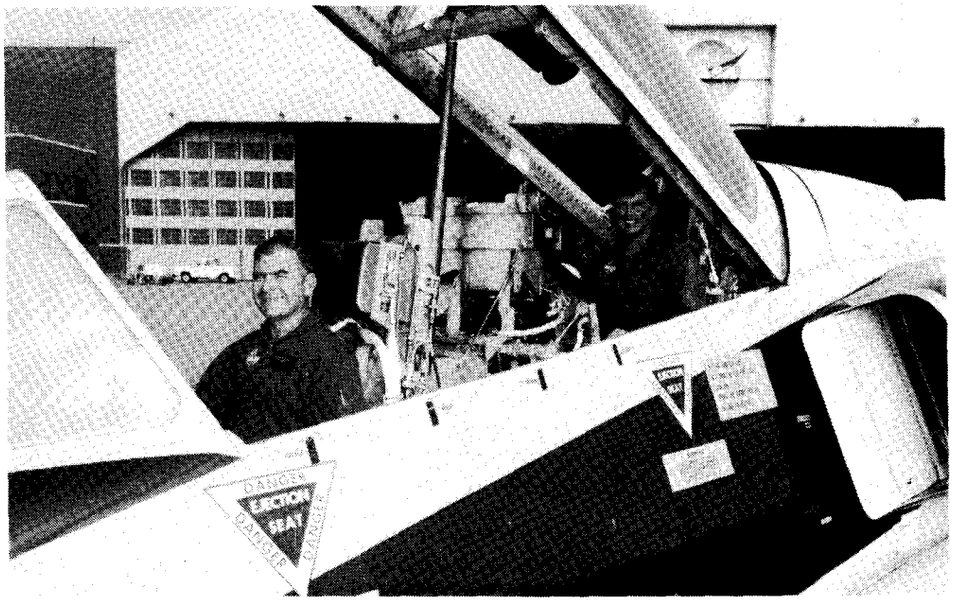
Interestingly, the times the larger enhancements were noted were not on the day the plane was actually struck by lightning, but when it was cruising through storms with lightning going off all around it. In flights to come this summer, Levine will also attempt to prove lab findings that lightning produces measureable amounts of carbon monoxide.

All of the F-106B work comes under the heading of storm hazards, divided into lightning related and non-lightning related experiments. Those not related to lightning (or related very little) include the study of turbulence, wind shear and storm hazards correlation.

The several potential hazards from thunderstorms are still a major problem to aircraft operations and design. The number of thunderstorm-related accidents actually went up in a recent five-year survey by the National Transportation Safety Board. From 1964 to 1971, two such accidents were recorded with no fatalities, but from 1972 to 1977, the numbers increased to 10 accidents and 313 fatalities.

Through the end of this summer, ground instruments at NASA's Wallops Flight Center on Virginia's Eastern Shore will locate thunderstorms and map the exact location of the plane while in thunderstorms. 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.

"It curved toward me," Keyser said. "The bolt looked like a headless and tailless snake. It struck the noseboom and spiraled down the left side of the airplane and was gone."



– photo by Fred Jones

Langley research pilots Perry Deal and Maj. Jerry Keyser, on assignment from the Air Force, check out the F-106B's equipment prior to thunderstorm penetrations for lightning research.

Happenings

TOASTMASTERS. You are invited to join the TAC Air Toastmasters to develop the arts of giving and evaluating speeches and chairing an organization or a committee. The club meets every second and fourth Wednesday at the Langley Officers' Club at 7:15 p.m. Membership is open to both men and women. Call Bob Miserentino, extension 2817, or Gale Wilson, extension 3856, for more information.

FOOTBALL. Season tickets for the College of William and Mary football games are available for $16 at the Langley Activities Association office. The regular cost is $32. The first game will be played September 13 at Cary Field.

HAPPY HOUR will be held Friday, August 1, from 4 to 6:30 p.m. in the Activities Center.

TIDEWATER DINNER THEATER. "The King and I" is playing at the Tidewater Dinner Theater in Norfolk. Tickets, $12.50 each, are on sale at the Activities Office. The musical will be performed through August 31.

BOWLING. The NASA Tenpin Bowling Conference will hold an organizational meeting for team captains and league officers in the Activities Center, Wythe Room, August 12 at 4:15 p.m. All teams from last season wanting to bowl must be represented. New teams or individuals wishing to join the conference should contact Bill Goad, extension 3234. All teams will be decided at this meeting.

EMPLOYEES' NIGHT at War Memorial Stadium will be held August 6 at 8 p.m. The Langley Activities Association has reserved the stadium for the baseball game between the Peninsula Pilots and Salem. Tickets, free to employees, retirees, contractor personnel and their families, are available at the LAA office.

TENNIS. The NASA Open Tennis Tournament was played July 10 through 13. Bill Gardner was declared the winner by default when Sean Baier, number 3 seed, injured himself off the court and could not play. Several of the Langley members who entered the tournament played some good matches. Leonard Credeur, Flight Electronics Division, defeated number 6 seed, Alex Vazquez, in the second round, and Russ Nevins, Jr., son of Russ Nevins, FED, defeated number 6 seed, Mike Flanagan, in the second round.

– photo by Richard Shaw

Harold Orr, representing the Publications Branch, displays their winning poster in the adult category of the LAA Carnival Poster contest. Renee Popernack (second from right) is the winner in the children's category. Second-place winners are Beth Compton (second from left) in the children's category and Oletha White (right) in the adult division. First place winners each received a $50 Savings Bond; White and Popernack received $15 and $10 checks, respectively. The Publications Branch donated their bond to the American Cancer Society.

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley Wednesday, July 30, 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.

LFCU Sponsors Millionaire Contest

The Langley Federal Credit Union will make three lucky people "millionaires-for-a-day." Just open a new Share Draft, Christmas Club, All Purpose Club or Regular Share Account and receive tickets for the grand prize drawing on August 1.

The three winners will be chosen at 10 a.m. in the Riverdale Branch main lobby. Each winner will receive the interest on $1 million for one day (7 percent Annual Rate) and a $50 gift certificate to dine at a local restaurant.

The promotion is limited to members over 18. Members bringing in a friend to sign up for a new account will receive a free gift. Specific details are available at any LFCU office.

Thanks

Alan Vanasse thanks his friends at Langley for the retirement party and gifts.

John E. Duberg, writes, "On behalf of my family and myself I would like to thank all those who worked so diligently and well to make my retirement reception and dinner such a grand occasion. I also would like to extend my thanks to all those who participated in such a pleasant evening. The comments will not be forgotten and the gifts are most appreciated. I wish much success to those who remain at Langley and are carrying on its great traditions."

Richard R. Heldenfels thanks his friends for arranging and attending his recent retirement party. "It was most enjoyable and memorable and I received many unique gifts that I will treasure as reminders of many past relationships with my friends and associates at Langley."

Lorraine V. Satchell thanks her many friends at NASA for donating blood in her name.

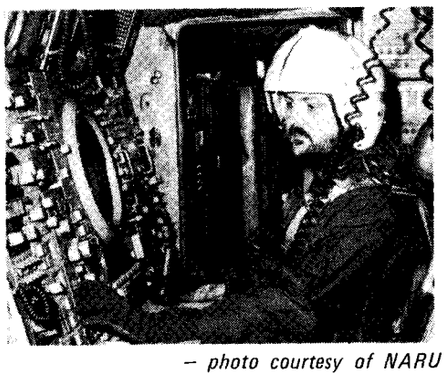
Franke Chosen for Reserve Awards

John M. Franke, an aerospace technologist in the Measurement Physics Branch, Instrument Research Division, has received two awards from the naval air reserve activities in Tidewater.

Named as the most outstanding enlisted naval air reservist in the area, Franke received the Reservist of the Year award from the Carrier Air Wing Reserve 20 and the Reservist Sailor of the Year award from the Norfolk Naval Air Reserve Unit. He is an aviation electronics technician first class (AT1) assigned to the Carrier Airborne Early Warning Squadron 78 at the Naval Air Station and an aircrewman on the E-2B Hawkeye aircraft.

Franke joined the Naval Reserve in 1975 through the Advanced Pay Grade program, which offers enlistment as a petty officer to persons having no prior military service. Franke qualified for the AT rating based on his civilian background and experience.

A Langley researcher since September 1974, Franke designs instrumentation for wind tunnel application. He received a bachelor of science degree in electrical engineering in 1973 and a master of science degree in physics in 1977, both from Old Dominion University.



– photo courtesy of NARU

John M. Franke monitors combat information center equipment during a training hop for E-2B flight technicians.

Thanks

Earl Popp writes, "To all my friends, my thanks and appreciation for the gifts and mementos and for making my retirement party a very memorable occasion. A special 'thank you' to Roger Phelps for the time and effort spent in arranging it all."

– photo by Bob Nye

Demetrius V. Windom and Linda A. Pennington, summer counselors in the Personnel Division, are assisting college students employed at Langley this summer. Their duties include working with the students and supervisors to make certain that the students are happy in their jobs, arranging Center tours for the students and planning the awards ceremony which will take place in August. The Summer Counseling Office is located in Building 1195, Room 202, extensions 3850 and 3211.

Summer Employment Program Supported

Again this year, Langley has provided 66 students with temporary summer employment as prescribed in the 1980 Federal Summer Employment Program announcement.

The program, under the direction of the Staffing and Special Programs Branch, Personnel Division, is comprised of the following groups:

- The Regular Summer Program consists of 47 engineering, professional administrative and clerical positions. The positions, filled from the Summer Employment Register, are staffed by undergraduate and graduate students at the GS-5 and below level.
- The Summer Youth Employment includes 20 clerical and mathematical aides. These students are referred to the Center by the Virginia Employment Commission and the positions are filled on the basis of economic need.

The program's objectives are to give the students insight into full-time government opportunities after graduation, help supplement Langley's staffing needs during the summer months, help students enrich their career goals with specialized training and genuine work opportunities and earn money for further education.

Models Wanted

The Historical Program Office has established a Historical Archives, office, and display area in the Technical Library, Building 1194. This area will provide a home base for those doing historical research to produce formal Langley-related histories.

Anyone having models of special significance to the Center, and willing to donate them to the Historical Program, please contact Dick Layman, extension 3511. We need "a few good models."

Hall Wins Drawing

Marie W. Hall of the Financial Management Division is the July winner of $20 given to a registered car pool participant.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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FOR SALE

Articles

Wooden window, fits 34x41 inch rough opening, 2/2, missing two panes, $15. Wooden window, fits 34x57 inch rough opening, 2/2, $25. Wooden back door, 3 pane/3 panel, 32x87 inches, $25. Wooden 3 panel door, 30x80 inches, $15. Assortment of electrical motors, 1/6 Hp—1/4 Hp (have seven to choose from), $10 each. Sears Spreader, 20-inch stainless, $20. Sears Spreader, 36-inch (pull with tractor or riding L/M), $20. Call Larry Hall, extension 351, or 464-6830 (Va. Beach).

Vehicles

1979 Buick Regal Limited, PS, PB, AC, AT, PDL, PW, AM/FM/STR cassette and much more. Priced below NADA Book. Call 851-7659 after 5 p.m.

Real Estate

Courthouse Green Townhouse: 3 BR, 1-1/2 BA, Hampton model, assume 7 percent VA loan balance of $20,000; secondary financing available. Total price is $41,900. Call 599-4321.

FOR RENT

Poquoson 2-story Colonial, 4 BR, 2 ½ BA, FR, w/FP, Dbl gar., screened porch, fenced bkyd, w/w carpet, shade trees. $480/mo. Call 868-6198.

Sandbridge: new cottage, liv-kit-din area, 4 BR, washer/dryer, dishwasher, FP, 1/2 block from beach and backbay (freshwater), AC, phone, 6-car parking. Summer rates, $400/wk. Call G. O. Kent, extension 3095, or 420-8391.

Low Cost Vacation: "Buzzards Roost" on Hatteras Island at Frisco. Oceanside, 50' house trailer, furnished including dishes; 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. $155/wk. Call Fogle, extension 2651.

Furnished Buckroe Beach house, facing the Chesapeake Bay (746 N. 1st Street): large kit, din area, LR, 3 BR, large BA; deck across front of the house; large parking area on street side of house; enclosed storage space on ground level. No pets allowed. Available second week of August. Shown by appt. Call 599-6048, 851-4361, or 874-7155. $300/month.

WANTED

To join or form car pool from Denbigh (near Runnymede) to West Area for either the 7:30 to 8:00 shift, starting in September. Call Greg Riebe, extension 3294.

Details for hang-glider construction. Call 851-1869 or 722-4638.

LOST AND FOUND

Lost at Wythe Creek Road bridge July 10 at 4 p.m.: cardboard box with yellow pants, 2 yellow windbreakers, and 1 pair of Sears glasses. $25 for return. Call Harvey, extension 2576.

Ring found in parking lot of B-1192. To identify, call Renee Wallace, extension 3174.

A 1967 Kecoughtan High School class ring was found in the men's room of B-1268, first floor, Friday, July 11. Call extension 3445 and identify.

cafeteria menu

WEEK OF JULY 28

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Barbecued Chicken; Pork Chops. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Beef Balls Stroganoff; Roast Beef. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Polish Sausage; Eggplant Parmesan. Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Crab Cutlets; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Teriyaki Baked Chicken; Meatloaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF AUGUST 4

MONDAY: Ham & Lima Bean Soup; Chicken Cordon Bleu; Broiled Beef Liver; Half-pound Chopped Steak. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island Clam Chowder; Baked Lasagna; Knockwurst Reuben; Fried Filet of Fish. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Roast Turkey Dinner; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey & Rice Soup; Veal Parmesan; Teriyaki Beef Kabobs; Stuffed Fresh Bell Peppers. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Tomato & Rice Soup; Fish Dinner; Pineapple Chicken; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Office Changes Hours

The Financial Management Division Imprest Fund Cashier's Office hours are 8 a.m. to 12 p.m.; 12:45 p.m. to 4:30 p.m.

Key Positions

Nathan D. Watson has been designated Head of the Space Systems Engineering Branch and Acting Head of the Spacecraft Systems Section in the Systems Engineering Division.

The following have been designated for key positions in the Computer Management Branch of the Analysis and Computation Division:

Robert E. Andrews, Acting Head of the Computer Operations Section; **Roy C. Dunkum, Jr.**, Head of the Data Management Section; and **Muriel M. Jarrett**, Head of the Systems Performance Analysis Section.

Recent Retirees

Kenneth S. Bush, Systems Engineering Division, retired July 12.

Belton T. Alexander, Jr., Fabrication Division, and **Robert O. Schade**, Flight Mechanics Division, retire today.

Think Safety

"I don't need any help! My back is always bent like this."

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 16

August 8, 1980

Director's Comments

Hearth Rates New Management Team Excellent

The past several months have been very active in terms of people retiring, new people being hired and new supervisors being selected. It now appears that Langley will hire over 200 people this fiscal year, the largest numbers of recent college graduates, technician apprentices and experienced people in my five years at the Center. More important than quantity is the quality of the new people. They are first-rate and will fit into the Center very well.

Because of mostly retirements, we lost a large number of excellent supervisors during the past several months. I am very pleased with the quality of the people selected to replace them *and* that actions were taken promptly. While the work load on our Personnel Division has been very high, they have done a super job. Since October of last year, 68 new supervisors have been selected (that's about 25 percent of the total number of supervisors at Langley). The following summarizes the new supervisors through division level:

Richard H. Petersen, Deputy Director;

Frank Hohl, Chief Scientist;

Robert C. Goetz, Director for Structures;

William D. Mace, Director for Electronics;

John F. Stokes, Director for Management Operations;

Hubert K. Clark, Assistant Director for Systems Engineering and Operations;

Charles P. Blankenship, Chief of Materials Division;

Michael F. Card, Chief of Structural Mechanics Division;

William F. Cuddihy, Chief of Plant Engineering Division;

Sidney C. Dixon, Chief of Loads and Aeroelasticity Division;

Burnett W. Peters, Chief of Scientific and Technical Information Programs Division;

Robert L. Swain, Chief of Systems Engineering Division;

Gerald D. Walberg, Chief of Space Systems Division;

Gary P. Beasley, Assistant Chief of Flight Dynamics and Controls Division;

Perry W. Hanson, Assistant Chief of Loads and Aeroelasticity Division;

Harvey G. McComb, Assistant Chief of Structural Mechanics Division;

John P. Mugler, Assistant Chief of Atmospheric and Environmental Sciences Division;

Continued on page 2.

Latest NTF Test Termed "100 Percent Successful"

It took six days and 1.9 million gallons of water to fill the National Transonic Facility for hydrostatic testing which Construction Manager Donald H. Ward has pronounced "100 percent successful."

Verification of the new tunnel's structural integrity was the purpose of the hydrostatic tests, which were performed July 31 and August 1. Water in all sections was pressurized to 183 pounds per square inch — or one-and-one-half times normal operating pressure — to meet test standards.

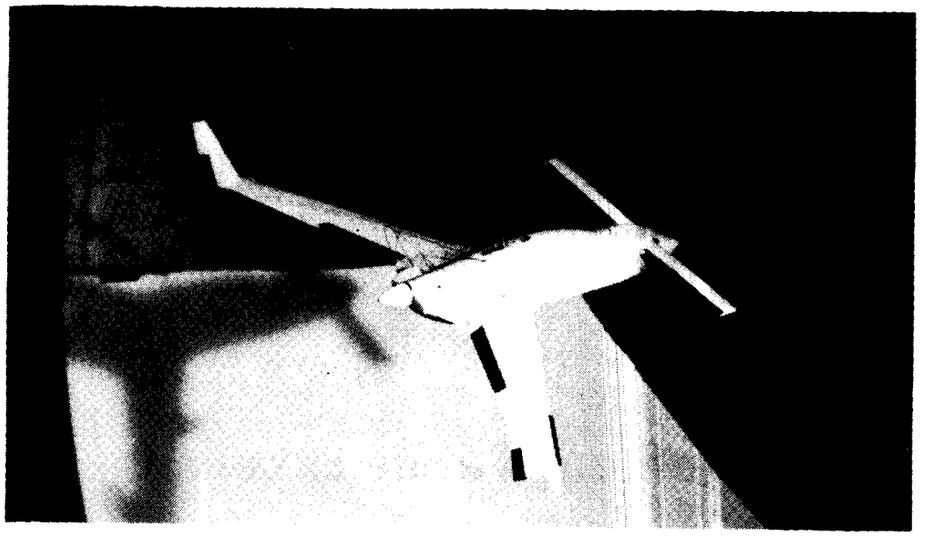
The tunnel began filling up July 23, a full week ahead of the contract schedule, Ward said. The tunnel circuit was completed June 9, when the last major section of the tunnel was dropped in place. The NTF is scheduled to be completed in late 1981.

The hydrostatic tests involved filling the tunnel's entire circuit, then pumping in 6,000 more gallons of water under pressure to bring the pressure up to 183 pounds per square inch. Engineers then relieved the pressure in the test section, thereby checking the integrity of the bulkheads which will protect researchers when the rest of the tunnel is under pressure during model changes.

Another element of the test was to lower the tunnel circuit pressure to 143 pounds per square inch and raise the test section pressure to 183 p.s.i. "This gave us the pressure differential for the bulkheads in the other direction," Ward said.

Project officials had the option of using air or water for the test, Ward said, but water was planned some years ago because of safety. "If we had used air, the potential danger area would have extended across the road to the trailer court. Using water, we were able to keep the potential danger area well inside NASA boundaries."

Ward said internal elements, such as mechanical and electrical fittings, still have to be placed within the tunnel. The drive shaft has been installed, but the drive system still has to be completed. Other tasks include building a data processing center, installing a vent stack, and completing work which has just begun on fan blades for the drive system. The fan blades will be built under contract, using Langley facilities on the East Side, Ward said.



— photo by Bob Nye

STAR WARS, MOVE OVER. Langley recently put this futuristic free-flying model through its paces in the center's full-scale wind tunnel. Conceived by Burt Rutan, a former Air Force engineer, the "VariEze" is marketed as a home-built airplane in kit form. Langley built its own one-third scale model, with a wing span of eight feet, to test the craft's aerodynamics and handling qualities. Tests revealed that its unconventional, advanced design apparently improves aircraft efficiency and safety because of its canard (tail-first) configuration, which replaces the conventional horizontal tail. Other design features making use of advanced technology include its lightweight composite construction of foam and fiberglass, its vertical wing surfaces at each wing tip (called winglets), the shape of the wing's airfoil and a side stick control. Langley plans detailed aerodynamic studies of canard-type airplanes using the VariEze design as a baseline for further research.

Director's Comments

Continued from page 1.

Thomas E. Pinelli, Assistant Chief of Scientific and Technical Information Programs Division;

Charles R. Schilling, Assistant Chief of Plant Engineering Division;

Joseph B. Talbot, Deputy Manager of Scout Project Office;

H. Scott Wagner, Assistant Chief of Marine and Applications Technology Division;

Linwood W. McKinney, Assistant Chief of Subsonic-Transonic Aerodynamics Division;

Jon L. Van Cleave, Deputy Manager of Scout Project Office;

Louis F. Vosteen, Assistant Chief of Materials Division;

In addition, 17 branch heads, five assistant branch heads, 10 section heads, and 12 other supervisors have been appointed since last October. This is the largest turnover of supervisors at Langley in many years; perhaps, the largest in the Center's history. We still have a few vacancies which will be filled as quickly as possible. The new management team is excellent. I look forward to working with them for many years to come.

I continue to be optimistic about Langley's future. If we are permitted to maintain complement stability, we will be able to hire large numbers of recent college graduates and to keep a strong technician apprentice program. We expect the level of retirements to remain high for the next several years; therefore, a large turnover is to be expected. But, this is a healthy situation as long as we can fully replace the Center's attrition. Both the future program and future facility picture continue to look good for Langley. While we will have the challenges discussed before in this column, the future looks upbeat to me in terms of people, programs, and facilities. The 1980s at the Center should be exciting and productive. I am looking forward to the future at Langley, both yours and mine.

Langley Sets New Bloodmobile Record

Langley set a new record Wednesday, July 30, when employees, contractors and retirees donated 339 pints of blood during the Red Cross Bloodmobile visit.

Achieving gallon status were:

13 gallons — Charles E. Edmiston.

8 gallons — Robert P. Davis.

7 gallons — Perry W. Hanson and Stanley Pearce.

6 gallons — William B. Jones and Philip E. Everhart.

5 gallons — Horace E. Bellamy, Addison T. Inge and Leonard P. Kopia.

4 gallons — Eugene B. McLemore, Simeon R. Hunnicutt, Sharon K. Crockett, James A. Dorst and John R. McGhee.

3 gallons — David Coombs, James L. Thomas and William A. Lovisz.

2 gallons — Robert F. Bryant, Catherine A. McCargo, John B. Kovtun, Robert L. Jensen, Wayne R. Barfoot and Erby C. Harris.

1 gallon — Carla B. Franklin, Kevin M. Heidinger, Viola Jackson, George B. Finelli, Richard DeLoach, Lewis R. Hunt and John H. Cline, Jr.

Donating blood for the first time were Keith B. Trower, David L. Douglas, Beryl K. Schmidt, Mary Ann Curtis, John F. Rourke, Jr., Eric W. Cruz, James A. Phillip, Thomas C. Prothro, James D. Adkins, Art Hayhurst, Augustine R. Dovi, Ken S. Brentner, Jean Ripley, Michelle C. Braver, Harold W. Beazley, Sandra M. Pair, Bhagya Subramanian, Patricia Johnson, J. Marie Watkins, Michael G. Wilson, Douglas S. Johnson, Joseph Stefonowich, Barry McGee, Patrick McCain, Plez Jayner, Junilla J. Applin, Zachary T. Applin, Gail Gentry, Debra Bagley and Justine Lotkowistz.

NASA Coordinator for the Booodmobile was Virginia Jones. Red Cross Coordinator was Jeannie Schieman.

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Editor . . . . . .Jean Drummond
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Three Longtime Managers Retire From Langley

Three Langley managers, who began their careers with NASA's predecessor agency, the National Advisory Committee for Aeronautics, have retired from government service.

They are Howard B. Edwards, Chief of the Instrument Research Division; Robert O. Schade, Chief of the Flight Mechanics Division; and John P. Reeder, Chief of the Terminal Configured Vehicle Program Office.

Edwards has served as Chief of the Instrument Research Division since 1965. An authority on instrumentation for research, particularly on the use of automatic controls for research, he has planned and directed the research requirements in the fields of electronics, communications and instrumentation.

Born in Landour, India, Edwards came to the United States in 1920 and graduated from high school in Darlington, S.C. He joined the Langley staff in 1930. In 1931 he enrolled at the University of Virginia, where he received a bachelor of science degree in mechanical engineering in 1936, graduating with honors. Following his graduation he was employed by private industry for five years.

Edwards returned to the Langley staff in 1941. He was named Head of the Instrument Application Section in 1943 and Head of the General Research Instrumentation Branch in 1947. He became Assistant Chief of the Instrument Research Division in 1959 and Acting Chief in 1964.

A licensed professional engineer in Virginia, Edwards is a member of the Instrument Society of America, the Engineers' Club of the Virginia Peninsula and is an Associate Fellow of the American Institute of Aeronautics and Astronautics. He received a Langley Special Achievement Award in 1972.

He was chairman of Source Evaluation Boards for Wind Tunnel Data Systems and the SAGE Project; the Award-Fee Board for the Instrument Support Service Contract and SAGE; the Design Review Panel for SAM/Apollo-Soyuz; a Space Technology Session conducted by the Institute of Electrical and Electronics Engineers in Richmond; and co-chairman of the technical evaluation committee for the Lunar Orbiter Project. He was a member of the Source Evaluation Board and Design Review Board for the Viking Lander, the Langley Project Coordination Committee, Source Evaluation Board for NASA's Space Radiation Effects Laboratory in Newport News, and Design Review Panel for the SILTS, SAGE and SAGE II projects.

Schade, Chief of the Flight Mechanics Division since 1973, has planned, directed, coordinated and developed aircraft flight research programs on aeronautical problems.

Schade began his Langley career as an aeronautical engineer in 1943. He was appointed Head of the (VTOL) Vertical Takeoff and Landing Group in 1952 and Projects Manager, Flight Mechanics and Technology Division, in 1964. He served one year as Head, Vertical Short Takeoff and Landing (V/STOL) Project Office and was then appointed Assistant Head of the VTOL Branch. He was named Assistant Chief of the Research Aircraft and Flight Division in 1970.

He has specialized in aerospace-aerodynamics performance, flight tests, administrative program management, personnel administration and financial management. He has authored or co-authored approximately 15 technical publications.

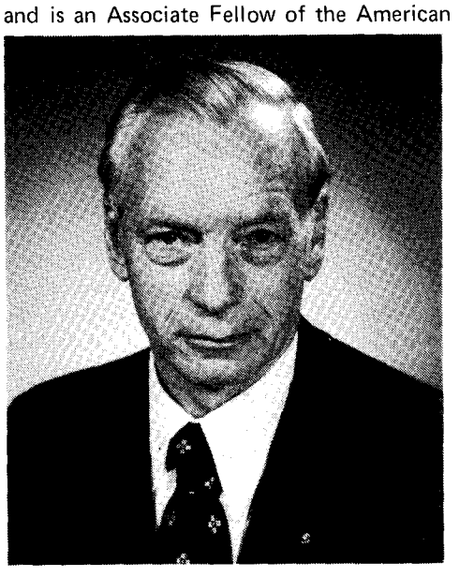
Schade was born in Janesville, Wisc. He graduated from Rockford High School in Illinois and received a bachelor of science degree in aeronautical engineering in 1943 from Tri-State College in Angola, Ind. He has taken graduate courses at the University of Virginia.

He is a member of the Engineers' Club of the Virginia Peninsula and the American Helicopter Society. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics and received its citation for effective and energetic leadership. He was presented a Langley Special Achievement Award in 1970.

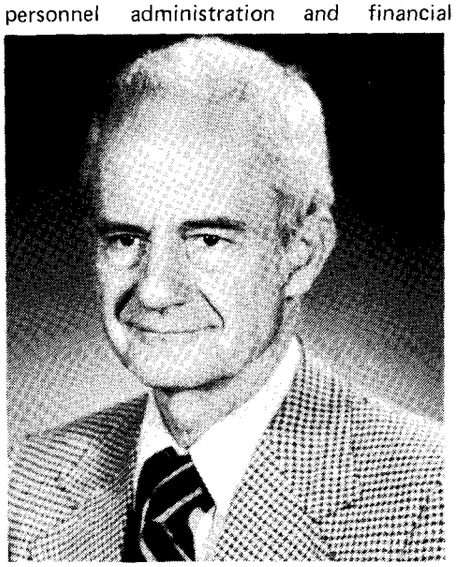
Reeder, Chief of the Terminal Configured Vehicle Program Office since 1973, has been responsible for the research and integration of airborne systems that use new concepts of navigation, guidance and air traffic control developed by the FAA. These new concepts are intended to improve capacity, safety and noise in high-density terminal airspace.

Reeder began his Langley career in 1938 as a junior aeronautical engineer, working in wind tunnel research. He was then trained by NACA as a research pilot and flew in that capacity for about 25 years. He was active in the early development of handling quality requirements for military and civil airplanes and in the development of improvements to World War II aircraft. He performed early exploration of transonic phenomena and their effects on aircraft characteristics and was a pioneer in the exploration of the effects of sweepback on the low-speed

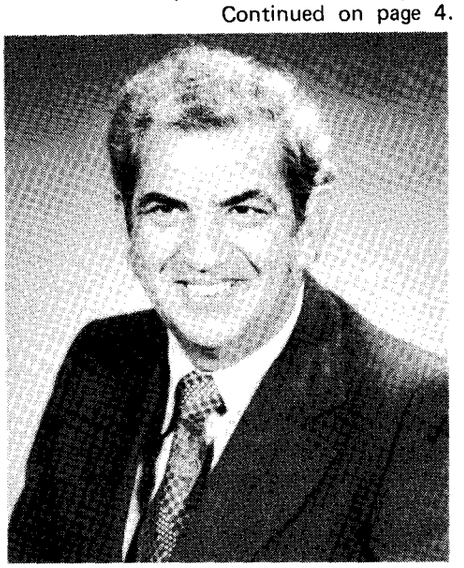
Continued on page 4.



John P. Reeder



Howard B. Edwards



Robert O. Schade

Gibson Places First in Stenography Contest

Lookout, division secretaries everywhere.

Brenda Gibson is out of high school, she can type a smooth 80 words per minute and take dictation at the rate of 150, she is the recent winner of a contest which makes her one of the best young stenographers in the nation, and she wants your job. Eventually.

Gibson, 18, spent the Fourth of July winning a national stenography skills contest in Washington, D.C. at the National Leadership Conference of the Future Business Leaders of America (FBLA). The recent Kecoughtan High School graduate is a secretarial co-op in the Training and Educational Services Branch, Personnel Division, and has been working at Langley since September, 1979.

Gibson was representing Virginia in the stenography contest for second year students. She went through four typewriters and two rooms to win it, and in the process outdistanced her closest competition by a healthy margin.

To make the competition challenging, the FBLA throws six letters at the contestants, dictating two each at 120, 110 and 100 words per minute. The letters are transcribed in shorthand and a complete letter is typewritten from the notes. No one is supposed to be able to finish all six in the allotted time.

Fifteen minutes before the contest held in the Washington Hilton on the morning of July Fourth, Gibson and the other participants began warming up on their electric typewriters. Everything was working nicely, and she approached the dictation with a mixture of jitters and confidence.

For weeks she had been practicing on dictation records, improving her speed from 120 to 150 words per minute. "I really, really practiced," she said. "Mom went around and got every dictation practice record she could find. I got my speed up to 150 so I could do 120 comfortably. I felt really good about it."

When the dictation came she did fine, and immediately went back to type up the letters. Only seconds into the first one, in a timed contest, she discovered to her horror that the typewriter was malfunctioning. She called the monitor and he moved her to the only other machine in the room, which had no margin sets and couldn't be used.

"All this time the others were typing and I was about to have a heart attack," she said.

The monitor took her to another room and a third machine, but the ribbon fouled and her heart beat even faster. On the fourth try she finally got a typewriter which worked. The monitor told her not to worry, that the judges would take her problems into consideration.

They didn't have to. Even with the string of typewriter fiascos, Gibson was able to type five of the six letters, with only one misstroke on the keys. The closest competitor got four out of the six.

Gibson said she typed the last stroke on the fifth letter just as time was called. "I couldn't tell you what the letters were about" she said, "I just did them. I type better under pressure anyway. And we were under plenty."

She believes she could have finished all six letters. "That's the thing," she said, "I wanted to do them all. It took me six to seven minutes to mess with the typewriters, and I finished most letters in less than five."

Gibson said it hasn't really sunk in

yet that she won a competition among students from across the nation. "It really didn't hit me, what I had done. It was too much for the mind to grasp. I don't think it's hit me yet."

She quickly adds, however, that she is "very excited."

Gibson will attend Thomas Nelson Community College in the fall and work part time at Langley.

"I want to work out here. I like everything about it. I'm fascinated by airplanes, and there couldn't be a better work environment." Her goal is to one day become a division secretary.

In Gibson's division, Diane S. Wieting holds that job. When she heard of Gibson's ambition, she smiled, and without missing a beat said, "Tell her she can start tomorrow."

Well, maybe not. But as far as Wieting is concerned, Gibson's speed of 150 words per minute is "excellent" (80 to 100 is average, she said), and she "is in one of the best programs out here. She is very capable, and her caliber is among the best we have."

Managers Retire

Continued from page 3.

characteristics of aircraft. He is probably best known for his pioneering in rotary wing and V/STOL aircraft aerodynamics, performance and handling characteristics.

In his long association with flight research, he has served as Head of Flight Operations and Assistant Chief of the Flight Mechanics and Technology Division.

Reeder's research pilot experience has been accumulated in some 224 different single- and multi-engine, civil and military, land and sea aircraft types: 37 jet airplanes, 40 fighters, 58 rotary wing types, including British and French, and eight VTOL airplanes, including British and Canadian.

The author or co-author of over 60 technical reports and papers, Reeder is a Fellow of the Society of Experimental Test Pilots, a Fellow of the American Institute of Aeronautics and Astronautics, an Honorary Fellow of the American Helicopter Society and a member of several other technical and professional societies. He is also a founder member of the Twirly Birds, who soloed helicopters before V-J Day in 1945.

Reeder has received the NASA Exceptional Service Medal, the Octave Chanute Award of the AIAA, the Burroughs Test Pilot Award, presented by the Flight Safety Foundation, and the Wright Brothers Medal of the Society of Automotive Engineers. These awards have resulted from contributions as a research pilot. He led the team which received the NASA Group Achievement Award for the Terminal Configured Vehicle-Microwave Landing System, national effort in support of the FAA.

A native of the Upper Peninsula of Michigan, Reeder received a bachelor of science degree in aeronautical engineering from the University of Michigan.

Mars, Orbital Debris Topics of Two Colloquiums

An update on the Viking project and a discussion of the potential formation of a belt of debris around the Earth are the topics of two Langley Colloquiums next week at the Activities Center.

Donald J. Kessler, an astrophysicist with the Space Environment Office at the Johnson Space Center, will discuss "Collision Avoidance in Space" at a colloquium Monday, August 11, at 2 p.m. The following Friday, August 15, three experts from NASA Headquarters and the Jet Propulsion Laboratory will deliver an update on the Viking missions to Mars. The Mars Mission update will begin an hour earlier than usual, at 1 p.m., and will last until 2:45 p.m. Both colloquiums will include time for questions and informal discussion.

Kessler's presentation stems from his responsibilities at Johnson for research on controlling the propagation of orbital debris. He said there are about 4,600 objects now being tracked in Earth orbit, many of them larger than 10 centimeters in diameter. But because many of those objects were the consequence of collisions or explosions, Kessler said there are probably 10-15,000 objects larger than four centimeters in diameter.

"If the population growth trends of the last 10 years continue, a collisional process producing literally millions of fragments may begin within five to ten years," he said. "This process parallels the sequence of events thought to be responsible for the large number of bodies in the asteroid belt. Such a debris belt could be of greater hazard to spacecraft than meteoroids." Kessler's talk will examine the situation, and explore a variety of alternatives which could minimize future orbital debris without reducing the number of operational payloads.

The Mars Mission update will be presented by Joseph M. Boyce, Viking Program Scientist at NASA Headquarters; Dr. Conway W. Snyder, Viking Project Scientist, Jet Propulsion Laboratory; and Kermit S. Watkins, Viking Project Manager, JPL.

Their talk will examine the years of discovery since the primary Viking Missions. Since 1976, five more mission phases have been undertaken. The quantity of orbiter pictures has increased five-fold, surface sampler operations increased six-fold, and every scientific investigation, with the exception of Entry Science, significantly increased its store of data. The speakers will review some of the major scientific discoveries and their significance and recap the status of the spacecraft and the mission.

Safety Trends Show Improvement

The Systems Safety, Quality and Reliability Office reports that only two lost time accidents occurred during the second quarter of 1980; there were only nine reportable injuries (injuries requiring more than first aid treatment).

The current statistics represent a significant improvement when compared to the calendar year 1979 record, but even one incident is too many. Let's strive to make the third quarter even safer at Langley.

SAFETY RECORD BY ORGANIZATION

Directorate	Total Cases	Lost Time Cases	Lost Time Days
Office of Director	0	0	0
Aeronautics	1	1	32
Electronics	1	0	0
Space	0	0	0
Structures	0	0	0
Projects	0	0	0
Management Operations	2	1	1
Systems Engineering and Operations	16	7	78
Total	**20**	**9**	**111**

TYPES OF LOST TIME INJURIES

Employee fell, cutting thumb on hacksaw.

Employee dropped steel plate on their finger.

Thanks

Marvis M. Lupo writes, "I would like to express my sincere appreciation to all my friends who made my retirement social a wonderful occasion. It is a memory I shall cherish forever."

– photo by Bob Nye

TOP STUDENTS VISIT FROM LEWIS. As part of their eight-week work experience at Lewis Research Center, these Cleveland-area high school students recently toured Langley. The students – all in the top 10 percent of their class – are part of a NASA program called Research Apprentice Program in Science and Engineering, designed to expose them to career opportunities with the federal government and NASA. While here, they visited Langley students in the same program at their job sites. The 22 Langley students recently visited Wallops and Goddard centers. Today, their last day of work, the Langley students are being presented certificates of achievement in an awards ceremony.

Vehicle Analysis Branch

Eyes To The Future Of Spaceflight

Due to space limitations, the following story had to be excluded from last week's special issue of the Researcher, in which we examined the support Langley is providing to the Space Shuttle Program. Because of the unique nature of the Space Systems Division's Vehicle Analysis Branch, we felt Langley employees would be interested in the story. We view it as a further reminder of how many organizations within NASA are pulling together to make the Shuttle fly, and to prepare the country for future ventures in spaceflight.

– by Brian Welch

On the wall of Jim Arrington's office is a large, framed, color drawing of a Shuttle Orbiter above the Earth, surrounded by views of its applications, and bearing the inscription "Shuttle and Beyond."

That phrase just about sums up the mission of the organization Arrington heads, the Vehicle Analysis Branch of the Space Systems Division. Throughout NASA, there is nothing quite like it.

The branch is basically an elite future concepts group of 23 people, including 19 engineers. Between them, the engineers have a total of 359 years of experience in areas from subsonic to hypersonic aerodynamics, stability, advanced concepts configurations, future space systems, computer-aided design technology, entry guidance and control, magnetoplasmadynamics and plasma physics, trajectory shaping, viscuous flows, body shaping, Shuttle cross-range analyses and a panoply of wind tunnel knowledge.

It is not unusual for NASA engineers to have this kind of experience. It is unusual, however, for them to be gathered in one intra-disciplinary group, whose job is to analyze existing and future space vehicles.

The branch was formed in the early 1970s under the direction of B. Z. Henry, who retired in February. Under Henry, whose own work in future spacecraft systems made him an authority in the field, branch members gained experience in the broad Space Shuttle speed range from entry to touchdown. They worked on preliminary Shuttle designs, analyzing those of the aerospace manufacturers and proposing some of their own. When the present design was selected, the branch began a multi-year series of wind tunnel tests and analysis, and has been heavily involved in Orbiter flight control systems.

"Flight controls is an area where we've had a major impact," Arrington said. "Howard Stone and Richard Powell have been the primary investigators. We've never identified a problem without suggesting a solution."

Members of the branch are now working with inter-center panels and study groups. They advise program managers for Orbiter aerodynamics, guidance, navigation and control, and STS ascent aerodynamics.

One readily apparent aspect of the Orbiter Columbia which was heavily influenced by the branch is the use of a modified delta wing rather than the straight wing originally planned.

Another element of branch Shuttle support is the two percent Orbiter model, a main-line test article now being used for otherwise unavailable studies into how the Orbiter's control surfaces react under subsonic, supersonic and hypersonic loads.

> The Branch is basically an elite future concepts group consisting of 19 engineers with a total of 359 years of experience between them. Throughout NASA, there is nothing quite like it.

The intensity of the branch's Shuttle support is reflected in the almost daily teleconferences between Langley, Johnson and Rockwell on aerodynamic matters, Arrington said.

The group has also provided Shuttle engineers with the only dynamic stability data for the Orbiter and Space Transportation System configurations. Some members work in the division's Orbiter Experiments Program, which is intended to take advantage of the Shuttle's immense potential as a hypersonic research vehicle.

The branch's Advanced Technology Group is in the forefront of NASA's computer-aided graphics design programs, one effort which illustrates the future-minded work of the branch.

In the early 1970s, the branch worked with other NASA centers in the initial development of programs which take various disciplines, systems and parameters and put them together in a computer which helps design spacecraft. The branch's ODIN (Optimum Design Integration) was Langley's first attempt to use computers for this purpose. ODIN made the bridge between mind and computer much faster than previous methods, but it was just a first step.

In June 1977, AVID (Aerospace Vehicle Interactive Design) became operational and enabled research to expand at unheard of speeds. Starting with a simple vehicle sketch and a set of mission requirements, researchers are able to interact with the computer and within minutes produce estimates of vehicle performance, size, weight, balance, aerodynamics and cost.

The creator of AVID's data base and technology modules, which continue to evolve as they go together to form the entire system, is Alan Wilhite. He is now working on a second generation AVID, and he expects the system and the documentation to be complete by next winter or spring.

"We wanted to take a step from AVID, which is really a learning tool, to more of a production tool," Wilhite said. "Right now we're updating our capability by adding two new analysis modules. The first analyzes the aerodynamics from subsonic to hypersonic speeds. The second provides heating distributions on entry vehicles. We've already got modules on weights, which tell you how much the tanks, wings and tail will weigh for a given configuration, for instance. And we have other modules which integrate ascent trajectories to help evaluate a number of advanced rocket propulsion systems.

"The second generation," Wilhite continued, "will have a larger transfer of data. With the first AVID, we're able to investigate configurations with 500 to 1,000 node points, or elements of design data. With the second generation, we'll be increasing our capability by several orders of magnitude."

The ultimate goal: to completely analyze a total vehicle system to the point where computers and people can put it together on a production line.

Caravan East and "Crabgrass" are two of the groups scheduled to provide entertainment at the Langley Activities Association Carnival August 22 and 23.

LAA Schedules Carnival Events

The following is a schedule of special activities at the Carnival:

Friday, August 22

6 p.m. – Carnival Queen will be crowned.

7 p.m. – Essence Cultural Movement, Native Rhythm and Dance of Black America

8 p.m. – Caravan East, Mid-Eastern Dancers

Saturday, August 23

9 a.m. – Five Mile Race

2 p.m. – One Mile Relay Race

4 p.m. – Fort Monroe Area Sport Skydivers Club, Skydiving Exhibition

5 p.m. – Smith and Clendenin, Folk and Easy Listening Instrumentals and Vocals

6 p.m. – Fort Monroe Area Sport Skydivers Club, Skydiving Exhibition

7 p.m. – Khedive Temple Oriental Band

8 p.m. – Latin American Club of the Peninsula, Latin American Folk Dancers

9 p.m. – "Crabgrass," Bluegrass Music

In addition, booths will be set up for II games, a bee demonstration, arts and crafts and vegetables from the NASA Vegetable Gardens. Bingo will be played both Friday and Saturday.

Notice

The Langley Activities Center is almost completely booked for official functions from September 1 through December 12. If anyone is interested in reserving the facility, please do so as soon as possible. There are only a few Mondays and Fridays available.

Attendance Record Set

Visitation at the Langley Visitor Center broke all previous records during the month of July. Attendance, which averaged more than 1,000 visitors per day, exceeded by 23 percent the existing monthly attendance record set during the Bicentennial celebration in 1976.

Recent Retirees

Robert A. Babcock, III, Instrument Research Division; **Ernest L. Rowe,** Operations Support Division; **Joseph V. Boyle, Jr.** and **Thomas P. Kelly,** Fabrication Division; and **Louis P. Tosti,** Flight Mechanics Division, retired July 30.

Robert E. Shanks, Flight Mechanics Division; **Richard A. Pride,** Materials Division; **Roger H. Fournier,** High-Speed Aerodynamics Division; **Jesse L. Kent,** Operations Support Division; and **Troy G. Brooks,** Fabrication Division, retired July 31.

Kathleen C. Wicker, Analysis and Computation Division, retired August 1.

Russell N. Hopko, Materials Division, retires today.

NASA's 'House' Film Gets Two Awards

The NASA film "The House That NASA Built" has just received recognition from the 4th International Film Festival on the Environment held at Nice, France.

The film also received the silver medal from the ENERGOFEST '80 at Ljublanjana, Yugoslavia, May 13 through 16. The medal will be presented to NASA by the Yugoslavian Embassy in Washington during November.

LAA Travel

It is not too late to make reservations for the Scandinavian trip September 16 through 25. Included in this tour are transportation, accommodations, some food, sightseeing in Norway, Sweden and Denmark, a two-day Viking Panorama Tour of the Fjords and visiting the Scandinavian countries by steamer, train and motorcoach.

Make reservations now for the three island Hawaiian tour October 5 through 15 with an optional two-night stay in San Francisco October 16 and 17, the Las Vegas charter from Norfolk September 19 through 22, or the cruise sailing from Norfolk to Bermuda September 16 through 23. Special group discount prices are available on all trips.

For additional information and brochures, call the LAA office, extension 3139, or Ernie Greene, extension 2312, or 838-0567.

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swap and shop

FOR SALE

Articles

New AM car radio, never used. Removed from a 1980 Chrysler Cordoba. Will fit most cars. $40. Call Kallick, 838-3235.

Garden Way heavy duty cart, new will carry 400 lbs., $150. Call 898-8014.

Squash Racket, new, never used. Lakewood, cost $20, will sell for $12. Car Top ski carrier, good condition, $15. Call 898-4198.

Baby crib and mattress, GC, $35; seven-piece dinette, red ladder back chairs and black table, EC, $75. Call 898-5807.

Vehicles

1970 Rover 2000 TC, $800. Call Erickson, 838-0309.

Real Estate

York County—waterfront: Two-story home with main living quarters on second floor with a 40-foot deck overlooking the Chesapeake Bay. All electric, CA, custom built with extensive paneling, sea wall, large lot. $100,000. Call 898-4344.

Hampton (off Westbrook Drive): brick house, 3BR, large eat-in kit, DR, LR w/FP, C/A, screened-in porch, fenced yard, w/appl., 2 miles from LAFB. $45,900. Call 599-0336 or 826-6294.

FOR RENT

New waterfront cottage: liv-din-kit area, 4 BR, w porches, dishwasher, located on Pamlico Sound near Cape Hatteras Lighthouse, $300/wk ($50 less than this for leaving house clean). Call 877-3736.

Sandbridge: new cottage, liv-din-kit area, 4 BR, washer/dryer, dishwasher, FP, 1/2 block from beach and backbay (freshwater), AC, phone, 6-car parking. Summer rates, $400/wk. Call G. Kent, extension 3095, or 420-8391.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house 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. $155/wk. Call Fogle, extension 2651.

WANTED

To join or form a car pool from Village Green to West Area for the 8 o'clock shift, starting immediately. Call Tanchum Weller, extension 2738.

Car pool from Belmont/Lafayette section of Norfolk to West Area, 7:30—4:00 or 8:00—4:30. Call Tom Crockett, extension 2513.

cafeteria menu

WEEK OF AUGUST 11

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

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Pork Chops; Roast Beef au jus. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Fresh Eggplant Parmesan; Salisbury Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Beef Balls Stroganoff; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Polish Sausage; Savory-baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF AUGUST 18

MONDAY: Ham & Three-Bean Soup; Knockwurst Reuben; Quiche Lorraine; Chicken Cordon Bleu. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: French Onion Soup; Roast Turkey Dinner; Beef Enchiladas; Half-pound Chopped Steak. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

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

FRIDAY: Vegetable Soup; Fish Dinner; Chicken & Spanish Rice; Stuffed Fresh Bell Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Thanks

Elvin L. Ahl writes, "I am home from Norfolk General Hospital and doing fine. I want to thank all who gave blood in my behalf."

Retirement Party

Harvey H. Hubbard, Acoustics and Noise Reduction Division, will be honored at a retirement party Friday, August 15, at the Langley Officers' Club. A cash bar social with heavy hors d'oeuvres will be held from 7 to 9 p.m., followed by a program. The cost will be $8.50 per person. Contributions of $1.50 for gift only are welcome. Make reservations with Linda Sutherland, extension 2617, Mail Stop 460, by 4:30 p.m. today.

Happenings

"THE MIKADO," by Gilbert and Sullivan, will be presented by Light Opera of Virginia August 14 through 17 in the Warwick High School Auditorium at 8 p.m. Discount tickets are available to NASA employees, contractors and their families. Call Burt Lightner, extension 3951, for information and tickets.

HAPPY HOUR will be held Friday, August 15, from 4 to 6:30 p.m. in the Activities Center.

BINGO will not be held August 21, however, games will be played during the carnival.

Think Safety

"There are a lot of ways to get juiced. BE CAREFUL!"–

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 17

August 22, 1980

Langley Researchers Storm Hurricane Allen

A day in the life of most researchers at Langley does not include flying through the eye of a hurricane.

Three Langley researchers, however, recently spent two unusual days flying in and out of Hurricane Allen, the second most powerful Atlantic storm ever recorded.

These flights were the first for Dr. W. Linwood Jones and Richard H. Couch, Electromagnetics Research Branch, and Donald P. Oliver, Facilities Electronics Development Unit.

Jones, the project scientist, said the purpose of the two flights, Aug. 5 and 8, was three-fold. The first was to gather microwave remote sensing baseline data, using two Langley developed sensors, a microwave scatterometer (radar) and a stepped frequency microwave radiometer, to infer wind speed and direction, ocean surface temperature and percentage foam coverage during hurricanes.

The second was to demonstrate the utility of these remote sensors for studying the microscale dynamics of hurricanes. The third purpose was to collect data to develop a near real-time technique of operationally measuring surface winds remotely from aircraft and satellites.

The flights were made in cooperation with the National Oceanic and Atmospheric Administration (NOAA) National Hurricane and Experimental Meteorology Laboratory of Miami.

Other Langley people involved in the project were Dr. Calvin T. Swift (co-principal investigator), John C. Fedors, Dr. Richard F. Harrington, Aubrey E. Cross and Herbert E. Thornton, Electromagnetics Research Branch; Charles A. Baldwin, System Engineering Division; Dr. Victor E. Delnore and C. A. Lipp, Kentron International; Peter Black (co-principal investigator), NOAA; and Jan Zysko, Terry Schricker, Sam Calvert and Joel Ball, NOAA Research Flight Facility.

Preparation for the hurricane flights began in May when NOAA sent one of its "Hurricane Hunter" aircraft (a specially equipped Lockheed C-130) to Langley for modification. Couch and Oliver were in Miami Aug. 1 completing the sensor installation when Hurricane Allen, at that time only a tropical depression, was first spotted by NOAA's GOES satellite.

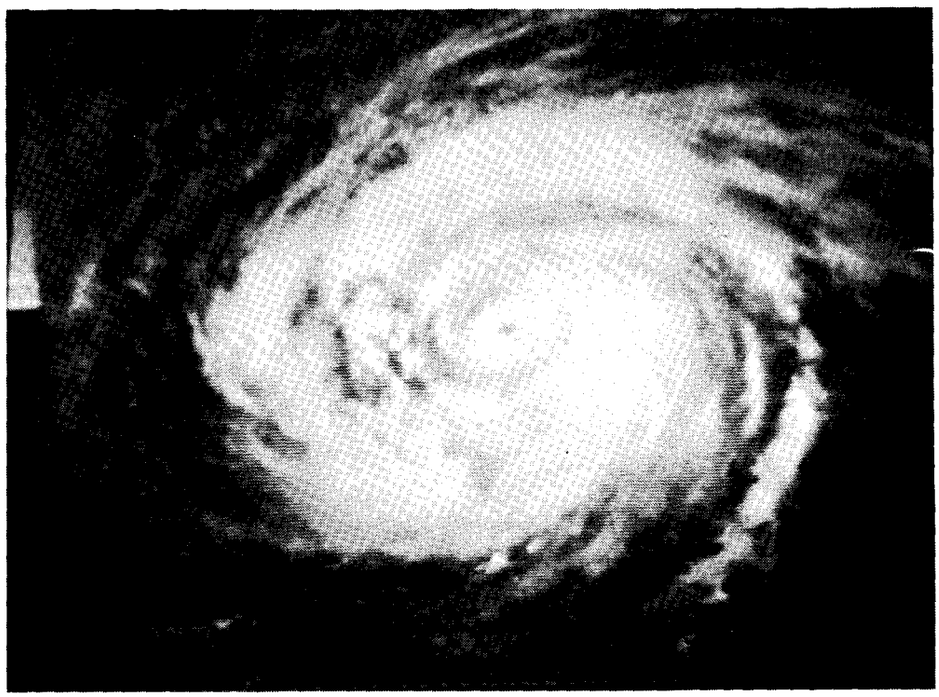
On Aug. 3, Allen became a hurricane, with winds greater than 75 mph, and NOAA officials directed three NOAA aircraft to San Juan, Puerto Rico, to fly into the storm.

The Langley researchers were finally getting a chance to test their instruments after a three-year wait. The microwave radiometer had been installed on the Ames Research Center's CV-990 aircraft in June 1977. As luck would have it, no major hurricane developed in the Atlantic that year.

The following year, this experiment was requested aboard a Johnson Space Center aircraft but, according to Jones, at the last minute Johnson officials decided it would be too dangerous to attempt flying through a hurricane without major structural modifications to the NASA C-130.

Jones arrived in Puerto Rico early Aug. 5, and the Langley trio began its first flight into the hurricane at 6 a.m. During the day researchers flew 12 100-mile tracks--at 5,000 feet altitude--through the hurricane,

Continued on page 2.



Hurricane Allen, the second most powerful Atlantic storm ever recorded, is seen in this photograph, taken Aug. 8 from NOAA's GOES satellite, spiraling its way toward the Texas coast with wind gusts up to 150 mph. Three Langley researchers flew through the hurricane testing sensors similar to ones that will be used on satellites in the mid-1980s to monitor hurricanes.

Hurricane Allen

Continued from page 1.

encountering wind gusts up to 200 mph.

When asked if he was apprehensive about flying into the hurricane, Couch quipped, "How would you like to fly into a hurricane?" More seriously, he added, "It sounds worse than it was."

Couch compared it to a regular commercial flight that experiences clear air turbulence. He was quick to give credit for the safety of the flights to the specially equipped aircraft and its trained crews.

Jones said, "We were told before the flight that it would be rough and we expected the worst. That could be the reason it did not seem severe to us."

Oliver said that when he looked up, while in the 40-mile diameter eye of the hurricane, he could see blue skies, but when he looked around, they were surrounded by a wall of turbulent looking clouds.

Jones also said that at the sea surface in the eye there was no wind action, only waves coming in from all directions and crashing in the middle, forming patches of foam as big as football fields. Just outside the eye at the eyewall (the region of maximum winds) the sea surface was really rough, with winds shearing off the tops of breaking waves.

On the second flight of the experiment, Aug. 8, the hurricane was not as severe. Flying at 12,000 feet, the aircraft encountered winds up to 150 mph and a much smaller eye, only eight to 10 miles in diameter.

Jones said the group will not be flying into any more hurricanes this year because the project was funded for only 80 hours of flight research.

Data from the sensors will be analyzed during the year and compared with data gathered from "surface truth" instruments during the flights.

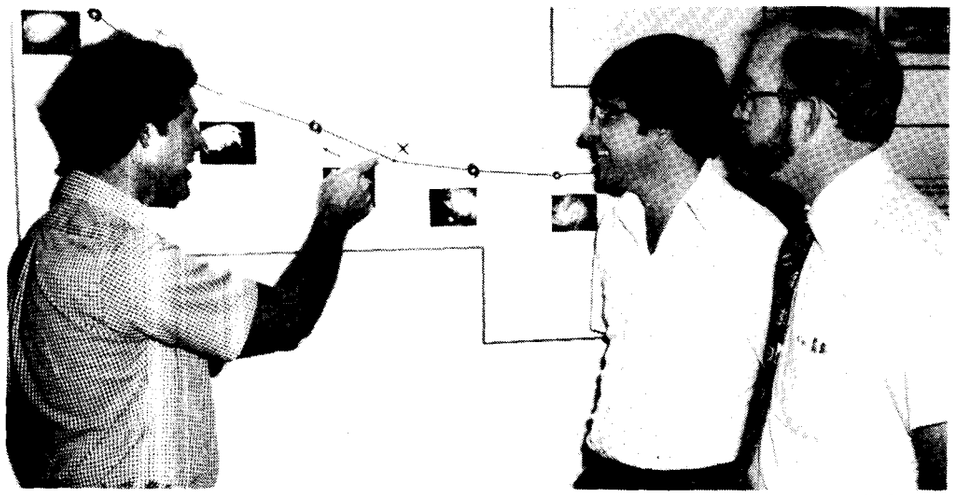
The use of the Langley sensors may produce many cost savings and improvements in future hurricane monitoring operations, Jones said.

Similar sensors will be part of a National Oceanic Satellite System (NOSS) now being developed by NASA, NOAA and the Department of Defense for use in the mid 1980s.

The system, useful for both weather forecasting and ship routing, will consist of two orbiting satellites with five-year lifetimes and producing near real-time data with greater than 90 percent reliability, according to Jones.

Present hurricane monitoring operations include satellite visible and infrared imagery to spot hurricanes and then flying aircraft into the storms to measure the location of the eye, its central pressure, as well as the profile of the wind speed and direction across the hurricane.

With sensors on satellites, the hazardous practice of flying airplanes into hurricanes can almost be eliminated. Flights are now required at least eight times a day, Jones said. By the mid-1980s, he estimated that the cost of operating such aircraft will be about $3,000 an hour.



– photo by Bill Salyer

Dr. Linwood Jones (left) shows Donald P. Oliver and Richard H. Couch (far right) the position of Hurricane Allen when they flew through the storm August 5 on a display map in the Langley Visitor Center. During the flight the three made 12 100-mile tracks through the hurricane, encountering 200 mph winds.

Romelfanger to Visit Langley

Charles Romelfanger, General President of the Pattern Makers' League of North America, will visit Langley Tuesday, August 26. During the day, Romelfanger will tour some of Langley's facilities, such as the Composite and Dynamic Models Section, National Transonic Facility, Visitor Center and Tech House.

A cash bar social with hors d'oeuvres will be held at 7 p.m. in the Activities Center. At 8 p.m. Romelfanger will speak to members of the Newport News Association of Pattern Makers, consisting of Newport News Shipbuilding and Dry Dock Company and Langley employees who are members of the trade bargaining units.

The Pattern Makers' League is composed of associations of practical pattern, mold and model makers; plastic workers; fixture builders; and allied craftsmen.

For further information, call Bill Fogle or Cliff Jones, extension 2651.

Competitive Placement Announcement

80-24 – AST, Technical Management; GS-0801-14 or 15; Office of Director for Aeronautics; Aeronautical Systems Division; General Aviation Technology Office; Closes August 22, 1980; NASA-Wide.

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. Why is it that non-personal service contractors are allowed to make immediate purchases from local vendors while Langley personnel are required to go through a massive approval, and sometimes bid, system prior to purchasing any item, no matter the price of the item and the urgency of the job for which the item is intended?

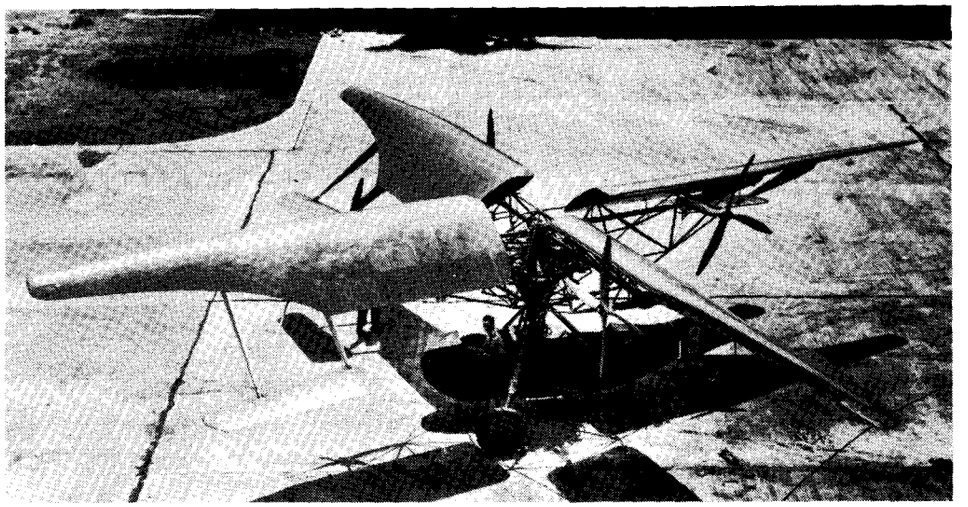
A. Frank V. Moore, Chief of the Acquisition Division, responded to the question as follows:

"Practically all of our contracts, including non-personal services contracts, require purchases by the contractor to perform the work specified in the contract. When the Government purchases items, we must comply with various laws and regulations. These laws and regulations result in the approval/bid system you refer to. However, every contractor must have an approved purchasing system to contract with the Government, and this system also requires certain approvals and procedures. These approvals and procedures are considered necessary by any organization to ensure that you buy only what you need and only pay for what you get. Frequently, a contractor can buy items quicker than we can because he has a much smaller organization with fewer approval levels, and does not have to comply with many of the laws and regulations that we do.

"However, the Government purchasing regulations do recognize the need for us to buy small dollar items and urgently needed items. Small dollar/urgent items can be purchased from the Imprest Fund and we have blanket purchasing agreements with local vendors which allow us to place quick orders with quick deliveries. We also have some contracts that are designed for quick reaction requirements.

"Another step we have taken here at Langley is to delegate purchasing authority to various organizations. Although these delegations have limitations on the types and dollar value of items purchased, they have worked well in expediting purchases and deliveries.

"For more details on Langley's policies and procedures for purchasing, you may wish to contact the Head, Facilities and Materiels Contracting Branch, extension 2324."



– NACA Photo

The year was 1930, United Airlines was flying Ford Tri-Motors from New York to San Francisco in 28 hours, the first airline stewardess began work, and the budding science of aviation was producing prototype aircraft of every description, as witnessed by the strange contraption in this photo. The Curtiss-Bleeker helicopter, shown in front of the NACA-Langley Hangar in June 1930, is one of over 70 historical photos covering the years 1917 to 1939 which will be on display in the Visitor Center beginning October 1.

Explorer Program Needs Volunteers

Once again the time is approaching for Langley to gear up its evening Explorer Program and volunteers are needed if the program is to continue its successful trend.

For more than 15 years, Langley has supported the program in conjunction with the Explorer Division of the Boy Scouts of America. Each year approximately 200 Tidewater youths ages 14 through 20 enroll in various classes taught by Langley employees. Students with career interests in the sciences, engineering and technologies can select courses in astronomy, computer science, electricity, electronics, energy, technical library science or psychology, which may aid them in making more meaningful career decisions.

In recent years the same employees have been called upon repeatedly to support the Explorer Program. This year Langley is seeking new and additional volunteers interested in devoting at least one night a week from October to May to the students. Volunteers need only to be knowledgeable in one or more of the areas stated above and to enjoy working with the youth.

If anyone is interested in helping with the Explorer Program, please contact Ben Smith, at extension 3966 or Mail Stop 154.

In Memoriam

Mary S. Roberts, High-Speed Aerodynamics Division, died of cancer Friday, August 8, in Riverside Hospital.

Born in Hampton, November 23, 1926, Roberts had been an illustrator at Langley since November 1948. She received a fine arts degree from the Richmond Professional Institute in 1948.

Visitor Center Looks at Hurricane Allen

The Langley Visitor Center is providing a close-up look at Hurricane Allen, one of the largest and strongest storms on record.

The special exhibit, which will be featured through August 31, tells the story of Langley researchers who recently flew into Allen to gather data on the storm. The exhibit also features narrated video tapes tracing the development of hurricane Allen, displays of satellite imagery and general information on hurricanes.

Researchers Improve Emergency Transmitters

– by Keith Henry

NASA researchers believe they have solved some of the problems related to general aviation aircraft distress signal equipment in which six of every seven systems failed to transmit following a plane crash and approximately 75 percent of all distress signals were false alarms.

The systems, known as emergency locator transmitters, emit a radio beacon, on a specific frequency designated for emergency use, to locate downed aircraft and are supposed to be activated by the impact force of a crash.

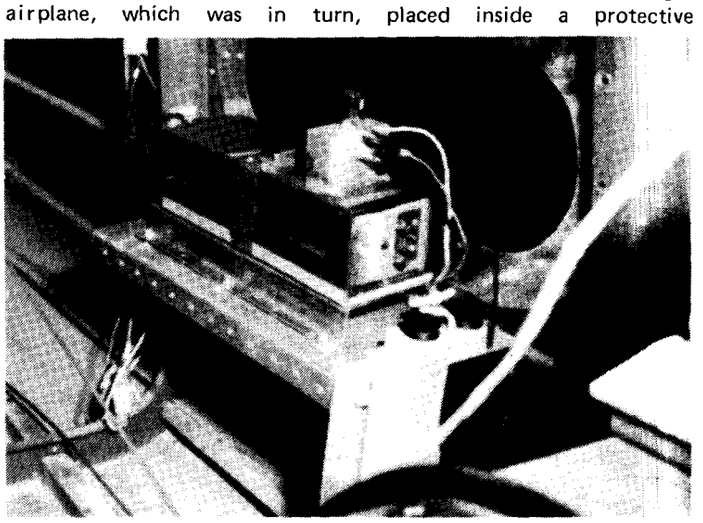
Researchers at Langley, assisting the Federal Aviation Administration through the Radio Technical Commission for Aeronautics, believe they may have an answer to at least one of the activation problems.

The problem lies in the self-contained, battery-powered radio beacon's sensor switch. In some cases the switch has proven too sensitive to normal aircraft vibrations while, in other instances, the switch was not sensitive enough to crash forces.

To activate the radio beacon on impact, the sensor switch must "feel" a force of five times gravity for more than 11 milliseconds (.011 seconds). High-frequency vibrations where the beacon is mounted, however, can make and break the contact more rapidly than the 11 milliseconds needed for activation, allowing the device to ride through a crash without activating.

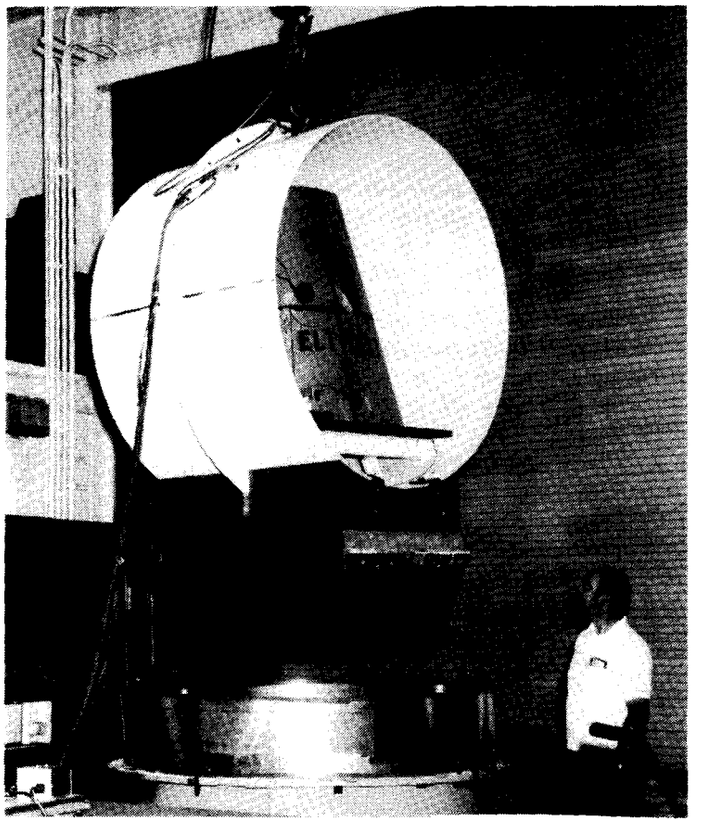
Somewhat lower frequencies may cause false alarms, but even lower frequencies are present during a crash. Scientists have built an experimental switch sensitive to low-cycle vibrations out of the range of normal aircraft vibrations and closer to the low-cycle, pulse-like force of a crash.

Huey D. Carden, an aerospace engineer at Langley, designed the modification and tested it. The device was attached to various places inside a section of tail cone from a light airplane, which was in turn, placed inside a protective cylindrical section. The entire 907-kilogram (2,000 pound) assembly was dropped several feet into a .6-meter (2-foot) depth of glass beads, subjecting the sensor switch to forces as high as 16 times gravity.



– photo by Hubert Lloyd

Emergency locator transmitter test apparatus permits laboratory studies to be conducted with ELT units in a realistic manner to determine specific performance problems. More than 150 test drops have been made.



– photo by Fred Jones

Two types of emergency locator transmitters, center of photo, are mounted in this lightweight general aviation airplane before its crash test at Langley's Impact Dynamics Research Facility. One activated at impact and one didn't.

The same procedure, as well as crash tests using actual aircraft, was initially used to evaluate the problem with the locator beacon.

Carden will report to a special committee of the Radio Technical Commission in August. The Commission, in turn, will recommend to the Federal Aviation Administration and industry an improved second generation of locator beacons for production as early as 1983.

The special committee is examining two other areas: where the beacons were or were not useful, and the performance of the beacons as a total system. The latter group has already determined that antenna location in a downed aircraft strongly influences the range over which the distress signal can be detected.

The committee's expected contributions to better performance of the emergency locator transmitter system will also aid operation at NASA's planned series of search and rescue satellites. Experimental hardware for SARSAT, as the system will be called, will be flight tested on another satellite in 1982. The system is designed to instantly process many distress signals and locate each signal source to within 10 kilometers (6.2 miles). Reducing the number of false locator beacon transmissions will allow the system to operate more efficiently.

Departing Flight Chief Reflects on Change, Progress

– by Keith Henry

"I've seen a lot of changes in nearly 38 years here. NACA couldn't have survived in today's environment. Before the National Advisory Committee for Aeronautics became NASA, there was a highly secluded atmosphere at Langley."

Robert O. Schade, 59, retiring chief of the Flight Mechanics Division, has witnessed a metamorphosis in the approach to aeronautical research during the years before and after the birth of NASA in 1958.

"Today," he continues, "we have to justify a project to the Office of Management and Budget and to Congress before we are given research money, and keep justifying it through progress reports right to the end. I think that is not necessarily unhealthy. It keeps us on our toes, makes us work harder, makes us plan ahead."

Before the days of big budgets and space flight, Schade recalls, a researcher could go to his boss with an idea, be given some money and then do his research more or less independently.

"The researcher would get some money--say $20,000--and go off in a corner, work at his job and come up with results in a couple of years," Schade said. "Sometimes his idea worked and sometimes it didn't. Nobody really bothered you much until some guy came by and said, 'Hey, how are you doing?' In the present day, I don't think that would have lasted. I think NACA-Langley was fortunate to have become NASA-Langley. Otherwise, some of us wouldn't be working here today."

– photo by Hubert Lloyd

Bob Schade demonstrates how the modified Harrier prototype could fly a tighter curve after its nozzles were modified for greater combat maneuverability. He was in charge of much of the Langley flight test program of the unusual vertical takeoff and landing aircraft from the mid-sixties to the mid-seventies.

Not long before Schade came to work here, in 1943, the total budget for Langley was about $1 million. A recent budget for Schade's division alone, he says, is at a level "several magnitudes above that."

One of the many aircraft models that line the wide window sills in Schade's office is the prototype of the Boeing 707 transport. In 1963, Schade became head of a special project office that worked on the 707 prototype, among other programs. In his opinion, one of those programs is a good illustration of the difference between Langley since it became part of NASA and what some researchers still think of as "the good old days."

Gesturing to the yellow 707 model, Schade remembered, "The Boeing Company came to us and said, 'We've got a vehicle equipped with a powered-lift boundary layer control system to study low-speed performance and handling that you might be interested in testing.' Well, the technical stuff isn't the point, except that it was a unique airplane and an opportunity for us to do some good research. But first, it needed three-quarters of a million dollars to fix it up. We got the money and did the research, but if we had still been NACA I don't think we could have gotten that amount of money all in one lump . . . I don't know that we would have been all that organized and that I would have had that many people to work on it, and I would have had a terrible job doing the task."

Later, the same aircraft, equipped as an in-flight simulator with computer modifications, was used by Schade's project office to study landing approach characteristics of proposed supersonic transports.

The Boeing work, concludes Schade, wasn't just an idea to fill the backlog of research results that might help the industry in the future--there was a real, immediate need for it: Langley was beginning to get a better measurement of the pulse of the aeronautics industry.

"Now our division goes to the general aviation (light aircraft) industry, for instance, and asks, 'Are we doing the right kinds of things in our work? What do you want? Is this right?' If they don't like it, then it influences what we do. I think we're producing a better product for the ultimate user than we ever did before," he says.

"Not that I'm against what happened before, and not that I'm all in favor of everything happening today, but I think, overall, it's an improvement. It's healthy."

Ironically, Schade remembers most fondly some of the work he did in the days of NACA. He was instrumental in developing two new aeronautics test techniques that proved important to research. One was the building of an outdoor control line assembly to help test free-flying models of vertical takeoff and landing aircraft. Langley's primary wind tunnel for that work at the time could not realistically simulate the rapid transition from vertical takeoff, or hovering, to forward flight and back again. His control line technique helped solve the problem and is used today by model airplane hobbyists.

Schade was both passenger and pilot in the development of his second technique. A helicopter would take him to the proper test altitude and drop a radio-controlled model that he would "pilot" until it glided to the ground. All the while, Schade would be flat on his stomach, half in and half out of the helicopter door.

Continued on page 8.

Prize List for the 1980 Carnival

Friday, August 22, 1980

5:00	Huffy 3-Speed Ladies' Bicycle
5:30	3-Man Nylon Tent
6:00	G.E. Food Processor/ Blender
6:30	Keystone Pocket Flash Camera
7:00	Panasonic FM/AM Radio Cassette Player/ Recorder
7:30	G.E. FM/AM Portable Radio
8:00	G.E. 12-inch Black and and White Portable TV
8:30	Panasonic FM/AM Digital Clock Radio
9:00	Sharp Microwave Oven/ Cart
9:30	Black and Decker 3/8 inch Variable Speed Drill
10:00	$1,200.00

Saturday, August 23, 1980

1:00	G.E. 12-inch Black and White Portable TV
1:30	West Bend Automatic Oriental Wok
2:00	G.E. Food Processor/ Blender
2:30	Coleman 68-Quart, 3-Way Cooler
3:00	Panasonic FM/AM Radio Cassette Player/ Recorder
3:30	Hamilton Beach Slow Crock Cooker
4:00	Midland 40-Channel CB Mobile Unit/Antenna
4:30	Black and Decker Variable Speed Jig Saw
5:00	Huffy 3-Speed Men's Bicycle
5:30	Wearever Popcorn Pumper
6:00	Black and Decker Workmate
6:30	Regina 3-Speed Electrik Broom
7:00	Toastmaster Broiler Oven
7:30	Bushnell 7x35 Fast Focus Binoculars
8:00	G.E. Portable Cassette Recorder
8:30	Norelco 10-Cup Drip Coffeemaker
9:00	Gasoline Valued at $500.00
9:30	Panasonic FM/AM Digital Clock Radio
10:00	Cruise for Two plus $200.00

– photo by Bob Nye

Arthur F. (Fred) Waynick, Head of the Analysis and Programing Branch, Business Data Systems Division, recently received an official commendation for his outstanding performance as President of the Federal Automatic Data Processing (ADP) Council of Greater Tidewater for the past two years. He was cited for "displaying the highest degree of professional ability, initiative, and exceptional performance of duty as president. He has worked aggressively and with the highest sense of dedication and devotion. His judgment and understanding of the problems at hand and the techniques of obtaining sound results in the fastest and simplest manner reflect great credit upon himself and the membership of the Federal ADP Council of Greater Tidewater." Presenting the award was Colonel Norman R. Phares of Langley Air Force Base.

Softball Association 1980 Final Standings

A – LEAGUE	WINS	LOSSES
Shams*	15	1
Klate Holt Flyers	14	2
Charlie Brown All Stars	10	6
Decibals	8	8
Simulation	7	9
Misfits	6	10
B – LEAGUE		
ISI*	12	5
RCA	12	5
ACD	10	7
Materials	5	12
Suds	5	12
Rowdies	4	13
C – LEAGUE		
CDMS	11	5
Ballers*	9	7
Dynamics	8	8
CDC	7	9
HTC All Stars	3	13
dBC	1	15

*Won Post-Season Tournament

Speakers Bureau

Jesse L. Kent showed two NASA films at a class reunion in Farmville July 26.

Retirement Parties

Kathleen C. Wicker, Analysis and Computation Division, will be honored at a retirement luncheon Friday, September 5, at the Activities Center. A hot buffet luncheon will begin at 11:30 a.m., followed by a program. The cost will be $6.50 per person or $12 per couple. Contributions for a gift will be welcomed. Make reservations with Debbie Mitchell, extension 3071, Mail Stop 157D, by August 27.

Howard B. Edwards, Instrument Research Division, will be honored with a retirement party Friday, September 19, in the Activities Center. A cash bar social will begin at 6 p.m. with dinner being served at 7 p.m. The cost including gift will be $7.50 per person or $13.50 per couple. Contributions of $1.50 for gift only are welcome. For reservations, send cash or check to Miriam A. Hall, Mail Stop 235, by September 11.

Roger H. Fournier, High-Speed Aerodynamics Division, will be honored with a retirement luncheon Wednesday, September 17, in the Activities Center. The roast beef buffet will begin at 11:30 a.m. The cost of the luncheon will be $6 per person, plus $1 for a gift. Contributions for gift only are welcome. Please make checks payable to Nellie Dick, Mail Stop 406, by Wednesday, September 3.

Bailey Wins August Drawing

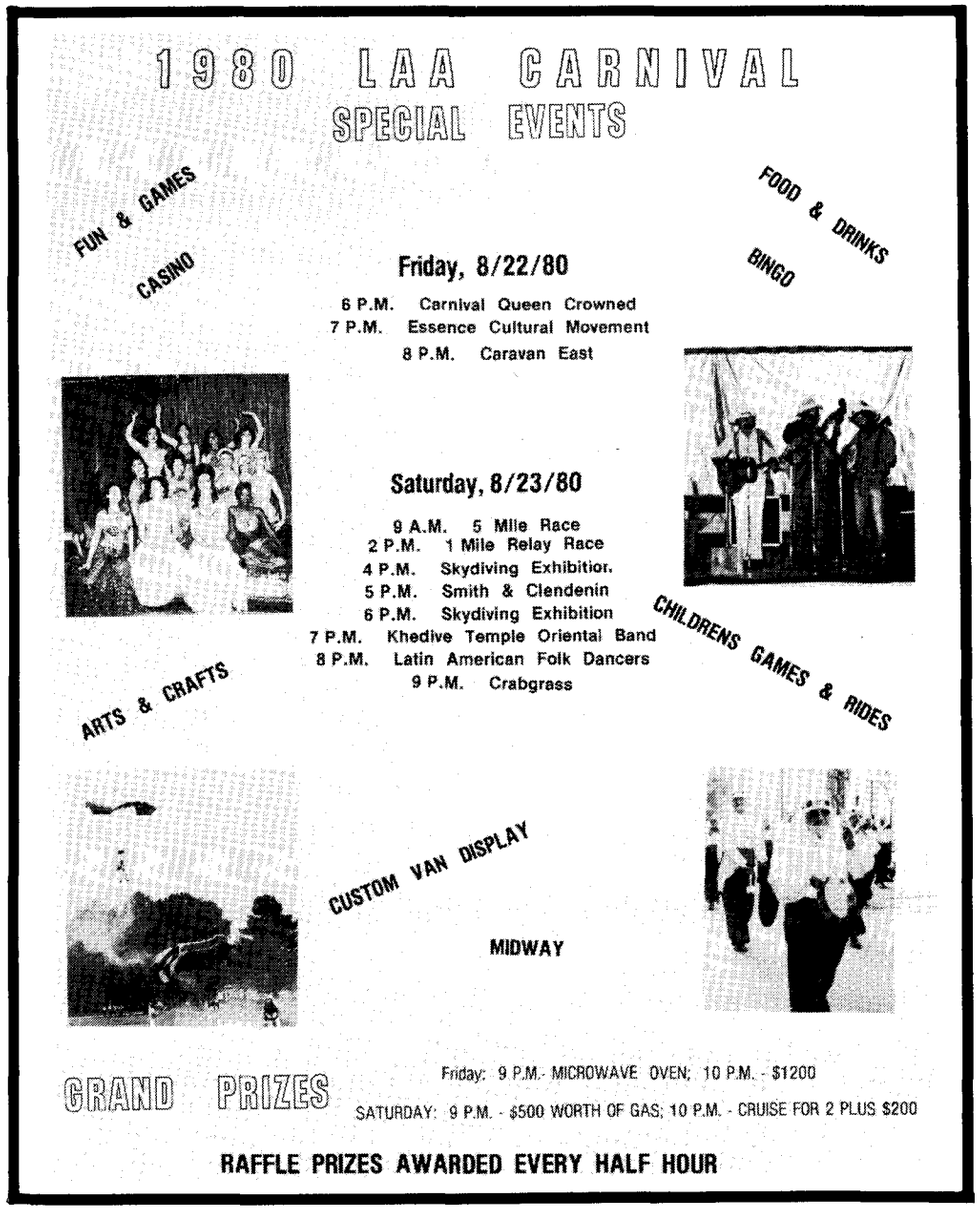
Clarence W. Bailey of the Fabrication Division is the August winner of $20 presented to a car pool participant by the Langley Exchange Council.

Monthly drawings are being held through December as an incentive to expand the number of car pools at Langley.

For car pool matching, change in car pool membership or car pool registration, contact Kathi Porter, extension 3511. When reporting a change in membership, please provide the car pool permit number.

Notice

The Langley Activities Center is almost completely booked for official functions from September 1 through December 12. If anyone is interested in reserving the facility, please do so as soon as possible. There are only a few Mondays and Fridays available.



Happenings

SQUARE DANCE CLASS. The Golden Boats Square Dance Club of Hampton will begin its fall class Monday, September 8, at 7:30 p.m. Anyone interested in learning to square dance, call 851-6640.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, August 27, at 4 p.m., in Building 1232, Room 236.

HAPPY HOUR will be held Friday, August 29, from 4 to 6:30 p.m. in the Activities Center.

FOOTBALL TICKETS. Season tickets for the College of William and Mary football games are available for $16 at the Langley Activities Association office. The home games are: September 13, VMI; October 4, Wake Forrest (HC); October 11, Dartmouth; and October 25, Delaware.

LET'S EXERCISE. If you are interested in joining an Aerobic Dance Exercise Program, contact Clara Simmons, extension 2184. The program, designed to improve the vascular system, is a national program conducted by a professional instructor. The program consists of two one-hour classes each week for 12 weeks.

National Aeronautics and
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Flight Chief

Continued from page 5.

Today the technique has been refined so that models, once dropped, are controlled from the ground, but the method is still a valuable tool. A Navy F-18 model, for example, is now being tested at Langley for stall-spin avoidance.

One vertical takeoff and landing aircraft that benefited from the touch of the innovative flight chief is the British-built "Harrier." Schade was in charge of much of the flight testing of this unusual jet fighter at Langley from the mid-sixties to the mid-seventies.

The Harrier could take off or land straight up and down. Once it hovered to a minimum altitude, its four exhaust vents, or nozzles, could be rotated toward the rear of the craft for forward flight. The challenge for Schade and his crew was to help give the harrier excellent combat survivability by modifying the nozzles so they could withstand the stress of sudden use in the middle of a dogfight with another plane.

"Vectoring in forward flight," as it is called, was successfully tested at Langley, with both models and a full-sized prototype of the Harrier. The British and U.S. Navies immediately liked the dramatic difference and the modification was made within a year to both the design and to all existing aircraft. With a more versatile Harrier, using the nozzles in combat allowed much tighter curves or sudden decelerations. The latter maneuver could make an enemy aircraft shoot past the Harrier almost as if the suddenly decelerated plane was standing still.

Schade, although never a research pilot himself, has been interested in airplanes all his life. Even off the job, he flies model airplanes (including the Red Baron's Fokker Triplane), and he has a private pilot's license.

"I've always wanted to be just what I am, an aeronautical engineer, and that's why I've stayed so long," Schade said. "I've got a love affair with my work."

cafeteria menu

WEEK OF AUGUST 25

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

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Pork Chops; Roast Beef Au Jus. Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Fresh Eggplant Parmesan; Salisbury Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Beef Balls Stroganoff; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Polish Sausage; Savory-Baked Chicken. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF SEPTEMBER 1

MONDAY:

HOLIDAY
HAVE A SAFE LABOR DAY

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

WEDNESDAY: Vegetable Soup; Roast Turkey Dinner; Quiche Lorraine; Braised Beef & Vegetables. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey & Rice Soup; Veal Parmesan; Teriyaki Beef Kabobs; Stuffed Fresh Bell Peppers. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Tomato & Rice Soup; Fish Dinner; Pineapple Chicken; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

swap and shop

FOR SALE

Articles

Football tickets: Two tickets per game for VPI vs East Tennessee State (September 13) and James Madison (September 27), in Blacksburg. Call Tom Moore, 898-7313.

Antique roll-top desk, GC, $800 OBO. Call 868-7453 after 5 p.m.

New seawall, anodized aluminum lengths of eight, 12, 15 feet long. Call A. W. Bainbridge, 722-6793.

Vehicles

16 Ft Critchfield—Sporty, custom controls for Mercury outboard up to 125 hp, foot accel., instrument panel, trim controls, special headlights in addition to running and nav. lights--$900; also 40 hp Evinrude, $800. Will trade both for smaller boat/motor/trailer outfit. Call 898-4100 after 5.

1978 Chrysler Cordoba, silver w/Landau roof, excellent condition, new radials, fully loads, stereo cassette, $3900. Call Bowen, 722-6410.

Chrysler Imperials: 1973 and 1976; both in running condition; driven by elderly person; $654 for both. Call 898-7072.

Real Estate

Colington Harbour, Outer Banks, N.C.: Canal Lot; access to Albermarle Sound; beach, pool, tennis, clubhouse facilities; $6,500. Call Smith, extension 2886 or 220-1390 after 5 p.m., at anytime weekends.

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. $155/wk. Call Fogle, extension 2651 or 826-6177.

Back River: Waterfront, country farmhouse on one and one-half acres, LR, DR, FR w/fp, 2 large BR, 1 1/2 B, available September 1, $350/mo. Call 851-6427.

Gloucester Point: Brick house, five min. from York River Bridge, 3 BR, 1 1/2 B, great room, woodstove, AC, new carpets, 6 yrs. old. $325/mo. Call 642-6512.

WANTED

Part-time cook needed for the Langley Activities Center; banquet-type experience preferred. Contact Tess Donadio, extension 3139.

To join or form a car pool from Victoria Boulevard/Hampton Yacht Club area to West area on 8 a.m. shift. Call Jack Leatherwood, extension 4508.

National Aeronautics and
Space Administration

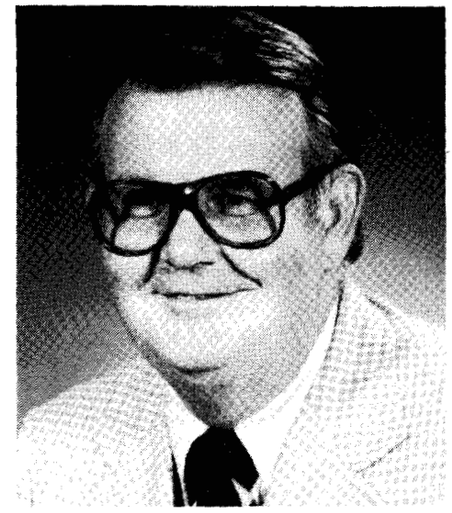
Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 18 September 5, 1980

Moore Named Flight Electronics Division Chief



William M. Moore has been named Chief of the Flight Electronics Division at Langley. He is former Assistant Chief for Space of that organization.

Pending formal approval, Moore will be responsible for the division's research in solid-state electronics and the development of advanced avionics systems for civil aircraft and new techniques for remote measurements of the environment from spacecraft.

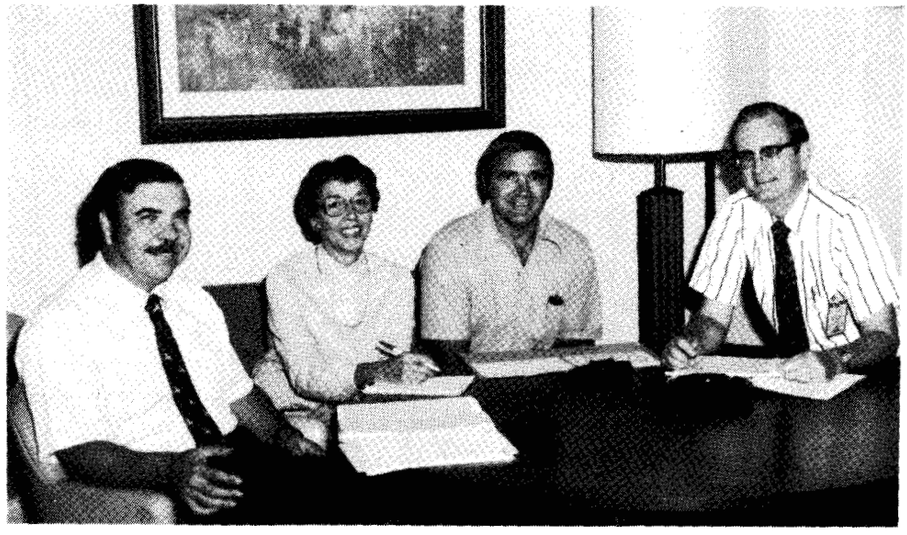
Moore joined the Langley staff in 1955 as a radar and telemetry engineer. From 1956 to 1957 he was an instrumentation engineer on the Fleet Ballistic Missile Program at Chrysler Missile Division in Detroit.

Moore returned to Langley in 1957, where he developed the performance telemeter for the X-15 and instrumentation for the Scout rocket. He has served as the NASA Telemetry Specialist on Dyna Soar Instrumentation Group, Head of the Instrument Research Division Digital Techniques Study Group, Head of the Spacecraft Instrument Development Section and Head of the Telecommunications Research Branch.

He has specialized in spacecraft electronic systems, components and devices and has been responsible for the electronic support for most of Langley's space flight projects. He has planned and directed the research programs and flight supporting tasks for space applications, such as the subsystems for the Space Shuttle and the electronic systems for

Continued on page 2.

Swain is Combined Federal Campaign Chairman



– photo by Hubert Lloyd

Langley's one-day Combined Federal Campaign drive will be held Thursday, October 2. Robert L. Swain (right), Systems Engineering Division, will serve as Chairman. William L. Simkins (left), Management Support Division, will be Financial Chairman; Virginia D. Vohringer, Systems Engineering Division, will be Secretary; and Joseph W. Stickle, Flight Mechanics Division, will be Co-Chairman.

Langley Director Donald P. Hearth is launching the 1980–81 Combined Federal Campaign by appointing Robert L. Swain, Chief of the Systems Engineering Division, as Chairman and setting a challenging goal of $185,600.

Joseph W. Stickle, Assistant Chief of the Flight Mechanics Division, will serve as Co-Chairman; William L. Simkins, Head of the Management Analysis Branch, Management Support Division, will be Financial Chairman; Jean W. Drummond, Office of Public Affairs, will be Publicity Chairman; and Virginia D. Vohringer, Systems Engineering Division, will serve as Secretary.

A one-day center-wide solicitation will be held Thursday, October 2, preceded by a kickoff meeting for division chairman and "key man/key woman" solicitors Monday, September 29, at 1:30 p.m. in the Activities Center.

Hearth urges all employees to support the Combined Federal Campaign through individual contributions. He said, "Historically, Langley has been a strong supporter of CFC and I hope this will continue this year."

– photo by Bob Nye

Warren D. Hypes (right) of the Environmental Field Measurements Branch has the look of a man $1,000 richer as he accepts a check for that amount and a Special Achievement Award from Director Donald P. Hearth. The awards were in recognition of "superior accomplishment" in providing the Commonwealth of Virginia with technical assistance in the formation of a resource information system based on Landsat data. Hypes became a member of the Virginia Executive Branch Task Force looking into such a system, and was able to demonstrate the usefulness of satellite data. The result of his and others' efforts was the establishment of the Virginia Resource Information System (VARIS) by the Legislature last winter. One example of how VARIS will save the state money: A study by Hypes and others showed that Landsat could classify acreage for a cost of $4.27 per square mile. Aerial photography to accomplish the same thing would cost $46.21 per square mile, a savings of about $20,000 for each of the 33 counties in the state, when Landsat is used.

Aviation's McDonnell Dies

James Smith McDonnell, chairman of the McDonnell Douglas Corporation, died Aug. 22 at the age of 81.

McDonnell died at his home in St. Louis of complications from a stroke suffered early in August.

McDonnell started the McDonnell Aircraft Corporation in 1939, which became known for building such military aircraft as the FH-1 Phantom, the world's first carrier-based jet fighter, and the F-4B "Phantom II," one of the United States' fighters during the Vietnam War.

The McDonnell Corporation was also the prime contractor for NASA's Mercury and Gemini manned spacecraft.

In 1967 he was credited with achieving the largest aerospace merger in history with the acquisition of the Douglas Aircraft Corporation.

The McDonnell Douglas Corporation is the builder of both commercial and military aircraft, which include the DC-10 and the F-15A Eagle.

Retirement Party

Thomas L. Coleman, Director, Army Structures Laboratory, will be honored at a luncheon Friday, October 3, at the Activities Center. A hot buffet luncheon will begin at 11:30 a.m. The cost will be $5.25 per person. Make reservations by sending check to Rose F. Bunting, Mail Stop 266, by September 19.

Moore

Continued from page 1.

the Viking Program.

Prior to coming to Langley, Moore was a radar field engineer at Sperry Gyroscope in Great Neck, Long Island, from 1952 to 1955. He served in the U.S. Navy from 1944 to 1946 and from 1950 to 1952. He was a participant in the Newport News Shipbuilding and Dry Dock Company's Engineer Training Program from 1949 to 1950.

Born in Hampton, Va., Moore graduated from Upper Darby High School in Pennsylvania. He received a bachelor of science degree in electrical engineering from Swarthmore College in 1949.

The author or co-author of three technical publications, Moore has served as chairman of the Fourth NASA Intra-Center Microelectronic Symposium, Design and Integration Panel for the NASA Observatory – Class Spacecraft Review Board (Garbarini Committee), Communications Group for OART Space Shuttle Integrated Electronic Technology Committee, Software Verification for Viking Computer Source Evaluation Board, Earth Radiation Budget Experiment Source Evaluation Board, LIMS Award Fee Board and ERBE Award Fee Board. He has been a member of the Program Committee for the Third NASA Intra-Center Microelectronic Symposium, NASA Subcommittee for Microelectronic Parts Reliability, Electronics Review Team for Pegasus Satellite Project, Electronic Subsystem Panel for NASA Shuttle Phase-B Source Evaluation Board, NASA Efficient Sensor System Working Group, and Electronic Subcommittee of the Space Technology Advisory Committee.

He was presented the NASA Exceptional Service Medal in 1977 in recognition of significant support to the Viking Project Office, a Langley Special Achievement Award in 1975 and the Pegasus NASA Group Achievement Award in 1966.

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.

Fifty-six Employees Retire in August

Fifty-six Langley employees retired from government service in August.

The following is a list of retirees from each Division:

Joseph B. Emerson, Alfred J. Voitlein, Harold L. Crane, Donald L. Loving, Garland J. Morris, Stanley H. Scher and **James M. Michael**, Flight Mechanics Division;

Linell C. Quinn, Atmospheric Environmental Sciences Division;

Everett L. Bennick, Scientific and Technical Information Programs Division;

James N. Chacamaty, James D. Church, James A. Maloney, E. Barton Geer and **William R. Cofer**, Office of Director for Systems Engineering and Operations;

James N. Mueller, Lowell E. Hasel, Robert L. Trimpi and **Harry W. Carlson**, High-Speed Aerodynamics Division;

George J. Hurt, Jr., Edna I. Scott, Jacob H. Lichtenstein and **C. William Martz**, Flight Dynamics and Control Division;

Hale H. Marshall, George Adamowski, Littleton S. Burgess, Edwin C. Sealey, W. Kent Smith, William Ritosa, Roy L. Farmer, W. Cecil Burtner and **Quinton C. Davis, IV**, Fabrication Division;

William E. Fox, Thomas D. Carpini and **Emanuel Rind**, Instrument Research Division;

Eugene K. Allen and **Ruffner F. Stalnaker, Jr.**, Research Facilities Engineering Division;

Percy E. Garrington, Bernard Rickett, Ralph L. Wingrove and **Herman C. Crane**, Operations Support Division;

William R. Rash, Systems Engineering Division;

Kathleen Wicker, Analysis and Computation Division;

Russell N. Hopko, Materials Division;

Robert R. Howell, William C. Sleeman, Jr., and **Paul G. Fournier**, Subsonic-Transonic Aerodynamics Division;

Willard L. Sullivan, Grover C. Collie and **Leo J. Johnson, Jr.**, Scout Project Office.

E. Thomas Freeman, Russell K. Nevins and **Ralph M. Byers**, Flight Electronics Division;

Katherine W. Hennessy, Structural Mechanics Division;

Thomas E. Link, Jr. and **Thelma F. Jones**, Plant Engineering Division;

Clarence A. Brown, Marine and Applications Technology Division.

Pre-retirement Seminars Planned at Langley

A series of pre-retirement seminars, titled "Life Management After Retirement," will begin Sept. 16.

The seminars, which will be held in the Activities Center, Building 1222, will begin with refreshments at 8:30 a.m. and the seminars will start at 9 and end at 11:15 a.m..

Langley employees and their spouses, as well as Langley retirees and their spouses, are invited. Moderators will be Lahoma Hart and Eloise McGehee, both of the Personnel Division.

Following is a list of topics for the seminars.:

Sept. 16 -- "Socio-Psychological Aspects of Mid-Life and Beyond," Dr. Sanford E. Lopater, Associate Professor, Christopher Newport College.

Sept. 18 -- "Creative Use of Leisure Time," Dr. Linda Odum, President, Support Systems; "Social Security Benefits for the Federal Government Employee," local representative, Social Security Office; and "How To Get Through The Day Without Fighting (Family Relationships After Retirement)," Michael Huppert, Licensed Clinical Social Worker.

Sept. 30 -- "Physical and Mental Health in Mid-Life and Beyond," Don H. Killian, M.D., Psychiatrist, Riverside Hospital (Mental Health) and David F. Fluharty, M.D. Internist (Physical Health).

Oct. 2 -- "Personal Planning for Life Management," Malcolm G. Fries, Certified Financial Planner.

Anyone who has a question about any of these topics should submit them, prior to the presentation, to Hart at Mail Stop 174 or McGehee at Mail Stop 309. You may also submit them, on three by five inch cards, to the speaker prior to the beginning of each session. Only written questions will be accepted from the audience.

It is expected that each presentation will be videotaped for persons who are unable to attend at the time a seminar is scheduled. These videotapes will be available from the Learning Center, Building 1195, Room 136-138, extension 2611.

– photo by Bob Nye

Charles Romelfanger (third from left), General President of the Pattern Makers' League of North America, examines the SCAMP free-flight model being built in the Composites and Models Development Section of the Fabrication Division. Romelfanger visited Langley August 26 and spoke to members of the Pattern Makers' Association of Newport News and Vicinity. Shown with Romelfanger are Fabrication Division employees David F. Rollins; Lilburn C. Jones, President of the local Pattern Makers' Union; John S. Powell, Jr., Vice President of the union; and William M. Phillips, Jr., Chief of the Fabrication Division.

BIOMASS

Renewable Energy, New Jobs and Economic Gains for Virginia

Biomass, a general term for things that grow--ranging from algae to trees--has been used for energy throughout recorded history and was the principal source of U.S. energy prior to World War I.

Dr. George W. Brooks, former Director for Structures at Langley, will summarize the national energy situation and discuss solar energy and biomass systems at the Langley colloquium Monday, September 8, in the Activities Center, Building 1222.

The lecture, titled "Biomass--Renewable Energy, New Jobs and Economic Gains for Virginians," will begin at 2 p.m. The colloquium will include time for questions and informal discussion.

In his lecture, Brooks will devote attention to the potential development of Virginia's forests as a major source of energy for both industrial and residential uses, with emphasis on proven technology. He will discuss the magnitude of this resource, show some of the available options and economic benefits and discuss the need to develop biomass energy markets. He will conclude with recommendations for future work and a summary of activities now underway to achieve biomass energy goals.

Since his retirement from NASA in 1974, Brooks has been the Director for Research and Development at Engineering Incorporated in Hampton, where he is responsible for developing new programs and products in structural and energy systems. He represents Engineering Incorporated in its work with Virginia industrial and governmental organizations to promote the development and use of Virginia's biomass resources.

Brooks began his government career in 1949 with NASA's predecessor agency, the National Advisory Committee for Aeronautics, conducting and managing research in aircraft and space vehicle loads, dynamics and structures and the development of models and simulators. He served on numerous NASA panels and subcommittees and organized and chaired several conferences. He served in the U.S. Navy from 1941 to 1946.

He is the author or co-author of over 50 technical publications and has received several patents and awards, including the NASA Exceptional Service Medal.

A native of Essex County, Va., Brooks earned bachelor of science, master of science and doctoral degrees in aeronautical engineering from Princeton University, where he was elected to Phi Beta Kappa and Tau Beta Pi and received the Legendre Fellowship.

Spinoff 1980, 'A Remarkable Publication'

Editor's Note: The following editorial appeared in the latest issue of Government Executive Magazine. We thought you might like to read it.

A remarkable publication just came out of the National Aeronautics and Space Administration called *Spinoff 1980.* It is an annual thing and describes, with devastating effectiveness, the incredible wealth generated and dropped into the U.S. economy by a relatively tiny Federal agency with a petty cash annual budget.

How many of us have heard over and over again, in living color on our TV sets, spokesmen for the nation's poor--in fashionable three-piece suits--ranting about "If we can land a man on the moon etc." You can fill the rest of the speech in yourself.

The point is that little of the public funds used to get to the moon stayed on the moon. Over 99.999% was spent right here in the States. And since that program started almost twenty years ago, the so-called spinoffs have literally changed our way of life. Now NASA is struggling to get the Space Shuttle off the ground--and if that agency has problems it is because, as usual, they are living on the final edge of human knowledge and ability. It is not because of graft, inept management, bureaucratic inertia and the other hallmarks of the rest of Government.

Once again, NASA is engaged in something with awesome potential for all of us--including most of the political hacks who prefer buying votes to perpetuate their employment by spending taxpayer's money rather than investing a significant amount of that same money in our future. A fair number of the general and business press covered the space program of the past in considerable depth. Most of these journalists will still be around when the shuttle starts uncovering various things which will probably generate whole new industries.

Once this starts--and it will--you can bet that elected individuals who now think NASA is a part of Department of Agriculture, and has something to do with corn meal, will tell all of us that they were solidly behind all this wonderful stuff back in 1980. Those journalists will know better.

Here then is this agency called NASA that has long been the envy of the rest of Government because of its uncanny ability to explain to the taxpayer exactly what it is doing and why--and then goes on and does it.

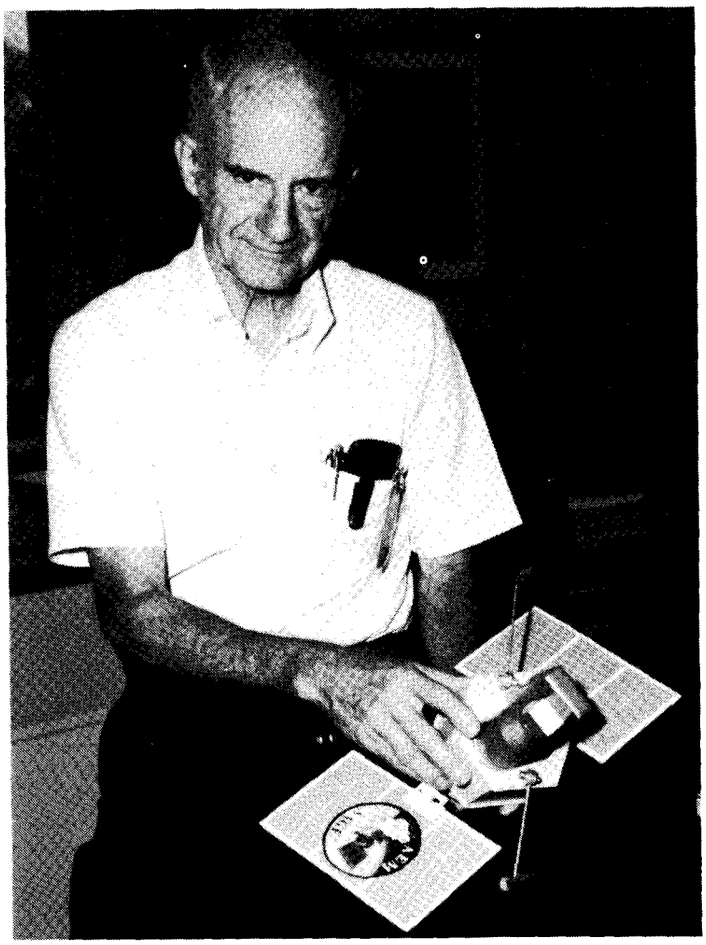
It seems fitting, somehow, that a wonder with the mundane name of "space shuttle" gets christened by a President with the title of a TV production set.

That sure reveals the depth of the thinking anyway.

Personnel Profiles

Edwards Looks Back on Fifty Years

by Allan C. Hanrahan



A half-century ago April First fell on a Tuesday, a day fair and warm and described as "balmy." It was a day the President, Herbert Hoover, was watching the stock market, bullish and recovering a little from its catastrophe of the previous October Twenty-ninth. In sports, the Yankees and Babe Ruth were in the news as were Connie Mack's Philadelphia Athletics, consisting of such player greats as Jimmy Foxx and Mickey Cochrane. And golfer Bobby Jones led the field at the start of the Southeastern Open at Augusta, Georgia. And in entertainment, Mary Pickford and Douglas Fairbanks, Sr. were the stars of a first-run movie, "The Taming of the Shrew," playing at the Rialto theater in Newport News.

Here at Langley Field, at the NACA laboratory, interest focused on a number of aeronautical endeavors transpiring that day. There was the attempt to fly non-stop from Long Island to Bermuda, considered at that time one of the most difficult feats of aerial navigation, and a transcontinental glider flight was resuming after a day's delay in Arizona because of gusty winds.

Closer at hand was the visit of Dr. Hugo Eckener, commander of the Graf Zeppelin on its 'round the world flight and head of the company which intended to start a trans-Atlantic Zeppelin service. The distinguished guest and associates were looking for an American terminus site, and of the sites considered one was in Newport News and the other was near Langley Field.

While Dr. Eckener and his party were being hosted by H. J. E. Reid, chief engineer of the NACA and director of the work at the Langley Memorial Aeronautical Laboratory, a bright-eyed, sixteen-year-old from Amherst County named **HOWARD B. EDWARDS**--intensely interested in aviation--quietly began his first day of employment as a Minor Laboratory Apprentice earning $1,080 per annum.

Since the average age of the present Langley employee is around forty-three years of age, not too many of us were even alive when Edwards began work "as sort of an errand boy for the Instrument Section," he said--"in the old Technical Services Building (in the East Area)," he added.

Of those early days Howard recalled he was hired and welcomed by Edward R. Sharp, Chief Clerk and Property Officer, and Howard recounted the names of some of the other well-known men at the Laboratory at the time: Jim Kelly, Edmund C. "Buck" Buckly, George O. Magnus, and Ed Hartman, "a good writer . . . an excellent road man," recalled Howard, who related how Hartman kept NACA and industry in communication with one another, a practice that grew into a yearly conference where the growing aeronautical industry expressed its concerns to NACA.

"I remember how Reid would gather up all the purchase requests," reminisced Howard, "and then periodically he would take the overnight boat from Old Point to Washington where he would meet Dr. Ames, the Chairman of the Committee, who had come down from Baltimore where he was President of Johns Hopkins University. Ames would sign the purchase requests. He once told Reid: 'You people down there (at Langley) will have to decide what directions you are going and what areas you will research.' Now, things have flip-flopped; we can spend millions of dollars without an okay from Washington, but they decide the programs and research."

Howard left Langley after a year and four months to enter the University of Virginia (UVA) and five years later graduated with honors with a B.S. degree in Mechanical Engineering and options (minors) in Power Engineering and Aeronautical Engineering. Then followed five years in Rochester, New York, with Gleason Works, a concern that made gear-cutting machinery for the automotive industry. But the pull of Langley was strong, and he returned here around Thanksgiving, 1941. He recalled that the Full-Scale Tunnel was completed at the time and that Abe Silverstein, who designed it, was the project officer. The West Area was beginning to show life also, with four or five buildings already constructed, among them the Sixteen-Foot Tunnel. Howard was not to leave Langley again until August, 1980, when he retired at the position he had held for fifteen years, that of Chief of the Instrument Research Division.

Quietly and efficiently, because that is the man's style, Howard has garnered much recognition and honors in his professional life over these preceding decades, but his private life is also noteworthy. He and his Virginia-born wife, Lillian, whom he calls "Bobbie," have seen their son, Howard, Jr.,

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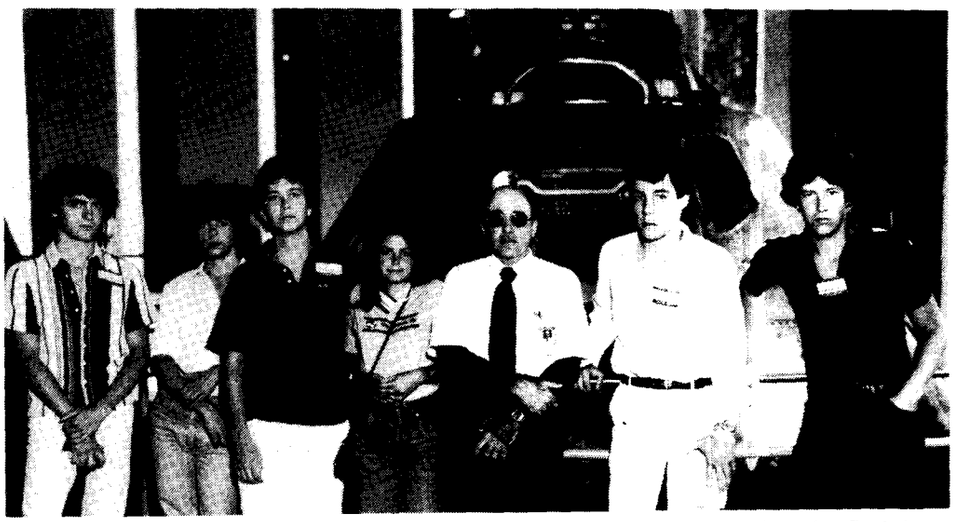

– photo by Fred Jones

Four foreign exchange students from France and two of their American hosts were recently escorted on a tour of Langley research facilities and the Visitor Center by Frank L. Lawrence, Jr., Fabrication Division. The students, who participated in an exchange program between Poquoson and its sister city in France, were in the United States approximately one month. From left to right are Francois Jaulin and Laurent Couvreur of Roquefort-Les-Pins; Scott Mungo, American host from Poquoson; Veronique Gras of Grasse; Lawrence; Max Henri Gazan of Bar-Sur-Loup; and Eric Mungo, American host from Poquoson.

Edwards Looks Back

Continued from page 5.

complete medical school at UVA and begin his residency in psychiatry at St. Vincents Hospital in New York City, and have seen their daughter, Anne, graduate from the University of Richmond and begin work toward a M.S. degree in Mechanical Engineering at UVA.

The Edwards family has been active in the First Presbyterian Church of Hampton, where Howard has served in the positions of deacon and elder.

At different periods in his life Howard has engaged in such pursuits as stamp collecting, sailing, skiing, tennis, and--to go with his interest in aviation--a charter membership in the now-defunct XC Flying Club.

"I used to fly," he said. "I wanted to fly when I was in Rochester but didn't get into it until I came back here."

He intimated what happened to that activity: "I was only married a few weeks before one of the members made a forced landing in McDonald's Nursery. We salvaged what we could out of the wreckage and, well, that was that."

Quiet and mild-mannered though he seems, Howard has a taste for the adventuresome, as evidenced by his flying and his hiking trips, one of which was down to the Colorado River from up on the South Rim of the Grand Canyon. That was many years ago but just last summer there was the two-week, rubber-raft voyage down the same Colorado. "It was one of the supreme moments of my life," stated Howard, "... really outstanding."

With retirement looming in front of him Howard guesses he will have time for more sedentary pursuits.

"I hope to improve on my photography, perhaps, and I have about three thousand slides I want to organize. And then there's woodworking; I've always done a bit of cabinet making."

But to a former colleague who asked his feelings on the subject of retirement, he was heard to say: "I'm not real happy about it but I figured it was time to do it."

When asked his professional plans he answered, "I'm going to do some work of some kind, consulting or such."

He also indicated he wanted to get back to the drawing board and away from administration and management.

This last paragraph is written on the day of Howard's leaving, August Twenty-nine, Nineteen-eighty. It is a fair but humid day, very warm, the temperature reaching the low Nineties, but all-in-all a pleasant enough day to pass a major milestone in one's life.

Shuttle Student Project Rules Announced

Rules have been announced for a Space Shuttle student involvement project, a joint venture of NASA and the National Science Teachers Association.

The objective of the project is to stimulate the study of science and technology in secondary schools by engaging students in a competition to develop experimental concepts suitable for flight aboard the Space Shuttle.

Up to 200 semifinalists and their teachers will attend preliminary conferences in 10 regions to discuss their proposed experiments with other students as well as NASA and industry scientists. Many of these regional conferences will be held at NASA research centers.

From the 200 semifinalists, 10 will be selected who have developed concepts which best utilize the capabilities of the Space Shuttle.

These 10 national winners and their teachers will attend a special educational conference at the Kennedy Space Center in late summer of 1981. All entrants will receive a certificate of participation.

The Space Shuttle, the world's first reusable spacecraft, is now scheduled for its first manned orbital flight in March 1981. Winning student experiments that are suitable may be performed on flights later in 1981 or 1982.

To announce the formal start of the project, 100,000 four-color posters have been mailed to the nation's secondary schools. Any student is eligible who is regularly enrolled in grades nine through 12 in U.S. public, private, parochial and overseas schools, including U.S. civil and military overseas establishments, Puerto Rico, Guam, the Virgin Islands and U.S. outlying territories.

The contract to conduct the competition and select the winners was awarded by NASA to the National Science Teachers Association, with headquarters in Washington, D.C. Interested students should have their teachers write to the science teachers group for an official entry form, rules booklet and other supplementary material. Teachers should address their request to: Space Shuttle Program, National Science Teachers Association, 1742 Connecticut Avenue, NW, Washington, D.C. 20009.

– photo by Bob Nye

Richard H. Petersen, Deputy Director, crowns the 1980 Carnival Queen, Mary Ann Curtis. Mary Ann, who works in the Fabrication Division, presided over the LAA Carnival held August 22 and 23 at the Activities Center. Debbie Bagley of the Space Systems Division was first runner up and Jon Hall of the Computer Science Corporation was second runner up.

Letter to the Editor

Editor:

It was obvious to the most casual observer attending the annual Langley Carnival that many hours of planning, building and operating were rewarded by an overall air of "good times for one and all." However, like any operation, perfection comes with imperfection, improvement comes with experience, inputs and suggestions.

As one of the many participants in the festivities, and with the opinion that carnivals should be directed towards the glistening eyes, and the imaginative mind of the child, I felt that many of our little ones were disillusioned. Their prizes were both lacking in quality and quantity, which was not the case for the teenage and adult games.

Shouldn't their quarters buy as much, if not more enjoyment? The profit motive is a powerful force for whatever cause, and we must **all** beware, least it obscure our priorities.

Richard Shisler

Herbert E. Boulter, President of the Langley Activities Association, responded to the above letter as follows:

"The LAA welcomes constructive criticism and advice. I am sure the complaint about priorities is intended as such and will be accompanied by advice and assistance at future children's activities.

"The LAA has been putting on carnivals for 25 years and we still feel inexperienced. We can only operate and make decisions through what we have tried before. It must be noted that the LAA work is done on a volunteer, after-hour-or-on-leave basis.

"The children's booths at the carnival operate so that each child gets some prize each time he plays. Naturally each player cannot get a stuffed animal. Profit is not the ultimate goal. The junk toys are, as named, junk. The plastic whistle we had this year cost us approximately four cents. About six years ago the same item cost us about one-half cent each. This is true of all prizes. The stuffed animals used in the children's booths ranged in cost from 60 cents each to $1.75 each. Many children played the children's booths and I did not see any tears. I did see quite a bit of excitement as they showed off some of the beads, bracelets, rings and whistles they had won. Some did even have stuffed animals.

"The adult did not necessarily win each time. It was possible to play many times without winning, therefore, the bigger prize. The price range on adult game stuffed animals ranged from $1.75 to $1.87 each. Three dozen 'come on' animals costing $3.40 each were on hand.

"If there is some profit from the children's booths, it is funneled into other children's activities. During the past year the LAA sponsored a children's Christmas party which was put on at a loss of $525. The Easter egg hunt cost the LAA about $200. A spot shot basketball competition cost $85.

"It is known that to be non-profit a profit must be made somewhere. Let me assure you that no attempt is made to earn any profit on children's activities. In the case of the carnival, there is an unintentional occurrence. In all cases the cost of children's activities comes from profit gained from adult activities.

"A full carnival financial report will be available in the very near future.

"I will be willing to discuss any part of the LAA operations any day after 4 p.m. at the Activities Center. Please call first."

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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COMBINED FEDERAL CAMPAIGN
CFC

cafeteria menu

WEEK OF SEPTEMBER 8

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Savory-baked Chicken; Shrimp in a Basket. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Eggsalad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Fried Filet of Fish; Beef Balls Stroganoff; Pork Chops. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Polish Sausage; Eggplant Parmesan. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Roast Beef; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken Chow Mein; Meat Loaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF SEPTEMBER 15

MONDAY: Ham & Lima Bean Soup; Half-Pound Chopped Steak; Chicken Pot Pie; Braised Short Ribs of Beef. Snack Bar: Pizza; Eggsalad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island 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: French Onion Soup; Roast Turkey Dinner; Broiled Beef Liver; Knockwurst Reuben. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Quiche Lorraine; Stuffed Bell Peppers. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Beef Enchiladas; Chicken Cordon Bleu. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

swap and shop

FOR SALE

Articles

Football tickets: Two tickets per game for VPI vs East Tennessee State (9—13) and James Madison (9—27), in Blacksburg. Contact Tom Moore, 898-7313.

Local honey: Light (Locust) or dark (Tulip Poplar), $3/qt. Call Gale Harvey, extension 2576.

Vehicles

Chevy II Nova, 1967, GC, mag wheels, 6 cylinder, estimate 26 mpg; $1,000. Call Dwayne, 722-8002, after 4 p.m.

Real Estate

Piney Point: Rancher, 3 BR, LR, DR, lg. FR/kit. comb., fireplace, 2 BA, 1,800 sq. ft, screened porch, attached garage, many extras, $80,000 or assume 7½ percent loan at $270 per month. Call 898-3872.

Courthouse Green Townhouse: 3 BR, 1½ BA, freshly painted, new carpet, assume 7 percent VA loan, $41,900. Call 599-4321.

FREE

Firewood: Cut down two trees in my yard and the wood is yours. Call 596-3988, after 5 p.m.

WANTED

Fourth driver in a car pool from the Wythe area/Hampton (Shell Road, Matoaka Avenue and Bay Avenue) to West area on the 7:30 a.m. shift. Call Daisy W. Alston, extension 2673.

Anyone having information regarding the damages to a 1978, dark green Thunderbird (Virginia license MGS-770) parked in front of Building 1220, Gregg Street, from approximately 1 to 3 p.m., Saturday, August 23, please contact Joe Bosta, extensions 3441 or 3555, or 877-5116.

Part-time cook needed for the Langley Activities Center; banquet-type experience preferred. Contact Tess Donadio, extension 3139.

Happenings

HAPPY HOUR will be held September 12 from 4 to 6:30 p.m. in the Activities Center.

ARTS AND CRAFTS SHOW will be held at the Activities Center November 15 and 16 from 12 to 5 p.m. All persons interested in displaying their crafts should contact Beverly Anderson, extension 2592.

TIDEWATER DINNER THEATER. "Guys and Dolls," which ran so successfully on Broadway a few years ago, is being performed at the Tidewater Dinner Theater in Norfolk through October 5. This musical fable of Broadway has pace, composition and exhiliration. The gags and situations are fresh and amusing and the music is tuneful and original. No show has ever strutted, wriggled and sighed with such variety. Tickets for the production are on sale for $12.50 each at the Activities Office.

WINE AND CHEESE TASTING PARTY. The Langley Activities Association will hold a Wine and Cheese Tasting Party Saturday, September 20 from 7:30 to 10:30 p.m. in the Activities Center. The cost will be $8 per person or $15 per couple. There will be two or three types of cheese and wine offered from Germany, Italy and the United States and knowledgeable persons to answer questions. Tickets are on sale at the Activities Office.

HONEY BUNCH. The NASA-Langley Apicultural Club will meet Monday, September 15, from 7:00 to 9:00 p.m. in the Activities Center. The program is designed primarily for children and will feature short talks on each type of bee, demonstrations of beekeeping equipment, posters, a film, refreshments made with honey, and door prizes. This program was a real "hit" last year. All interested children and adults are invited.

Personnel Notice

Copies of Competitive Placement Announcements currently open at all NASA centers are posted on the bulletin board in the Staffing and Special Programs Branch, Building 1195C, Room 156.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 19

September 19, 1980

Langley Managers Receive Presidential Honors

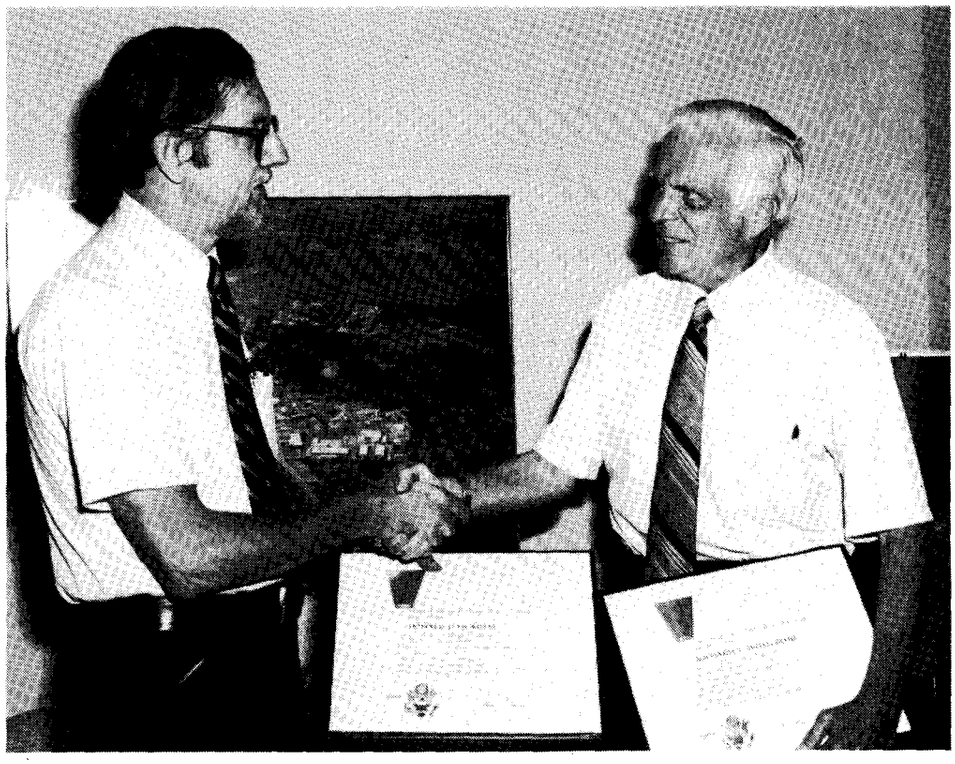
Two Managers at Langley Research Center have been honored with the Presidential Rank of Meritorious Executive.

Dr. Donald P. Hearth, Langley Director, and Dr. Richard T. Whitcomb, recently retired aeronautical research manager, received their awards in special ceremonies at NASA Headquarters.

The Ranks are awarded by the President to career federal employees in the Senior Executive Service whose performance has been exceptional for several years. The Ranks, presented for the first time, were authorized in the Civil Service Reform Act of 1978.

Hearth was honored for "significant accomplishments and progression to increasingly more responsible assignments" in his career. Specific mention was made of his direction of the 1974 "Outlook for Space Study," which was instrumental in planning future national courses of action; his "personal commitment to affirmative action," which led to his appointment as chairman of NASA's first Equal Opportunity Council; and his direction of Langley, which has "contributed greatly to the research environment."

Continued on page 2.



– photo by Bob Nye

Dr. Donald P. Hearth (left), and Dr. Richard T. Whitcomb congratulate each other after they received the Presidential Rank of Meritorious Executive. They were among the 23 NASA executives who received the Ranks in special ceremonies at NASA Headquarters.

Chinese Aeronautics Delegation Visiting Langley

An 11-member Chinese aeronautics delegation is visiting the United States as guests of NASA through Oct. 5. The group is headed by Xu Changyu, Vice Minister, the Third Ministry of Machine Building Industry, and Director of the Chinese Aeronautical Establishment.

The visit is the second step in a NASA/Chinese exchange of knowledge about each other's aeronautics research and development activities.

The delegation is visiting Langley through Monday, Sept. 22. The group will also visit NASA Headquarters, and the Lewis, Dryden and Ames Research Centers.

In addition to the NASA centers, the delegation will visit the Air Force's Arnold Engineering Development Center, Tullahoma, Tenn., and Wright-Patterson Aeronautical Laboratory, Dayton, Ohio, and several U.S. private companies.

A U.S. delegation of aeronautical research and development officials, headed by Dr. Alan Lovelace, NASA Deputy Administrator, visited China in June 1980. Two Langley aeronautics researchers, Roy V. Harris Jr. and James L. Copeland, were members of the U.S. group that met with Chinese officials in Beijing (Peking) and toured several Chinese aeronautical research facilities.

After the Chinese visit is completed, NASA officials and the Chinese delegation intend to explore possibilities for cooperation in civil aeronautical research and development that is of mutual interest.

– photo by Bob Nye

Gilbert A. Haynes (left), Flight Electronics Division, holds the award the Hampton Roads Chapter of the National Technical Association received for developing and executing the first Regional Minority Student Technical Symposium held in March. Samuel J. Scott, Acquisition Division, was presented the Outstanding Professional Achievement Award by the NTA and the Old Dominion University Student NTA Chapter received the Outstanding Student Chapter Award. The symposium, chaired by Haynes, was sponsored by Langley and Hampton Institute.

Training Offers Non-Credit Classes

Two non-credit classes will be offered by the Training and Educational Services Branch after working hours provided there is sufficient enrollment.

The classes, which are expected to begin about the middle of October, are open to all Langley personnel at the employee's expense. Each class will meet one night a week for eight weeks in Building 1194A, from 4:40 to 7:30 p.m., and will cost $40 per person plus cost of textbook if one is used.

The first of these courses is entitled "Personal Financial Planning," taught by Malcolm G. Fries, Certified Financial Planner. The course will cover an introduction to financial planning, setting financial goals, investing vs. savings, investing in real estate and energy, risk management and life insurance, casualty protection and planning for retirement, estate planning and developing a financial plan.

The second course is "Psychology of Weight Control," taught by Patricia Ann Mangis. There will be no "weigh-ins" and no exercise in this class. The class is designed to give the participants insight into their weight control problems, using behavior modification techniques, relaxation/self-imagery and Transactional Analysis.

For information concerning either of these courses, contact Eloise McGehee, extension 2611.

Recent Retiree

Charles S. Laird, Scout Project Office, retired September 13.

Presidential Honors

Continued from page 1.

Whitcomb was honored for his contributions to aeronautical research during 37 years at Langley, specifically his development of the area rule, the supercritical wing and aircraft winglets, "radical departures from aerodynamic theory" that have "resulted in revolutionary advances in aircraft performance." The award stated, "exceptional leadership qualities have enabled you to attract and motivate a team of skilled scientists, and your team's achievements have extended laminar flow state-of-the art."

A total of 23 NASA executives received Presidential Rank, including two former Langley managers, Edwin C. Kilgore, NASA's Associate Administrator for Management Operations, and A Thomas Young, Director of NASA's Goddard Space Flight Center.

The Presidential Rank of Meritorious Executive includes a lump sum payment of $10,000.

Call the 'Hot Line'

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," extension 4641.

Langley's success in energy reduction has resulted largely from the ideas, efforts and cooperation of all center employees. The continued support and awareness of every individual is critical in successfully meeting Langley's goal of 50 percent reduction in energy consumption by FY 1985.

Remember to call the "hot line," extension 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.

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.

A Word From Your Chairman

CFC is a Worthy Activity

When tabbed for the role as Langley's 1980–81 CFC Chairman, my initial reaction was several-fold. A feeling of "I really didn't need that job right now" was quickly countered with a feeling that CFC is one of the truly worthy activities we do around here each year. And I really believe that to be true.

We at Langley are, for the most part, well-paid, well-fed and well-housed. We are so blessed to be in that enviable position, especially when so many, even in our own localities, have so precious little of life's tangible needs. And as we lift our eyes to other shores, we simply cannot grasp the plight of so many needing the basic elements to even sustain life.

I have long been a substantial CFC contributor, thankful for my being in a position to do so--and I'll do even more this year. Inflation is hurting each one of us, but I believe the general persuasion of our center employees — you — is similar to mine. We recognize the needs are there; they are, in general, getting more acute each year as inflation is hitting everybody; and those who can help the less fortunate really want to do their part.

Let me share with you briefly how we arrived at our center goal of $185,600 and also some changes in the rules for this year's CFC brought about by OPM. First, last year's actual donations, $185,600, was corrected downward for a complement decrease (3,005 in '79; 2,966 in '80). It was then adjusted upward by 6.2 percent to account for the anticipated pay comparability increase (actually 9.1 percent). An inflation correction factor of 6.2 percent divided by 11.4 percent (average of NASA Headquarters Code B and Consumer Price Index rates) further reduced the new goal to a level of $185,465; we decided to round back up to $185,600.

OPM changes this year to CFC solicitation rules will be explained more fully in our Special CFC *Langley Researcher* next week. Some of the major points affecting our Langley campaign include:

(1) No solicitation of employees by their supervisors.

(2) One hundred percent organizational participation goals may not be used. (We have gone to to Directorate-level dollar goals as an index to campaign progress).

(3) No making or use of non-contributor lists (for resolicitation).

(4) Bringing our three unions into the campaign planning at an early date.

I believe all of these changes are constructive in nature and should not adversely affect Langley's strong history of generous giving.

I look forward to a highly successful campaign this year. We have lost well over 300 of our very senior people since our last campaign via retirements; that will undoubtedly hurt our giving potential somewhat. I ask each of you to really search your heart and support CFC this year as heavily as you can.

Many thanks!

Robert L. Swain
Chairman, 1980–1981 Combined Federal Campaign

Papers Invited for AIAA Conference

Papers on "Atmospheric Radiation" are being accepted for presentation at the AIAA 16th Thermophysics Conference, June 23-25, 1981, in Palo Alto, Calif.

Dr. James N. Moss, Aerothermodynamics Branch, is the technical program chairman for the conference. Dr. Surendra N. Tiwari, Old Dominion University will be the chairman for the session on atmospheric radiation.

Papers are invited on all aspects of atmospheric radiation. Special emphasis, however, will be given to the following areas: radiation in the middle atmosphere, radiation in the climate and weather modeling, scattering and absorption of radiation in cloudy and turbid atmosphere, earth radiation budget studies, measurement of atmospheric radiation and remote sensing.

Long abstracts (minimum of 1,000 words), including a summary of results, or complete manuscripts should be submitted to Tiwari at Old Dominion Univ. Dept. of Mechanical Engineering and Mechanics, Norfolk, Va. 23508 before Dec. 1. For further information contact Moss, extension 3770, or Tiwari, 440-3720.

– photo by Bob Nye

The Langley CFC staff prepares material for the Kickoff Meeting on September 29. From left are Susan Paxton, Structural Mechanics Division; Betty Quigley, Research Facilities Engineering Division; Patty Paulin, Instrument Research Division; Mozetta Cooper, Projects Management Systems Division; Sue Wilder, Space Systems Division; Debbie Waddell, High-Speed Aerodynamics Division; Bill Simkins, Management Support Division; Gladys Loar, Marine and Applications Technology Division; Judy Wainwright, Office of Director for Systems Engineering and Operations; Lisle Taylor, Analysis and Computation Division; Mary Quinn, Acoustics and Noise Reduction Division; Peggy McGuire, Subsonic-Transonic Aerodynamics Division; and Jane Hammond, Personnel Division. Unable to attend were Hugh Forrest, Projects Management Systems Division; Merle Ott, Flight Mechanics Division; Amy Stephens, Scientific and Technical Information Programs Division; and Frances Hartman, Financial Management Division.

NASA and Universities Team Up for Significant Mount St. Helens Mission

Langley scientists and a university research team joined forces this week to mount what scientists consider one of the most significant research missions ever undertaken to understand how volcanos affect Earth's atmosphere, weather and climate--and their target is Mount St. Helens.

The mission, which began Wednesday, is using SAGE (the Stratospheric Aerosol and Gas Experiment Satellite), an aircraft crammed with the latest in laser and electronic remote and on-site sensing technologies, and the expertise of scientists from Langley and Wallops centers; Drexel University; the Universities of Maryland, Arizona and Alaska; Dartmouth College; Michigan Technological University and the Oregon Graduate Center.

During the five-day mission, NASA scientists plan to take transcontinental laser radar soundings, for the first time, of the volcanic veil which still hangs in the upper atmosphere over the United States. They will also obtain measurements of the quantities of certain gases--such as those in the sulfur family--that Mount St. Helens is ejecting into the atmosphere as a function of time.

The science team is also investigating how aerosols--or airborne particulates--are dispersed through the atmosphere. Their studies of the composition and morphology--or shape--of the particulates will also tell them something about what is going on inside the volcano.

The mission is a joint effort by the science teams for Langley's Stratospheric Aerosol and Gas Experiment (SAGE) satellite program, and the Research on Atmospheric Volcanic Emissions (RAVE) project, a NASA-funded operation conducted through the various universities. Both activities are elements of NASA's Climatic Research Program, managed by the office of Space & Terrestrial Applications.

"I'm really excited about the prospects," said Dr. James P. Friend, Principal Investigator for RAVE. Friend, Project Director for Atmospheric Chemistry at Philadelphia's Drexel University, has been working with his colleagues since 1973 to develop a comprehensive field measurement of active volcanos. He was joined early in the effort by Dr. William H. Zoller, RAVE's field coordinator, from the University of Maryland.

"The fact is now established," Friend said, "that explosive volcanos beyond a certain magnitude--like Mount St. Helens--add significantly to the stratospheric aerosol content on a global scale. Aerosols relate to climate by their presence and chemical interaction with gases in the upper atmosphere, both of which affect how much radiative energy from the Sun strikes the Earth.

"But our knowledge of these interactions is sketchy and speculative, and that's one reason for the mission," he said.

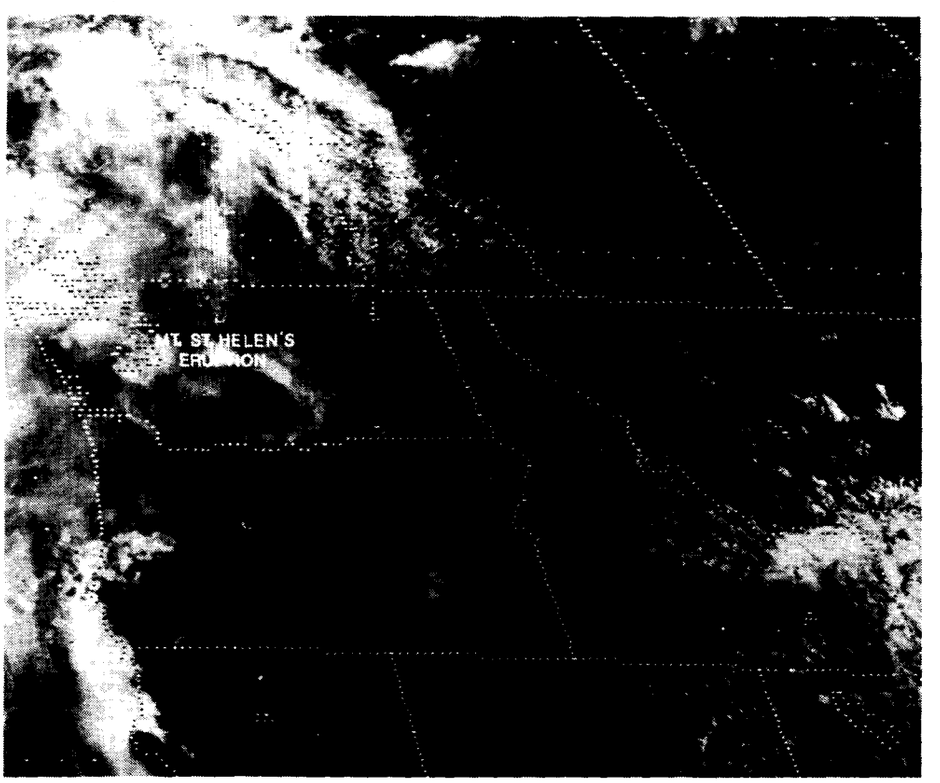
Dr. M. Patrick McCormick of Langley, SAGE science team leader and NASA's coordinator for RAVE, expressed similar enthusiasm for the mission. "For example," he said, "the transcontinental lidar flights will represent the first study of the fine-scale homogeneity of the volcanic layer on such a broad basis. No one's ever done it over that distance, and we expect to add valuable data to our knowledge of how aerosols disperse throughout the stratosphere. This will also complement the global data set that SAGE is producing."

To do this, McCormick's team will use a lidar, which is a light detection and ranging system that essentially combines a laser and an optical telescope. The team will also use the lidar during underflights of the SAGE satellite, which will be passing over the latitudes near Mount St. Helens during this time.

A typical mission will combine a late afternoon series of RAVE measurements in the vicinity of the volcano, followed by underflights of SAGE at dusk.

SAGE was launched in 1979 and has tracked the plumes of three volcanos, including Mount St. Helens. The satellite uses a four-channel solar radiometer to

Continued on page 5.



This view of the western United States, taken only a few hours after the May 18 eruption of Mount St. Helens, shows the dark splotch of the widening volcanic plume as it appeared from space. By the next day, the plume covered three states. The image was taken by the National Oceanic and Atmospheric Administration's Geostationary Environmental Satellite (GOES WEST).

Combined Federal Campaign

Directorate Goals Approved

The following suggested Directorate-level goals for this year's Combined Federal Campaign have been approved by Director Donald P. Hearth:

SUGGESTED DIRECTORATE CFC GOALS

DIRECTORATE	ACTUAL GIFTS 1979–80	SUGGESTED GOALS 1980–81
Director	$ 3,440.	$ 3,500.
Electronics	38,005.	38,000.
Structures	24,711.	25,000.
Aeronautics	25,901.	26,000.
Management Operations	17,216.	17,500.
Sys. Engineering & Operations	39,484.	39,500.
Space	18,998.	19,000.
Projects	7,350.	7,500.
Sub-Total	$175,105.	$176,000.
Other (Retirees, GWU, Army, etc.)	10,229.	9,600.
Total	$185,334.†	$185,600.

†Subsequent gifts increased total to $185,602.

Langley has a long history of outstanding participation in community activities, especially in times of community need. The CFC is the one time each year when that community need is made known to us. Please consider the needs of our community when you make your pledge. Your contribution will help Langley meet its goal, and in turn, will help our community.

Mission

Continued from page 4.

take vertical profiles of ozone and aerosols in the stratosphere. The stratosphere is of particular scientific importance because it is a very stable region, with no rain and little wind to carry away particles. It is here that most of the ozone resides, which protects life on Earth from harmful wavelengths of solar radiation. The inputs of aerosols from volcanos have long lifetimes, and can possibly affect the weather and climate.

Another element of the mission will include studying how sulfuric acid, the main component of acid rain, reacts with other chemicals in the atmosphere. To gain this knowledge, the RAVE science team will combine the capabilities of eight highly advanced and sensitive instrument packages developed during the past few years at the universities and research centers involved.

Pet Week Observed

Next week has been designated as Responsible Pet Care Week by the Pet Food Institute.

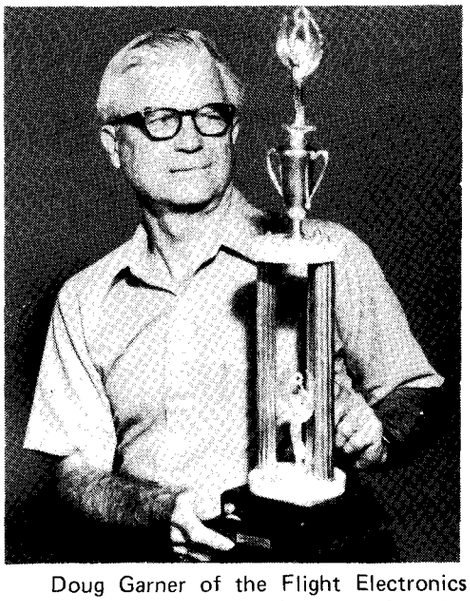
The week is being observed nationally to promote better standards of pet health care and training, show the joys and benefits of pet ownership and encourage the consideration of neighbors and observance of animal control laws.

What makes a pet a good citizen? The good citizen who trains him and keeps him healthy.

Don't let your pet be a neighborhood nuisance. Keep your pet at home, safe and quiet. Don't let your pet litter sidewalks or lawns. Give your pet proper medical attention, nourishment and exercise.

Observe the Responsible Pet Care Week slogan all year – "Help make the world a better place for pets and people."

Garner Receives Stan Dzik Award



Doug Garner of the Flight Electronics Division was recently honored by the Experimental Aircraft Association when he was given the Stan Dzik Memorial Award for outstanding design contribution at the Oshkosh Air Show in August

Garner, who "has become something of a cult figure at Oshkosh in the last few years," according to the Editor of Sport Aviation Magazine, won the award for his work in the development of the Electro Fluidic Autopilot, a spin off from NASA's Fluidic Research Program.

The autopilot is simple and easy to build, and can be constructed by many homebuilders. It can be installed in almost any airplane, and it is very light. "The trophy weighs eight times as much as the autopilot," Garner said.

Garner first came up with the device in 1974, and since then has been at the Oshkosh, Wisconsin fly-in almost every year to give seminars on its uses and construction.

The award is named for the late Stan Dzik, who was a member of the EAA and a writer of numerous books and articles of interest to home aircraft builders. The award is given each year to the person judged to have made the greatest technical contribution to the homebuilt aircraft movement.

Key Positions

Irvin L. Hamlet has been selected Head, Management Systems Branch, Plant Engineeringg Division, under Competitive Placement Plan 80-18.

Langley Staff Members Receive Advanced Degrees

Fourteen staff members have received advanced degrees through the center's Graduate Study Program during Fiscal Year 1980.

The program, established in the late 1940s, provides Langley scientists, engineers and administrators an opportunity to improve their proficiency in aeronautical and space research and earn advanced degrees while working at Langley. Approximately 792 employees have been awarded master's or doctoral degrees through the program.

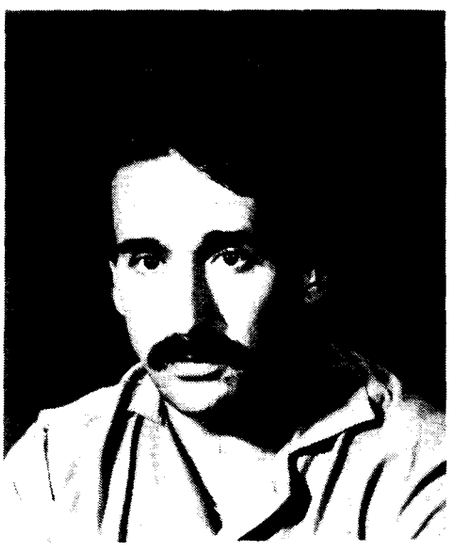
New doctoral degrees have been awarded to these three employees: Burnell T. McKissick, Analysis and Computation Division, Doctor of Philosophy in Mathematics from New York University; Richard F. Harrington, Flight Electronics Division, Doctor of Philosophy in Electrical Engineering from Old Dominion University; and James R. Rooker, Research Facilities Engineering Division, Doctor of Philosophy in Mechanical Engineering from North Carolina State University.

Master's degrees were awarded to 11 employees: Peter A. Gnoffo, Space Systems Division, Master of Arts in Mechanical and Aerospace Engineering from Princeton University; Vickie S. Parsons, Programs and Resources Division, Master of Public Administration; and Richard A. Everett, Jr., Materials Division, and John F. Rogers, Systems Engineering Division, Master of Engineering in Engineering Mechanics, all from Old Dominion University.

H. Harris Hamilton II, Space Systems Division, Degree of Engineer in Mechanical Engineering; John D. Rollins, Analysis and Computation Division, and Matthew M. Winston, Aeronautical Systems Division, Master of Engineering Administration; Charles J. Camarda, Loads and Aeroelasticity Division, Master of Science in Structures and Dynamics; and Mary R. Cline, Personnel Division, Master of Arts in Personnel Management, all from George Washington University.

Fabiola C. Martin, Acquisition Division, and Darnell Williams, Financial Management Division, Master of Public Administration in Administration and Organizational Management both from Golden Gate University.

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.

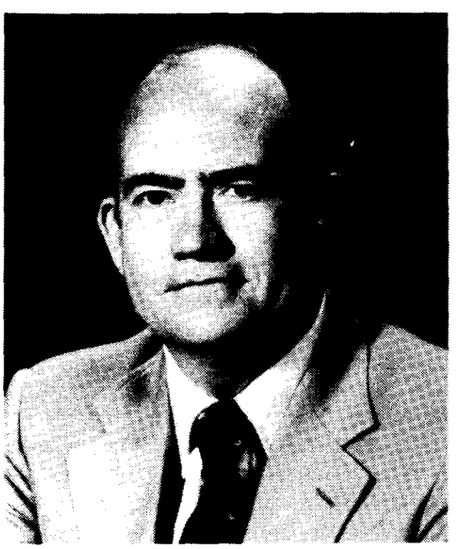


Charles J. Camarda

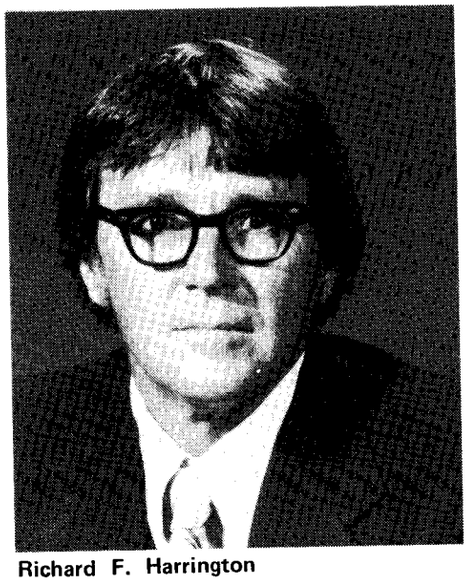
Mary R. Cline

Richard A. Everett, Jr.

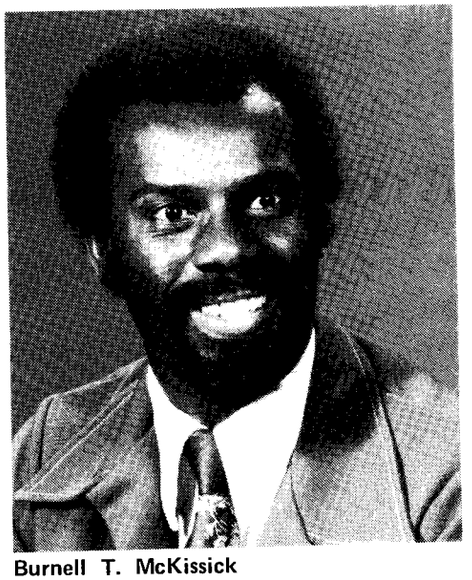
Peter A. Gnoffo



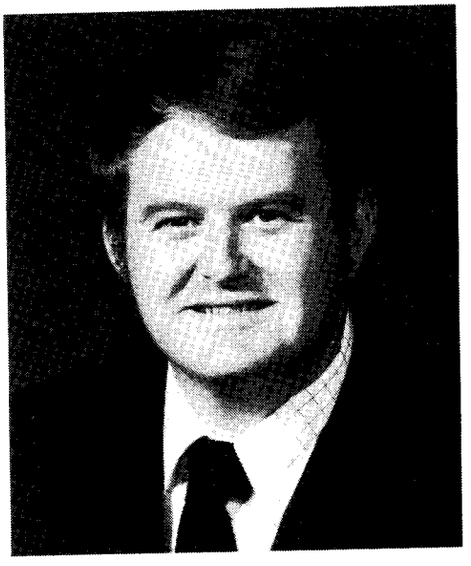
H. Harris Hamilton II


Richard F. Harrington

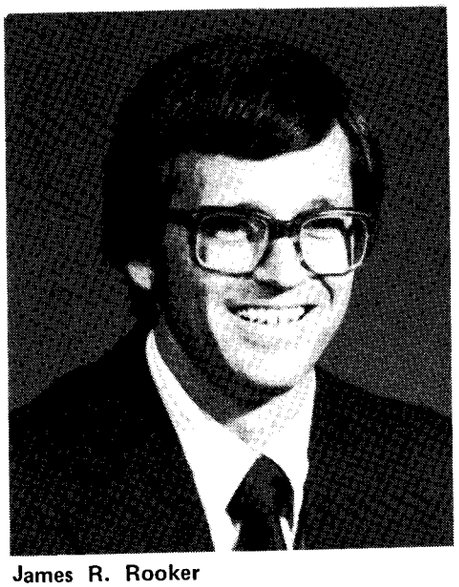
Fabiola C. Martin

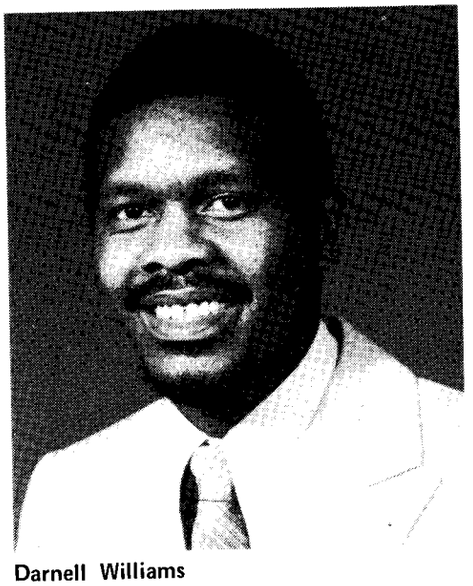

Burnell T. McKissick

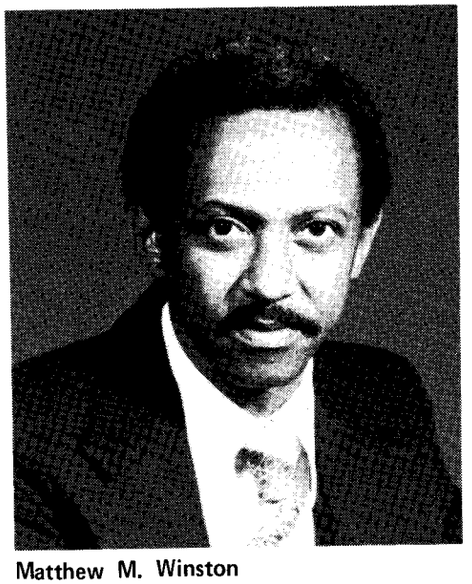
Vickie S. Parsons


John F. Rogers

John D. Rollins


James R. Rooker


Darnell Williams


Matthew M. Winston

Key Positions

Charles H. Eldred has been selected Assistant Head, Vehicle Analysis Branch, Space Systems Division, under Competitive Placement Plan Announcement 80-1.

Kenneth Sutton has been selected Assistant Head, Aerothermodynamics Branch, Space Systems Division, under Competitive Placement Plan Announcement 80-3.

Debra E. White has been selected Head, Support Contracting Section, Research and Technology Contracting Branch, Acquisition Division, under Competitive Placement Announcement 80-5.

Ellery N. Vandenbree has been selected Head, Metals Applications Technology Branch, Fabrication Division, under Competitive Placement Plan Announcement 80-8.

Roy W. Mason has been selected Head, Technical Support Section A, Laboratories Operations Branch, Operations Support Division, under Competitive Placement Plan Announcement 80-10.

Archer V. Vann, Jr., has been selected Head, Acquisition Research and Management Office, Acquisition Division, under Merit Promotion Announcement 80-11.

Edgar J. Yarrington has been selected Supervisory Engineering Technician, Technical Support Section C, Tunnels Operations Branch, Operations Support Division, under Competitive Placement Plan Announcement 80-11.

Reginald M. Holloway has been selected Head, Spaceflight Electronics Development Section, Spaceflight Instrumentation Branch, Flight Electronics Division, under Competitive Placement Plan Announcement 80-14.

Richard D. Wagner has been selected Deputy for Laminar Flow Control, Aircraft Energy Efficiency Project Office.

John S. Powell, Jr., has been selected Supervisory Engineering Technician, Composites and Models Development Section, Models and Materials Technology Branch, Fabrication Division, under Competitive Placement Plan Announcement 80–22.

The following have been designated for the key organizational positions indicated:

Michael F. Card, Acting Head, Structural Dynamics Branch, Structural Mechanics Division;

Sidney C. Dixon, Acting Head, Thermal Structures Branch, Loads and Aeroelasticity Division;

James W. Ramsey, Jr., Acting Head, Structural Engineering Section, Mechanical Design Branch, Research Facilities Engineering Division;

Arthur F. Waynick, Jr., Acting Head, Computer Systems Branch, Business Data Systems Division;

William M. Piland, Acting Head, Space Technology Branch, Space Systems Division;

James L. Miller, Acting Head, Models and Materials Technology Branch, Fabrication Division;

Joseph W. Stickle, Acting Head, Flight Systems Branch, Flight Mechanics Division; and

John F. Stokes, Acting Head, Office of Occupational Health Services.

James L. Miller, Jr., Acting Head, Materials Processing and Development Section, Models and Materials Branch, Fabrication Division.

Carnival Race Turnout Good

The Langley Runners' Club had good turnout for its races held during the Carnival, Aug. 23.

The five-mile race had 31 runners finish. Of the top ten finishers, five were NASA employees and five were students from a local cross-country team. The five Langley finishers were Don Humes (30:50), Larry Spencer (32:43), Wayne Richardson (33:48), Joe Drozdowski (34:15) and Bob Thomas (34:25).

The interdirectorate mile relay had five team entries. Systems Engineering and Operations finished first with a time of 3:57, Electronics finished second with 4:05, CSC finished third with 4:23, "Mostly" Structures finished fourth with 4:24 and Space rounded out the field with 4:33.

The winning team for SE&O, which successfully defended its championship of last year, consisted of Charles Poupard, Ralph Angel, Ray Parker and Ernie Burt.

The next Runner's Club event will be the semiannual intercenter meet in October and will probably include a two-mile and a 10-kilometer race.

–photo by Bob Nye

Mr. and Mrs. Frank C. Vinson Jr. of Newport News are the LAA Carnival grand prize winners of a Bermuda cruise and $200 cash. Presenting the tickets and cash is Ernest L. Green, Chairman of Activities Committee, Langley Activities Association.

Personnel Profiles

Meet Langley's Dynamic Duo

by Allan C. Hanrahan

The subjects are **ANNE K.** and Doctor **TERRY L. ST. CLAIR** and the topic is husband and wife collaboration, which is by no means presented as a really new topic; after all, Adam and Eve were the first man-and-woman collaboration team, although their machinations got them kicked out of the Garden of Eden. Another famous wife-and-husband pair that come to mind are Marie Antoinette and King Louis the Sixteenth. You remember them--their peccadilloes accelerated the French Revolution and cost them their heads. But a century later in French history, however, another Marie--Marie Curie--and her husband, Pierre, collaborated on scientific research and--voila--shared a Nobel Prize in physics for their work on radioactivity.

A present-day pair conducting scientific research, and at the same time making history as the first husband-and-wife here at the Center to share a patent, are Anne and Terry St. Clair, Aerospace Technologists who work in the Materials Applications Branch of the Materials Division.

Their patent, numbered 4,180,648, was somewhat of a Christmas present as it was issued on that day, and is for compounds they devised which have many structural applications, such as spoilers, or devices to control the pitch and roll of aircraft. The compounds, known formally as crystalline polyimides, are regarded as providing strong reinforcements that can be incorporated at high temperatures in composite structures. The materials may be drawn in fibers and bonded with other plastics in a matrix, and while prospective uses are in aircraft body panels, rudders and flaps, as well as reinforced tail cones that can be formed for helicopters, the materials are also practical for a number of consumer items, adding to the legacy of spinoff benefits from space and aeronautical research.

Of their collaboration Anne remarked: "There are a lot of people here who work in teams; aside from being married, Terry and I just happen to work well together."

The patent and the five or six technical papers they have co-authored affirmed this, as did Terry, but of course they work well independently also: Terry, for his work in polyimide matrix resins, was one of two Center recipients of the 1979 "I.R. 100" Award, an honor conferred by *Industrial Research Magazine* on each of those individuals responsible for the one-hundred best products of the year. He has also been issued patents in the past and another is to be issued soon, which--like the others--will naturally be assigned to NASA. Anne also has some patents "in the mill--'pending,'" as she put it. And they both indicated there is a strong possibility of another joint patent.

They have been married since 1971, after having met at graduate school at VPI & SU where Terry was earning his Doctorate in Organic Chemistry and Anne was earning her Masters degree in Inorganic Chemistry.

"You know what they say about unlikes being attracted to each other," she laughed.

While their graduate majors were unlike, they are rather much alike in personality, both amiable and very pleasant to talk with.

Born and reared in Bluefield, West Virginia ("Please, no West Virginia jokes," she smilingly interjected) Anne earned her B.A. degree in chemistry at Queens College in Charlotte, North Carolina, spending her senior year in research and study at the Argonne National Laboratory in Chicago. She originally came to work at the Center in 1972 as a Research Associate through a grant from Old Dominion University and became a NASA employee in September 1976.

Terry was born in Roanoke, reared in Salem, earned a B.S. degree in Chemistry from Roanoke College in 1965, and spent a few years in industry--most with Dupont--before attending graduate school. He then came to the Center in 1972, working on a post-doctoral research grant through VPI & SU before becoming a NASA employee in September 1975.

Having such similar and parallel careers and professional interests, is there the inclination to take their work home with them?

"We try hard not to," they stated.

"But we tend to do it," one of them added.

"When we find ourselves discussing work," Anne related, "one of us will usually say something about it and we'll change the subject."

Then perhaps they will find something else to talk about or do together or Anne will go off to hand-make a quilt, or paint, or play the guitar while Terry might go off to play in an LaRC basketball or softball game or, when he has the time, go hunting or fishing.

So, although they make a great research team, Anne and Terry St. Clair are also two very distinct individuals.

Special Awards Presented to Employees

Special Achievement Awards

Special Achievement Awards have been presented to the following Langley employees:

Janet M. McKenzie, for "outstanding contributions in Equal Employment Opportunity Commission Affirmative Action Planning Process and implementing new Discrimination Complaints Regulations in an effective and timely manner."

Edward L. Moore, for "excellent service in the manufacture of new parts and modification of the Swept-Wing Aerodynamic Technology Model."

Linwood G. Burcher, for "exceptional service in the manufacture of the Shuttle Cone Model."

Charles L. Ladson, for "dedicated and creative efforts in developing the 0.3-m Transonic Cryogenic Tunnel into an outstanding airfoil research facility."

Vernelle V. Robinson, for "the cooperative and helpful manner and special efforts which resulted in outstanding support of the Fluid Dynamics Branch during an extended period of heavy workload."

Aerospace Penpoints
by
Wesley Berryman

To LEARN and never be filled is WISDOM.
To TEACH and never grow weary is LOVE.

ANON.

Thanks to Samuel J. Scott for sending in this quotation.

Linda S. Little, for "performance and dedication of expanded administrative tasks."

B. Ann Bell, for "sustained superior performance of duties and exceptional achievement in software documentation and operator training for the V/STOL tunnel data acquisition system."

Nancy N. Shields, for "outstanding performance and contributions to the success of the NASA Facilities Conference and the Center Directors Conference during 1979."

Richard B. Rountree, for "superior project management and Section Head performance."

Jean M. Foster, for "sustained superior performance in her regular and specially assigned duties as research mathematician for the Airfoil Research Group."

Mark W. Wynkoop and **Wayne D. Goff**, for "excellent performance in technical direction of electronics fabrication support for flight research programs."

Robert D. Turner, for "outstanding performance in developing a cryo/thermal data base on electrical materials for the National Transonic Facility."

Michael G. Fleck, for "exceptional service in the manufacture of the 747 Airframe Noise Model."

John T. Hughes III, for "outstanding performance and contribution to technical development of Shuttle tiles studies and the Active Controls Laminar Flow Model."

William S. Jones, for "the fabrication and development of the Graphite/Polyimide Honeycomb and Hat Stiffened YF-12 Panels."

James R. Tyeryar, for "outstanding technical contributions to the modifications of the adhesive test specimen fabrication process employed by the polymer laboratory in developing adhesives for space application."

James H. Parker, for "excellent performance in the manufacture of the battery cartridge housings for use in the JT-15 Engine Noise Research Program."

Floyd A. Phaup, "in recognition of excellent technical accomplishments relating to the generation of highly accurate data at the Hot Gass Radiation Research Facility."

Edward N. Kerlin, for "developing techniques and fabrication methods relative to the 23 percent MI-24 (Hin-D) Helicopter model to be tested in the V/STOL Tunnel."

Dr. E. Clay Anderson, "in recognition of demonstrated special and outstanding performance in overcoming the unique difficulties involved with the overall development and design of the aerodynamic liner for the NASA LFC Supercritical, Swept-Wing Experiment."

Rupert R. Monahan, for "exceptional dedication and interest in performing job functions."

George W. Holden, for "outstanding performance and contributions in the timely completion of the addition to Building 1152 well within budgetary constraints."

Joseph G. Hudson, for "continuing contributions in identifying cost effective energy investments and for developing facility heating and cooling system operational schematics during 1979 and 1980."

Frank J. Senft, for "exemplary performance in managing a large engineering workload."

Hal T. Baber, Jr., for "excellent performance as the co-chairman and chief planner of the NASA Supersonic Cruise Research '79 Conference."

Henry A. Brownley, for "outstanding performance and technical contributions in the support services area."

Elizabeth W. Bierie, for "contributions to the success of the Supersonic Cruise Research '79 and Inter-Center High Altitude Airplane Platforms meetings, the success of which were largely due to her efficiency, diligence, and gracious courtesy."

Suggestion and Honorary Suggestion Awards

Suggestion awards have been presented to the following employees:

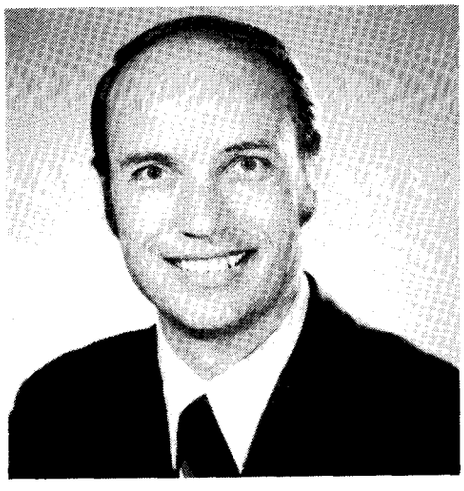
Joseph D. McColskey and **John M. Kennedy**, "crack opening displacement and crack tip damage of composite fracture specimens;" **Nancy C. Ferro**, "FED Milstrip payments;" and **Earl S. German, Jr.**, **S. Franklin Edwards** and **Mallory S. James**, "improved instrument records control system."

An Honorary Suggestion Award has been presented to **Berkley A. Langford**, for his suggestion relative to "Change lighting in the low and high frequency chambers control rooms to be a more efficient and cheaper method."

Hastings Named Program Manager

George W. Hastings has been named Programs Manager of the Langley Visitor Center. Hastings, promoted from a lecturer position, has worked in educational programs with NASA since 1973 when he became the lecturer for Langley's Aeronautics Mobile, a traveling NASA program.

Hastings brings to his new position a broad background in education as a former classroom teacher at the elementary, high school and college levels. He has been a school principal, a television teacher and has worked extensively in the areas of curriculum development, teacher training and educational television production. He earned a bachelor of arts degree in elementary education from San Francisco State College and master of education degrees in administration and communications from the University of Hawaii.



Hastings speaks enthusiastically of the changes taking place at the Visitor Center: "A new wing which almost doubles the floor space has been completed and brand new exhibits on the energy-efficient aircraft and large space systems of the future are now on display. New programs for school groups and other visitors are also providing exciting glimpses of current NASA research and future plans." He is especially pleased that the Visitor Center has become "a valuable educational resource with special programs that enhance topics studied in school."

"The Visitor Center," says Hastings, "is not a traditional museum where artifacts and antiques gather dust in glass display cases. Instead, it is a focal point--a clearing house where anyone can come, free of charge, to take a look at the shape of tomorrow."

Hastings and his wife, Jan, reside in Newport News. They have three children.

AIAA Holds Annual Oyster Roast

Chesapeake Bay oysters by the bushel, freshly steamed crabs and the usual picnic menu of hot dogs, hamburgers, potato salad and baked beans, will be served at the annual American Institute of Aeronautics and Astronautics Oyster Roast September 26.

The Hampton Roads Section will also supply soft drinks and beer at the roast, which will begin at 4:30 p.m. on the Activities Center picnic grounds.

Tickets are $3 each for members, $2 each for Student Branch members and $4 each for guests.

Reservations should be made through Bobby Berrier or Larry Leavitt, extension 2674; or John Whitesides, extension 2219.

Revised Forms Available from Stock

The following forms have been revised and are now available from Stock:

Langley Form 46	"Technical Editing Committee"	Rev. August 1980
Langley Form 49	"Routing Form for NASA Langley Formal Reports"	Rev. July 1980
Langley Form 62	"Routing Form for Langley Contrator Reports"	Rev. July 1980
Langley Form 108	"Report of Foreign Travel"	Rev. August 1980
Langley Form 109	"Report of Visit of Foreign Nationals or Registered Aliens to Langley Research Center"	Rev. August 1980
Langley Form 111	"Langley Distinguished Research Associate-Memorandum of Agreement (available from Staffing & Special Programs Branch, extension 3007)	Rev. August 1980
NASA Form 386	"Overseas Travel Order"	Rev. August 1980

Please destroy all previous editions of these forms.

If you have any questions regarding forms, please contact the Forms Management Office, extension 3511.

Protect Dogs Against Parvovirus

Dog owners in the Tidewater area should protect their pets against Parvovirus for the next few months.

Parvovirus is transmitted primarily by saliva, urine and stool and can be fatal if untreated within 24-48 hours. Symptoms are excessive vomiting, severe diarrhea and high temperatures.

The Virginia Federation of Dog Clubs and Breeders has distributed to member clubs the following advice from Dr. R. Andrew Murphie, president of Tidewater Veterinary Associates:

- Keep your dogs at home and out of contact with other dogs.
- If you plan to travel, attend dog shows or functions in the company of other dogs, consult a veterinarian for innoculation at least three weeks in advance.
- To disinfect use four ounces of chlorine bleach to one gallon of water of swimming pool chlorine.

Vaccine is in short supply and additional vaccine may not be available until October.

LAA Carnival Grand Prize Winners

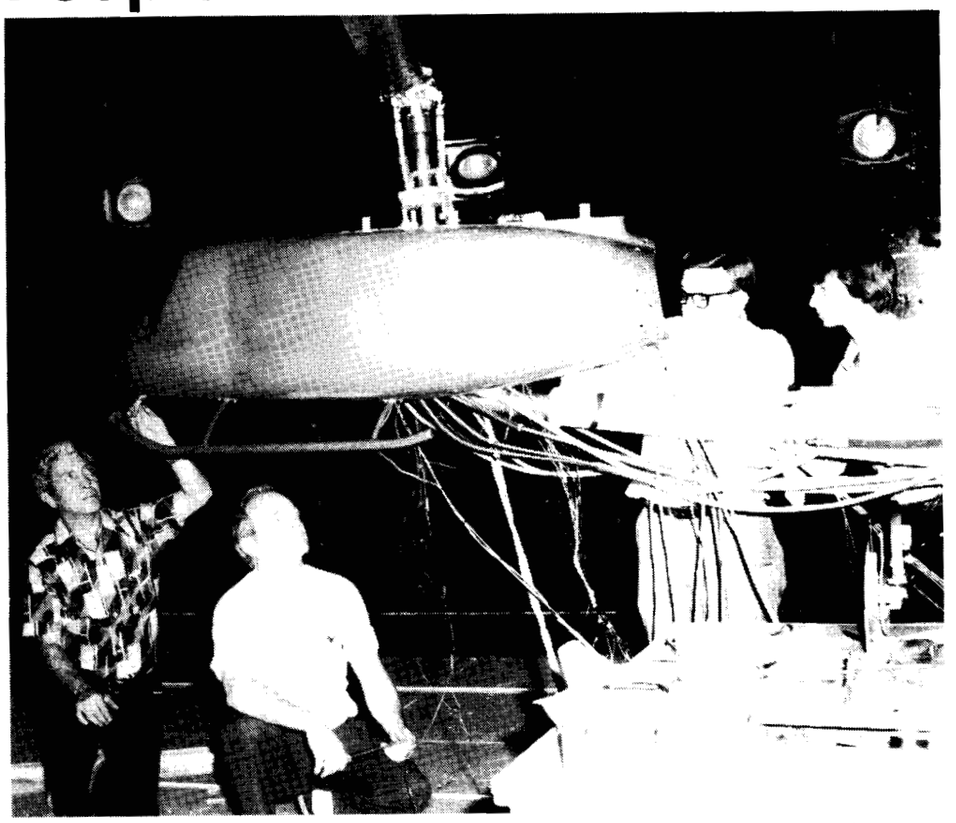
Microwave Oven — David Holmes

$1,200 cash — Ray Burcher

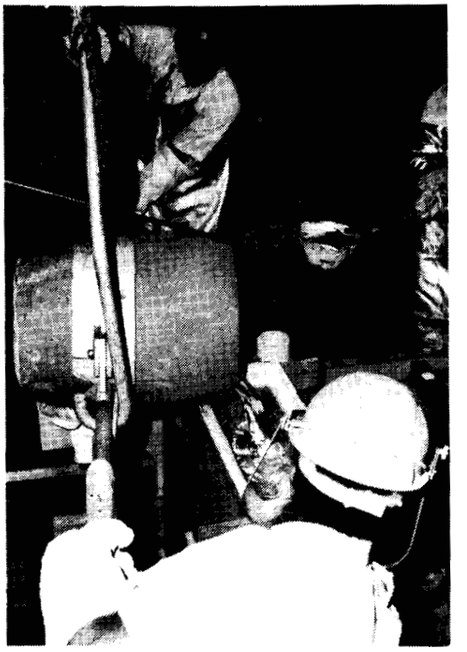
$500 for gasoline — Erika Langner

Cruise for two plus $200 cash — M. Vinson

People At Work

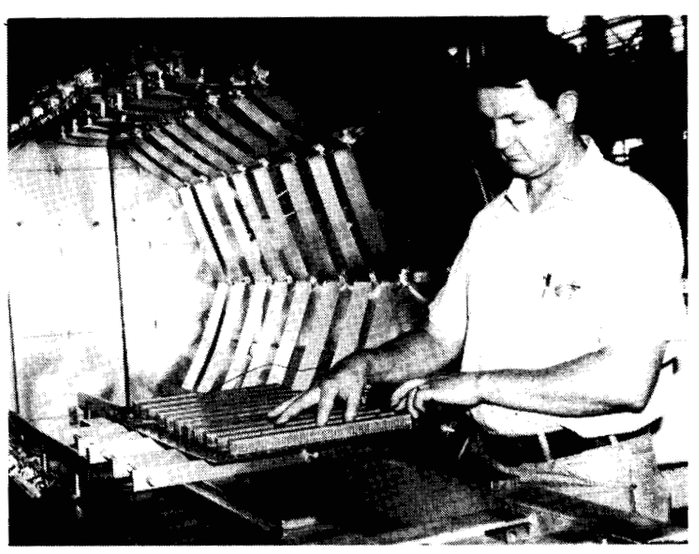


Howard E. Price, George E. Geiger and McCreary G. Beasley of the Operations Support Division and Craig M. Crews of the Subsonic-Transonic Aerodynamics Division check instruments on a general rotor model system used for testing scaled helicopter rotors and fuselages. The system is being used in the V/STOL Tunnel to test an advanced rotor design for an Army helicopter.

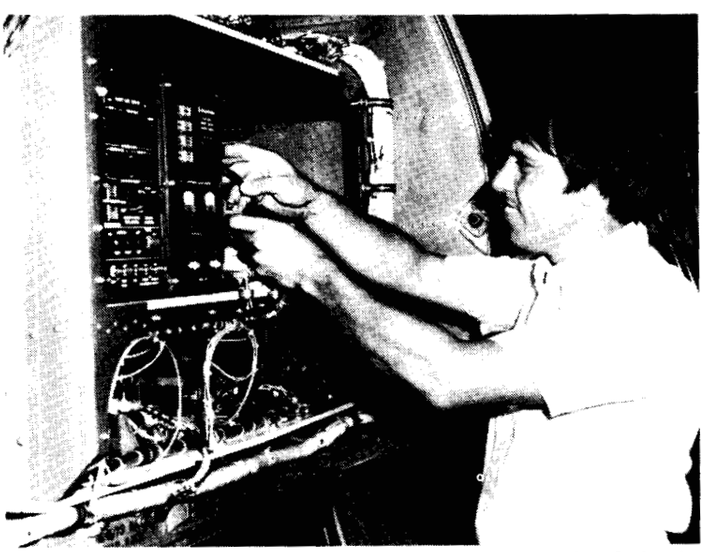


John E. Hunt (top) and Wardell S. Langford, Fabrication Division, pour aluminum molds for fabrication of a fan blade for the National Transonic Facility.

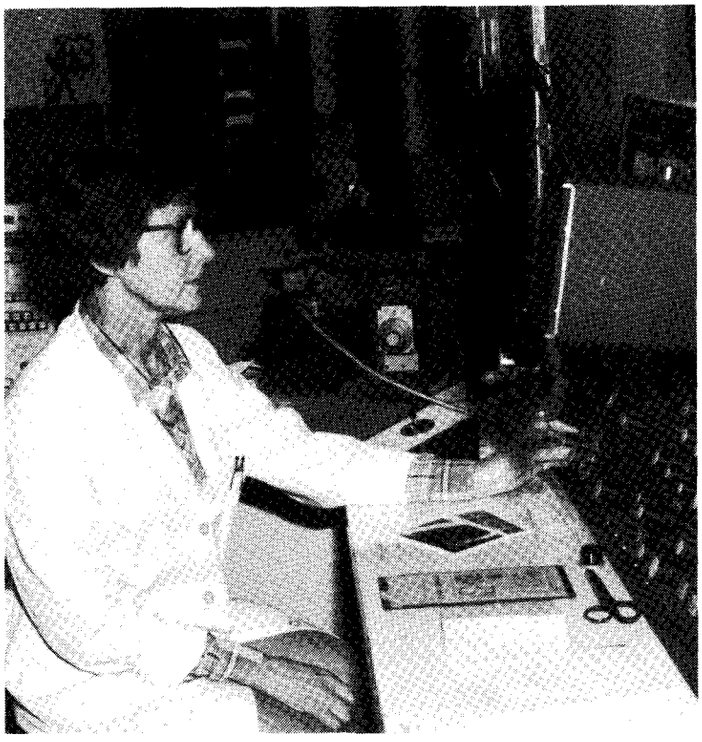
— photos by Bob Nye and Don Ward



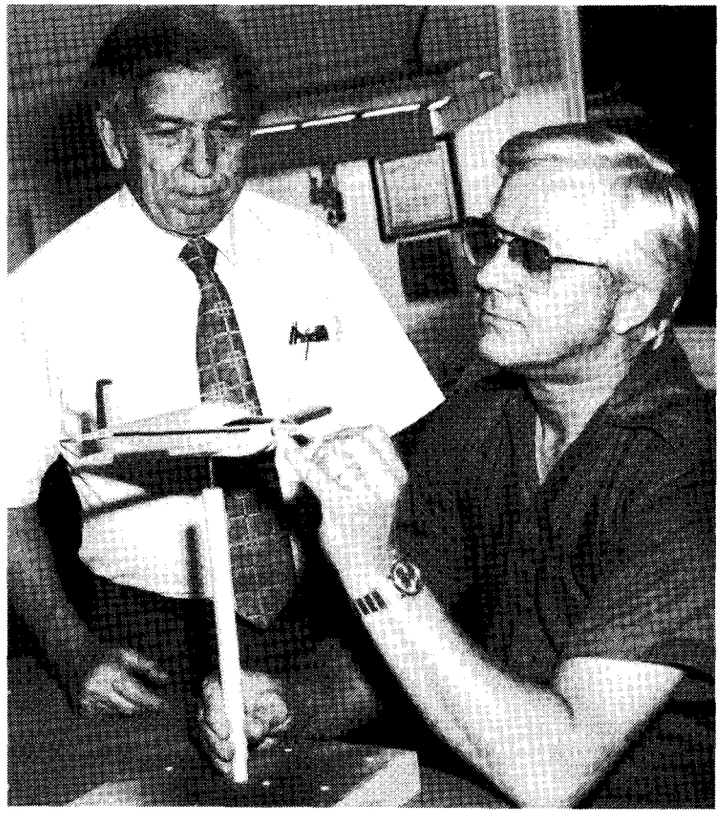
Powell D. Mitchell, Operations Support Division, attaches thermocouples to a panel being fabricated to fly on a YF-12 aircraft. The thermocouples will monitor the temperature of the panel when heated in the Abar vacuum furnace.



Michael A. Klebitz, crew chief for the F-106B research aircraft in the Flight Mechanics Division, connects wiring on one of the instrumentation packages used in the Severe Storm Hazards Program. Carrying a variety of experiments, the modified fighter plane will enable researchers to get a closer look at aircraft storm hazards, such as lightning, turbulence and precipitation, and determine how to make storms less hazardous to aircraft.



Using a scanning electron microscope, Elsie D. Illg of the Materials Division examines fracture surfaces of corrosion fatigue specimens made of advanced aluminum alloys. By using the microscope, aspects of the fracture can be characterized in very fine detail.



Charles R. Lewis, Fabrication Division, applies the final coat of paint on a modified AA-I Yankee research airplane while W. Cecil Burtner observes. The Yankee models are being modified for stall/spin tests. This particular model was on display in the NASA stall/spin exhibit at the Farnborough International Air Show in England August 31 through September 6.

Thanks

Harold Jordan writes, "I sincerely appreciate the warm fellowship, momentos and gifts received at my retirement party. I'm thankful for the opportunity to have worked at NASA. Thank you again."

Jim A. Penland writes, "I wish to express my sincere appreciation to those who planned, contributed to and participated in my retirement party. The gifts, mementos, and recollections of the years with NACA/NASA, in particular, the 11-Inch Tunnel, the X-15 project, and the hypersonic cruise aircraft program, will long be remembered."

Robert E. Johnson writes, "Thanks to all my friends and associates for the retirement celebration on June 6, and for all the gifts, expressions of friendship and especially for the two songs written just for me. Thanks again. Retirement is great!!"

Jeane B. Woolson writes "Many thanks to all of you who donated your blood in Duke's name on July 14 when the Bloodmobile was at NASA. We truly appreciate this life-giving gift."

William A. Brooks, Jr. writes, "I wish to thank my friends and associates for the fine retirement party. It will certainly rank high in my fond remembrances of Langley Research Center. Best wishes to all of you."

Fred Bowen expresses his warmest thanks to fellow workers and friends who sent him off in such a nice way. "Wherever other challenges may be, my heart will always be at Langley."

Carolyn Street writes, "I wish to express my deep appreciation and thanks to all my co-workers for the lovely cards and flowers sent during the illness and death of my mother, Bertha Jefferson."

Robert Tapscott thanks his many friends who honored him with the memorable lunch and gifts on his recent retirement. He sends a special thanks to Harry and Betty Pate from his wife, Scotty, for the lovely orchid.

Everett L. Bennink writes to express his thanks and gratitude to his friends who participated in his retirement luncheon. "The kind words and good wishes were heartening, and the gifts were greatly appreciated."

Sleeman's Still Here

William C. Sleeman, Jr., Subsonic-Transonic Aerodynamics Division, wants his friends to know that he still works at Langley. He did not retire in August, as was printed in the last issue of the *Langley Researcher.* Sorry for the error!

– photo by Don Ward

Gary B. Bayless and Ronald L. White, Operations Support Division, recently received Special Achievement Awards from the City of Poquoson. The awards were presented by the Poquoson City Manager, John Rowe, "in recognition of outstanding emergency support to the Poquoson Fire Department in extinguishing a potentially disastrous marsh fire." On October 23, 1978 the City experienced a rather large fire in an area containing mostly marsh grass. Local firemen could only reach the area by foot, with very limited equipment. The City requested the loan of an amphibious vehicle, stationed on NASA's Plum Tree Island. Within minutes of the request, Bayless and White arrived with the vehicle and fought the fire as if they were actual members of the Poquoson team. Through their efforts and those of the Poquoson firemen, the potentially hazardous fire was brought under control.

Happenings

BLOODMOBILE. The Red Cross Bloodmobile will be at Langley Wednesday, October 1, 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.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, September 24, at 4 p.m., in the Union Office, Building 1232B.

THE TRAILER located on the Activities Center grounds will close for the year September 26.

BINGO will not be played September 25.

HAPPY HOUR will be held Friday, September 26, from 4 to 6:30 p.m. in the Activities Center.

'COME MEET YOUR CITY,' sponsored by the City of Newport News, will be held at Todd Stadium Saturday, September 27, from 10 a.m. to 4 p.m. The purpose of the event is to enable the citizens of Newport News to learn more about the services offered by the city and to give city employees a chance to explain their role and the services they provide. Citizens will also have an opportunity to talk with the members of City Council and the city manager's office. Other activities planned for the day include exhibits, demonstrations, fire truck rides and entertainment.

DOG TRAINING CLASSES. The James-York Dog Training Association (formerly NASA Dog Training School) will register new classes in kindergarten puppy training and basic obedience Thursday, October 2, at the Hampton Armory on North King Street. Registration will be at 7 p.m. Please bring your dog's up-to-date shot record. For further information call 874-5706 or Garl Gentry, extension 3611.

Williamsburg Flotilla Offers Safety Course

The Williamsburg Flotilla of the U.S. Coast Guard Auxiliary will present the sailing and boating safety course, "Sailing and Seamanship," beginning in October.

The course will be held at Lafayette High School each Monday and Thursday from 7:30 p.m. to 9:30 p.m., beginning Monday, October 6, and ending Monday, November 24.

"Sailing and Seamanship" is designed to introduce beginner sailors to the principles of sailboat operation and to provide them with a sound understanding of basic principles of boating. Experienced sailors, or those primarily interested in power boats, may also find the course useful and interesting. A course completion certificate will be presented to those passing the final examination.

There is no fee for the course. It is recommended, however, that students purchase a textbook that is available from the Auxiliary at a cost of $8.50. While the course is open to all, children under 12 years of age might find it difficult.

Call Andy Swanson, 229-8024; Carl Pearson, 220-0499; or George Pankey, 829-5381, for further information.

Foster Wins Drawing

Durward M. Foster, a registered car pool participant in the Car Pool Incentive Program, won the September drawing for $20 presented by the Langley Exchange Council.

Foster works in the Scout Project Office.

Monthly drawings will continue through December as an incentive to expand the number of car pools at Langley.

NASA's Visitor Center Remembers the Early Years of Langley

1917 - 1939

October will be a nostalgic month as the Langley Visitor Center pays tribute to "Langley -- The Early Years, 1917 – 1939."

Special speakers will reminice about Langley's early days as the Langley Memorial Aeronautical Laboratory and discuss aircraft and aviation research from this era. More than 70 photographs of the people, aircraft, facilities and research of the period will be on display throughout October along with a special exhibit on World War I aviation.

A number of films on early aviation will also be featured. One 1933 American Airways film boasts of the ability to carry passengers from coast to coast in only 48 hours while others trace the history of flight and explore the aeronautical oddities that frequently resulted from man's quest for flight.

			PROGRAM: 1 "Quest for Performance-The Propeller-Driven Aircraft 1917–1939" Laurence K. Loftin NOON	FILM: 2 "Early Flight" NOON	PROGRAM: 3 "Early Aircraft Tested at Langley" Robert O. Schade NOON	4 EARLY AVIATION FILMS 8:30 – 4:30 p.m.
PROGRAM: 5 "Early Aircraft Tested at Langley" Robert O. Schade 2:00 p.m. EARLY AVIATION FILMS - NOON–4:30 pm	FILM: 6 The History of Aviation – Part I NOON	FILM: 7 The History of Aviation – Part II NOON	PROGRAM: 8 "Langley Memorial Aeronautical Laboratory – The Early Days" Axel Mattson NOON	FILM: 9 American Airways Promotional Film–1933 NOON	PROGRAM: 10 "Early Langley Efforts to Reduce Drag" Dr. Paul Coe NOON	11 EARLY AVIATION FILMS 8:30 – 4:30 p.m.
PROGRAM: 12 "Early Langley Efforts to Reduce Drag" Dr. Paul Coe – 2:00 pm EARLY AVIATION FILMS	FILM: 13 *Mobility for Mankind* NOON	FILM: 14 *Air Show* NOON	PROGRAM: 15 "Remembering Langley in the 1930's" Charles Zimmerman NOON	FILM: 16 Aeronautical Oddities NOON	PROGRAM: 17 "Early Spin Research" Anshal "Red" Neihouse NOON	18 EARLY AVIATION FILMS 8:30 – 4:30 p.m.
PROGRAM: 19 "Reminiscence of Langley in the 1920's and 30's" Upshur Joyner– 2:00 p.m EARLY AVIATION FILMS	FILM: 20 Early Flight NOON	FILM: 21 The History of Aviation – Part I NOON	PROGRAM: 22 "Preparing for Air National Defense" John P. "Jack" Reeder NOON	FILM: 23 The History of Aviation – Part II NOON	PROGRAM: 23 "Early Wind Tunnels of NACA" Donald D. Baals NOON	25 EARLY AVIATION FILMS 8:30 – 4:30 p.m.
PROGRAM: 26 "Langley Recollections 1927 – World War II" T. Aubrey Harris 2:00 p.m. EARLY AVIATION FILMS	FILM: 27 American Airways Promotional Film – 1933 NOON	PROGRAM: 28 "Boyhood Memories of Langley" Judge William E. Spain NOON	PROGRAM: 29 "A New Era in Air Foils" Laurence K. Loftin NOON	FILM: 30 Air Show NOON	PROGRAM: 31 "Preparing for Air National Defense" John P. "Jack" Reeder NOON	PROGRAM: NOV. 1 "Early Wind Tunnels of NACA" * * * * * * * * * EARLY AVIATION FILMS

FILM CREDITS: "Early Flight," "Air Show" and "Mobility for Mankind" courtesy of the National Air and Space Museum. "The History of Aviation - Parts I and II" courtesy of the War Memorial Museum.
EXHIBIT CREDITS: World War I Aviation – On loan from the War Memorial Museum; Early Aviation Newsreels, on loan from the Shannon Air Museum.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Space Administration
NASA-451

U.S.MAIL

swap and shop

FOR SALE

Articles

Antique mahogany vanity with chair, mirror, brass knobs, $175; double bed, traditional, complete, $60; old mahogany coffee table, $15; lamps, $6 or $15 pr.; country curtains, $3 pr. Call 220-3421.

Olympus Zuiko Lens 135 mm f2.8 w/filter and case, EC, less than six months old, $125. Call Charles Hilstrom, 229-6455 after 6 p.m.

Brownie uniform, size 7/8; Girl Scout uniform, size 7/8; and Gilr Scout leader's uniform, size 12. Call Wilson, 838-6923.

Vehicles

MG Midget, 1976, new top, new paint, VGC, 26,000 miles, $2,600. Call 898-3900.

Real Estate

Courthouse Green Townhouse: 3 BR, 1 1/2 BA, freshly painted, new carpet, assume 7 percent VA loan, $40,900. Call 59904321.

York County, Marlbank: Wooded corner lot, Old Landing Road and Poplar Point Drive, .59 acre, $22,000. Call 898-5033.

FOR RENT

Sandbridge: cottage with liv.-kit.-din. area, 4 BR, washer, dryer, dishwasher, fireplace, AC, phone, 6-car parking, 1/2 block from beach and Backbay; semi-winter rates $275/wk., winter $300/mo. plus utilities or $500/mo. including utilities. Call G. O. Kent, extension 3095 or 420-8391.

"Buzzards Roost" on Hatteras Island at Frisco: Oceanside, 50' house trailer, furnished including dishes, 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, $155/wk. Call Fogle, extension 2651 or 826-6177.

WANTED

Fifth driver from Windsor Great Park area to West area on 8 a.m. shift. Non smoker preferred. Call Lamar, extension 3711.

Person to join car pool from Norfolk. Call Rosemary Froehlich, extension 2296.

Sewing and alterations, 30 years experience. Call 898-3776.

Singers are needed for an all-female barbershop chorus forming in Hampton. No musical background is necessary. For meeting dates and times or for other information concerning the Sweet Adelines, contact Dorothy Watson, 722-0139, or Catherine Kaoudis, Mail Stop 157C.

Energy Saving Tip

Do not forget to defrost your freezer regularly. Never allow more than one-quarter inch of frost to accumulate. Frost on freezer walls makes the motor work harder, wastes energy and takes up usable space.

Retirement Parties

Tom Carpini, Instrument Research Division, will be honored with a retirement party Tuesday, September 30, in the Activities Center. A cash bar social will begin at 6:30 p.m. with prime rib dinner being served at 7:30 p.m. The cost including gift will be $8.75 per person, or $16 per couple. Those wishing to contribute to the gift only may do so by forwarding $1.50. For reservations, send cash or check to Sue Gilliland, Mail Stop 236, by September 24.

Eugene K. Allen and **Ruffner F. Stalnaker, Jr.,** who retired from Langley in August, will be honored at a retirement party Wednesday, October 1, at the Fort Monroe Officers' Club. A social hour will begin at 6 p.m., followed by dinner at 7 p.m. The cost will be $9 per person. Send name and check to Diana Smith, Mail Stop 441, by September 26.

James N. Chacamaty, Systems Safety, Quality and Reliability Office, will be honored at a luncheon Friday, October 17, at the Activities Center. A hot buffet luncheon will begin at 11:30 a.m. The cost will be $6.50 per person. Make reservations by sending check to Margaret Foster, Mail Stop 429, by October 10.

cafeteria menu

WEEK OF SEPTEMBER 22

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Chicken & Spanish Rice; Crab Cutlets. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Eggsalad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Pork Chops; Roast Beef; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Been & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Salisbury Steak; Fresh Eggplant Parmesan. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Beef Balls Stroganoff; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken Chow Mein; Polish Sausage. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF SEPTEMBER 29

MONDAY: Ham & Lima Bean Soup; Quiche Lorraine; Chicken Cordon Bleu; Knockwurst Reuben. Snack Bar: Pizza; Eggsalad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: French Onion Soup; Roast Turkey Dinner; Half-pound Chopped Steak; Beef Enchiladas. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Gumbo Soup; Veal parmesan; Teriyaki Beef Kabobs; Braised Beed & Vegetables. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Hot Ham & Cheese; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Barbecued Chicken; Stuffed Fresh Bell Peppers. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

National Aeronautics and
Space Administration

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SPECIAL ISSUE

September 26, 1980

One campaign helps people...
...All year long!

America, Langley Strive to Meet People's Needs

America--one nation indivisible--a nation where people are working together to make our country a better place in which to live; a nation striving to meet the needs of the people.

And here on the Peninsula, Langley is no exception. We, too, are working together to meet the needs of our people and to shape our community's future.

Once again, Langley has joined forces with other civilian and military employees to form the Peninsula Combined Federal Campaign. Through this campaign, we have an opportunity once a year to contribute to the many 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--our families, friends and neighbors--all year long.

The Peninsula Combined Federal Campaign goal for this year is $677,448. The money will be distributed among the Peninsula United Way, Williamsburg United Way, National Health Agencies, National Service Agencies and International Service Agencies. Each of these organizations distributes its funds directly to subsidiary agencies.

The United Way, an organization devoted to making it easier to deal with the problems of being human, 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 campaign--the Peninsula United Way and the Williamsburg United Way.

The National Health Agencies are organized to implement nationally recognized health programs of research, education and service within the community.

The National Service Agencies, new to the campaign this year, are national voluntary organizations that provide domestic welfare services.

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. These agencies provide the tools, knowledge and management to millions of needy people to help them build a future for themselves and their children.

A brochure, listing the recipients of our gifts and describing their activities, will be distributed during the one-day solicitation--**October 2**. Please take the time to study the brochure before making your contribution. Each agency needs your support in helping the people in our community. "By helping to shape our community's future through the Combined Federal Campaign, we're more than just living our lives. We're fulfilling them," a volunteer worker said.

Langley, though a very small area of America, plays an extremely large part in shaping our community's future and meeting the needs of our people.

Help fulfill the lives of others. Contribute to the Combined Federal Campaign.

One-Day Solicitation - October 2

This mobile intensive care nursery was purchased through the March of Dimes Birth Defects Foundation for the Children's Hospital of the Kings Daughters in Norfolk. The March of Dimes Birth Defects Foundation is dedicated to the goal of preventing birth defects and their consequences for patients, families and society. Your contribution to the non-profit National Health Agencies helps foundations like the March of Dimes meet the needs of our own community.

Let's Get Our Motives Straight

"Here come the Combined Federal Campaign workers.

"I am not going to give this year because I don't like XYZ Agency.

"I'll give my $2 now and get it over with.

"Giving through the CFC is one way I can show my concern for others. I look forward to doing my part in making this year's campaign successful."

Which of the above fits you?

I imagine that most people can find one or two agencies or services whose goals and programs are not in concert with our life style or principles. Yet, if we take time to inquire, we will find that the services provided by those organizations are needed in our society and it is far better to have those services provided by people with a personal interest than by a government agency which is the usual alternative for providing welfare and social services. Still, if you have serious concerns about an organization or have a particular one you want to give special support to, you can designate your gift according to your desire. This year there are 77 organizations that will benefit from the Combined Federal Campaign.

If your contribution fits the second example, you are not getting the satisfaction that comes from a genuine concern for helping others. The opportunity of giving through a consolidated campaign like CFC, where largely volunteer help is available and

Continued on page 8.

'No Man is an Island'

International Service Agencies are Involved

Some 350 years ago the poet John Donne wrote, "No man is an island" .... "Any man's death diminishes me, because I am involved in mankinde."

Americans agree with this concept of man in that compassion and concern for others is part of our national heritage. Catastrophe, misery and desperation engulf millions of people, and because we are "involved in mankinde" we feel that we must help to relieve the agony.

The International Service Agencies help people in need around the world to work toward a brighter future for themselves and their families. The Agencies direct service programs, improve health, increase food production, provide better nutrition, expand educational opportunities, teach job skills, develop communities, control explosive population growth and enable oppressed people to rebuild their lives.

In addition to the long range self-help development programs which are vital to establishing decent living conditions, the Agencies also respond with immediate emergency aid in times of earthquakes, floods, famine and wars. "No man is an island" where the ISA agencies are involved.

Organizations included in the International Service Agencies are CARE, Helen Keller International, International Human Assistance Programs, International Rescue Committee, Planned Parenthood-World Population, Project HOPE, Save the Children, The Pearl S. Buck Foundation, Foster Parents Plan and Africare.

Through their combined efforts, this association of agencies serves more than 43 million people in the developing countries each year. Much of this work is made possible through participation in the Combined Federal Campaign.

The International Service Agencies are reviewed annually by the Federal Eligibility Committee to assure that they meet the established requirements as to program objectives, administrative integrity and financial responsibility.

Vitamin A must be included with the special nutrients to save this child's vision as well as his life. Helen Keller International combats the staggering problems of blindness in developing countries. HKI works at the grassroots level to prevent and treat eye disease, primarily among malnourished children, and to provide education and vocational training to enable blind individuals to escape from poverty and helplessness.

Using her HOPE training, a Guinean nurse immunizes a young member of her West African community.

Newly arrived Laotian refugees at a camp in Thailand will receive medical care from the International Rescue Committee of ISA.

Agencies Offer Valuable Services

Members of the community donated millions of dollars and volunteered thousands of hours of time during 1979 and 1980 to agencies which offer valuable services to the community.

For many of these agencies, the funds received through the United Way Campaign make up the majority of the operating funds for the programs they offer.

These agencies offer a variety of programs for military personnel, young and old, families and minorities.

The Family Service/Travelers Aid is one of the many agencies of the United Way that offer valuable service to members of the community. In 1979, the Family Service counseled 1,005 individuals in family relationships, and marital problems, according to E. C. Cotton, executive director. The agency also conducts group sessions and speaking engagements throughout the community.

In addition to counseling, the agency, through the Travelers Aid, offers assistance to people who may encounter problems, while traveling in the area.

The Voluntary Action Center serves and promotes volunteerism on the Peninsula. According to Ann Carroll, executive director, the center has four main functions: (1) Recruit, interview, and refer individuals who volunteer to over 100 different service agencies in the area; (2) Act as a consultant and give technical assistance to groups that want to start a volunteer program; (3) Sponsor seminars and workshops for management concerned with volunteer programs; and (4) Serve as an advocate for volunteerism.

The group also acts as the Christmas charity clearing house, runs the Retired Senior Volunteer Program (which has 700 members over 60 years old) and aids people who wish to serve as volunteers on government commissions and boards of non-profit organizations.

The Big Brothers/Big Sisters of the Peninsula provides one to one relationships with children in need of friendship or guidance, according to Debra Coleman, assistant director. Each match is carefully selected according to a person's interest, race, religion and age a person prefers to be with. Each match is followed by caseworkers of the organizations.

Coleman said there is a substantial waiting list for children who want big brothers or sisters. She said during the year they hope to put more emphasis on the recruiting of minority big brothers and sisters. As of August 1980, there were 169 matches through the organization.

The Peninsula Association for Retarded Citizens operates the Sarah Bonwell Hudgins Regional Center, located next to Thomas Nelson Community College, and four residential homes on the Peninsula.

Boys' Club workers serve as fathers, brothers, uncles and counselors to youngsters on the Peninsula. In addition to the recreation programs, the club offers total development of a boy's life: academic, including a tutoring program; social; and religious, home and street life.

Growing Up Is Hard Without Someone To Listen

®

Call 499-2311 Today
Big Brothers/Big Sisters of Tidewater
A United Way Member Agency

The center serves 280 mentally retarded citizens ranging in age from six months to 60 years. According to Roger Warner, director, 75 percent of those at the center are adults. He said the residential homes house a total of 44 mentally retarded on a 24 hour basis.

Presently, 220 of the mentally retarded at the center work at the center's sheltered workshop. The workers do various jobs including printing, silk-screening, ceramics and ribbon and bow making. Many of the jobs they perform are under contract, and the money made through the contract helps pay the workers' salaries.

The volunteers of the Hampton Roads and York County Chapters of the American Red Cross have given thousands of hours of their free time in helping others in the community.

The two chapters combined have conducted water safety courses to approximately 3,200 people and first aid and CPR courses to 4,530 people, collected 15,473 units (pints) of blood, aided 12,681 military personnel, and aided approximately 290 individuals who were victims of fire or other disasters.

According to Pat Stern, Hampton Roads Chapter executive director, volunteers also aided 2,204 other individuals through nursing and health programs and blood pressure and diabetic screening clinics.

The York County Chapter also offers a service which is unique in this area, according to Nancy Bryan, executive secretary of the York County Chapter. She said the chapter offers the assistance of interpreters at area hospitals to aid doctors in emergencies with patients who do not speak English.

Directorates Challenged to Reach Suggested Goals

The Directorates are challenged again this year to exceed last year's gifts to the Combined Federal Campaign.

Listed below are the actual gifts for 1979–80 and suggested goals for this year.

SUGGESTED DIRECTORATE CFC GOALS

Directorate	Actual Gifts 1979–80	Suggested Goals 1980–81
Director	$ 3,440.	$ 3,500.
Electronics	38,005.	38,000.
Structures	24,711.	25,000.
Aeronautics	25,901.	26,000.
Management Operations	17,216.	17,500.
Systems Engineering & Operations	39,484.	39,500.
Space	18,998.	19,000.
Projects	7,350.	7,500.
Sub-Total	$175,105.	$176,000.
Other (Retirees, GWU, Army, etc.)	10,229.	9,600.
Total	$185,334.*	$185,600.

*Subsequent gifts increased total to $185,602.

The Williamsburg Area Day Care Center provides daily care for the young children of low income families with working parents. The center is licensed to accommodate 100 children within its two facilities and has been a source through which many families have realized self-sufficiency. The United Way helps meet the needs of the center and through your contribution to the CFC, these needs can be met.

Langley personnel have traditionally given wholehearted support to CFC. We can reach our goal of $185,600.

Contributions to this year's campaign will not only help the community, but could possibly help our neighbors, friends or loved ones, when they need it most.

Thanks to you it works for ALL OF US.

Your Contribution Does Real Things for Real People

For many years children with kidney disease were unable to go to summer camp because there were no facilities for them to dialyze, which they must do three times a week. Today, that has changed for many children thanks to National Kidney Foundation Affiliates that sponsor special summer camps equipped with artificial kidney machines and staffed by special medical personnel.

Knowing that someone cares; knowing that they will be there when needed; that's the best medicine in the world for the sick and disabled. The member agencies of the National Health Agencies care––through their community service programs. NHA programs include preparing meals for the disabled; providing transportation to therapy centers; visits to shut-ins; plus a myriad of other simple but vital services designed to relieve the burden of illness. Your support of the National Health Agencies makes community service programs possible.

National Aeronautics and
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Langley Research Center
Hampton, Virginia
23665

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COMBINED FEDERAL CAMPAIGN

CFC

Everyone Pulling Together Makes Our Money Work Harder

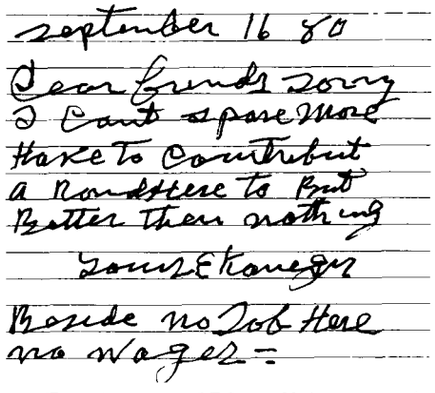
'Louie' Comes Through Again

An early contribution to the Combined Federal Campaign was received last week from retiree, Louis E. Kanegis.

Kanegis, 91, lives at the Shelton Home in Hampton. Following his retirement from Langley, Kanegis worked for a contractor performing odd jobs around the center. Many of you probably remember seeing him collecting empty drink bottles or washing windows. He was always willing to help, whenever or wherever he was needed.

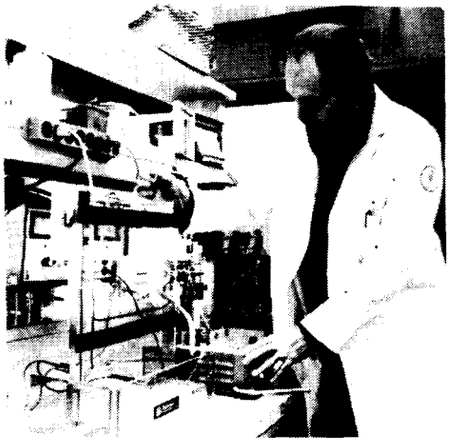
His willingness to help still goes beyond doing favors and odd jobs. He has, over the years, supported the CFC and has always been one of the first to contribute to this worthy cause. This year, he came through again with his donation.

Accompanying his contribution was a note that he wanted us to share with you.


september 16 80
Dear friends sorry
I Cant spare more
Have to Contribut
a Dollar here to But
Better than nothing
Louis E Kanegis
Beside no Job Here
no Wages =

The Langley CFC staff hopes each of you will have the same desire to help others, too. Your contribution will not only be appreciated by the center volunteers, but will be appreciated much more by the recipients. Don't be the one to keep Langley from reaching its goal.

Charity begins at home but must not stop there. Join Louie Kanegis and support the campaign by giving what you can.



In this photograph, a doctor is using two-dimensional gel electrophoresis for the complete purification of human interferon protein. The American Cancer Society is supporting interferon because it stimulates the body's own immune system and may prove helpful in controlling or curing cancer. The American Cancer Society offers many lifesaving programs and services to Tidewater residents, such as breast self-examination teaching programs, cancer screening clinics, youth and adult anti-smoking programs and health education curriculums for elementary, secondary and college students.

Motives

Continued from page 2.

overhead and expenditures are kept to a minimum (less than 3 percent for CFC) should be viewed as a means to maximize your giving effectiveness. To the contrary, many of us view the CFC like a bill consolidation loan from the nearby savings and loan association. Our intent is to consolidate giving into a single and usually smaller payment.

If you give according to the principle in the third example you are one of those who in the past has made CFC successful and will do so again this year. The challenge for meeting the 1980–81 goal of $185,600 is real. During August we lost some 54 of our more senior Langley employees. Those of us left will have to dig a little deeper.

As you read the literature and talk to the solicitors, ask yourself "into which category of giver do I fit?" Consider the privilege that we enjoy in this country to help those in need and to help shape your lives into strong and productive citizens of tomorrow. Join the joyful givers--give generously.

Thank You.

Joseph W. Stickle
Co-Chairman

**Gifts We Give Each Other for Being Human--
Gifts in the Best of Human Tradition:
Sharing.**

National Aeronautics and
Space Administration

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Langley Researcher

Volume 19 Issue 20 October 3, 1980

Service Awards Ceremony Honors Employees

The Annual Service Awards ceremony, honoring employees with 40, 35 and 30 years of service, and the recipients of the Public Service and the Outstanding Volunteer Service awards, will be held at Langley Tuesday, October 14.

The ceremony will begin at 1:30 p.m. in the Activities Center, Building 1222.

Langley Director Donald P. Hearth will present service emblems and certificates to the following:

Forty Years' Service:

Joseph V. Boyle, Jr.; W. Cecil Burtner; Percy E. Garrington; Joseph Getsug; D. Eugene Hicks; Oscar E. Hillard; Benjamin M. Tingelhoff; and W. Robert Wade.

Thirty-five Years' Service:

Roger A. Anderson; Maurice F. Armistead; Robert A. Babcock, III; Charles A. Baldwin; Ivan E. Beckwith; Freda N. Bloch; Leon A. Blount, Jr.; Walter E. Bressette; William A. Brooks, Jr.; Joseph B. Bunting; E. Curtis Burt, Jr.; Ralph M. Byers;

John E. Canady, Jr.; Matthew Carli, Jr.; James D. Church; Sherman A. Clevenson; Herbert J. Cunningham; Walter J. Dale; Robert C. Dreher; James C. Dunavant; Ruby H. Felker, Nancy C. Ferro; Edward N. Fleenor, Jr.; Donald E. Forney; David F. Fromal;

Thomas J. Gibbons; Otho R. Godwin; Albert W. Hall; Jane S. Hess; Robert R. Howell; Robert L. Hunt; Ruth H. Hute; William B. Igoe; Mary M. Jenkins; Mary C. Korycinski; Abraham Leiss; James W. Lynch; Charles G. Marple; Frederick R. Matthews; John R. McGehee; James W. McNamara, Jr.; Frank E. Mershon;

Theodore P. Molchan; A. Ernest Moore; Collis P. Moore, Jr.; Garland J. Morris; Odell A. Morris; Harris B. Pate, Jr., Richard A. Pride; Albert A. Schy; Edwin C. Sealey; John L. Sewall; Ashley B. Smith; Carl H. Stafford; Richard W. Storey, Jr.; Willard L. Sullivan;

Warren A. Walls, Raymond J. Ward; Melvin L. Watkins; Kathleen C. Wicker; R. Earl Williams; Thomas P. Wright, Jr.; Paul L. Yeager; and James A. Zitzelberger.

Thirty Years' Service:

Abner M. Askew; Gordon H. Bowie; Harry A. Brandt; William R. Burks; Thomas A. Byrdsong; Jackie E. Cain; Robert H. Coultrip; Alfred K. Curtis;

William T. Davis; William R. DeShazor; Robert N. Desmarais; Nellie S. Dick; Jean B. Elliott; Fred Ferrari, Jr.; Kenneth W. Holley; Walter Illg; Muriel M. Jarrett; Thelma F. Jones; Robert H. Kirby;

Ernest A. Mackley; Donald R. McFarland; Mary J. Mesic; John P. Mugler, Jr.; Sarah J. O'Keefe; Thomas E. Pepe; William R. Rash; Charles A. Rogers, Jr.; Charles H. Russell;

R. Paul Seaford; Robert B. Spiers, Jr.; Henry T. Thornton, Jr.; Sue E. Wilder; Marguerite C. Williams; and Raymond H. Womble.

The Langley Public Service Group Award will be presented to the Langley Docent Staff for "outstanding contributions in informing the general public on NASA's current and future programs." The Langley Docents are a group of volunteers who conduct tours of the Langley Visitor Center and the Tech House. They include Louis J. Bjostad, Jr.; Clarence A. Brown, Jr.;

Continued on page 2.

– photo by Bob Nye

Members of the Chinese Aeronautical Establishment Delegation take a short break on a beach at Kill Devil Hills, N.C., to admire the view of the Atlantic Ocean. The delegation toured "Kitty Hawk" as part of their visit Sept. 17 through 22 to Langley. More photos of their visit on pages 12 and 13.

'Roots' Author to Speak at Colloquium

Alex Haley's name became a household word in 1976 with the publication of his best selling book, "Roots," for which he received a Pulitzer Prize.

The internationally known author, traveler and lecturer will discuss his experiences during the 12-year search for his heritage at the Langley colloquium Thursday, October 16, in the Activities Center. His lecture, titled "A Saga of Black History--The Future of the Family," 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.

Haley 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 Langley and the College of William and Mary. Free tickets are available at the Coliseum box office.

In his lecture, Haley will discuss his years of research and documentation of the two-century saga of an American black family through generations of turbulence and change. He will also reflect on the future of the family.

Haley traveled extensively during his research, making 25 trips to Africa, talking with hundreds of people in many countries and visiting libraries, both here

and abroad, seeking information and clues that enabled him to trace his maternal family back to an African Mandingo youth named Kunta Kinte.

The success of the TV series "Roots" in 1977 led to another mini-series, titled "Roots: The Next Generation," which was aired in 1979. More recently, Haley collaborated with Norman Lear to create a television series titled "Palmerstown, U.S.A.," a story about two nine-year-old boys who grew up in a small town in the South during the Depression.

Haley was born in Ithaca, N.Y., in 1921 and was raised in Henning, Tenn. The oldest of three sons of a college professor and a grammar school teacher, he finished high school at 15. He enlisted in the U.S. Coast Guard in 1939.

After 20 years in the military service, Haley retired to a full-time career as a writer. He achieved free-lance sales to magazines such as Harper's, The Atlantic Monthly, and The New York Times Magazine. Then he became an assignments writer for Readers Digest and Playboy, where he initiated the enduring "Playboy Interviews" feature.

Among the many people Haley has interviewed was Malcolm X, the controversial black leader. This interview led to Haley's first book, "The Autobiography of Malcolm X," which was selected as one of the "Ten Best American Books of the 1960s Decade."

Haley continues to work on a new book, "Search," the story of the frustrations and joys he experienced in the quest for his ancestors.

Small Business Workshop Planned at Langley

"Small is beautiful."

To further that philosophy, a workshop on "Small Business Shop and Manufacturing Techniques" will be held at the Langley Research Center Oct. 8, sponsored by the Small Business Administration, the Peninsula Chamber of Commerce and Langley.

The sponsors hope the workshop will be the first in a series of nationwide programs for small businesses. Peninsula Chamber President Sylvia Berry and Langley Director Donald P. Hearth believe that "small businesses are vital to our way of life and to the innovative process. We hope that this first workshop will provide an opportunity to learn new ideas...," they said.

Approximately 240 small business people have been invited to the workshop, which will be held at Langley's Activities Center, beginning with an 8 a.m. welcome by Director Hearth.

Subjects discussed and explained during the day-long sessions will include technology utilization, government patents and contracting with the government. Tours of several Langley technical laboratories will be conducted and the workshop will end with an evaluation by those in attendance.

The workshop is the result of an attempt, instigated by Congressional act in July 1980, to find ways of helping small businesses better attain the expertise, knowledge and technologies that are generated by the federal government. Regional workshops will be held, each focused on a particular category of businesses.

The workshop at Langley will be limited to small shop and manufacturing businesses in Virginia, North Carolina, Maryland and the District of Columbia.

Service Awards

Continued from page 1.

Betty H. Brummer; A. Louise Caplan; Fred F. Eichenbrenner; Lloyd J. Fisher, Jr.; Nita J. Hamilton; Margaret C. Hewes; David Hillerson; and Warner Mooney.

Outstanding Volunteer Service awards will be presented to Frederick R. Morrell, Flight Electronics Division, for "providing leadership in the local communities through religious, social and youth activities" and John J. Treier, an Army employee assigned to the Operations Support Division, for "devoted effort and leadership in initiating and developing an advanced life support system for the general welfare of the Isle of Wight area."

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.

Refuse-Fired Steam Generating Plant Dedication Set

Hampton's refuse-fired steam generating plant will be dedicated at 10:30 a.m., Oct. 9, at the site on Wythe Creek Road, next to the Langley Research Center Impact Dynamics Research Facility.

U.S. Senator John W. Warner (R-Va.) will give the principal address during the dedication of the $10.4 million facility which transforms refuse into energy.

Other officials attending the ceremony will include Dr. Robert A. Frosch, NASA Administrator; Billie J. McGarvey, NASA Headquarters Facility Division Director, Washington, D.C.; Brig. Gen. W. Troy Tolbert, Commander, First Tactical Fighter Wing, Langley Air Force Base; Thomas J. Gear, Mayor of the City of Hampton; and other NASA, Air Force and Hampton City officials.

The plant, funded by NASA, the City of Hampton and the U.S. Air Force, will operate 24 hours a day, seven days a week. The plant's systems are now being tested and officials hope to have the facility fully operational in November.

Standard household refuse, such as paper and food waste, from the City of Hampton, the Langley Research Center, Langley Air Force Base, Fort Monroe and the Veterans Administration will be burned at the plant.

Items such as appliances and furniture, and the sterile ash from the plant, will be disposed of at the Hampton landfill.

Officials do not expect any odors or garbage to pollute the environment around the plant. The ash will be watered down and hauled in enclosed trucks to prevent it from contaminating the area along the route to the landfill.

Odors from the garbage will be dissipated in the plant. The clear gases which are expelled through the plant's smoke stack will meet or exceed state and federal environmental protection regulations.

The plant, which is on NASA property, will be leased to and operated by the City of Hampton. The steam will be sold to NASA-Langley for heating and cooling of its facilities.

The plant is the first such facility sponsored by a city government and federal agencies.

The program originated during NASA-Langley studies of ways to provide better energy sources and to improve the community's environment.

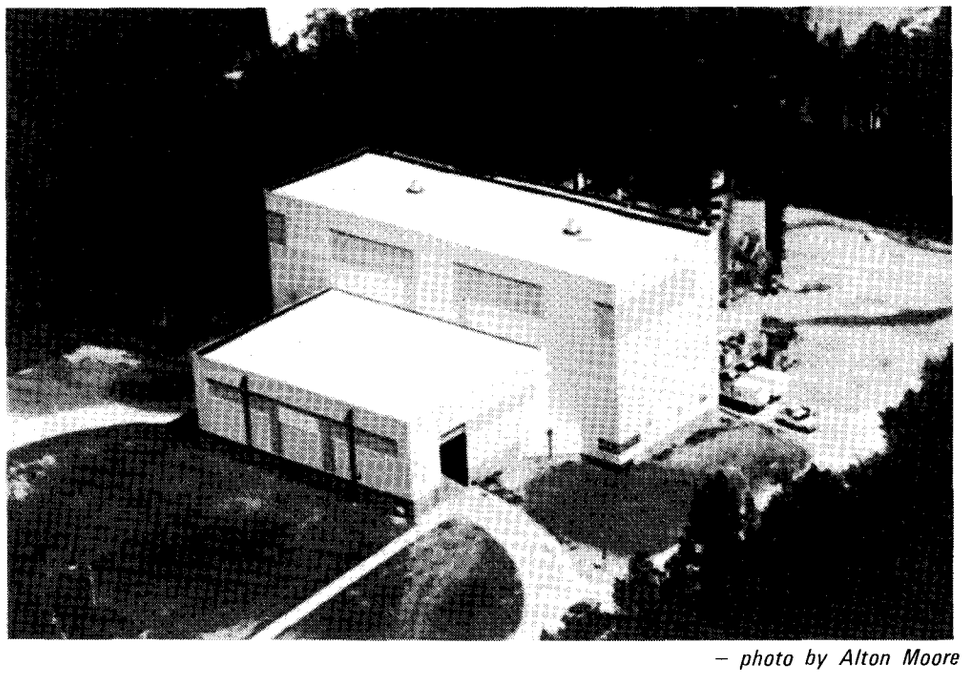
The plant will:

- Greatly extend the life of Hampton's present sanitary landfill, and eliminate the area's federal sanitary landfill.
- Improve the environment by providing a more acceptable means of refuse disposal. Existing landfill sites are less than 15 feet above sea level, thereby aggravating surface and sub-surface water contamination problems.
- Reduce the City of Hampton's refuse disposal cost through the sale of energy, produced by the plant, to NASA-Langley's steam heating system.
- Save about two million gallons each year of fuel oil, now being bought by NASA-Langley for its steam system.

The process of using refuse to produce steam follows a relatively simple procedure.

A truck loaded with garbage drives on the plant's tipping floor and drops garbage into a refuse pit, which has a capacity of 600 to 800 tons.

Continued on page 11.



– photo by Alton Moore

The refuse-fired steam generating plant located next to the Impact Dynamics Facility, will supply NASA-Langley with about 300 million pounds of steam a year for heating and cooling its facilities. The plant will be dedicated at 10:30 a.m., Wednesday. U.S. Sen. John W. Warner will give the principal address.

Langley Researcher to Join International Science Expedition

A Langley researcher will participate in an October international science expedition on the Atlantic Ocean, which will help scientists evaluate man's impact on the Earth's troposphere.

Wesley R. Cofer III, Environmental Chemistry Branch, will join other researchers from the United States and throughout Europe in conducting experiments to aid scientists in the study of environmentally important atmospheric trace gases.

The expedition begins Oct. 7 at Hamburg, West Germany, and ends Nov. 7 or 8 at Montevideo, Uruguay. Leading the group is Dr. Wolfgang Seiler of the Max-Plank Institute for Chemistry in West Germany. Seiler is considered one of the world's foremost authorities on global air pollution measurements.

During the expedition, Cofer will measure atmospheric hydrocarbon concentrations with an instrument developed by Cofer and Gerald C. Purgold, Environmental Chemistry Branch.

Cofer said the expedition will help scientists evaluate man's increasing impact on the troposphere, the region of the atmosphere in which most of man's activities are conducted.

Certain atmospheric trace gases are known to greatly influence air quality and to potentially influence the Earth's climate. Hydrocarbons have been shown to play a vital role in tropospheric photochemical cycles, such as the ozone cycle, but their sources, particularly natural sources and concentrations, are not well known.

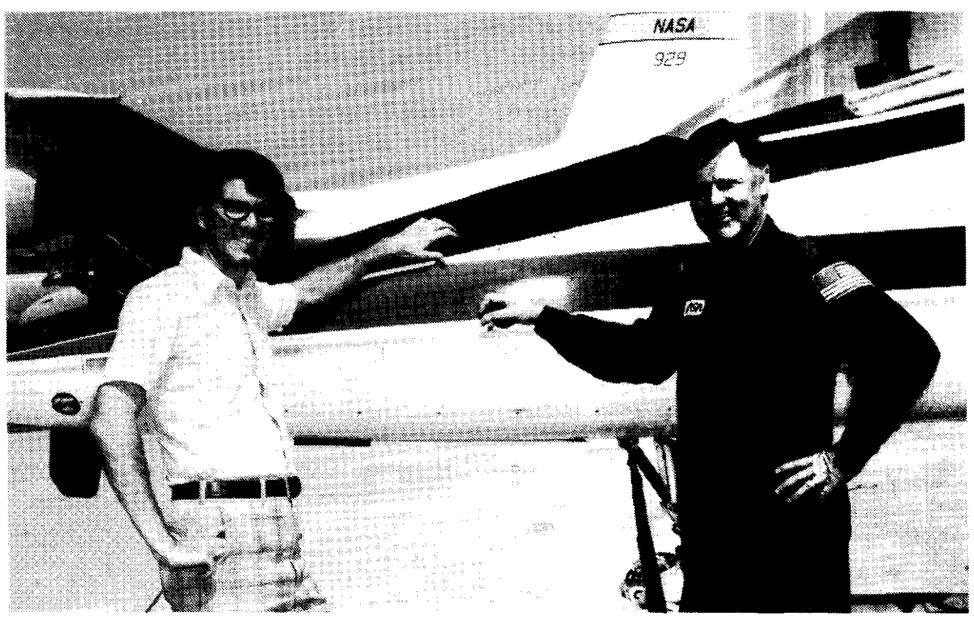
The expedition, conducted on the research vessel FS Meteor, will provide measurements from both the northern and southern Atlantic.

Cofer said he expects to see definite differences in hydrocarbon concentrations in the northern and southern hemispheres since the Earth's northern hemisphere is more populated and highly industrialized. The southern hemisphere, conversely, should more closely resemble a natural troposphere, less perturbed by man's activities.

The instrument, which will be used in a marine environment, was originally developed for aircraft use in the 1978 and 1979 Southeastern Virginia Urban Plume Study, a Langley research program to evaluate remote sensor technology.

That study involved tracking a plume of atmospheric pollutants from Hampton Roads up the Eastern Shore of Virginia.

Cofer said the technology required for aircraft measurement of hydrocarbon plumes resulted in the development of the Langley instrument that proved superior to other hydrocarbon measuring instruments.



– photo by Bob Nye

Astronaut Don L. Lind (right), Investigator for the Long Duration Exposure Facility Interstellar Gas Experiment, recently visited the LDEF Project Office to discuss plans for the formation of the LDEF Investigator Working Group with LDEF Experiments Manager, James L. Jones, Jr. (left). The IWG is being planned for the more than 200 investigators from foreign countries, private industry, universities, DOD, and NASA who are participating in the first LDEF mission. Scheduled for the spring of 1981, the IWG will provide an opportunity for investigators to review mission operation requirements such as orbit, duration and in-flight experiment operations; become familiar with Kennedy Space Center operations which interface with LDEF experiment hardware; maximize beneficial experiment interactions; and discuss methods of data sharing and publication and plans for continuing LDEF missions.

Film Night Planned

The Training and Educational Services Branch is sponsoring Family Film Night October 14 at 7 p.m. in the Activities Center.

Families and friends of Langley employees are invited to see the following film features, which will last 30 minutes each:

"Keep Reaching: The Power of High Expectations" takes a look at the thoughts behind questions such as: Why do people act as they do? What motivates them? How can we be sure that motivation is positive and produces success rather than problems?

"Managing Stress" 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 this stress.

For reservations, call Paula Land or Beth Huff, extension 2611.

Key Positions

Leo B. McHenry has been selected Head, Quality Assurance Office, Operations Branch, Flight Mechanics Division, under Competitive Placement Plan Announcement 80-25.

Harold A. Orr has been selected Printing and Reproduction Foreman, Publications Branch, Scientific and Technical Information Programs Division, under Competitive Placement Plan Announcement 80-19.

Next Week is NETH Week

1980 is the first year of a new decade, and with it come new opportunities and new challenges for disabled people.

The promises of the 1970s stand waiting for fulfillment: the 1973 Rehabilitation Act with its amendments, Public Law 94-142 with its guarantees of equal access to public education, the recommendations of the 1977 White House Conference on Handicapped Individuals, the growing strength of disabled consumer groups come immediately to mind to represent the promises.

The challenges include the pressure of inflation, an uncertain national climate, the questions of those who ask, "How can we afford to grant disabled people full access to all areas of our society?" The question is in many ways a legitimate one, but too often it masks a hesitance to make the effort, a reluctance to tear down the barriers of habit and prejudice.

That is why National Employ the Handicapped Week, October 5–11, calls for us to "emerge from prejudice" to help bring these promises into fulfillment. The new decade is likely to have two major emphases: one, a recognition of the need for action at the local level, and two, awareness of a more global perspective on disabled people everywhere. This latter emphasis will become more evident in 1981, which has been designated by the United Nations as the International Year of Disabled Persons.

What is certain is that there will be action on all fronts for disabled people, in 1980, in 1981, and in the years ahead – and NETH Week is the perfect time to focus public attention on this action.

For information concerning the handicapped contact Randy Manning, Handicapped Coordinator, Staffing and Special Programs Branch, extension 3007.

LFCU Promotes Loans

The Langley Federal Credit Union is offering prizes to three people who take out a loan for a new car or any other vehicle before Oct. 31.

Anyone who takes out a loan to buy a vehicle will become eligible to win a CB radio, an AM-FM car stereo or an AAA Club membership. The three winners will be announced Nov. 3.

The Credit Union is also offering special gifts to anyone taking out any loans made during this period, but the grand prize winners will be chosen from only members who make title loans.

The Credit Union is currently financing new automobiles at 11.75 percent annual percentage rate, which makes this one of the best rates in town.

– photo by Bob Nye

Guest speakers and CFC staff members join Langley Director Don Hearth at the Activities Center for the CFC Kickoff meeting Sept. 29. Front row from left are Joseph W. Stickle, Langley Co-Chairman; James A. Hagemann, Executive Director, National Health Agencies; William J. Jones, Chairman, Williamsburg United Fund; Hearth; Robert L. Swain, Langley Chairman; and Robert C. Foley, Regional Director, International Service Agencies. Back row from left are William L. Simkins, Langley Financial Chairman; Gordon L. Gentry, Chairman, United Way of the Virginia Peninsula; and Col. Fred A. Crow, Chairman, Peninsula Combined Federal Campaign. Even though Langley's one-day solicitation was held yesterday, you still have an opportunity to contribute to the campaign. Please help fulfill the lives of the less fortunate.

– photo by Bob Nye

HAS ANYBODY SEEN MY GAL!? If anyone needs a temporary secretary, Carol Wetterling, Subsonic-Transonic Aerodynamics Division, has designed and made the replacement for you. Raggedy Ann, seen recently keeping up with the center's events by reading the *Langley Researcher*, is five feet tall and weighs a mere 12 pounds. She has five sisters, each three feet tall, for anyone who prefers the compact model. It was not revealed if Raggedy Ann types, answers phones or takes shorthand.

Volunteers Needed

The Phillips Elementary School in Hampton is looking for volunteers to teach the fundamentals of computer programing to gifted fifth and sixth graders.

Dr. Jaroslaw Sobieski of Langley's Loads and Aeroelasticity Division said the school has computer terminals and is looking for volunteers to teach one hour a week. "The reward," Sobieski said, "is the pleasure to work with bright children who are eager to learn."

Because regular school hours are involved in teaching the students, perhaps there are some Langley retirees interested in volunteering their time.

For further information, call the school principal, Dr. Fama, 851-2393, or Sobieski, extension 3451.

Langley Apprentices Graduate Next Friday

Thirteen Langley Research Center apprentices will receive their journeyman certificates Friday, October 10, at the thirty-sixth annual Completion Exercises for Engineering Technicians.

The ceremony will begin at 1:30 p.m. in the Activities Center, Building 1222.

Robert L. Ballentine

Robert L. Ballentine, Director of the Regional Bureau of Apprenticeship and Training, will be the keynote speaker. Langley Director Donald P. Hearth will preside at the ceremony and give special recognition to the honor graduates. Rev. Jack L. Hamilton of the Riverside Baptist Church in Newport News will give the invocation.

Brian M. Webber, Electronics Technician in the Analysis and Computation Division, will be the speaker for the class of 1980 and Malcolm P. Clark, Head of the Training and Educational Services Branch, Personnel Division, will present the certificates. Special music will be provided by the U.S. Continental Army Band under the direction of Capt. Kenneth H. Rose.

The graduates and their trades are:

Engineering Technicians (Mechanical Development), Fabrication Division: **Danny A. Barrows** and **Timothy J. Marshall.**

Electronics Technicians, Fabrication Division: **Vincent L. Cowling** and **Joseph M. Goodwin.**

Engineering Technician (Avionics), Flight Mechanics Division: **Robert T. Fults, Jr.**

Engineering Technicians (Research Facilities Operations), Operations Support Division: **George E. Geiger, Edward A. Modlin** and **Peter Toth.**

Electronics Technician, Flight Electronics Division: **Edward H. Kist, Jr.**

Engineering Technician (Aerospace Model Development), Fabrication Division: **John B. Kovtun.**

Electronics Technician, Instrument Research Division: **Robert L. Lutinski, Jr.**

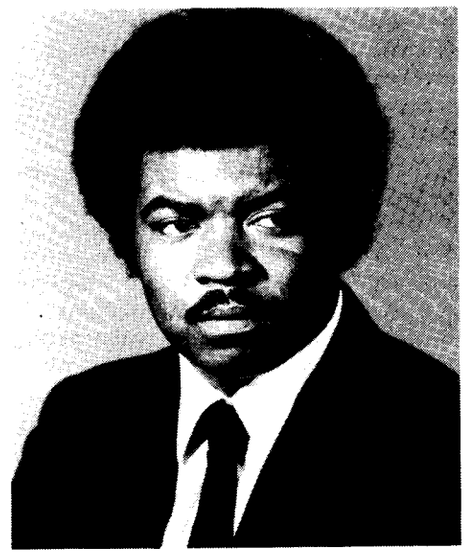
Engineering Technician (Materials Processes), Fabrication Division: **Edward C. Taylor.**

Electronics Technician, Analysis and Computation Division: **Brian M. Webber.**

Honor Graduates are: **Brian M. Webber**, Summa Cum Laude; **Edward H. Kist, Jr.** and **Timothy J. Marshall**, Magna Cum Laude; and **Robert T. Fults, Jr., George E. Geiger**, and **Edward C. Taylor**, Cum Laude.

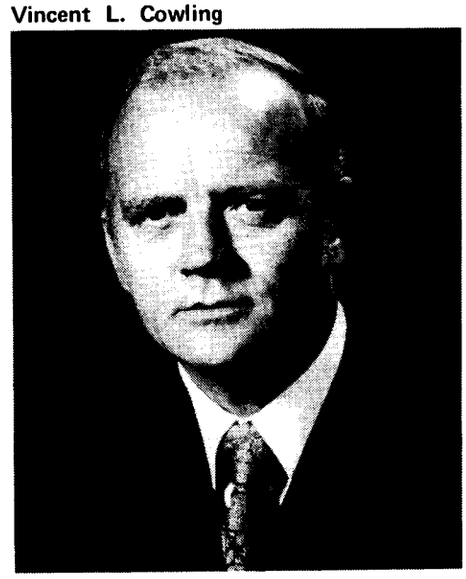
Ballentine has been the Regional Director for four years, working in cooperation with state apprenticeship agencies. He is responsible in the training of over 30,000 apprentices now participating in over 2,000 programs that are registered with the federal or state governments.

Danny A. Barrows



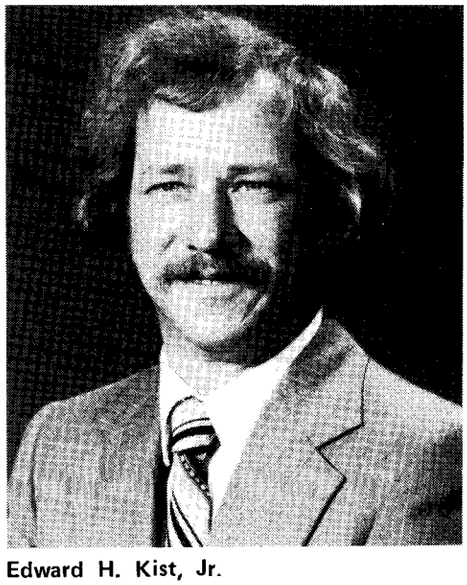
Vincent L. Cowling

Robert T. Fults, Jr.

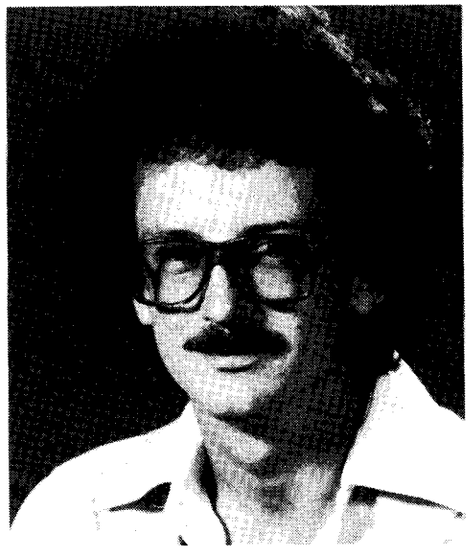


George E. Geiger

Joseph M. Goodwin

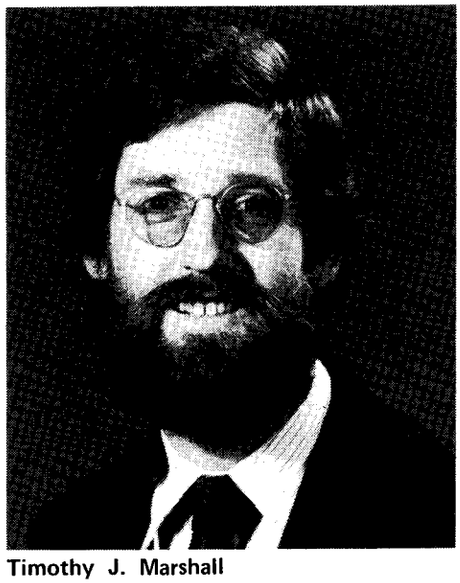


Edward H. Kist, Jr.

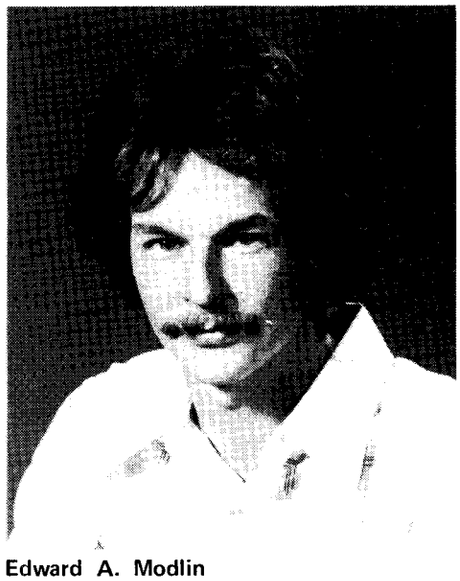


John B. Kovtun

Robert L. Lutinski, Jr.

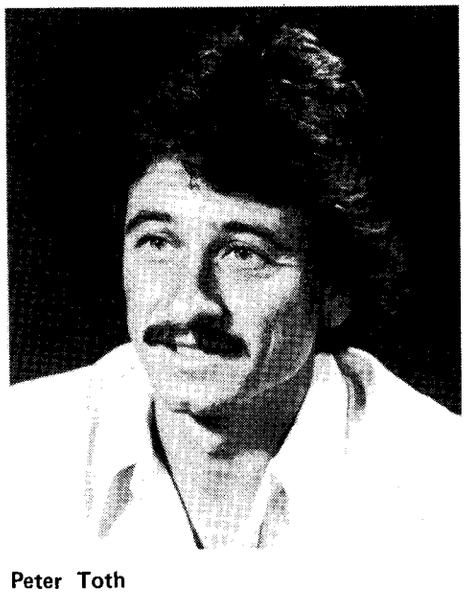


Timothy J. Marshall

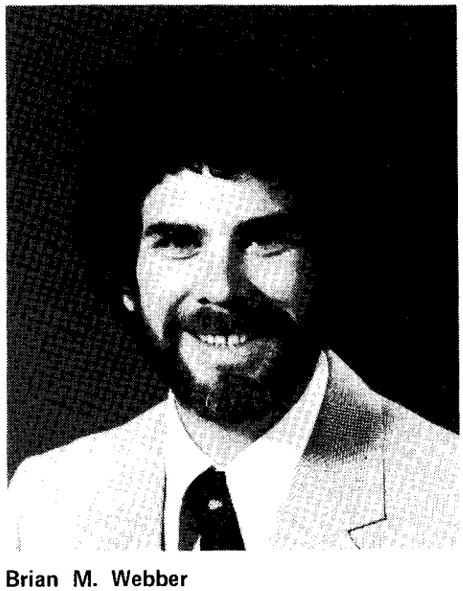


Edward A. Modlin

Edward C. Taylor



Peter Toth



Brian M. Webber

Global Picture Emerging from Recent Research Mission to Mount St. Helens

RAVE and SAGE Team Up in the Pacific Northwest

When Mount St. Helens erupted with a cataclysmic blast on May 18, huge quantities of ash and gases were blown into the stratosphere with such force that the ensuing cloud moved east 45 miles per hour faster than the prevailing stratospheric winds.

The magnitude of the output was such that three states were blanketed by ash within a day, and what material didn't drop or wash out over the next few weeks was enough to more than double the amount of microscopic particles in the stratosphere on a global basis.

Within three days of the eruption, the volcanic veil crossed the United States and Canada in as many as five distinct layers starting at around 13 kilometers (43,000 feet) and ranging as high as 22 kilometers (70,000 feet). Within 17 days the plume circled the globe, and four months later it now appears to have settled in one and sometimes two fairly homogeneous layers at from 14–21 kilometers over the United States. That is a pattern which could be relatively unvarying over the face of the entire northern hemisphere for several years and scientists now believe it may have a slight cooling effect--no more than a fraction of a degree change globally--on the weather.

This is the transcontinental and global picture which is still emerging after a recent research mission to Mount St. Helens, undertaken by Langley, Wallops Flight Center and several universities.

The two-pronged, seven-day mission was begun September 16 to study both the transcontinental volcanic veil and the gases and particles still being emitted around the volcano itself. Scientists from Langley wanted to take laser radar soundings of the plume over a long distance in relatively short time, as well as underfly an atmospheric particle monitoring satellite. Scientists from the universities and Wallops were interested in measuring various gas outputs and particles around the crater, then comparing those readings with other conditions and formulas to obtain detailed understandings of atmospheric and subterranean chemical interactions.

To accomplish this detailed study, Langley's Stratospheric Aerosol and Gas Experiment (SAGE) science team joined forces with investigators from a NASA-funded university research project known as Research on Atmospheric Volcanic Emissions (RAVE).

The mission was the first outing for the RAVE science team, which received go-ahead funding from NASA three days before the May 18 eruption. The group consists of several university professors, Ph.D.s and graduate students who intend to descend over various active volcanos during the next few years, equipped with highly sophisticated sensors and with an eye toward understanding the chemical interactions involved.

The equipment for both missions was transported on a Wallops P-3A Orion which left the center early in the evening of September 16. The scientists flew south to Georgia and then west along the 32nd parallel to Tucson, Arizona. There they turned northwest for Portland, Oregon, and passed directly over Las Vegas on the way. Enroute the light detection and ranging system, or lidar, bounced laser beams off the veil above the aircraft and obtained readings on the altitude of the layers.

The wheels of the Orion touched down at Portland International Airport around 4 a.m. local time. On September 18 the SAGE team flew another mission over Oregon and northern California to add correlative data to the readings coming from the SAGE satellite, which was moving across those latitudes at the time.

Weather began to play a frustrating factor on the 18th. A RAVE mission had been scheduled over the volcano in the afternoon, but heavy cloud cover and rain knocked down any chances for making the flight. As it was, the P-3 had a hard enough time climbing above the tropospheric clouds for SAGE readings in the stratosphere that night. The lidar used for SAGE measurements needs two things for correct readings: clear skies above and darkness.

Friday, September 19 dawned gray and gloomy, but a pre-flight briefing was held for the RAVE mission at 7:30 a.m., just in case. By mid-morning the weather reports were bad enough to

– Photo courtesy Max Guiterrez, UPI

This is all that remains of what was once Spirit Lake at the base of Mount St. Helens. Pyroclastic ash and mud flows buried the lake and choked surrounding rivers up to 40 miles downstream. Scoured trees float in the brackish pools.

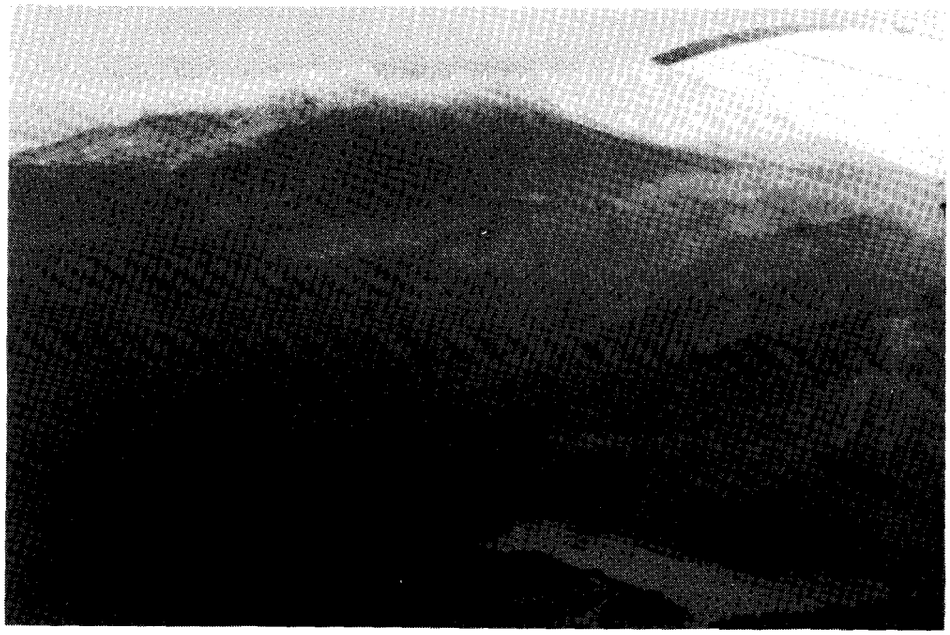
force pilot Curt Allen to scrub the mission. "There's no way we're going to go up in that kind of weather and fly around an 8,000 foot volcano," he said. The scientists agreed.

That night the last SAGE mission was flown before the satellite would pass out of the areas near the volcano. Layering returns on this flight tended to match those from earlier lidar soundings.

Saturday the 20th was a scrub by 10 a.m., but slight hope was held out for Sunday. By mid-morning Sunday it appeared that day was shot also, and the scientists looked forward to Monday's promised clearing skies as their last chance.

Portland International was grayish under a low cloud layer Monday morning, but weather reports indicated clear skies above 15,000 feet and scattered clouds below that. The mission was a go. The Orion's auxiliary power unit was switched on by 7 a.m., and with the whine of the generator the RAVE crew began last minute preparations on their instruments. The door was closed at 9 a.m., and by 9:30 the P-3 was airborne.

Clouds prevented much visual observations, but once over the volcano the instruments began to obtain what scientists felt were valuable readings of particle shapes and compositions, the presence and interactions of sulfurous and other gases, and the output of some important gases, such as sulfur dioxide. (For more details on the volcano flight, see accompanying story.)



Mount St. Helens was shrouded in clouds as the NASA P-3 made overflights in an effort to obtain detailed readings on gases and particles.

Interpretive data from most of the instruments is not expected for another few weeks, but scientists already are able to form new impressions of the atmospheric consequences of an eruption like that of Mount St. Helens.

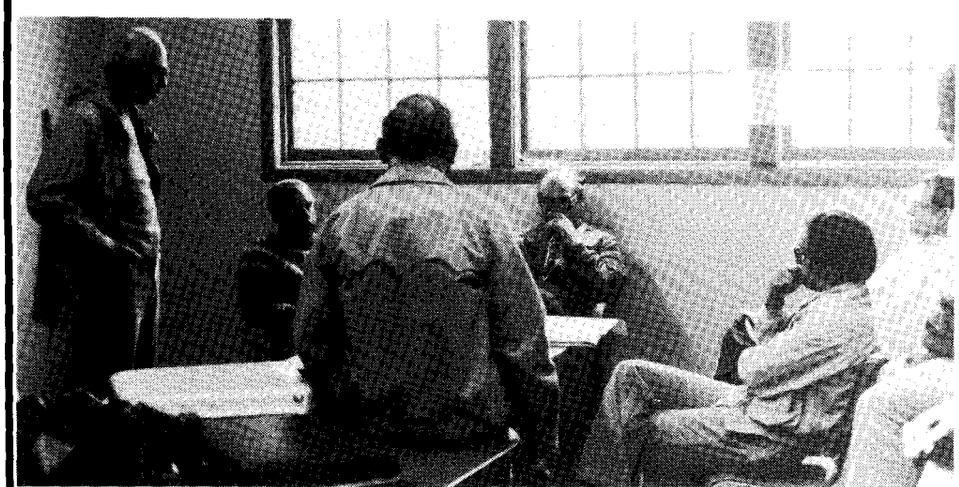
Anatomy of a Mission

– by Brian Welch

They started the first run after a reconnoitering pass at 10,000 feet.

The initial swoop over Mount St. Helens was leisurely compared to the pace they would soon set, and for the moment the cloud-shrouded volcano--even if only partially visible--was a sight which drew everyone to the windows after a frustrating five-day wait beneath the overcast in Portland.

Abruptly, the P-3A Orion banked into a tight 90-degree turn and began a 2,000-foot descent, executing another 90-degree turn on the way down, vertex trails streaming from the wingtips. The investigators were by now at their instruments, taking detailed measurements and samples of gases and particles, looking out the windows when they could and hanging on.



Scientists and crew discuss the mission plan at a pre-flight briefing.

The P-3 skimmed at 220 knots over and through the peaks of a billowy, patchy cloud cover, bounced along like a speed boat at times, and rose and fell with the shears and updrafts common to mountainous areas.

Behind the bulbous black nose of the P-3, commander Curt Allen from Wallops and co-pilot Robert "Rip Roarin'" Roehren from Lockheed wrestled the 110-foot-long transport through its paces, on a wingspan of nearly 100 feet and the strength of four Allison T56-14 turboprops with almost 5,000 horsepower each. They were very busy men as the Orion whipped in and out of cloudbanks at heights of from 5,000 to 8,000 feet, in the vicinity of a smoldering volcano that even without the quarter mile of rock it blew off its top May 18, is still about 8,400 feet tall.

Continued on page 10.

Volcano Mission

Continued from page 9.

Dave Barrett and Gene Deininger, the flight mechanics from Wallops and Lockheed, respectively, were in and around the cockpit monitoring navigation and onboard systems. Dr. William Zoller from the University of Maryland, RAVE field coordinator, stood behind the pilots directing the aerial maneuvers in accordance with the needs of the investigators and their instruments.

Behind the cockpit, Sam Sokol of Langley recorded flight data for use in later calculations, while Janet Phelan and Dave Finnegan, graduate students from the University of Maryland, loaded and unloaded the cartridges of their one- and four-stage particle samplers. The cartridge filters would later be taken to the nuclear reactor at the National Bureau of Standards in Gaithersburg, Md., where the particles would be subjected to nuclear activation analysis for over 50 trace elements. Dr. Jarvis Moyers and Mark Hart of the University of Arizona were also busy with particle sampling.

Across the aisle, Dr. Pete Maroulis and undergraduate Lane Milliner from Drexel University monitored sulfur gases on a gas chromatograph-flame photometric detector. Further aft, David C. Woods of Langley kept track of the 10-stage quartz crystal microbalance particle sampler, and behind him Arnold Torres of Wallops was busy with his gas chromatograph sampling the first nitric oxide ever detected and measured over an active volcano.

A rack of computers and relays behind Torres, Bill Hunt of Wyle Laboratories monitored the returns from the lidar, or laser radar, which was bouncing a beam off the invisible plume. Langley's Bill Fuller and Bill Rouse were also busy operating the lidar, which was able to get returns as the P-3 swooped in low under the mostly sulfurous effluents.

Near amidships, Dr. Richard Stoiber, a crusty white-haired volcanologist from Dartmouth College, hung on to his correlation spectrometer--or COSPEC--and recorded data which will ultimately give him a measure of the volcano's sulfur dioxide output in tons per day. Jim Wells, an undergraduate from Dartmouth, helped Stoiber monitor the squiggly red line registering on chart tape amidst the P-3's wing standing performance.

Behind the banks of instruments, a handful of the less scientifically occupied passengers--including a blanched-out Associated Press reporter and a tight-lipped and queasy public affairs representative from Langley--clung to some of the 20 seats, while others roamed up and down the aisles seeking to help coordinate the activities or hold on to something or stay out of the way or all three at once.

Wallops P-3A Orion used for the SAGE and RAVE missions was the prototype for the Orion when first displayed by Lockheed in the early 1960s.

Dr. James P. Friend of Drexel University, Principal Investigator for the Research on Atmospheric Volcanic Emissions (RAVE) portion of the mission, the university side of the house so to speak, made his way down the rolling aisle keeping tabs on the instruments.

Bob Taylor, a photographer from Wallops, was feverishly snapping pictures and films through three cameras, one of which was mounted in the belly of the aircraft. Periodically, Taylor would throw open the hatchway door in the rear and climb down to check his camera, straddling the optically tailored viewport and attracting one or two wary onlookers.

Dick Davis of Lockheed, the avionics technician and interface between crew and scientists, passed out air-sickness bags, and jokingly told the paler-looking passengers, "If it happens, don't let me see it or there'll be two of us sick."

Meanwhile, Ray Ethridge, a cameraman from KATU-TV in Portland and a veteran of numerous flights into the cone on small planes, kept on his feet, filming the researchers at work while the floor beneath him tilted through about three-fourths of the possible degrees in a circle. Later that day his footage would bring whoops of delight and peppery comments from the RAVE team as they unwound in a motel room and watched it on the local evening news.

As the P-3 made one particularly close pass to the volcano, tantalizingly short glimpses of the destruction caused by the May 18 eruption could be seen. On that day the volcano blew apart a large chunk of its northern face in a powerful lateral blast. The explosion, estimated at a force of 10 megatons, "devastated a zone extending 30 kilometers east to west and more than 20 kilometers outward from the volcano in an arc encompassing almost 180 degrees of the north flank," according to the Smithsonian Institution.

Destruction, according to the Smithsonian, "was virtually total in an inner zone nearly 10 kilometers wide, where no trees remained in the previously thickly forested area." At least a billion acres of prime timber was flattened and left pointing outward from the source of the blast. From the air the trees, their limbs and greenery scoured away in the explosion, looked like the remains of some colossal toothpick factory disaster. Rivers and creeks on all sides of the volcano were swollen and choked with mud, ash and debris, all hardened into what is practically a new shoreline.

Both Taylor and Ethridge tried to capture the scene on camera, but were frustrated more than once by the interminable cloud cover. At one point, Ethridge resignedly sat his camera down and went aft to mix himself a cup of the P-3's galvanizing instant coffee. He was two sips into the cup when a powerful gust and downdraft sent the aircraft lurching through a mini-parabolic arc, somewhat like the high altitude arcs in which astronauts get weightlessness training. Somebody yelled the submariner's "Dive, Dive!" and Ethridge's coffee was weightless long enough to collide with the cabin roof.

After four hours of this, and with what one scientist called "excellent data" in the instruments, the P-3 made one last lazy circle over the volcano as Drexel's gas chromatograph was calibrated, and then turned southwest for Portland.

Scout Included in Busy Launch Schedule

NASA will conduct 18 space missions using expendable vehicles in FY 1981, including three to be flown on Langley's solid-fuel Scout launch vehicle.

According to Joseph B. Mahon, NASA Director of the Expendable Launch Vehicles Program, the busy schedule involves launching a variety of scientific, weather, communications and Department of Defense satellites from launch sites located at the Eastern Space and Missile Center, Cape Canaveral, Fla., and the Western Space and Missile Center, Vandenberg Air Force Base, Calif.

The missions to be performed by Scout are Navy-20, Navy-21 and Navy-22, each scheduled to be launched from the Western Test Range in November 1980, May 1981 and August 1981, respectively.

Seven of the 18 missions will be flown on Delta launch vehicles; seven on the Atlas Centaur; and one on the Atlas-F.

Two of the flights will carry NASA scientific satellites, while the remaining 16 will be conducted for other government agencies and private firms for which NASA will be reimbursed. These include three weather satellites sponsored by the National Oceanic and Atmospheric Administration, five Department of Defense payloads and eight commercial geosynchronous communications satellites for Satellite Business Systems, McLean, Va.; Radio Corporation of America, Piscataway, N.J.; and Comsat General Corp. and the Intelsat Consortium, both of Washington, D.C.

Employees are Getting Healthier

Langley employees who have participated in the exercise test at the Occupational Medical Center have shown a decrease in coronary disease risk factors since their first test, approximately three years ago.

According to Dr. Glen Kelly, medical center director, the data is inconclusive after only 136 repeated tests, but there appears to be a definite trend towards better health.

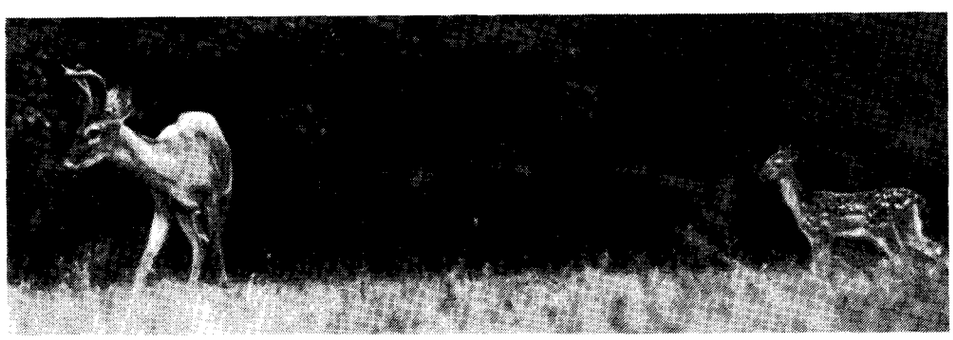
Many of the program's participants have quit smoking, lost weight, started an exercise program and lowered their cholesterol levels.

In the program, the patient takes part in the exercise test and the results are explained by the medical director. The patient's individual risk factors for coronary artery disease and other health problems are discussed and recommendations are given to correct any risk factors that may be present.

These risk factors include elevated serum cholesterol, cigarette smoking, hypertension, diabetes, exercise history, elevated serum triglycerides, obesity and family history of coronary artery disease.

A risk factor with one of the largest decreases is cholesterol levels. Of the 136 participants in the program, 70 had a cholesterol level greater than 200. Of the 70, 49 reduced their cholesterol from a mean of 238 to a mean of 207 by a relatively simple diet.

This translates into a reduction in the risk of having a heart attack from about 1.5 times the national average to about .88, a 53 percent reduction.



– photo by Fred Jones

The sight of roaming, grazing deer is not too common to these parts anymore, especially in a bustling place of wheezing wind tunnels, screeching jets and general high technology. But there they are, two young deer, part of a large group which forages the back forests of Langley. Some of our nature lovers report a thriving community out there beyond the trees, such as deer, quail, foxes and other critters.

Steam Plant

Continued from page 3.

A crane then picks up the garbage and drops it through a chute; at the bottom of the shute the garbage is pushed into a boiler.

The heart of the refuse-burning plant is two water-walled boilers that reduce solid waste to sterile ash through incineration in the furnace.

As the garbage is burned, the ash falls out of the boilers on to conveyors. It is then transported to the city landfill. The ash is essentially sterile and will amount to only about one-seventh of the solid refuse brought to the plant.

The water that flows through the walls of the boiler is converted into steam to heat or cool the facilities at NASA-Langley. About 300 million pounds of steam will be produced each year.

The gases in the boiler exit through an electrostatic precipitator, which cleans the gases before they are expelled into the atmosphere.

Thanks

Howard Edwards writes "Many thanks for the wonderful retirement party. Thanks, too, for the many gifts which I will enjoy for years to come. And my very special thanks to all of you, who through the years of NACA and NASA, have made my working life so enjoyable while together we helped Langley contribute so much in aeronautics and space."

Beware of Butane Lighters

Do you keep a plastic Butane lighter in your pocket while working in or around areas where sparks may be present?

Don't. The average Butane lighter has a force equal to three sticks of dynamite.

Within a 30-day period, two men died from exploding plastic Butane lighters in a welding shop of a Virginia company. Both deaths resulted when sparks burned through pants pockets causing the lighters to explode. One man died instantly; the other man died three days later.

中国航空研究院代表团訪问兰里中心

Chinese Aeronautical Establishment Delegation Visits Langley

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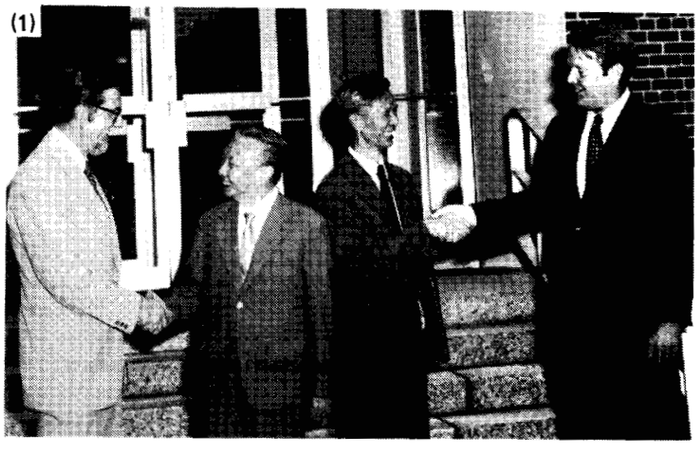

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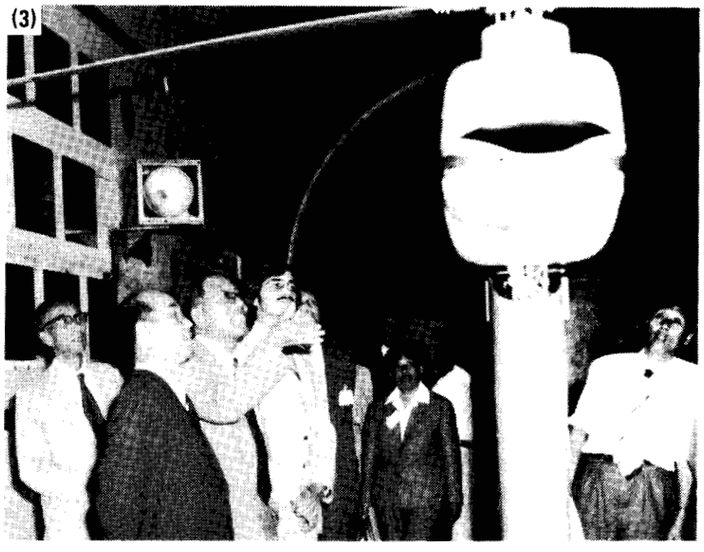

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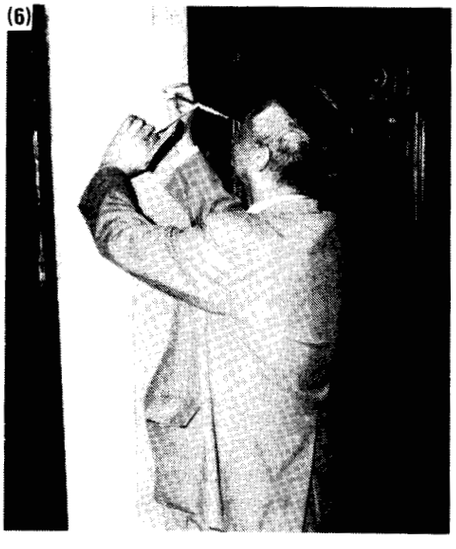

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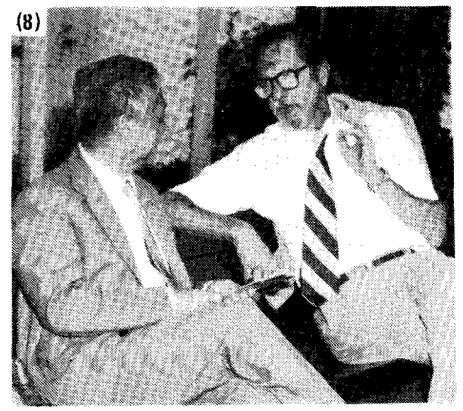

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– photos by Bob Nye and Bill Salyer

Langley Director Don Hearth greets Xu Changyu, Vice Minister of the Third Ministry of Machine Building and President of the Chinese Aeronautical Establishment, and Langley Deputy Director Pete Petersen greets Han Kuanqing, Vice President of the CAE, as the delegation arrives Sept. 18 at the Langley Headquarters Building (1). During the day the delegation received an overview of Langley research programs and a brief tour of the facilities.

The group, Sept. 19 and 22, was given technical briefings and tours in the research areas of aeronautics, structures and electronics. Included in the tours were stops at the Langley Computer Facility (2) and the V/STOL Tunnel (3).

The delegation made a trip Sept. 20 to Charlottesville, Va. There the group toured the University of Virginia's research facilities (4), grounds (5), dormitories and other buildings. Mr. Vice Minister Xu leaves a thank you note in Chinese to a student in one of the dorms (6). After touring UVA, the group made a tour of Monticello, home of former U.S. President Thomas Jefferson. At Monticello, the delegation posed for a group photograph on a deck overlooking the Shenandoah Valley (7). Later, Dr. Hearth and Mr. Vice Minister Xu stop for a few moments of relaxation and conversation before returning to Langley (8).

The group visited the Outer Banks of North Carolina Sept. 21. The group toured the Wright Memorial Museum, received a briefing on the development of the Rogallo wing, received a Rogallo Kite from Frances Rogallo (9) (right) a Langley retiree, and a briefing and demonstration on the sport of hang gliding at Kitty Hawk Kites, across from Jockey's Ridge, at Nags Head, N.C. (10).

The group ended the day with a social at Dr. Hearth's house (11) and a covered dish supper at the home of Roy Harris, High-Speed Aerodynamics Division (12). The group left Langley the afternoon of Sept. 22 to tour other NASA centers and industries throughout the United States.

Langley Summer Employees Honored

A Career Planning and Recognition Program was held recently at the Activities Center in honor of Langley's summer employees.

William L. Williams, Chief of the Personnel Division, presented Outstanding Achievement awards to: **Joyce Blackwell, Karen A. Colafrancesco, Robert H. Daugherty, Stephen A. Ezzell** and **David A. Yamaki**, Structures Directorate; **Elizabeth A. Barnett** and **Deborah D. Davis**, Management Operations Directorate; **Mark J. Hood** and **Cynthia J. Mitchell**, Space Directorate; **Lynne A. Hamilton**, Aeronautics Directorate; **Nancy L. Kent** and **Alma J. Parker**, Office of Director; **Lark Hoelzer, Pamela S. Phillips, Greg W. Van Citters** and **Charlotte A. Worley**, Electronics Directorate.

Civil Service application procedures for permanent federal employment, the Center's Cooperative Education program and George Washington University's JIAFS program were discussed by various Personnel Division employees and Dr. John L. Whitesides of George Washington University.

The Federal Summer Employment Program ended September 30.

– photo by Don Ward

Outstanding achievement awards were presented to the following summer employees: (seated from left) Lynne A. Hamilton, Joyce Blackwell, Deborah D. Davis, Pamela S. Phillips, Elizabeth A. Barnett; (standing from left) Robert H. Daugherty, Alma J. Parker, David A. Yamaki, Charlotte A. Worley and Karen A. Colafrancesco. Receiving awards but unable to attend the ceremony were Stephen A. Ezzell, Lark Hoelzer, Mark J. Hood, Nancy L. Kent, Cynthia J. Mitchell and Greg W. Van Citters.

Happenings

HAPPY HOUR will be held Friday, October 10, from 4 to 6:30 p.m. in the Activities Center.

BUSCH GARDENS and **KINGS DOMINION** tickets are available in the Activities Office for weekends only through October 31.

LAA 1980 GENERAL ASSEMBLY ELECTION. Election forms are being distributed for LAA General Assembly election to be held Tuesday, November 4. All NASA personnel are urged to participate and consider becoming a candidate. For further information, contact Herb Boulter, extension 3234.

Speakers Bureau

Samuel J. Scott, Acquisition Division, spoke on "Contributions of Ethnic Minorities to Science" recently at the Montgomery County Public Schools' Multiethnic Convention.

Cary Spitzer spoke to the Williamsburg Lions Club on September 16 about planetary exploration.

Competitive Placement Announcements

The following Competitive Placement Announcements are currently open:

80-34 – AST, Data Systems; Supervisory Electronics Engineer; GS-855-13 or 14; Analysis and Computation Division; Computer Management Branch; Computer Operations Section; Closes today; NASA-Wide.

80-35 – Head, Models and Materials Technology Branch; GS-1601-13 or 14; Office of Director for Systems Engineering and Operations; Fabrication Division; Models and Materials Technology Branch; Closes today; NASA-Wide.

80-36 – Head, Structural Engineering Section; GS-0801-13 or 14; Research Facilities Engineering Division; Mechanical Design Branch; Structural Engineering Section; Closes today; NASA-Wide.

80-42 – Assistant Chief, Operations Support Division; GS-1601-13 or 14; Office of Director for Systems Engineering and Operations; Operations Support Division; Office of the Chief; Closes October 10, 1980; NASA-Wide.

80-43 – Engineering Technician; GS-0802-8 or 9; Instrument Research Division; Electro-Mechanical Instrumentation Branch; Force and Strain Instrumentation Section; Closes today.

80-40 (AMENDED) – Administrative Officer; GS-0341-7 or 9; Office of Director for Structures; Structural Mechanics Division; Office of the Chief; Closes October 10, 1980.

80-44 – AST, Space and Earth Sciences; GS-1301-14 or 15; Office of Director for Space; Space Systems Division; Space Technology Branch; Closes October 10, 1980; NASA-Wide.

80-45 – Chief, Project Management Systems Division; AST, Technical Management, GS-801-14 or 15 or Program Analysis Officer, GS-0345-14 or 15; Office of Director for Projects; Projects Management Systems Division; Closes October 10, 1980; NASA-Wide. (Note: APPLICANTS WHO APPLIED UNDER ANNOUNCEMENT NUMBER 80-17 WILL BE AUTOMATICALLY CONSIDERED.)

Thanks

William R. Rash writes "I want to thank all of the many friends who attended the luncheon given in honor of my retirement, and for the nice gifts. I shall cherish the memories of my association with you and your friendship."

Woodburning Stove Guidelines

Editor's note: The following article appeared in the August 1980 issue of National Safety News. We thought you would like to read it.

National Fire Prevention Week is October 5 through 11. The following tips are offered on safe use of woodburning stoves.

Record numbers of North Americans are facing this winter by looking backward—to woodburning stoves much like the ones that heated parlors 100 years ago. Industry sources predict that as many as a million and a half people will install stoves in their homes this year.

Unfortunately, too many people buy wood stoves not realizing that they demand more care and thought than modern heating systems. In 1977, 13 persons died in 2,000 fires associated with solid fuel appliances, according to the National Fire Prevention and Control Administration.

A wood stove must be carefully selected, installed, used and maintained—or you can get burned. However, if the thought of a crackling fire burning in a wood stove in your home warms your heart, and you're willing to make the effort to properly care for a stove, read on.

When you go out to choose a woodburning stove, go to a reputable dealer who can answer your questions and steer you to the stove that will fit your needs. Some stoves burn only wood; combination stoves can handle oil as well as solid fuel. Many stoves have thermostats that automatically adjust the amount of air fed to the fire, and fans to circulate the heat. The Consumer Product Safety Commission recommends that you buy a stove that has been approved by a nationally recognized testing agency such as Underwriters Laboratories.

A few people prefer to look for an antique stove. If you buy an old stove, the word is "buyer beware." Antique cast-iron stoves are likely to be brittle after years of use. Watch out for cracks in the stove, as well as wobbly legs, sagging hinges, warped doors, missing grates, and louvers and dampers that don't work. Call an expert to weld any crack.

Inadequate clearance and improper venting are the two big installation errors people make. For example, a man installed an insulating board about 14 inches from his wood stove. That night smoke woke him up, and he found the board bulging and glowing red. He got it out of the house before it burst into flames. Not everyone is so lucky.

If your local building code doesn't specify clearances, the NFPA publishes guidelines. They recommend a 36-inch clearance between a stove and any combustible surface to the front, back, sides, or above. Insulating stoveboard such as glass fiber thermaboard or a non-combustible surface such as ceramic tile is required beneath the stove. Never cut the legs shorter. Some new insulating materials will work with smaller clearance.

If you plan to connect the stove to an existing chimney, make sure it is sound and has a flue lining. Fire in a cracked or unlined chimney can spread to the house. Consult a mason about repairs. You can also install a UL-listed prefabricated insulated chimney.

Remember, one stove to a chimney. Two stoves or a stove and a fireplace should never share a chimney. Doing so could cause poor drafts and creosote accumulation, or flue gases could be drawn into the house through an unused opening.

A big, roaring blaze can quickly turn a stove into an inferno, so be careful not to add too much wood and overfire it. If the stovepipe glows red, the fire is too big. Burning trash in a wood stove can also make too hot a fire. Keep the stove door closed to prevent sparks from flying out into the room except when adding wood. And don't store wood next to the stove.

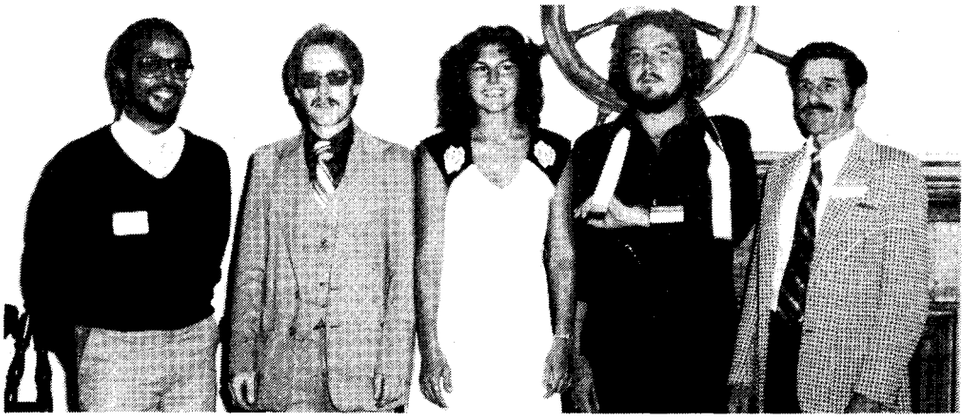
Let the fire burn out before you go to sleep at night. It's not a good idea to leave a wood stove unattended for any long period of time.

It's important to burn only seasoned wood—that has dried for a least six months, preferably 12–18. Wet wood smolders as it burns, which is neither safe nor efficient. Smoldering fires increase the buildup of creosote in stovepipes and chimneys. Green wood also has a tendency to pop and throw off sparks.

The best woods for burning are hardwoods such as oak, maple and hickory. Softwoods such as pine, spruce and fir burn very fast and give off more creosote. However, because they catch fire easily, they're good for kindling. Most people mix the two.

Frequently check the stovepipe for creosote buildup. One way to check is to tap with a metal object. A clean pipe will make a "ping" noise, a dirty pipe a full thud.

To prevent fires caused by soot buildup, the experts recommend that you clean your chimney every year, more often if necessary. Chimney and stovepipe cleaning takes elbow grease. Chemical cleaners don't do a good job of getting rid of creosote deposits. And never try to clean out soot by starting a chimney fire.



The second graduating class of the Peninsula Joint Apprenticeship Training Committee for Maintenance Crafts received their journeyman certificates Friday, September 19, during a ceremony at the Langley Officers' Club. Ann Spinazzolo, Apprentice Representative of the Virginia Department of Labor, presented certificates to (from left) Alvin Abramson, William Eareckson, Carolyn Heimen, Leroy Davis and Pat Shannon. Guest speaker for the occasion was E. Barton Geer, Langley Director for Systems Engineering and Operations. In his talk, Geer stressed the need for job-related enthusiasm, motivation and goal orientation. The apprentice program is operated jointly by Klate Holt Company and the International Brotherhood of Electrical Workers.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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Retirement Parties

Robert Shanks and **Louis Tosti**, who retired from Langley in August, will be honored at a retirement luncheon Friday, October 10, at the Langley NCO Club. A salisbury steak luncheon will begin at 11:30 a.m. The cost for the meal will be $4.25 per person and $1 per retiree for gift contributions. Gift contributions only are welcome. Make reservations by sending check to Merle Ott or Theresa Elliott, Mail Stop 246B, by October 3.

Jacob H. Lichtenstein who retired recently from the Flight Dynamics and Control Division, will be honored with a retirement party Wednesday, October 15, at the Fort Monroe Officers' Club. A cash bar social will begin at 6 p.m., and a Beef and Burgundy dinner at 7 p.m. The cost, including gift, will be $8.50 per person. Make your reservation by sending a check to Judith T. Burton, Mail Stop 161, by October 8.

Recent retirees from the Scout Project Office, **Grover Collie, Leo Johnson, Lee Sullivan** and **Chuck Laird**, will be honored at a party in the Activities Center, Monday, November 17. A cash bar social with hot hors d'oeuvres will begin at 6:30 p.m. The cost, including gift, will be $9 per person or $14 per couple. Contributions for gifts only will be accepted ($1 for each retiree); please specify retiree with contribution. For reservations, send check to Grace M. Girton, Mail Stop 158A, by Friday, November 7. Please make checks payable to Mary G. Coburn.

swap and shop

FOR SALE

Articles

Toys, electronic and other games, books, magazines for boys 9—11 yrs. TV antenna, Radio Shack 25 elements, UHF/VHF/FM, like new, used only in attic, $15. Call Mathis, 722-7629.

Electrical hot water heater, 56 gal. GC, $50. Call 898-4727 between 5 and 8 p.m.

Vehicles

Boat, Neopreme-coated cloth: One four-man, $50; One six-man, $80, new. Contact Kent, extension 3095 or 420-8391.

1970 Ford Galaxie, PS, PB, AC, runs excellent, fine condition, new brakes, new inspection sticker, CB radio. Call Ferree, 826-1174.

1978 Plymouth Arrow, 2-door, manual transmission, radio, heater, four new steelbelted radial tires, priced at $2,900. Call 723-5842 or 723-6577.

Real Estate

Courthouse Green Townhouse: Three BR, 1½ BA, freshly painted, new carpet, assume seven percent VA loan with payments of $214 per month; $40,900. Call 599-4321.

WANTED

Journals to complete set for university: one copy each of IAS Journal, April 1962, and AIAA Journal, August 1963. Call Ken Pierpont, 898-3774.

To rent a chalet at Bryce, Massanutten or Wintergreen for weekend of Feb. 13—15, 1981. Need enough room to sleep nine. Call 874-6467 after 5 p.m.

To form two-person car pool from Seaford area on 7:30 a.m. shift. Call Elksnin, extension 4666.

Ride from Eastwood Drive in Denbigh to West area; will share financial responsibility. Call L. A. Dillon-Townes, 877-5386 or extension 4621.

cafeteria menu

WEEK OF OCTOBER 6

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Chicken & Dumplings; Pork Chop Mexicali. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Beef Balls Stroganoff; Roast Beef; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Polish Sausage & Sauerkraut; Country-Style Steak. Snack Bar; Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Crab Cutlets; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Pineapple Chicken; Meat Loaf. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF OCTOBER 13

MONDAY:

HAVE A HAPPY COLUMBUS DAY!!!!!

TUESDAY: Bull Island Clam Chowder; Half-Pound Chopped Steak; Fried Filet of Fish; Stuffed Fresh Bell Peppers. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Ham & Lima Bean Soup; Roast Turkey Dinner; Quiche Lorraine; Braised Short Ribs of Beef. 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 Soup; Fish Dinner; Chicken Pot Pie; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Notice

In addition to the Norfolk telephone number listed for Big Brothers/Sisters in the CFC special issue of the *Langley Researcher*, there is also a telephone number on the Peninsula. The number is 827-0110.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 21 October 17, 1980

Frosch to Leave NASA in January

Dr. Robert A. Frosch has informed President Carter that he plans to leave his post as NASA Administrator on Jan. 20.

Frosch will be taking over as the first president of the American Association of Engineering Societies (AAES), a federation, created in January 1980, of the major engineering societies in the United States.

The association covers 39 professional societies representing more than 1 million engineers. It includes such organizations as the National Society of Professional Engineers, the American Society of Civil Engineering, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the Institute of Electronic and Electrical Engineers and the American Institute of Mining, Metallurgical and Petroleum Engineers.

Frosch, the fifth man to head NASA, was nominated by the President to become Administrator on May 23, 1977, and took his oath of office on June 21, 1977.

Previously, he had been Associate Director for Applied Oceanography at

Continued on page 3.

Krieger to Speak for Award Ceremony

Dr. Robert L. Krieger, Director of the Wallops Flight Center, will be the guest speaker for Langley's Annual Honor Awards Ceremony Thursday, October 30. The ceremony will be held at 1:30 p.m. in the Hangar, Building 1244.

Krieger began his government career with NASA's predecessor agency, the National Advisory Committee for Aeronautics in 1936, assigned to Langley. After receiving a bachelor of science degree in mechanical engineering from Georgia Institute of Technology, he returned to NACA.

In April 1948 he was selected to manage the Pilotless Aircraft Research Station at Wallops Island where he built up an organization involving the research operations, mechanical service, maintenance and administration that has launched over 11,000 research test vehicles.

In August 1951 Krieger returned to Langley where he continued to manage the Wallops Island Station. He was named Head of the Research Techniques and Operations Branch in the Pilotless Aircraft Research Division at Langley in

Continued on page 3.

Mutch Dies in Mountain Climbing Expedition

Dr. Thomas A. (Tim) Mutch, NASA Associate Administrator for Space Science, died Oct. 6 while leading an American expedition climbing in the Himalayan mountains of Kashmir.

Exact details concerning Mutch's death are sketchy, but he apparently died while descending Mount Nun, located in a remote area about 370 miles north of New Delhi, India.

Mutch and six American companions, with an Indian liaison officer, had scaled the 23,000-foot peak Oct. 5. While descending, Mutch is reported to have fallen about 100 feet, suffering severe head wounds. Two companions stayed with him overnight on the sheer face of the mountain, then left him on a ledge that they chipped from the ice while they went down to a base camp for help. When they returned to the ledge, Mutch's body was gone, apparently swept away by strong winds.

Mutch visited Langley several times between 1969 and 1977, when he was leader of the Viking Lander Imaging Science Team. His last visit here was July 17, when he spoke on the moons of Jupiter at a Colloquium.

Before joining NASA in July 1979, Mutch was a member of the Geological Sciences Department at Brown University, chairing the department from 1968 to 1971. He also chaired several NASA committees planning the post-Viking exploration of Mars.

NASA Administrator Robert A. Frosh said that Mutch's "contributions to the space science programs of the United States are many and earned for him an

Continued on page 3.

Warner Praises NASA, Hampton

They came to praise trash, not to burn it, according to Pete Petersen, Langley Deputy Director.

Representatives from NASA Headquarters, NASA-Langley, Langley Air Force Base and the City of Hampton attended the refuse-fired steam generating plant dedication ceremony Oct. 9 at the Wythe Creek Road site.

Throughout the ceremony the speakers praised NASA and the City of Hampton for undertaking the task of building the $10.4 million steam generating plant.

The plant will burn refuse from the Langley Research Center, the City of Hampton, Langley Air Force Base, Fort Monroe and the Veterans Administration. The steam generated at the plant will be used to heat and cool NASA-Langley facilities.

U.S. Sen. John W. Warner, principal speaker at the ceremony, said, "This is no ordinary dedication, for this is no ordinary generating plant. Here at Langley you have put together a facility truly representing the state of the arts. And I hope that we can export this (to other communities).

"It is fitting and surely no surprise that NASA would have on hand such development. Practical application of new technology is the hallmark of NASA. Nor is it a surprise that the progressive, forward-looking City of Hampton would be NASA's strong and willing partner in this joint venture."

In his comments, NASA Administrator Dr. Robert A. Frosch said, "The people of NASA put their work in science and technology in a frame work of purpose, so that it becomes not only technological accomplishment, but technological accomplishment that can make a larger contribution."

Brig. Gen. W. Troy Tolbert, Commander, First Tactical Fighter Wing, Langley Air Force Base, said, "Who would have dreamed of, some 20 years ago, that as we put our garbage out in the morning for collection, that in the afternoon it would be used to heat our offices and so forth.

"And we, the Air Force, applaud NASA for the foresight in developing the idea, and applaud the City of Hampton for recognizing its potential and making a financial commitment to that."

– photo by Bob Nye

Brig. Gen. W. Troy Tolbert, Commander, First Tactical Fighter Wing, Langley Air Force Base; NASA Administrator Dr. Robert A. Frosch; Hampton Mayor Thomas J. Gear; and U.S. Sen. John W. Warner cut the ribbon during the refuse-fired steam generating plant dedication ceremony. The plant, funded by NASA, the City of Hampton and the U.S. Air Force, should be fully operational in November.

Hampton Mayor Thomas J. Gear, commenting on the first facility incorporating a local-federal agreement, said, "Let this steam plant stand as a symbol, a symbol of the many benefits bestowed on Hampton citizens by the federal government's decision to locate here."

NASA Headquarters Facility Division Director Billie J. McGarvey noted that the plant is a major element in NASA's energy conservation program of reducing utility energy consumption 50 percent by 1985. After four years in the program, NASA has reduced its consumption 39 percent, according to McGarvey.

"The facility will make a significant contribution by Langley for their share of the agency-wide goal in meeting its 50 percent objective," McGarvey said.

NASA Langley Director Donald P. Hearth told the 160 people in the audience that the plant is not high technology. He said that, when the plant was being designed, he told the researchers that they were not building a spacecraft to go to Mars or a new airplane. He told them that they should use off-the-shelf technology. He noted that even though the technology was not new, the task of building the plant was not easy.

Hearth praised the plant for four reasons: (1) the unique cooperation involved in its planning and building, (2) its cost effectiveness, (3) the energy it will conserve, and (4) the extension it will provide to the life-time of the Hampton landfill.

Following the speeches by the representatives of the groups involved in building the plant, the Tactical Air Command Band, under the direction of Captain David W. Rackley, played an appropriate musical selection for the occasion -- "I Love Trash."

LAA Travel Special

Make your reservations before December 15 for the cruise sailing from Norfolk to Bermuda May 12 through 19, and receive a $100 discount per person off the brochure price (based on double occupancy).

Brochures may be obtained by calling the LAA office, extension 3139, or Ernie Greene, extension 2312 or 838-0567.

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 Status Report

Contributions Near $172,000

As of Friday, October 10, Langley personnel and NASA-affiliated organizations had donated $171,994 to the 1980–81 Combined Federal Campaign.

This amount represents 92.7 percent of Langley's $185,600 goal. By either payroll deduction pledge or cash gift, 2,703 people have said, "I'll give through CFC."

A breakdown by Directorates is shown below:

Directorate	Goal	Gifts	Percent Goal
Director	$ 3,500	$ 2,739.30	78.27
Electronics	38,000	35,013.00	92.14
Structures	25,000	22,853.20	91.41
Aeronautics	26,000	22,385.00	86.10
Mgt. Ops.	17,500	13,602.60	77.73
Sys. Eng. Ops.	39,500	39,548.67	100.12
Space	19,000	15,921.54	83.80
Projects	7,500	5,178.60	69.05
Other	9,500	10,984.80	114.42

One hundred forty-five Langley retirees have already contributed over $8,500.

Langley is still approximately $13,600 below its goal and encourages the participation of all in this very worthwhile endeavor.

The CFC staff will not resolicit anyone to achieve our goal. However, the staff will be following up over the next few weeks on those who were on travel or leave during the earlier solicitation. These employees will be given an opportunity to join their coworkers in supporting the work of many agencies through the CFC.

Thanks to you, many needs will be met during 1981 which otherwise would have gone unanswered.

Aerospace Penpoints
by Wesley Berryman

"With the advent of Shuttle Operations, we will have cracked the shell of gravity or atmosphere - the terrestrial egg, so to speak - and begun seriously to tap the potential of space for the benefit of Earth."

ROBERT A. FROSCH
NASA ADMINISTRATOR

Krieger

Continued from page 1.

1954. He was appointed Director of the Wallops Flight Center in April 1959.

Krieger was recently honored with the Presidential Rank of Meritorious Executive for "greatly contributing to the nation's aeronautical and aerospace research efforts for more than 41 years including 32 years as Director of the Wallops facility."

Van Pool Forming

A van pool is being formed from Williamsburg to NASA for the 8 a.m. shift and light passengers are needed to fill the van.

The van pool will originate in Queens Lake with a stop at James York Plaza. The monthly cost to ride in the 12-passenger, air conditioned van will be $45; there will be no cost to alternate drivers for the months they drive.

For more information, call Curt Rinsland, extension 2576, or Howard Price, extension 3041.

Frosch

Continued from page 1.

Woods Hole Oceanographic Institution; Assistant Secretary of the Navy for research and development; Assistant Executive Director of the United Nations Environment Program; and Deputy Director of the Defense Department's Advanced Research Projects Agency.

Employees receiving NASA medals and Group Achievement Awards at the Ceremony will be listed in a special issue of the *Langley Researcher*.

Mutch Dies

Continued from page 1.

extraordinary reputation among his peers."

Many Langley employees will remember Tim Mutch's excited description of the first Viking Lander pictures from Mars July 20, 1976. He was so awestruck as the first vertical lines began to appear on TV monitors that he had to be nudged by an associate to begin talking.

Mutch's narration--interrupted several times by his own cries of "Incredible!"--was a delightful mixture of lucid description and uncontrolled enthusiasm for the momentous event. And after his first silence, Mutch gave such a complete and long-running description that he all but lost his voice for several days.

In lieu of flowers, the family is requesting that donations be made to a memorial fund at Brown University. More information on the fund is available from Glenn Taylor, ext. 3761, or Fill Cuddihy, ext. 4501.

Data Point

Young Engineers Plan for the Future

– by Brian Welch

Light winds were blowing down off the Chesapeake when Geoff Bland stepped out into the backyard for some mid-afternoon experimentation.

The subject of the day's research was dynamic stability, and the test article was a 79-cent balsa wood glider, dramatically modified.

"I want to see what this thing will do with canards and stablets in this breeze," Bland said, "It ties in with some work we're doing on the Kloud Kart right now." As he spoke, he took the horizontal tail and placed it at the front of the stick fuselage as a forward lifting surface, or canard. He then moved the wings aft to the base of the vertical tail, creased the wingtips and taped them in an upright position. They were a cross between a winglet and a stabilizer, "and since Dr. Whitcomb doesn't like you to call it a winglet if it isn't one, we'll call it a stablet," he said.

They would provide lateral stability even for this light craft, he theorized, and with their completion he launched the glider into the wind. Following it with his eyes and body, he watched as it turned through a long graceful arc, passed five feet over his head, got caught in the violent thermal updraft of a central air conditioner, and slammed crazily into a brick wall.

"All systems negative," he intoned, like some celestial scorekeeper at an Air Force flyoff, "initiate major overhaul."

And so he did. Back on the porch, tools were whipped out of a cardboard box as refitting commenced. For Bland, making the glider fly was fun and not a bad way to spend a nice afternoon, but it was more than just puttering around with a toy airplane. Bland and a group of his friends take this kind of thing seriously, because within the next 10 or 15 years they plan to be building the real thing, and they are intent on identifying the bugs in their designs right now.

They already have a name for themselves, or for their ventures, and true to their experience with NASA, the name itself is a huge acronym: JAMM AERO, which stands for Joint Aircraft Manufacturing and Marketing/Aerospatial Engineering Research Organization. There are about 15 JAMM AERO functionaries, all under 25 and about half of them Langley co-ops. They include aeronautical, electrical and mechanical engineers, as well as a marketing major and even a test pilot. ("He's the one that's crazy," Bland said.)

For about four years now the people have been coming aboard in ones and twos as Bland met them and expanded on an idea he had six years ago, when he was sixteen. The idea: "I couldn't think of anything better to do so I decided to found a corporate giant."

He was kidding--sort of. "There's a big market out there in general aviation aircraft," he said. "There are a lot of improvements and performance

– photos by Brian Welch

Geoff Bland engages in some backyard research with a strangely-configured balsa wood glider. As can be seen by his grimace in the far right photo, this flight was less than textbook perfect. But after some modifications, the glider flew like a charm.

breakthroughs to come, and we're young yet. We're into technology and the key is interest. Everybody supplies his own self-motivation. We come up with ideas and experiment with them.

"I figure at the outside we could be seriously putting all of this together by the time we all approach 30 or 35. We'll need time to have a family, and when the personal stuff is straight, and everyone has had some time in the real world, we'll incorporate."

As he talked, he finished the necessary repairs to the glider. A flapping stablet was strengthened. Modeling clay was clumped between the canard and the wing to add weight, and Bland adjusted the lifting surfaces to compensate for the change in the center of gravity.

"It should fly now," he breathed, and it did. With the added weight and the control of the stablets, the glider soared up to 20 feet in long looping curves, its longest flight time about 30 seconds.

For Bland the flights "just add another data point," more experience on the way to learning how to design state-of-the-art aircraft.

"There's one design we have in mind," he said, "called the Kommette. She'd have a glide ratio of 30 to 1, off the lot, one and two seaters. You could go up to 8,000 and turn the engine off for thermal cruise. When you drifted down to 3,000 you'd turn it on again and power to the thermals. You wouldn't just fly a straight course with it. Kommette will be a personal aircraft, something to take you out to explore and fly the weather. That's what its all about."

That's what JAMM AERO research is all about too--exploring flight. During the summer months they launch rockets and rocket assisted gliders, based on planforms they've designed. Returning to Purdue a month ago, Bland and his friends built a 15-by-12-inch wind tunnel for experiments in the apartment. Co-op Jeff Harris is back at Virginia Polytechnic Institute designing servo-actuated control surfaces for a rocket assisted glider, with a projected launch date of next spring. Others, like Earl Booth and Dan Vicroy, are working at Langley and, in their spare time, exploring ways to optimize the Kommette and other designs, such as the Kloud Kart.

The basic structure behind their research, as Bland explains it, is to check different ideas or try and induce certain behavior, from their models, and always to have fun. The idea being, he said, that "anything done for the sheer fun of it is bound to produce interest and results."

One of the rockets they designed during the summer was created for the express purpose of inducing wing rock. Bland and Harris were among a small group who saw wing rock visualized through the use of helium bubbles in the 12-Foot Low-Speed Tunnel in 1979. It was the best visualization ever obtained of the intricate counter-rotational vortices and their interactive dance of pressure and flow, the cause of wing rock.

"What we're really doing in all of this is looking at these things and knowing what happens when a certain shaped wing passes through a certain atmosphere," Bland said.

So one day in August, a few weeks before the group split up for the fall semester, they gathered for a launch and a look at wing rock.

At T minus 60 minutes that day, conversation in the sparsely furnished co-op apartment/mission control center turned to the matter at hand, the launching of a highly swept, double delta-winged, rocket-assisted glider complete with ventral fins and stabilizers. Harris had built it from scratch in a week. It was called the Tridart.

"Are we electric?" Bland asked.

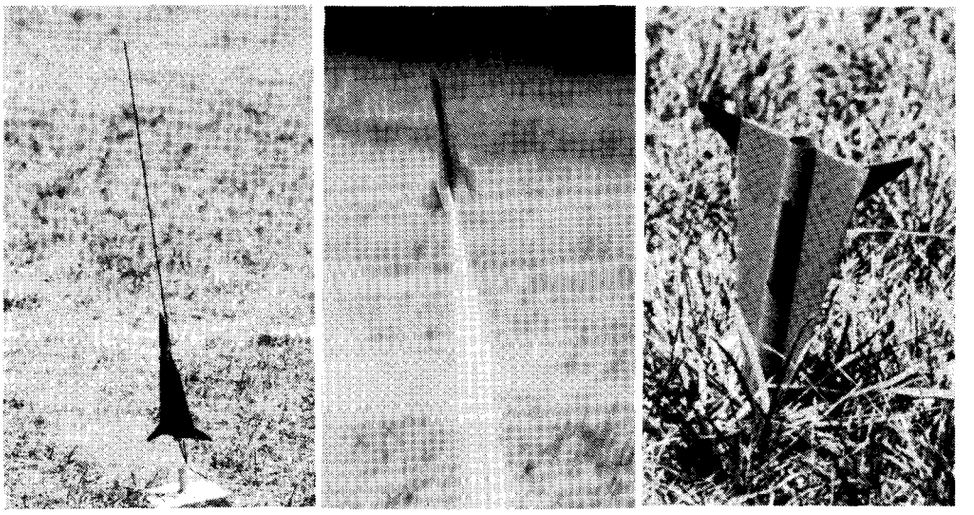
"We're electric, but the system's new and I don't want to use it the first time," Harris said.

"There might not be a second time," Bland reminded him.

"Okay, to hell with it. It's only a wire and a battery."

Dan Murri joined in. "What's the countdown status?"

"Lets see," Bland said, "we're waiting for Vicroy to show up, so we're talking inside an hour if he gets it in gear. But we have to launch before dark."



– photos by Dan Vicroy

Tridart, one of the latest designs from the skunk works at JAMM AERO, smokes on the launch pad during the ignition sequence (left), whooshes into the sky (middle), and as it looked after a one point landing, about a quarter of a mile from the launch site.

Murri then focused his attention on the research vehicle itself. It was red and blue, about 12 inches long and had such highly swept wings that it looked almost like a triangle. He pointed to an earlier model of the same design and asked, "Why is this one more stable and this one not? It seems like the center of pressure would be farther forward."

"It's because they both have the same center of gravity," Bland said.

"But the center of pressure wants to be behind the center of gravity," Murri countered.

From there they descended, as aeronautical engineers will do, into a detailed summary of the laws of pressure, air flow and dynamics. When they emerged from this discussion, the consensus was, in Bland's words, "We're gonna have to launch her on an angle because of the pitching moment. Or else this thing will fall over backwards on us."

Continued on page 6.

Data Point

Continued from page 5.

That settled, a systems check followed, with all support equipment being collected and stored in a Sears Roebuck shopping bag for transportation to the launch site. Extra solid-fuel motors, fuses, nosecaps, super glue, a sharp knife and tape were among the items deemed necessary to cope with any unanticipated developments.

The launch team set out in two cars and ran into Dan Vicroy on the way out of the parking lot. He was just coming from work, but immediately turned his Beetle around and joined the caravan. This was, after all, a launch. Dinner could wait.

The motorcade pulled in beside a wide field. Support equipment was quickly produced from the Sears bag as Harris erected the launch pad. Bland inserted the fuse, then called for a lighter from the only smoker in the group. Pre-launch activities complete, the group took refuge behind Vicroy's Beetle as the ignition sequence--a sputtering fuse--began.

All eyes were on the tail end of the rocket when the solid fuel cartridge roared, igniting so fast that top speed was reached almost instantly. Tridart let loose with a high-pitched WHOOSH, reached 30 feet in a nanosecond, then unexpectedly lost its engine and came back down just as quickly.

"No problem, No problem," Bland said, "We just lost an engine."

"We need to swing it. It's unstable as hell," Murri said.

Bland agreed and produced string and masking tape from the shopping bag. Murri attached the string to a point on the wing roughly parallel to the center of gravity and then suspended the model sideways. As he swung it around over his head, the model picked up speed, traveling and bumping along in every manner except nose first.

"New nose cone, more weight up front," Bland diagnosed.

A longer plastic nosecone was connected, and with the added length and width the model easily passed the swing test.

Pre-launch was repeated, and the group crowded behind the Beetle again as the rocket fired up. With an even louder WHOOOSH, Tridart 2 was skyborne, reaching 800 feet in a matter of seconds. At the peak of its arc, when the engine shut down, Tridart shuddered and lost all stability for an instant. Then the aerodynamic surfaces took over, corrected some of the path deviation, and brought the craft through a perfect ballistic descent, complete with the desired wing rock. Tridart hit the ground and stuck there like a knife, the nosecone buried four inches in sun-fried earth.

Though not a textbook flight, the second mission of Harris' Tridart design was considered successful. "Hey," Bland said, "the wings rocked coming back down, it achieved its goal. It's another data point." The moral of the flight, they all agreed, was that if anyone was crazy enough to use a double delta wing on a subsonic aircraft, they better not increase the sweep beyond 65 degrees.

They were satisfied with that. Another data point.

– photos by Bob Nye

Approximately 120 representatives of 95 companies attended last week's Small Business Shop and Manufacturing Techniques Workshop at Langley. During the workshop, the attendees toured several shops, including the Electronic Fabrication and Development Lab (left) and the Composites and Models Development Section (above).

Carpenter Sees America by Bike

– by Keith Koehler

Many people dream of traveling across the country through the back roads and small towns, away from the cities' pollution, traffic and crowds of people.

They sit back and often talk of what it would be like to escape from their jobs for a couple of months to "discover" the country -- the mountains, rolling hills, plains, rivers and people.

Mark Carpenter, Operations Support Division, stopped talking and did something about it.

He travelled across the country by bicycle.

Carpenter and his younger brother Courtney, a student at Virginia Polytechnic Institute, recently returned from their cross-country trip that covered 3,900 miles in 65 days.

The two began their trip with the younger Carpenter's college roommate, Ed Kirtner, July 11 when they flew from Norfolk to Portland, Ore. During the trip, Kirtner split from the Carpenters. When they last heard from him he was in New York, still pedaling, Carpenter said.

Arriving in Portland early July 12, which was Mark Carpenter's 27 birthday, the group unpacked the bikes from their crates and assembled them. At sunrise they started pedaling west from Portland to Pacific City, Ore.

From Pacific City they turned east, pedaling through Oregon, Idaho, Wyoming, Nebraska, Illinois, Indiana, Ohio, Kentucky, West Virginia and Virginia.

"It was the best vacation I ever had," Carpenter said. "It was like begin off 65 Saturdays in a row.

"Each day blended into the next. It's like a good job where, at the end of the day, you feel like you've accomplished something," he said.

"The whole trip was good," Carpenter said. The scenery, the wildlife and the people they met all stick in his mind.

"The people were nice the whole trip. That's what made it," he said.

According to Carpenter, people in the small towns they travelled through often took them in for the night and gave them food. "We were pretty much a novelty," he added.

During the trip the group slept outside at campgrounds, in woods and in parks. In one small town the police found them a spot to sleep behind the community college since there weren't any campsites in the area.

Most of the time was spent travelling, but they did spend a couple of days in Yellowstone National Park and more time with relatives in Columbus, Neb.

Mark Carpenter (right), Operations Support Division, and his younger brother Courtney stop for a photograph on the Boardwalk of Virginia Beach after travelling across the country 3,900 miles in 65 days.

Carpenter thinks the prettiest states are Oregon and Wyoming; the worst city visited during the trip was Peoria, Ill., which they went through during rush hour.

The trip, which cost about $1,000 a piece, took very little preparation, according to Carpenter. He said he rode his bike 10 miles to work three times a week, rode about 50 miles on weekends for about a month, and read a few books and brochures on camping to prepare for the trip.

According to Carpenter, a lot of people want to take similar trips, but the major thing holding them back is time. He said he used all his annual leave and took some leave-without-pay for the trip.

Carpenter said if he ever gets enough time, his next trip will be along the West Coast.

Grady Receives NASA's Outstanding Handicapped Employee Award

George C. Grady, an engineering technician in the Operations Support Division, has been named NASA's Outstanding Handicapped Federal Employee of the Year. The award was presented to Grady in a special ceremony held Friday, October 10.

Grady was severely injured in 1973 while working on one of the pressure systems in the High Pressure Air Compressor Facility. This central plant supplied high pressure air to the research wind tunnels and other facilities at the center.

As a result of his injuries and being immobilized for over a year, Grady lost most of the use of both arms and legs. He went through a rehabilitation program at Fisherville, Va., and it was determined he had a 95 percent disability.

Although Grady was urged not to return to work and was eligible for compensation, he insisted on being gainfully employed and returned to Langley. With his experience and background, he was assigned to the Fluid Systems Section of OSD. His duties in the High Pressure Verification Facility include the hydro-testing of high pressure piping, systems and components; the verification and testing of relief valves and devices; the certification and calibration of pressure gauges and devices; and the fabrication of hose assemblies. In addition, Grady is an instructor for Langley's Silver Soldering and Brazing course which is an on-going training course for the center's technicians.

Grady's determination, fortitude, attention to duty and ability to perform in a superior manner despite his handicap is an inspiration to all who know him. His positive "can do" attitude, warm personality and dedication serve as a reminder of what faith and determination can accomplish.

– photo by Bob Nye

George C. Grady (second from right), Operations Support Division, was recently presented NASA's Outstanding Handicapped Federal Employee of the Year award by Richard H. Petersen (right), Deputy Director, and Earl F. Stahl, Chief of OSD, Grady's wife, Gwendolyn, holds a letter of congratulations from Dr. Harriet G. Jenkins, Director of the Office of Equal Opportunity Programs at NASA Headquarters.

Langley Supports Red Cross Bloodmobile

Langley employees, retirees and contractors donated 315 pints of blood at the October 1 visit of the Red Cross Bloodmobile.

Achieving gallon status were:

10 gallons – Nealelt Kelly

7 gallons – James Adams

6 gallons – Robert F. Berry, Frank Hershom and John H. Crosby III.

5 gallons – Roy E. Henley, Joseph T. Guy, Irvin M. Miller, Delma C. Freeman and Kenneth W. Crocker.

4 gallons – Stuart I. Rose, John P. Pajot, S. T. Strop, Jr., Robert A. Baals, A. Wayne Richardson, William G. Johnson, Jr. and Jack E. Pennington.

3 gallons – Charles E. Caldwell, Marcus L. Brumfield, Earl S. Knight, Marvin O. Rhodes, David W. Gibson, Charles Dunton and John C. Hoppe.

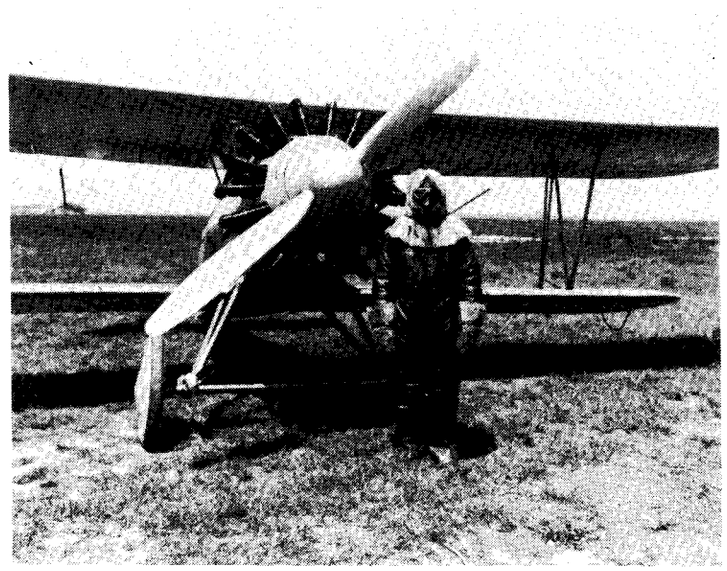
2 gallons – Clarence M. Cole, Wayne Martin, Paul D. Prillahan, Kemp L. Parrish, Charlie Haynes, Jr. and Lloyd W. Overbay.

1 gallon – Vernon G. Collins, Joseph C. Davis, Edward Roberts, Joseph R. Phillips and Michael Mitchell.

Donating blood for the first time were Henry Zumbron, Michael Carr, Gary D. Robbins, Robert L. D'Agostino, Donald C. Athearn, Richard S. Young, Calvin C. Chandler, Gilda A. Miner, Leon Bynes, Donna K. S. Chang, Patricia A. Paulin, Roy N. Zalameda, Gary S. Johnson, Vernet P. Boone, Edith C. Watts, Colon R. McMath, John R. Huffman, Richard A. Foss, Michael Chapman, Rebecca L. Weaver and Aaron Ostroff.

NASA Coordinator for the Bloodmobile was Virginia Jones. Red Cross Coordinator was Fran Williams. Refreshments were donated by the Langley Federal Credit Union.

The next opportunity to donate blood will be November 26.



Speakers, films and photos like these will be the focal point for a month of nostalgia at the Langley Visitor Center beginning the first of October. At right is a picture of an early NACA test pilot wearing high altitude gear in 1926. At left is an aerial view of the East Side, taken in 1930, which shows the Towing Tank under construction. These and some 60 other historical photos will be on display during the month.

NASA Publishes Mars Photo Book

All but one of the four Viking spacecraft sent to explore Mars are silent now, but they have left a legacy of hundreds of remarkable photographs of the Red Planet.

Some of the best of these photographs are included in a new NASA paperback publication entitled "Images of Mars: The Viking Extended Mission." Collected by Nancy Evans of the Jet Propulsion Laboratory, Pasadena, Calif., and Michael H. Carr of the U.S. Geological Survey, the pictures illustrate the varied landscape of one of the Earth's closest planetary neighbors.

The Viking spacecraft, launched in 1975, reached Mars in 1976 and transmitted back to Earth hundreds of photos of the Martian surface from orbit as well as from the surface itself.

The 30 black and white photographs in "Images," some as recent as 1979, were selected not just for their visual impact, but for what they tell the viewer about the terrain they depict.

Soaring volcanos, mysterious channels, tremendous chasms that could swallow the Grand Canyon, rocks, boulders and sand--all are shown in vivid clarity. The notes accompanying each photograph explain, in layman's terms, what each image shows.

This armchair guide to another world was produced by NASA's Scientific and Technical Branch. NASA SP-444 is available for $2.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

It Pays to be a CU Member

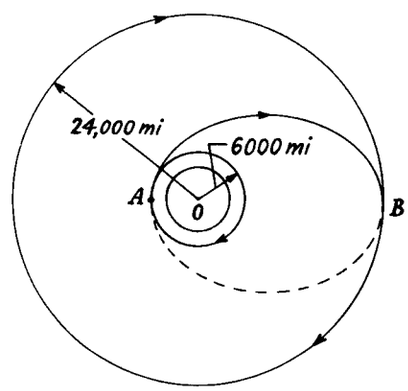
A whole new wave of American cars will be making their debut during the next few months. These 1981 cars will offer some pleasant surprises for car buyers. If you are in the market for one of these new products, the Langley Federal Credit Union may be able to help.

During the weekend of October 24-25, LFCU will sponsor a New Car Sale. This sale is by invitation for members only. Invitations will be mailed shortly; if you don't receive one, stop by any LFCU branch to pick up one.

The invitation will direct you to the various locations the sale will be held. At the sale you will see 1980 year-end models and new 1981 cars which the Credit Union will finance at 11.75% APR for 36 months. Loan life insurance will be included at no extra cost to qualified members.

If you are thinking about a new car, stop by the New Car Sale and see LFCU for financing.

Brain Teaser



A space tug describes a circular orbit of 6,000-mi radius around the Earth. In order to transfer it to a larger circular orbit of 24,000-mi radius, the tug is first placed on an elliptic path **AB** by firing its engine as it passes through **A**, thus increasing its velocity by 3,810 mi/h. By how much should the tug's velocity be increased as it reaches **B** to insert it into the larger circular orbit?

Answers should be submitted to the *Langley Researcher*, Mail Stop 115A. The solution will be printed in the next issue.

– photo by Bob Nye

Tuesday was a record-breaking day for the Langley Visitor Center. When Carl Benson (left) of Bark River, Mich., walked through the door, he became the 172,089th visitor this year, breaking all previous annual attendance records in the center's 10-year history. George Hastings, Program Manager at the Visitor Center, presented Benson with a book "This Island Earth," inscribed with a special message from Langley Director Donald Hearth. Brian Phillips, Assistant Manager of the gift counter, presented Benson with an Apollo mug. As attendance records indicate, the Visitor Center is becoming an increasingly popular attraction. It offers more than 30 exhibits on aeronautical and space themes, features special films and offers tours of the adjacent Technology Utilization House, a modern energy-efficient research home. Special monthly programs and exhibits also focus on current research.

Share Draft Beats AMEX in Shanghai

The following article is reprinted by permission from the May 16, 1980 issue of the League Report, published by the Oklahoma Credit Union League.

"Officials of the People's Republic of China recently rejected a CU member's American Express card as a medium of exchange for Chinese currency but gladly accepted her CU share draft.

"According to the Indiana League, Patricia Montgomery, a member of Grissom FCU, Peru, Ind., recently took a familiarization tour of Red China. On arrival in Shanghai, she and 275 other people went to Chinese officials to exchange their American dollars for Chinese currency.

"The officials didn't know what to do with American Express, VISA or Master Card credit cards, and people with travelers cheques ran into problems also.

"But Mr. Montgomery offered to write a personal share draft, drawn on Grissom FCU, and it was quickly accepted. 'The ship's purser and all of my friends on board were surprised,' she said, 'that a personal share draft was better than more traditional forms of money.'"

"'The Chinese, she said, have convinced her that CU share drafts are universally accepted.'"

The Langley Federal Credit Union offers share drafts, too, with a current 7 percent Annual Percentage Rate. Stop by any of LFCU's three convenient offices for details.

Engineer's Club Invites New Members

The Engineer's Club of the Virginia Peninsula will hold its annual membership reception Oct. 27 in the Activities Center's (Bldg. 1222) Langley and Hampton rooms at 5 p.m.

Dr. John E. Duberg, former Associate Director at Langley and engineer of the year, will be the guest speaker. Duberg's presentation will be preceded by free hors d'oeuvres and a cash bar. All research and technical personnel interested in joining this 40-year-old organization are invited.

The club is primarily active September through May. As part of its activities, the club honors the top science and math senior students from each local high school at a special dinner each year.

The club actively participates in National Engineer's Week, which is a joint effort with other engineering organizations and businesses to educate the local community in engineering activities and opportunities.

Speakers Bureau

Howard T. Wright spoke to the Society of American Military Engineers on September 17 about "NASA's Future Activities."

Gregory V. Selby talked to the Hampton Institute Engineering Club on September 29 about working as an engineer at NASA.

Energy Saving Tip

Cold air may be seeping inside your home while the fuel you are paying to heat it is leaving. Caulking and weatherstripping all doors and windows where there is a draft can stop such heat loss and add a great deal of comfort in cold weather.

Time Note

It's time to move back the clocks. Everyone is reminded that the switch from Eastern Daylight Time back to Eastern Standard Time will come at 2 a.m., Oct. 26.

Diarrhea Can Upset Foreign Travel

If you're planning to make an overseas trip to certain countries, your chances are one in two of contracting diarrhea before the trip is over. Even though the disease is entirely preventable, it has been estimated that 50 percent of the travelers to tropical or subtropical countries with poor sanitary conditions will develop acute diarrhea during their travels.

You can increase your odds of having an enjoyable trip by following these relatively simple rules provided by Dr. G. Fred Kelly, director of the Occupational Medical Center:

- Drink only water which you are sure has been adequately treated to control bacteria. Water which has been boiled or carbonated and bottled is usually safe.
- Avoid alcoholic drinks containing water and ice cubes. Alcoholic beverages such as beer and wine are usually safe. Drink bottled and canned beverages directly from the container without adding ice.
- Avoid milk products unless you are sure they have been pasteurized.
- Use bottled water or other safe liquids to brush your teeth. You can usually be safe using hot tap water if it is hot enough to be uncomfortable.
- Do not eat salads or raw vegetables.
- Do not eat raw fish, raw or rare meat, or raw oysters or clams.
- Do not eat raw fruits or vegetables unless you are able to peel them yourself. A common practice is to soak melons in water to increase their weight.
- Avoid eating any foods which are not properly protected from flies.
- Avoid eating food from street vendors and from restaurants which are high in local color but low in sanitary standards.
- Do not swim in ocean water near potential raw sewage disposal areas such as fresh water streams or water pipelines.

If, in spite of your best efforts, you contract diarrhea, anyway, Dr. Kelly provides the following tips on treatment. Self-medication with antibiotics should not be tried. "Entero-Vioform" should definitely not be used. A good over-the-counter self-medication is "Pepto Bismol," which has been shown in studies to relieve symptoms of diarrhea nearly half of the time within 24 hours. Other products are also available.

You can maintain your fluid balance during a diarrheal episode by alternately drinking from a mixture of eight ounces fruit juice, one-half teaspoon honey or corn syrup and a pinch of table salt with a second mixture containing eight ounces tap water (boiled or carbonated if purity of the source is unknown) and one-quarter teaspoon of baking soda.

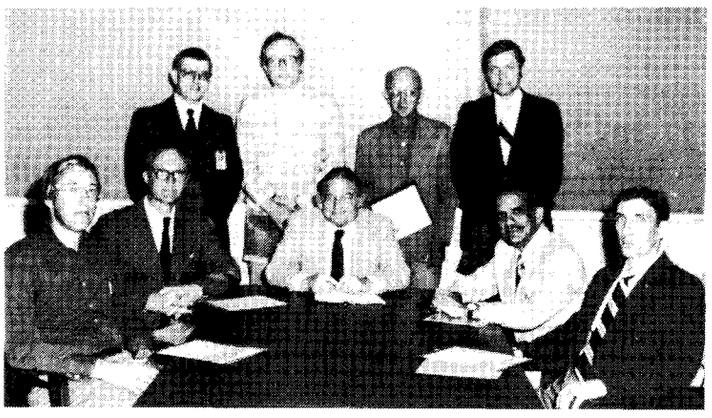
If the diarrhea is not controlled by relatively simple means, you should see a competent physician for further treatment. Self-medication is dangerous if there is fever, cramps, and bloody stool with fecal urgency.

But--by following Dr. Kelly's rules of prevention--you can usually avoid diarrhea in the first place. More importantly, preventative measures increase your chance of returning from your travel free of hepatitis, tuberculosis and infestation with various intestinal parasites. Traveler's diarrhea is usually self-limited and easily treatable. Some of the other diseases are more serious and much easier to prevent than to cure.

Recent Retirees

T. W. Edmund Hankinson, Systems Engineering Division, retired September 29.

Curtis M. Chappell, Jr., Research Facilities Engineering Division, retired October 10.



– photos by Don Ward

TECH BRIEF AWARDS. Under the NASA Technology Utilization Program, monetary awards are made to each individual listed in a NASA Tech Brief. These Langley people were honored recently at an awards presentation by Dr. John E. Duberg. Shown in the left photograph are: (Seated left to right) William E. Miller; Ian O. MacConochie; John E. Duberg; Jag J. Singh; Thomas J. Lash; (standing left to right) Richard R. Adams; John L. Gilbert; Reid A. Hull; and Phillip J. Klich. Not pictured are Bordie D. Poole, Jr., and Karen R. Credeur. Shown in the right photograph are: (seated left to right) William M. Adams, Jr.; Wilmer H. Reed, III; John E. Duberg; Kenneth R. Yenni; Donald E. Hewes; (standing left to right) John D. Shaughnessy; Raymond G. Kvaternik; Barbara J. Durling; Darrell R. Tenney; Stephen S. Tompkins; and Raymond E. Mineck.

Happenings

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, October 22, at 4:30 p.m., in the Union Office, Building 1232-B. A social hour will begin at 3:30 p.m.

TURKEY SHOOT. The LAA annual Turkey Shoot will be held Saturday, November 15, on the Activities Center grounds from 9 a.m. until sunset. Turkey raffle tickets are available from LAA representatives and the Activities office.

THE ACTIVITIES CENTER, including exterior shower rooms, will be closed October 20–23 due to a classified conference.

HAUNTED HOUSE. The Army Training Support Center at Fort Eustis is sponsoring a Haunted House for children of all ages. Go to Building 2796 on October 30 and 31 between 6 and 11 p.m. for the best Halloween ever! There will be draculas, witches, monsters and creepy crawlies of all shapes and sizes. Tickets can be purchased at the door. Admission is 25 cents for children and 50 cents for adults and teenagers. Refreshments will be available for purchase.

THE GEM AND MINERAL SOCIETY of the Virginia Peninsula will hold the fall 1980 Gem and Mineral Show at Phoebus High School Saturday, October 25, from 10 a.m. to 10 p.m., and Sunday, October 26, from 12 to 6 p.m. The show will include special programs, facetting and jewelry making demonstrations, field trips, dealer sales, door prizes and special exhibits. Admission will be 50 cents for school age to 16 years and $1 for 16 years and above. Group rates are available.

ACTIVITIES CENTER BOOKED. There are no open dates in the Activities Center for retirement luncheons and social functions through December.

LAA ARTS & CRAFTS SHOW will be held in the Activities Center, November 15 and 16 from 12 to 5 p.m. All persons interested in displaying and selling their crafts should contact Beverly Anderson, extension 2592.

VOYAGER ENCOUNTER WITH SATURN. There will be live TV coverage of the flyby of Saturn at the Activities Center, November 11, from 2 to 4 p.m. (holiday), November 12, from 4:55 to 8 p.m. and November 13, from 2 to 3 p.m. Further details will be announced in the next issue of the *Researcher*.

TOASTMASTERS. You are invited to join the TAC Air Toastmasters Club to develop the arts of giving and evaluating speeches, chairing an organization or a committee and other communication skills. The club meets at 7:15 p.m. every second and fourth Wednesdays of the month at the Langley Officers' Club. Membership is open to both sexes. Call Bob Miserentino, extension 2817 or Gale Wilson, extension 3856.

NASA Dog Training Classes to Resume

The NASA Dog Training School will resume classes interrupted during the summer due to extreme heat and parvo virus Saturday, November 1. New puppy and basic obedience classes will also be registered.

The six-weeks puppy (four to six months) training course will consist of basic control, socialization, preparation for the breed ring and tips on feeding, housebreaking and general health care; the six-weeks basic obedience course includes heeling on leash, coming when called, sit down and stand stays, general health care and dog/owner problems.

The more advanced classes will continue off-leash control work, retrieving and jumping. The working sessions for retrievers will use live birds for land and water retrieves.

All puppies and dogs must have shots up-to-date including parvo virus shot and be free of worms. Please bring your shot record. Training collars and leashes will be available at registration.

For information concerning the above classes, contact Doris Bryan, 898-6273 after 5 p.m.

Key Positions

Charles C. Laney, Jr. has been designated Acting Head, Instrument Support Section, Instrument Application Branch, Instrument Research Division.

– photos by Bob Nye

NASA TECH BRIEF AWARDS. These Langley employees were presented cash awards and certificates for Tech Briefs by Dr. John E. Duberg (seated in center). Receiving awards were: (left photograph, seated from left) Robert W. Johnson, Laurence J. Bement, Judd R. Wilkins and Stephen C. Irick; (standing from left) James W. McNamara, John W. Oakley and Hale H. Marshall; (right photograph, seated from left) Don M. Robinson, Edward R. Long, Jr., Robert S. Rogowski, Frank Allario and James M. Haell, Jr.; (standing from left) Carroll W. Rowland, William E. Metler and David B. Rhodes. Marvin F. Burgess looks on. The quarterly "NASA Tech Briefs" journal, distributed nationwide, stimulates technology transfer by disseminating information on new developments stemming from aerospace technology.

Retirement Parties

Ernest L. Rowe, Operations Support Division, will be honored at a luncheon Monday, November 3, at the Activities Center. A hot buffet luncheon will begin at 11:30 a.m. The cost, including gift, will be $7 per person or $13 per couple. Gift contributions only are welcome. For reservations, send check to Linda McKnight, Mail Stop 387, by October 29.

Edna I. Scott and **George J. Hurt**, who recently retired from the Flight Dynamics and Control Division, will be honored with a retirement party Wednesday, November 5, at the Fort Monroe Officers' Club. A cash bar social will begin at 6:30 p.m., followed by beef and burgundy dinner at 7:30 p.m. The cost will be $9 per person or $15.75 per couple. Send name and check to Maryann Stassinos, Mail Stop 152D, by October 29.

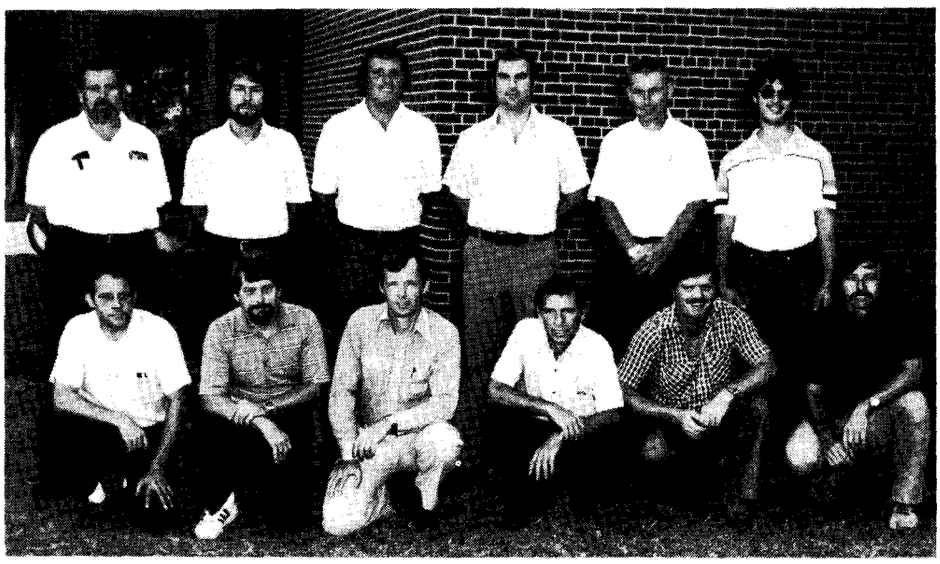
George O. Brooks, Jr., Plant Engineering Division. will be honored with a retirement party Friday, October 24, at the NASA Cafeteria. A cash bar social will begin at 6 p.m. and a steamship round beef dinner will be served at 7 p.m. The cost, including gift, is $8. Donations to gift only are welcome. For reservations, send checks to Mary Odom, Mail Stop 485, by October 21.

Clarence A. Brown, Jr., Marine and Applications Technology Division, will be honored with a retirement party Wednesday, October 29, at the Fort Monroe Officers' Club. A cash bar social will begin at 6 p.m., followed by a beef and burgundy dinner at 6:30 p.m. The cost, including gift, is $8 per person or $15 per couple. Contributions for gift only are welcome. Please make reservations by sending checks to Olin Jarrett, Mail Stop 272, by October 24.

Harry W. Carlson, who retired from Langley in August, will be honored with a retirement party Tuesday, October 28, at the Langley Officers' Club. A cash bar social will begin at 6 p.m. with dinner being served at 7 p.m. The cost including gift will be $8 per person or $15 per couple. Contributions for gift only are welcome. Make reservations and send payment to Nellie Dick, Mail Stop 406, by October 24.

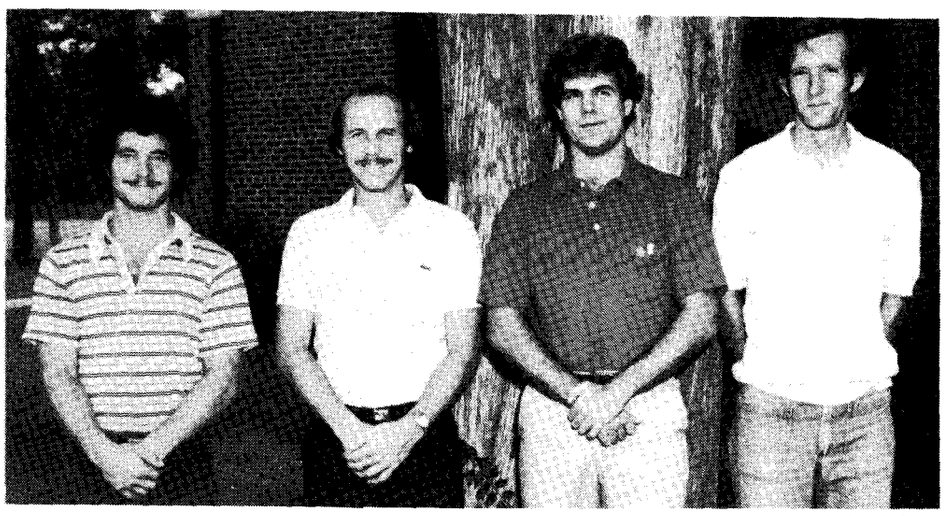
Ralph M. Byers, E. Thomas Freeman and **Russell K. Nevins** will be honored with a retirement party Monday, November 3, at the Activities Center. A cash bar social will begin at 6:30 p.m. followed by the dinner at 7:30 p.m. The cost, including gift, is $10 per person and $17 per couple. Contributions of $1.50 for gift only are welcome. For reservations please contact Larry Hall or Ray Haynes, extension 3541.

James D. Church, Systems Safety, Quality and Reliability Office, will be honored at a retirement luncheon Friday, November 14, at the Activities Center. A hot buffet luncheon will begin at 11:30 a.m. The cost including gift will be $6.50 per person. Those wishing to contribute to the gift only may do so by forwarding $1. For reservation, send cash or checks to Abner M. Askew, Mail Stop 429, by November 4.



– photo by Bob Nye

1980 "C" LEAGUE CHAMPS. The Ballers, coached by Dick Bloxom (kneeling, third from right), are the 1980 "C" League playoff champs, going undefeated in the tournament. Members of the team are (kneeling from left) Gene Wagner, Ron Harvey, Bobby Swain, Bloxom, Dennis Mowrey, Robert Fox; (standing from left) Cecil Burcher, Wayne Williams, Joe Goodwin, Larry Harvey, James Bartlett and Chris Bloxom. Not pictured: John Hoppe, Cornell Welch, Ingelo Brown and Tim Schott.



– photo by Richard Shaw

System Engineering and Operations won the third interdirectorate mile relay at the LAA Carnival, Aug. 23. Ralph Angel, Ernie Bust, Charles Poupard, and Raymond Parker ran a time of 3:57 to win the race.

Pre-Retirement Seminars Held at Langley

The theme throughout the series of pre-retirement seminars, "Life Management After Retirement," which were held recently at Langley was "begin to plan your retirement from five to 20 years before your actual retirement date."

Planning for a sound financial future should begin rather early in your career, according to Malcolm G. ("Fritz") Fries, who spoke on the topic of "Personal Financial Planning for Life Management."

Dr. Sanford E. Lopater, whose topic was "Socio-Psychological Aspects of Mid-Life and Beyond," listed 18 items that persons planning for retirement should consider now. He also mentioned that persons with good health and an adequate income to meet their needs are happiest in retirement. He discussed two ways of looking at retirement: as a normal part of one's work life, or as a crisis situation.

Dr. David G. Fluharty, Internist, spoke on "Physical Health in Mid-Life and Beyond." He pointed out some unhealthy substitutes (such as alcohol) that retirees might try to use in place of facing up to and solving adjustment problems after retirement. He discussed the joys of jogging, the importance of physical exercise, and the diet that can enhance health as one gets older.

Dr. Don H. Killian, Psychologist, whose topic was "Mental Health in Mid-Life and Beyond," pointed out that one should expect certain reactions and emotions when facing and adjusting to retirement and that these are a normal part of the problems one faces after mid-life. Other speakers discussed the creative use of leisure time, Social Security benefits for the federal government employee and family adjustments after retirement.

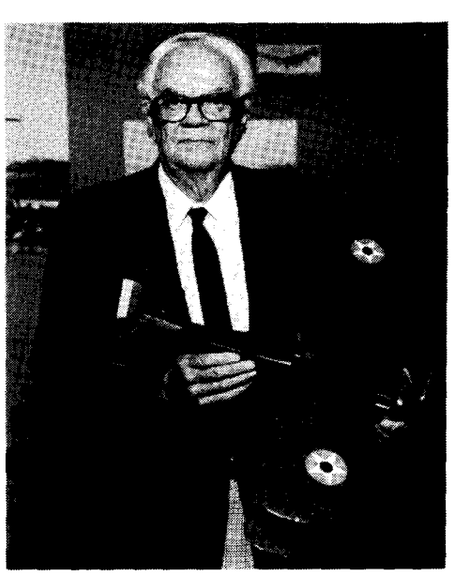
Prior to the seminars, letters requesting comments, tips, or suggestions about retirement were mailed to all 1979 and 1980 Langley retirees. These have been collected and published in a booklet, "Tips From Langley Retirees About Retirement." Copies are available from Eloise McGehee, Training and Educational Services Branch, 2611.

All of the seminars in the pre-retirement series are on videotape in the Learning Center and arrangements can be made for viewing them by calling 2611.

– photo by Bob Nye

Shown at the pre-retirement seminar on October 2 are Lahoma Hart of the Staffing and Special Programs Branch, Personnel Division; Malcolm G. "Fritz" Fries, speaker; and Eloise McGehee, Training and Educational Services Branch, Personnel Division. In his talk, Fries stressed that planning for a sound financial future should begin early in a person's career.

Visitor Center Features Special Programs



Lawrence K. Loftin was the first speaker in a series of special October programs at the Visitor Center on "The Early Years of Langley 1917 – 1939." One hundred thirty-eight historic photographs of Langley and several special exhibits are on display. Noontime programs on weekdays feature special speakers and films. Speakers for the remainder of October are listed below. Additional Calendars of Events may be requested from the Visitor Center.

Speaker	Date and Time	Topic
Anshal Niehouse	October 17 – Noon	Early Spin Research
Upshur Joyner	October 19 – 2:00 pm	Reminiscences of Langley in the 1920's and 30's
Jack Reeder	October 22 – Noon October 31 – Noon	Preparing for Air National Defense Preparing for Air National Defense
Donald Baals	October 23 – Noon November 1 – 2:00 pm	Early Wind Tunnels of NACA Early Wind Tunnels of NACA
T. Aubrey Harris	October 26 – 2:00 pm	Langley Recollections 1927 – 1940
William Spain	October 28 – Noon	Boyhood Memories of Langley
Larry Loftin	October 29 – Noon	A New Era in Air Foils

Special Achievement Awards Presented to Employees

Special Achievement Awards have been presented to the following Langley employees:

Clinton V. Eckstrom, for "sustained superior performance and leadership in various preparatory analyses and planning efforts leading to successful flight test of the first DAST aeroelastic research wing."

Stephen J. Katzberg, for "outstanding contributions on the development of a laser heterodyne spectrometer."

Snowden C. Mills, "in recognition and appreciation for outstanding technical contributions during the assembly and test operations of the F-18 Drop Model for the Free Flight/Radio Control Model Program conducted at Plum Tree and outstanding achievements in the fabrication and testing of the Hydrogen Peroxide Despin System on the LaRC Light Aircraft Stall/Spin Program."

Doris T. Baynes, for "consistently superior performance in meeting the clerical and stenographic needs of the Aeroelasticity Branch in a timely manner during a period of exceedingly heavy workload."

Thomas H. Leffel, "in recognition of outstanding contributions and dedicated efforts in the development, assembly, and testing of the SILTS program hardware were a significant factor."

Stephen C. Irick, "in recognition of the dedication of effort, innovative design, and intuitive understanding which were applied to develop the Laminar Flow Control Air Distribution System."

Louis H. Hunt, Jr., for "sustained superior performance in the design, development, and procurement of exposure control canisters for the Long Duration Exposure Facility."

George C. Firth, for "dedicated and highly productive service to the Laminar Flow Control Airfoil Project."

Carolyn H. LeDuc, for "outstanding efforts in the design, acceptance, and implementation of the Computer Resource Management System as an effective means of accumulating statistical data for performance analysis and utilization accountability of the LaRC Computer Complex."

Jacob A. Houck, for "outstanding and original contribution in establishing a multimedia crew training program for the support of TCV simulator operations."

Alton C. Hall, for "extraordinary technical support of the development of G-seats and helmet loaders for simulator cockpits."

Robert C. Redman, for "outstanding contributions in the analysis and follow-up of operations and maintenance functions resulting in a superior level of equipment availability for the LaRC Computer Complex."

Judy W. Evans, for "outstanding performance as Coordinator of the Financial Management Conference hosted by Langley Research Center, at Virginia Beach, May 1980."

Frank L. Jordan, Jr., for "outstanding contributions and personal dedication to the development and validation of testing techniques in the Langley Vortex Facility for the study of particle/wake interaction phenomena of aerial applications."

Bernice A. Barrack, for "outstanding administrative and secretarial support for the research programs conducted by the Safety and Operating Problems Branch."

Bradley D. Leighty, for "the design, construction, and application of temperature measurement instrumentation to test the response of thermocouple probes in a cryogenic environment and ability to measure differential temperature in an arc jet."

Steven B. Jones, for "application of electronic circuits in a shadowgraph system to sync a short duration light source with a high speed framing camera and a LV system to simulate a minicomputer for timely demonstration of the V/STOL system."

David A. Hinton, for "the concept development and evaluation of a rate enhanced instrument landing display and feasibility demonstration of an automatic terminal approach system for general aviation instrument flight."

Wendell W. Kelley, for "outstanding performance and leadership in the development of an aileron/rudder interconnect for improvement of the flying qualities of U.S. Navy F-14 aircraft on approach to land."

Paul G. Sandefur, James Joyner, Jr. and **James S. Harvey**, for "innovative and exceptional service in the brazing of two-dimensional airfoils."

John K. Molloy, for "excellent performance in the execution of the duties and functions of the Advanced Supersonic Technology Office during the prolonged absence of the Head of the Office."

Howard C. Jones, for "excellent service in the design and manufacture of a precision alignment instrument for the tensile of composite material."

Uriel M. Lovelace, for "outstanding leadership and personal technical contribution to the Microwave Radiometer System Study."

Charles F. Spear, William J. Leftwich, John Belveal, Jack F. Gayle and **Ernest Dunnigan**, for "innovative and exceptional service in the modification of the F-106 and 737 aircrafts."

Calvin C. Chandler, Paul R. Pfeffer, Charles E. Barr, Michael A. Klebitz, Leon Bynes, William E. Parady, Leo B. McHenry and **Frederick H. Austin**, for "outstanding performance and contributions leading to the successful implementation of the NASA Severe Storms Research Program."

Donald L. Loving, for "outstanding performance in the development and maintenance of an effective resource management system for the Flight Mechanics Division."

Marilyn E. Ogburn, for "exceptional contributions and dedication to a study of the effects of winglets on handling qualities of an agricultural airplane."

Joseph W. Stickle, for "exceptional initiative and technical competence in performing a broad range of administrative, managerial, and research activities in advancing the development of aeronautical technology."

Jeanette W. George, for "the achievement of highly successful results in a variety of special tasks while maintaining effective performance in the execution of ongoing regular job duties."

James F. Montgomery, for "outstanding performance and contributions to the meticulous maintenance of the BDSD Source and Production Libraries and courteous attention and help to the applications staff in all aspects of program and technical library functions."

W. Cecil Burtner and **Charles R. Lewis**, for "high quality workmanship and dedication in support of Space Shuttle insulation tile bonding tests."

David E. Fetterman, for "the development of an efficient subsonic and supersonic airplane sizing program, the use of which has led to rational estimation of the transport aircraft of the future."

Shelby J. Morris, Jr., for "excellence in the performance of propulsion studies ranging from propellers to advanced turbofans."

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665

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FOR SALE

Articles

Bundy flute, student model, GC, excellent for beginning musicians, $50. Call Laurie, extension 4562 or 898-3988.

Pecans, shelled and bagged, $4.25/lb. Call 851-4427.

Fireplace screen, black, 38" x 31" with tools, $15. Call 877-0493.

Rodeo hat, size 6-7/8, blue, new, in box, $20. English paddock boots, size 10D, brown, EC, $12. Two rims for 1976 Buick LeSabre and other GM cars, asking $10 each or both for $18. Several hundred old bricks and fragments for borders and miscellaneous jobs, 7 cents each or negotiate on entire lot. Call Youngblood, 877-1224.

Vehicles

1972 Torino wagon, 302 CI, AT, PS, radio and heater, clean, solid, reliable, asking $600. Call Youngblood, 877-1224.

1978 Toyota Celica, AC, AM/FM stereo, five speed, GC. Call 887-1763 after 5 p.m.

Boat, neopreme coated cloth, one four man $50, one six man $80, new. Call Kent, extension 3095 or 420-8391.

FOR RENT

"Buzzards Roost" on Hatteras Island at Frisco; oceanside, 50' house trailer, furnished including dishes, 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, $125/wk. and $55/weekend. Call Fogle, extension 2651 or 826-6177.

Sandbridge: cottage, liv.-kit.-din. area, 4 BR, washer, dryer, dishwasher, fireplace, 1/2 block from beach and Back Bay, AC, phone, 6-car parking, semi-winter rates $275/wk, winter rates, $300/mo. plus utilities or $500/mo. with utilities. Call Kent, extension 3095 or 420-8391.

LOST

Pocket knife, four blade, lost at Activities Center during last Bloodmobile visit (October 1), sentimental value. Call Jim Monteith, extension 3446.

Thanks

Thomas D. Carpini writes, "I'd like to express my deep appreciation to all the dear friends who attended my recent retirement dinner. I shall always treasure the memories of the party, our past associations and the generous gifts. It was a fitting close to my long and enjoyable association with NACA-NASA."

Roger H. Fournier writes, "I wish to thank all my friends and fellow workers for the memorable retirement luncheon and also for the many gifts and mementoes. I've enjoyed our working together over the years. Thanks again and best wishes to all of you."

Teacher Needed

The Chairman of the Mechanical Engineering Department at the University of Maine is looking for someone to teach in the department from January 1 – December 31, 1981.

The temporary teacher will substitute for a professor who will be conducting research at Langley under a temporary intergovernmental assignment.

The University of Maine is in Orono, Maine, about six miles from Bangor.

Contact John R. Davidson, extension 3012, for more information.

WANTED

Fifth driver from Windsor Great Park area to West area on 8 a.m. shift. Call Feldhousen, extension 4662.

cafeteria menu

WEEK OF OCTOBER 20

MONDAY: Old Fashioned Bean Soup; Spaghetti Dinner; Barbecued Chicken; Shrimp in a Basket. Snack Bar: Hot Italian Sausage Sub; Steak & Onion Sub; Egg Salad; Bacon, Lettuce & Tomato.

TUESDAY: Manhattan Clam Chowder; Pork Chops; Beef Balls Stroganoff; Fried Filet of Fish; Snack Bar: Hot Reuben; BBQ Pork; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Baked Ham; Salisbury Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken & Rice Soup; Braised Chicken Livers; Roast Beef; Polish Sausage. Snack Bar: Submariner; Ham & Cheese Club; BBQ Pork; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Savory-baked Chicken; Steak Smothered with Onions. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF OCTOBER 27

MONDAY: Ham & Lima Bean Soup; Teriyaki Beef Kabobs; Chicken Chow Mein; Stuffed Fresh Bell Peppers. Snack Bar: Pizza; 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: French Onion Soup; Roast Turkey Dinner; Broiled Beef Liver; Knockwurst Reuben. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Gumbo Soup; Veal Parmesan; Quiche Lorraine; Half-pound Chopped Steak. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken Cordon Bleu; Beef Enchiladas. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ Pork.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

SPECIAL AWARDS ISSUE

November 7, 1980

Highlights of The Annual Honor Awards Ceremony

Langley Pays Tribute to Employees

Langley employees who made outstanding contributions in aeronautical and aerospace research during the past year were recognized for their achievements at Langley's Annual Honor Awards Ceremony October 30.

Dr. Donald P. Hearth, Langley Director, assisted by Richard H. Petersen, Langley Deputy Director, presented the Langley awards and NASA medals.

In addition to the Floyd L. Thompson and H. J. E. Reid awards, Langley Special Achievement awards for Group Accomplishments were presented as follows:

0.3-Meter Transonic Cryogenic Tunnel Airfoil Research Facility Team, "For their dedicated and creative efforts in developing the 0.3-M Transonic Cryogenic Tunnel into an outstanding airfoil research facility;" **8-Foot Transonic Pressure Tunnel Data System Development Team,** "For outstanding accomplishments in the design, fabrication, and installation of the data acquisition system for the 8-Foot Transonic Pressure Tunnel within exceedingly short time schedules;"

Dr. Richard T. Whitcomb, who retired in February as Head of the Transonic Aerodynamics Branch, was presented Langley's highest honor, the Floyd L. Thompson Award, "For outstanding contributions to the science of aeronautics and their application which has insured the continued technological superiority of U.S. military and commercial aircraft." The only other person to receive the award was Thomas N. Downing, who was presented the award in 1976, "For sustained dedicated support to Langley Research Center during eighteen years as a Representative in the Congress of the United States."

Airborne Differential Absorption Lidar Development Team, "For outstanding contributions in the development and flight demonstration of an airborne differential absorption lidar (DIAL) system for remote measurement of atmospheric pollution;" **Atmospheric Chemistry Experiment Team,** "For outstanding contributions in developing and flight testing the atmospheric Chemistry Experiment leading to the verification of enhanced levels of environmentally significant gases produced by lightning discharges;"

Chinese Delegation Visit Support Team, "For appreciation of your service and support during the visit of the delegation from the People's Republic of China to the NASA Langley Research Center September 17, 1980 through September 22, 1980;" **Combustion Chemistry Research Team,** "For original theoretical and experimental research resulting in a chemical kinetic model that accurately predicts nitrogen oxide formation from jet fuel combustion;"

Design of National Transonic Facility Fan Disk Team, "For the development of design, analysis, and non-destructive testing methods for a large Cryogenic Compressor Fan Disk to ensure a 50-year operational life and freedom from disk burst;" **Development of the .02 Shuttle Model Team,** "For outstanding achievement in the design and development of small-scale, remotely controlled wind-tunnel test models providing increased data accuracy and significant savings in manpower and energy;"

Dr. Fereidoun Farassat, Acoustics and Noise Reduction Division, received the H. J. E. Reid Award for his paper "Theory of Noise Generation from Moving Bodies with an Application to Helicopter Rotors." The award annually recognizes the outstanding scientific or engineering paper written by a Langley employee or group of employees.

Paul F. Holloway, Director for Space, is presented a NASA Outstanding Leadership Medal, "For outstanding leadership in planning and directing research in support of Space Transportation Systems and Environmental Observation Programs, the result of which has served to greatly enhance the achievement of Agency missions."

Jane S. Hess, Management Support Division, receives a NASA Exceptional Service Medal, "For outstanding contributions in providing technical library and information services in support of NASA's aerospace research program."

Emanuel Boxer, who retired from the Aeronautical Systems Division in February, receives a NASA Exceptional Service Medal "In recognition of outstanding contributions to the technology of airbreathing propulsion including supersonic compressors, engine-nacelle installation effects, variable-cycle engines, and wind-tunnel fans."

Howard B. Edwards, who retired as Chief of the Instrument Research Division in July, receives a NASA Outstanding Leadership Medal, "For outstanding contributions and leadership in directing NACA-NASA research, development, and application instrumentation programs."

F-106B Research Airplane Modification and Maintenance Team, "For outstanding performance and dedication in preparation of the F-106B airplane for severe storm flight research;" **FILE Development and Evaluation Team,** "For outstanding achievement in the development of the Feature Identification and Location Experiment and successful aircraft demonstration of its potential use in significantly improving the usefulness of remote sensing systems;"

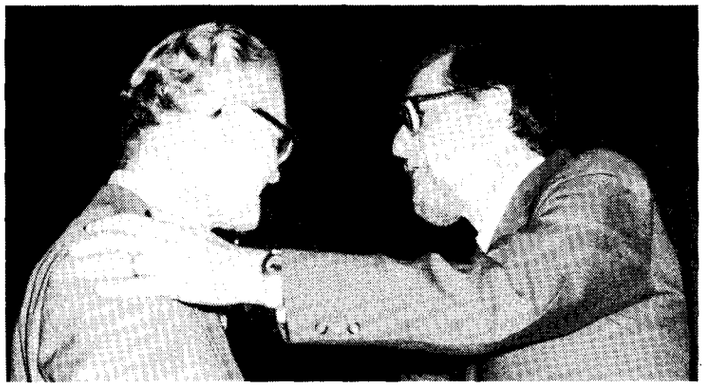
KC-135 Winglet Team, "For designing a winglet for the KC-135, for conducting wind tunnel tests which demonstrated a significant reduction in drag, and for supporting the successful flight test program;" **Langley Research Center On-Orbit Shuttle TPS Repair Technology Team,** "For the timely development of viable new concepts for on-orbit repair of the Space Shuttle Thermal Protection System;" **Langley Research Center Self-Critical Nuclear-Pumped Laser Research Team,** "For the first successful demonstration of laser excitation by uranium hexafloride fission fragments, thus achieving a key step toward the realization of a self-critical nuclear system;"

Laser Heterodyne Spectrometer Optical Receiver Design Concept Team, "For outstanding achievement in the pioneering development of an optical receiver design concept which will significantly improve the capability to measure constituents of the Earth's stratosphere;" **National Transonic Facility Fan Coefficient of Expansion Measurement Team,** "For the conception, design, construction, and successful application of a precision measurement system for determining the coefficients of linear thermal expansion of candidate NTF fan blade materials;"

Nestable Column Development Team, "For conception, research and test verification of the nestable column space-structure element and its associated structural and manufacturing technology which enables the full-weight capacity of the Space Shuttle to be used for transporting to space a large variety of space-erectable structures;" **Photographic Branch,** "For the innovative and dedicated manner in which the Photographic Branch has responded to the photographic needs of the Center;"

Pioneer 10/11 Meteoroid Detection Experiment Team, "For the advancement of the understanding of the meteoroid environment in interplanetary space from 1 to 20 Astronomical Units and near the planets, Jupiter and Saturn;" **Property Management Branch,** "For outstanding contributions and performance in support of the Data Base Management System Conversion for on-line query to Property and Supply Management System files;"

Shuttle Orbiter Thermal Protection System Structures and Materials Team, "For timely conception, development, and implementation of experimental analytical studies which determined engineering properties of, provided realistic stress analysis for, and generated vital design data for the Shuttle Orbiter Ceramic Thermal Protection System;" **Staffing and Special Programs Branch,** "For



A NASA Exceptional Service Medal was presented to John P. Mugler, Jr., Assistant Chief of the Atmospheric Environmental Sciences Division, "For exceptional leadership and achievement in planning, developing, and implementing NASA's environmental quality programs that have significantly improved our current national capability to monitor the environment from space and provided the technology base for future monitoring."

outstanding leadership in administering and implementing a broad range of complex personnel programs;" and **Technical Evaluation Team for the Trimodal Beacon Collision Avoidance System**, "For outstanding contributions in conducting a technical evaluation of the Trimodal Beacon Collision Avoidance System for the Federal Aviation Administration and the United States Congress."

A NASA Group Achievement Award is presented for an outstanding accomplishment which has been made through the coordination of many individual efforts and has contributed substantially to the accomplishments of the NASA missions.

Receiving NASA Group Achievement awards were:

Fuel Efficient Profile Descents in the Denver Time-Based Metering ATC Environment, "For outstanding performance in developing the airborne guidance, display, and experimental plan that resulted in the successful accomplishment of fuel efficient profile descents in the Denver Time-based metering ATC environment;"

Graphite Fiber Risk Analysis Team, "For planning and conducting a timely, high-quality analysis of the potential hazard associated with the use of carbon-fiber composites and, with the outcome of minimal risk, providing NASA with a sound basis for continuing the development of these types of materials;" and

The **ACEE Composite Aircraft Structures Team**, "In recognition of group achievement in the development of technology and confidence within the commercial airframe industry which has accelerated the application of advanced composites in secondary structures of commercial aircraft for important gains in fuel efficiency."

The following researchers, who are not federal employees, were recognized at the ceremony:

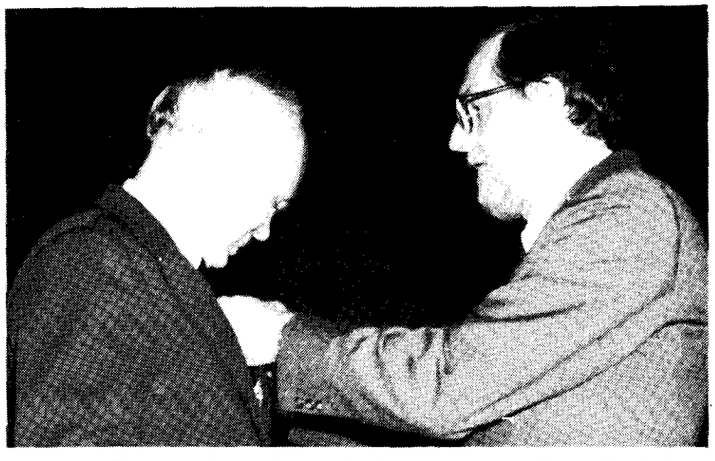
Dr. Antony Jameson of New York University received a NASA Exceptional Scientific Achievement Medal, "For his many fundamental theoretical developments in computational Fluid Dynamics and the implementation of those theories in practical aerodynamic computer programs which have vastly improved the capability to analyze and understand flows about airfoils, wings, and aircraft at transonic speed."

Charles W. Boppe of Grumman Aerospace Corporation was presented a NASA Public Service Medal, "For outstanding and creative development of an embedded-grid method which allows analysis of complete aerodynamic configurations at transonic speeds."

The *Langley Researcher* is an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23665.

Editor . . . . . Jean Drummond
Staff Photographers . . . . . Bob Nye and Bill Salyer

Dr. Clemans A. Powell, Jr., Acoustics and Noise Reduction Division, receives a NASA Exceptional Service Medal, "For design and implementation of research that established credible metrics for helicopter noise quantification and for serving as the principal U.S. technical advisor on human response to noise in national and international deliberations to develop helicopter noise standards."



A NASA Exceptional Service Medal is presented to Harry W. Carlson, who retired from the High-Speed Aerodynamics Division in August, "In recognition of outstanding contributions in the development of advanced supersonic aerodynamic and sonic boom analyses and design methods."

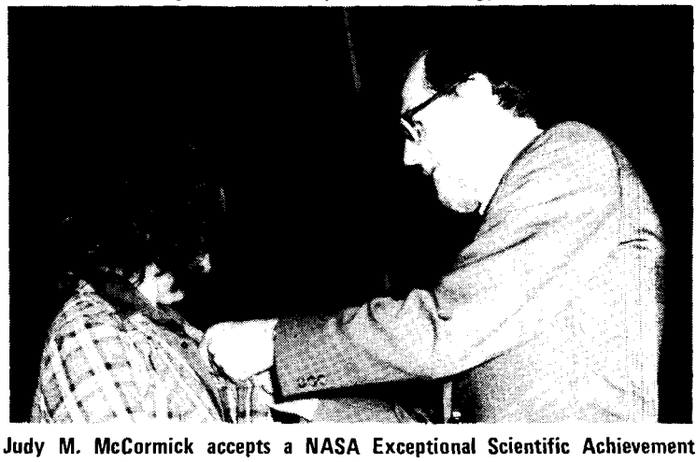
William P. Gilbert, Flight Mechanics Division, received a NASA Exceptional Service Medal, "For outstanding contributions in development of aerodynamic and control system technology for improving fighter aircraft maneuverability and departure resistance in the stall/post-stall regime."

Earl F. Stahl, Chief of the Operations Support Division, is presented a NASA Exceptional Service Medal, "For exceptional service and leadership in the management of technical support to the Langley research effort, assuring effective utilization of the Center's diversified research facilities."

David C. Woods, Instrument Research Division, is presented a NASA Exceptional Service Medal, "For contributions to the development of the quartz crystal microbalance (QCM) technique for measuring atmospheric aerosol size distribution, morphology, and composition."

A NASA Exceptional Service Medal is presented to Luther R. Gentry, Systems Engineering Division, "In recognition of outstanding achievements in advancement of the state of the art in the development of wind-tunnel test models resulting in increased data accuracy, as well as significant savings in time, manpower, and energy."

John J. Cox, Personnel Division, receives the NASA Equal Employment Opportunity Medal "For exceptional contributions to the success of NASA's Equal Opportunity Programs while developing, implementing, and administering a wide range of complex personnel management programs, including innovative feeder programs vital to the Langley Research Center.



Judy M. McCormick accepts a NASA Exceptional Scientific Achievement Medal for her husband, Dr. M. Patrick McCormick, Instrument Research Division. The award was presented "For his space, airborne, and ground-based measurements of stratospheric aerosols and their properties on a global basis, leading to greatly increased knowledge of their effects on Earth's climate and environment."

Dr. Casimir J. Jachimowski, Marine and Applications Technology Division, receives a NASA Exceptional Scientific Achievement Medal, "For exceptional scientific achievement in developing and performing a highly successful research program characterizing the combustion of hydrocarbon-based fuels and the resultant formation of pollutants."

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 23 November 14, 1980

Tales of a Natural Laboratory: Scientists Will Gather to Discuss Mount St. Helens

– by Brian Welch

Since about 20 hours after its first puff on March 27, 1980, Mount St. Helens has been the most exhaustively studied volcano in history, and scientists will illustrate the fact as they gather in Washington, D.C. next week for a review of what is and isn't known about the potential atmospheric and climatic effects.

A symposium and workshop, "Mount St. Helens Eruption: Its Atmospheric Effects and Potential Climatic Impact," will begin Tuesday at a hotel in downtown Washington, and is expected to draw many scientists who have been studying Mount St. Helens for about eight months.

The symposium will take place during the first two days of the three-and-one-half-day conference, and will consist of 27 invited scientific papers on a wide range of atmospherically-oriented topics.

The workshop, where scientists will catalog what is and isn't known about the effects on climate and atmosphere, will be held during the remaining one-and-one-half-days. The workshop will be concerned with preparing a written report containing a summary of what has been learned thus far, and an assessment of the potential effects of such eruptions on the atmosphere.

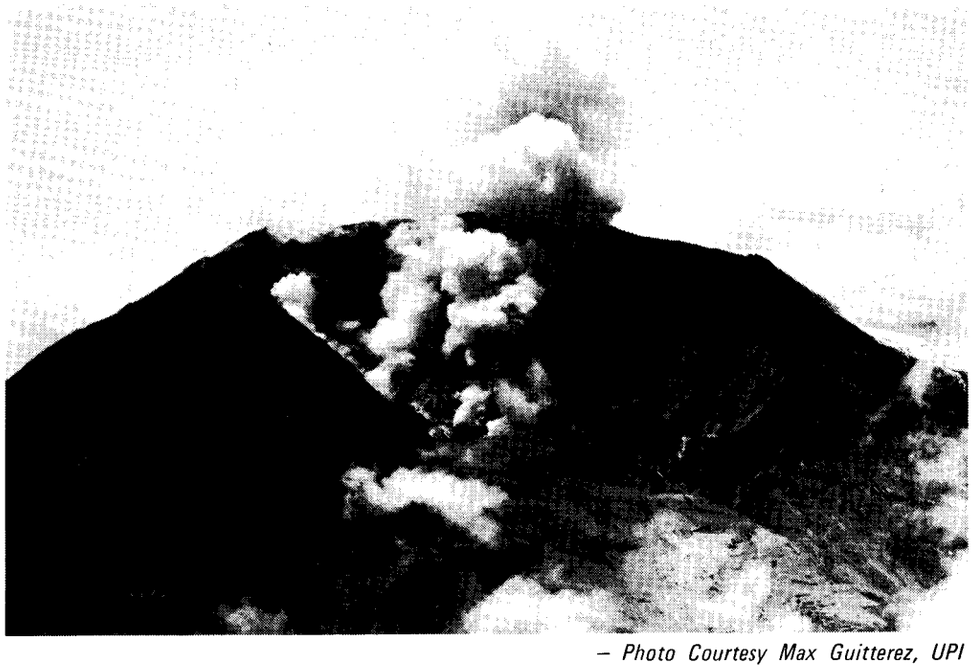
The invited papers will be presented in six sessions which are open to interested persons. The sessions will be "Nature and Impact of Volcanic Eruptions," "In Situ Measurements of Effluents," "Remote Sensing Measurements," "Transport and Dispersion of Volcanic Effluents," "Chemistry of Volcanic Effluents," and "Weather and Potential Climate Impact."

Scientists have had ample opportunity since last spring to gather data which will highlight the conference. For many disciplines, the presence of an active volcano in the continental United States has provided a bonanza of opportunities. Atmospheric chemists, for instance, have been able to study gaseous interactions on a huge scale. Using Mount St. Helens as a global laboratory, they have seen a variety of gases escaping from one point in the Earth's crust and transforming into hard microscopic particles, or aerosols, adrift in a thick homogeneous layer about the planet. Studies by Langley's Aerosol Measurements Research Branch and other scientific concerns have shown that the total global aerosol content has been increased by at least 75 percent due to the eruptions.

Meterologists have used the volcano as a kind of transcontinental smoke flow chamber, allowing themselves a look at vast wind patterns and the interactions between our own troposphere and the thermal layer above that, the stratosphere.

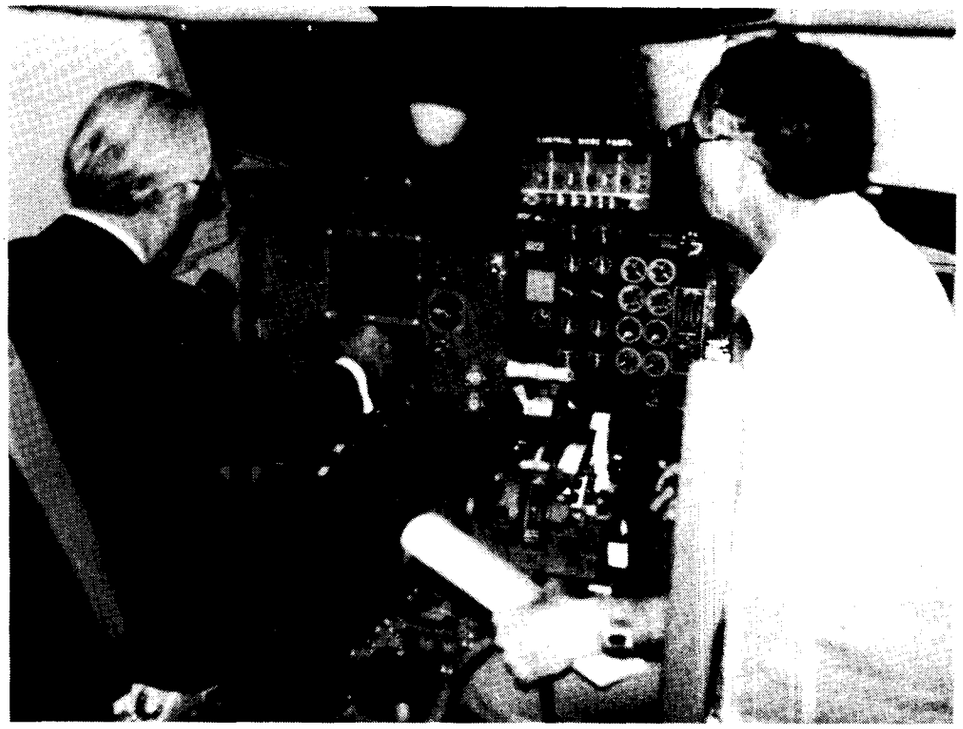
Planetary scientists have been able to use new data from NASA's Aerosol Climatic Effects (ACE) program to deduce how the ash from the volcano will effect the radiative properties of the atmosphere. They have seen that the ash

Continued on page 2.



– Photo Courtesy Max Guitterez, UPI

Once symetric Mount St. Helens is now a smoking, partially collapsed cone. Scientists will gather next week to discuss the volcano, which was active for almost 20 years during its last series of eruptions in the mid 1800's.



Yukie Oomori (left), Director General of the Technical Research and Development Institute, Japan Defense Agency, sits in the cockpit of the TCV Aft-Deck simulator during a recent visit to Langley. James L. Copeland, Head of the Simulation Application Section, explains the advanced avionics displays to Oomori. Oomori, accompanied by Koyoshi Sumi, Head of the Plans Division at the institute, toured other Langley facilities and Langley Air Force Base.

Scientists Discuss Mount St. Helens

Continued from page 1.

causes stratospheric temperatures to increase while tropospheric temperatures decreased, and they have been able to generalize those results to other volcanic eruptions.

Mount St. Helens also served as a kind of impetus for the formation of a new NASA/University research effort, called Research on Atmospheric Volcanic Emissions (RAVE). The proposal for RAVE was approved by NASA Headquarters three days before the May 18 eruption.

The purpose of RAVE is to give scientists the opportunity to fly a variety of sophisticated instruments at one time over an active volcano. RAVE's first mission, which took place in mid-September, has been judged a complete success, according to Dr. Jarvis Moyers of the University of Arizona.

Moyers, who will present the RAVE findings at the symposium, said the combination of a correlation spectrometer and two gas chromatographs gave the team a highly detailed look at the chemical structure of the plume over Mount St. Helens. Another part of RAVE involved collecting thousands of microscopic samples, some of which have been put through nuclear activation analysis by the University of Maryland.

Scientists are hopeful that the results of those and other research projects can be synthesized into a comprehensive understanding of the atmospheric and geologic effects of such volcanic eruptions.

An example of the diverse bank of knowledge that will be presented can be seen in the abstract of a contributed paper by Kendall R. Peterson of the Lawrence Livermore National Laboratory. Peterson says that some naturally occuring radioisotopes, such as radium and thorium, were violently released into the atmosphere by the May 18 eruption. Normally radioisotopes seep very slowly from the earth, and are a natural part of the environment.

While the largest dose to any one person was small, Peterson says, the violent ejection made the aggregate population dose of those affected by the radioactivity in the ash greater than the population dose from the nuclides released during the 1979 accident at Three Mile Island.

Pope Discusses Energy Process

The progress being made in areas of the energy process — oil and gas production, geothermal, lava, windmills, electric cars, nuclear fission and fusion, and solar — will be discussed at the American Institute of Aeronautics and Astronautics meeting today.

Alan Pope, a national lecturer on energy for the Associated Clubs of America, will speak to the Hampton Roads Section on "The Outlook for Energy" in the Cafeteria, Building 1213, at 5 p.m. A social will begin at 4:15 p.m.

Pope, a Fellow of the AIAA, touring the United States giving lectures based on his career in various aspects of the energy field. He is retired from the Sandia Laboratories where he worked in the Aerodynamics Division. Prior to his career with Sandia, he was a Professor of Aerodynamics at Georgia Institute of Technology and a consultant to many companies including United Aircraft and Boeing.

More Home for Less Money

With interest rates climbing out of sight, moving up to a bigger, better home could be very difficult. Rather than pack up and move, think about adding on or improving your present home.

Although home improvement prices have also gone up, they are still more reasonable than the cost of a new home. The place to go for a home improvement loan is the credit union. Langley Federal Credit Union is happy to arrange these. Members can get the cash they need at a 12.5 percent Annual Percentage Rate.

If you are thinking about adding a bedroom or den, or remodeling the kitchen or bathroom, get an estimate and stop by any LFCU office.

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.

Combined Federal Campaign Goal Met

Generosity Will Help Others

Thank you, Langley Research Center, for your outstanding generosity and caring for others through this year's Combined Federal Campaign (CFC). We set a tough goal, $185,600, in light of today's economic pressures on all -- a goal that would truly challenge us. Our CFC officially ended on November 4, 1980, and our total as of that date was $188,788.13, or 101.7 percent of our goal. A few contributions continue to trickle in which will slightly boost this figure.

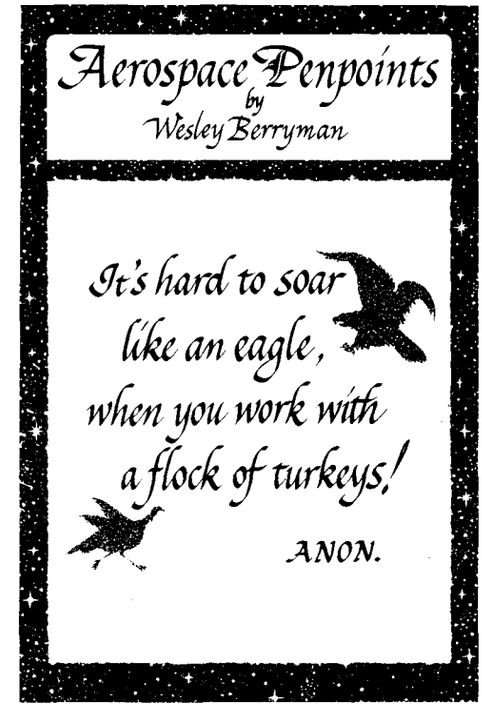
We used, for the first time this year, dollar goals at the Directorate level as the 1980 OPM amendments to the guidelines controlling solicitation with the federal establishment prohibited the use of percent of orgnizational participation as an index of progress. Final figures are shown below:

Directorate	Goal	Contributions	% Goal
Director	$ 3,500	$ 3,649	104.3
Electronics	38,000	36,359	95.7
Structures	25,000	25,931	103.7
Aeronautics	26,000	24,570	94.5
Sys. Eng. & Opns.	39,500	40,271	102.0
Mgt. Ops.	17,500	18,701	106.9
Space	19,000	19,322	101.7
Projects	7,500	7,071	94.3
Other (Retirees, Army, etc.)	9,600	12,914	134.5
Total	$185,600	$188,788	101.7

For the record, 3,036 persons (2,721 NASA and 315 NASA-affiliated) participated for an average gift of $62.18.

On behalf of the Peninsula Combined Federal Campaign (50+ installations with over 35,000 employees solicited), your Langley CFC staff and volunteers, and myself, I sincerely thank each of you for your generous response to this call for help throughout our community. I'm proud to be a part of this fine team!

Robert L. Swain
Chairman
1980-81 Combined Federal Campaign



Deadline Notice

Due to the Thanksgiving holiday, the deadline for the next issue of the *Langley Researcher* has been changed to Thursday, Nov. 20, at 12 p.m.

Recent Retirees

Frank E. Mershon, Research Facilities Engineering Division, and **Elden S. Cornette**, Subsonic-Transonic Aerodynamics Division, retired Oct. 31.

Guastaferro Named Ames Deputy Director

Angelo "Gus"Guastaferro, a Langley manager from 1963 to 1979, has been named Deputy Director of the Ames Research Center. He will begin his new job in approximately six months.

He succeeds A. Thomas Young, another former Langley manager, who is now Director of the Goddard Space Flight Center.

Guastaferro, Director of the Planetary Division, Office of Space Science, at NASA Headquarters, is responsible for the planning, development, and operation of spacecraft systems for planetary exploration.

Before appointment to his present position in April 1979, Guastaferro was Manager of Langley's Large Space Systems Technology (LSST) Program, Rotor Systems Research Aircraft (RSRA) Manager, Viking Deputy Project Manager (Management), Viking GCMS Manager and Scout Mission Operations Manager.

From 1955 to 1963 he served as an officer, and then as a civilian, with the U.S. Air Force Armament Center at Eglin Air Force Base in Florida as an aeronautical project engineer.

Guastaferro received NASA's Outstanding Leadership Medal in 1977 for his work on Viking, and he received Langley's Special Achievement Award three times and a Group Achievement Award for his outstanding work. At NASA Headquarters, he received the NASA Exceptional Performance Award this year.

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 in research and development management from Florida State University in 1963.

Visitor Center Plans Planetary Exploration Programs

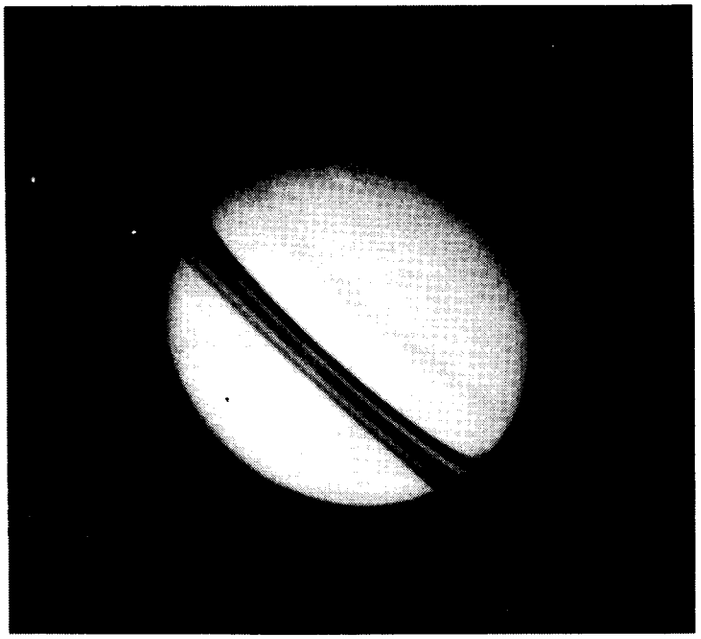
The Voyager I space probe which swept past Jupiter in March, 1979, made a near encounter with Saturn on November 12. The spacecraft's transmission of closeup photographs of Saturn, its 15 moons and its mysterious rings will be featured at the Langley Visitor Center.

A special exhibit entitled "The Voyager Saturn Encounter" will trace the path of Voyager through the Saturnian system. On display November 17 through 30, it will include photographs and videotapes of the actual encounter as they become available.

The Visitor Center will also feature daily programs on planetary exploration throughout the month of December at 12 p.m. on weekdays and 2 p.m. on weekends with the exception of Christmas day.

Featured speakers will include Gentry Lee, JPL Project Engineer for Galileo and Vice President of Carl Sagan Productions; Dr. Cary Spitzer; Dr. Joel Levine; Robert Tolson and Dr. William Michael.

Special films will include the recently released "Jupiter and Its Moons" -- the story of the Voyager I and II encounters with Jupiter. A display on the Voyager Saturn encounter will include the latest photographs and information relayed from the spacecraft.



Instrument Tested for Geological Exploration

An instrument adapted from one first used on the Viking spacecraft that landed on Mars is now being tested for possible use in geological exploration.

Called an X-ray Fluorescence Spectrometer, the original instrument was a major part of the inorganic chemistry experiment on the two Viking Landers.

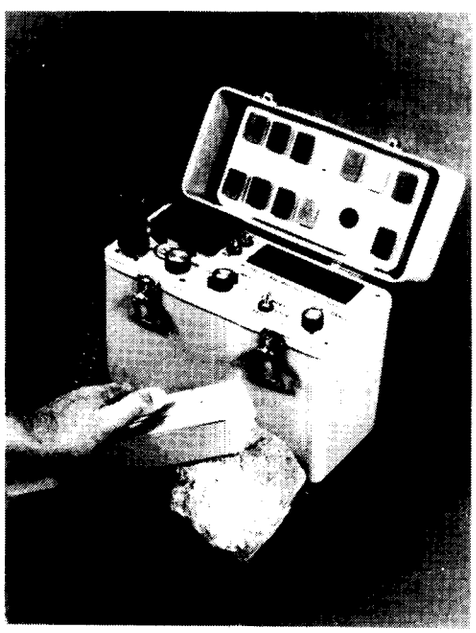
The instrument can rapidly characterize a minimum of 60 elements (including copper, uranium and tungsten) and their relative concentrations in rock formations in remote sites. Potentially valuable seams or concentrations of ore can be detected in their original sites and samples taken for later, more detailed, laboratory analysis.

The modified equipment is portable, battery-powered and can be carried like a camera pack. It weighs less than 7.3 kilograms (16 pounds) and measures 28x13x28 centimeters (11x5x11 inches).

A prototype instrument was delivered by NASA to the U.S. Bureau of Mines, whose geologists are now conducting field trials and evaluation.

Possible future uses for the instrument include shale characterization, toxic waste screening, water pollution surveys and detection of wear metals in oil.

The prototype instrument was modified by Martin Marietta Aerospace's Denver Division, prime contractor for the Viking Landers, under project management of NASA's Langley Research Center. NASA support was provided through the Technology Utilization Program.



This portable, battery-powered X-ray Fluorescence Spectrometer, adapted from the Viking Lander's inorganic chemistry instrument, was developed through the Technology Utilization Office. It is now being field tested and evaluated for use in geological explorations by the U.S. Bureau of Mines.

Thanks

Harry Carlson thanks all his friends who contributed to a most enjoyable retirement dinner and expresses his appreciation for the pleasant relationships he has had with Langley people over the years.

Joseph Boyle writes, "I wish to express my thanks to everyone who had a part in my retirement party on Nov. 1. I appreciate the thought and effort that went into selecting the gifts that were presented to me. Above all I enjoyed meeting again with my friends. Thank you again for a memorable evening."

Clarence A. Brown, Jr. writes, "I wish to express my deep appreciation to all my friends and fellow workers who made my recent retirement dinner such a memorable occasion. I shall treasure the memories of the party, the gifts and mementoes and especially the pleasure of past associations during my career with NACA/NASA. Thanks again and best wishes to all of you."

Ralph Byers writes, "I wish to thank all my friends who attended and/or contributed to my retirement dinner and gifts. Thanks, too, for the great fellowship and also for the past 32 years."

Dual Ladder

Langley Offers Research Incentives

"By virtue of being born to humanity, every human being has a right to the development and fulfillment of his potentialities as a human being."--*Ashley Montagu*

To develop to one's fullest potential is definitely the right of every human being. To develop to that potential, however, one must work and live in an environment which stimulates creativity to its fullest.

Langley offers that work environment. Through its advanced computers and wind tunnels, state-of-the-art research facilities and equipment and volumes of knowledge contained within its employees. Langley offers a research environment equal to any in the United States.

Langley also offers incentives to its employees, including awards and employee benefit programs. As another incentive to its researchers Langley offers "The Dual Ladder."

The basic concept of the dual ladder is that an individual may progress in his career on either a purely technical path or a path that leads to a supervisory or management position.

The concept is based on the thesis that, while supervision is one ladder to high-level responsibility in scientific work, there is another ladder--the ladder of personal creativity and scientific contribution.

In a December 1978 message to Langley employees, Director Donald P. Hearth said, "I believe that a dual ladder is particularly important in a research laboratory such as Langley--there must be opportunities for highly qualified technical people to advance to high grades without becoming supervisors.

"Under the dual ladder concept, a person does not have to become a supervisor to 'get ahead.'"

Using the dual ladder, it may be possible for the grade of a highly creative non-supervisory researcher to be the same as that of the supervisor of the organization or unit.

According to Bill Williams, Personnel Division chief, the dual ladder pertains to individuals in scientific and developmental engineering work who want to advance beyond the journeyman's level.

The dual ladder does not pertain to people in management or professional areas where the duties of the positions are more structured according to Bob Myers, Classification and Organization Branch head. Myers indicated that a person's impact on these types of jobs is reflected in more tangible ways, such as additional duties, lesser supervisory controls, more difficult assignments, and greater authority for action.

Williams said GS-14 and 15 promotions following the technical path are based on a person's scientific contributions and achievements. He said that people at Langley who have taken the technical path have worked in such areas of materials, structures, space technology, and flight mechanics.

Myers said the dual ladder system at Langley is working.

During the December 1979 and June 1980 promotion boards, six supervisory people and 26 non-supervisory ones were promoted from a GS-13 to GS-14. Of those promoted from GS-14 to GS-15, 13 were supervisors and seven were not.

Myers noted that most of the non-supervisory promotions were researchers under the dual ladder system.

Williams added that the system is working, "it's just a matter of making the researchers aware that they do have an alternative in obtaining higher grades."

Achievement Awards

Special Achievement Awards have been presented to the following Langley employees:

Robert C. Blanchard, for "contributions to the development of the Orbiter Experiments Program and for pioneering contributions in flight aerodynamic data analysis."

Willard R. Weaver, for "outstanding performance in the development of a unique solar simulator facility and for the implementation of an effective experimental data acquisition and analysis system."

William C. Woods, for "maintaining productive operation of the hypersonic helium tunnel facility."

– photo by Fred Jones

For the fifth year in a row, the Shams have won the NASA Softball "A" League regular season championship, with a 15 – 1 record. The Shams also won the post-season tournament, with a 4 – 1 record. Pictured on front row from left are Ramon Barr, Alan Frizzell, Ernie Burt, Doug Juanarena; middle row, Jimmy Mayhew, Ed Modlin, Woody Midgette, John McMillan, Stewart Harris; back row, Rodney Russell, Ron Weber, Bobby Harris, Mike Luther and Brad Ball. Not pictured, Charles Miller.

– photo by Bob Nye

Meet the Aerobic Dance Exercise Club of Langley! They are desperately in need of a room to continue their physical fitness program. The room should be at least 2300 sq. ft. and no carpet. Can you solve this problem? If so, please call Clara Simmons, extension 2184.

Competition Placement Announcements

The following Competitive Placement Announcements are currently open:

80-55B – AST, Technical Management; GS-0801-15; Office of Director for Systems Engineering and Operations; National Transonic Facility Project Office; Closes December 2, 1980; NASA-Wide.

80-56B – AST, Technical Management; GS-0801-14; Office of Director for Systems Engineering and Operations; National Transonic Facility Project Office; Closes December 2, 1980; NASA-Wide.

80-57 – AST, Structural Materials; Supervisory Materials Engineer; (Structural Materials); GS-0806-14 or 15; Office of Director for Structures; Materials Division; Materials Processing and Applications Branch; Closes December 2, 1980; NASA-Wide.

80-58 – AST, Materials; Supervisory Materials Engineer; GS-0806-14 or 15; Office of Director for Structures; Materials Division; Advanced Materials Branch; Closes December 2, 1980; NASA-Wide.

80-59 – AST, Structural Materials; Supervisory Materials Engineer; (Structural Materials), GS-0806-14 or 15; Office of Director for Structures; Materials Division; Environmental Effects Branch; Closes December 2, 1980; NASA-Wide.

80-60 – AST, Structural Mechanics; Supervisory Aerospace Engineer; GS-0861-14 or 15; Office of Director for Structures; Structures and Dynamics Division; Structural Mechanics Branch; Closes December 2, 1980; NASA-Wide.

80-61 – AST, Aerostructural Dynamics; Supervisory Aerospace Engineer; GS-0861-14 or 15; Office of Director for Structures; Structures and Dynamics Division; Structural Dynamics Branch; Closes December 2, 1980; NASA-Wide.

80-62 – AST, Aerostructural Dynamics; Supervisory Aerospace Engineer; GS-0861-14 or 15; Office of Director for Structures; Loads and Aeroelasticity Division; Configuration Aeroelasticity Branch; Closes December 2, 1980; NASA-Wide.

80-63 – AST, Flight Structures; Supervisory Aerospace Engineer; GS-0861-14 or 15; Office of Director for Structures; Loads and Aeroelasticity Division; Aerothermal Loads Branch; Closes December 2, 1980; NASA-Wide.

80-64 – AST, Aerostructural Dynamics, Supervisory Aerospace Engineer; GS-0861-14 or 15; Office of Director for Structures; Loads and Aeroelasticity Division; Unsteady Aerodynamics Branch; Closes December 2, 1980; NASA-Wide.

Thanks

Jacob H. Lichtenstein writes, "I want to thank my friends for planning and participating in that most entertaining retirement party. It was very special to me because of the many friends that were able to be there and share the occasion with me."

Earl Arrowood would like to thank the Langley employees who so generously donated blood to his sister, Cathi King, during the Bloodmobile Oct. 1. Cathi died of leukemia Oct. 10.

Planning Ahead

The retirement and insurance office is available to provide assistance to your next of kin in case of death; however, there are certain preparations on your part.

1. Have you reviewed your Official Personnel Folder and updated the beneficiaries for your government life insurance policies and your unpaid compensation? This is extremely important if your family status has changed without a corresponding change in designation of beneficiary.

2. Are your important papers located in a safe place? Have you advised your family where they are located?

3. Have you instructed your family to contact the retirement and insurance office for assistance in case of your death?

The difficulties your family may encounter will be lessened by your advance planning and preparation.

If further information is needed, call Lahoma L. Hart, extension 2523.

Shuttle Bus Schedule Change

The shuttle bus service will run every 15 minutes instead of every half hour.

The first bus leaves Building 1297 at 7:30 a.m. and Building 1244 at 7:45 a.m. The last opportunity to catch a bus is 4 p.m. each day.

Key Position

Kenneth D. Hedgepeth has been selected Head, Spacecraft Systems Section, Space Systems Engineering Branch, Systems Engineering Division, under Competitive Placement Plan announcement 80-28.

In Memoriam

Ward F. Hodge, Flight Electronics Division, died Monday, October 27, in Riverside Hospital. He was 49.

Hodge, an aerospace engineer, had worked at Langley for 28 years. He graduated from the NACA-Langley Apprentice School in 1952 and received a bachelor of science degree in mechanical engineering from the University of Virginia in 1959.

Happenings

CHRISTMAS PARTY. The LAA Children's Christmas Party will be held at 1 and 3 p.m. Dec. 7 in the Activities Center. Tickets are available for $1 at the Activities Office.

TURKEY SHOOT. The annual Turkey Shoot will be held tomorrow on the Activities Center grounds from 9 a.m. until sunset. Turkey raffle tickets are available from LAA representatives and the Activities Office. Participants should use Gate 4 when entering and leaving the Center that day.

HAPPY HOUR will be held Friday, Nov. 21, from 4 to 6:30 p.m. at the Activities Center. Live music will be provided by "Crabgrass." This will be the last Happy Hour in 1980.

LAA GENERAL ASSEMBLY meetings will be held Nov. 24 and Dec. 1 at 9:30 a.m. in the Activities Center. All delegates and alternates should plan to attend these meetings.

THE ACTIVITIES CENTER still has some available dates in December for Christmas parties. Please contact the Activities Office, extension 3139.

TIDEWATER DINNER THEATER. The musical "Oklahoma" will be presented through Dec. 14 at the Tidewater Dinner Theater in Norfolk. Tickets are available for $12.50 at the Activities Office.

Retirement Parties

Thomas P. Kelly, who retired recently as Head of the Materials Processing and Development Section, will be honored with a retirement party Tuesday, Nov. 18, at Sammy's Steak House. A cash bar social will begin at 6 p.m., followed by dinner at 7 p.m. The cost of $7 per person or $13 per couple including donation for gift. Contributions of $1 for gift only are welcome. For further information contact Thomas Hall, extension 2781.

Richard A. Pride, who recently retired from the Materials Division, will be honored with a retirement party Tuesday, Nov. 25, at the Activities Center. A social will begin at 6 p.m., followed by dinner at 7 p.m. The cost, including gift contribution, is $7 per person or $15 per couple. Gift contributions only are welcome. Reservations should be sent to John Davis or Benson Dexter, Mail Stop 188A, by 4:30 p.m. today.

BLOODMOBILE. The Red Cross Bloodmobile will be held Wednesday, Nov. 26, from 9:30 a.m. to 3:30 p.m. in the Activities Office, Building 1222. For more information or an appointment, call the Dispensary, extension 3976.

AFGE. The regular monthly meeting of AFGE Local 2755 will be held Wednesday, Nov. 19, at 4:30 p.m., in Building 1232, Room 236. A social hour will begin at 3:30 p.m.

APEX '80, a stamp show sponsored by the Philatelic Federation of Virginia, will be hosted by the Virginia Beach Stamp Club and Norfolk Philatelic Society at the Cavalier Hotel, 42nd and Oceanfront, Virginia Beach, today, tomorrow and Sunday from 10 a.m. to 6 p.m. Admission is free.

LAA Travel Special

Make reservations by December 15 for the Bermuda cruise sailing from Norfolk May 12 and returning May 19, and receive a special discount of $100 per person off the brochure price (based on two to the stateroom) and $25 per person discount for the third and fourth passenger in a stateroom. Ship layout and prices may be obtained by calling the LAA Office at 3139 or Ernie Greene at 2312 or 838-0567.

If you are interested in a South Pacific Tour during the fall of 1981, please call Ernie Greene at either of the above telephone numbers, or send your name to him at Mail Stop 157A.

Langley Activities Assn.

ARTS & CRAFTS SHOW

In the NASA Activities Center Bldg. 1222

Nov. 15 & 16, 1980

12 noon - 5 p.m.

STUFFED ANIMALS

HAND PAINTED CHINA

STAINED GLASS

COUNTRY CARVINGS

WOOD WORKING

ARTWORK

NEEDLEPOINT

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WREATHS

JEWELRY

CHRISTMAS DECORATIONS

FLOWER ARRANGEMENTS

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FOR SALE

Articles

Violin (3/4 size), bow and case, $225. Call Mathis, 722-7629.

Rims, 15" for 1971-76 full-size GM cars w/6" lug circle; two for $18 or $10 each. Call Youngblood, 877-1224 after 5 p.m.

Smith Corona manual typewriter, 1978, new. Call 596-8684.

Vehicles

Chrysler Newport, 1965, single owner, good running condition, AT, AC, PS, two new tires, $475. Call 596-2155 after 5 p.m.

FOR RENT

Apartment: one bedroom furnished including heat and hot water. No alcohol or smoking allowed. Apartment located in Seaford area. $130 month. Available December 1. Call 898-6719.

– photo by Bob Nye

Judd R. Wilkins, Marine and Applications Technology Division, received a certificate and cash award for his NASA Tech Brief "Indirect Microbial Detection Method."

cafeteria menu

WEEK OF NOVEMBER 17

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

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

WEDNESDAY: Vegetable Soup; Fried Chicken Dinner; Brotwurst; Country-Style Steak. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Noodle Soup; Braised Chicken Livers; Crab Cutlets; Roast Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Beef Noodle Soup; Fish Dinner; Chicken & Dumplings; Salisbury Steak. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF NOVEMBER 24

MONDAY: Bull Island Clam Chowder; Hot Roast Pork Sandwich; Stuffed Bell Peppers; Broiled Beef Liver. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY:

THANKSGIVING DINNER:

Ham & Lima Bean Soup; Roast Turkey w/Dressing OR Baked Ham w/Fresh Candied Yams; Mashed Potatoes; Green Beans; Whole Kernel Corn; Fresh Collard Greens; Sweet Peas; Fresh Butternut Squash; Cranberry Sauce, Rolls & Butter; Choice of Pie, and Tea or Coffee. Snack Bar: NASA Sub; Hot Italian Sausage Sub; BBQ; Roast Beef & American Cheese.

WEDNESDAY: Turkey Gumbo Soup; Quiche Lorraine; Half-Pound Chopped Steak; Fried Filet of Fish. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: HAVE A VERY HAPPY THANKSGIVING!

FRIDAY: CAFETERIA IS CLOSED TODAY

Energy Saving Tips

Setting nighttime temperatures back can reduce heating costs significantly. Consider the advantages of a clock thermostat. It will automatically turn the heat down at a regular hour before you retire, and will turn it up just before you awake.

If your home has a forced air heating system, you can prevent heat loss by checking the ducts for air leaks regularly, especially at connection points. Repair any leaks by covering holes or cracks with a cloth adhesive tape.

Cooking utensils made of glass or ceramics can save energy. Such utensils generally require temperature settings about 25 degrees lower than you would need for metal pans.

National Aeronautics and
Space Administration

Langley Research Center

NASA

Langley Researcher

Volume 19 Issue 24

November 28, 1980

Projects Directorate

Crumbly Selected to Head PMSD

Kenneth H. Crumbly has been named Chief of the Projects Management Systems Division at Langley.

Formerly a physicist in the Instrument Research Division, Crumbly will be responsible for project resources, schedules, configuration management and documentation, technical administration, early planning for new projects, budget preparation and execution and financial analysis. Among the major Projects Directorate programs are Aircraft Energy Efficiency, the Earth Radiation Budget Experiment, Large Space Systems Technology, the Scout launch vehicle and the Long-Duration Exposure Facility.

Crumbly began his NASA career in 1961 as a physicist in the Instrument Research Division. From 1965 to 1972 he concentrated on the technical management of the Flight Instrumentation Division, Research Staff Office, Office of the Assistant Director and Office of the Director for Electronics.

From November 1972 to August 1973, Crumbly served a Congressional Operations Fellowship at NASA Headquarters. Upon his return to Langley, he specialized in electro-optics, infrared detectors, atmospheric particle analysis and remote sensing stratospheric aerosols.

Before joining NASA, Crumbly was a spare parts specialist at Lockheed Aircraft Company and a production control specialist at General Electric Medium Transformer Plant, where he graduated from the apprentice school.

A native of Rome Ga., Crumbly earned a bachelor of science degree in mathematics from Shorter College in 1959. He received a master of science degree in administration from George Washington University in 1971.

The author or co-author of eight technical publications, Crumbly has received two Group Achievement awards.

Crumbly and his wife, Clara, live in Hampton. They have two sons.

NASA Reviews Technology for Large Space Systems

– by Keith Henry

Various kinds of large space structures should start orbiting Earth as early as the middle of this decade, according to NASA researchers who recently met to review progress of the agency's Large Space Systems Technology program.

"We haven't uncovered any technical problems that we expect to be major stumbling blocks," said Harold Bush, a group leader in structural concepts at NASA's Langley Research Center and co-moderator of the program's second annual technical review, held at Langley.

Researchers at several NASA centers are working together to develop the technology needed to send huge structures into Earth orbit and successfully deploy or erect them.

New technology was the star of the show at the technical review, attended by nearly 200 representatives from NASA, the Department of Defense, universities and several aerospace companies.

Bush says that there are problems yet to be resolved; problems that will require a high degree of ingenuity and innovation but, by using common sense and by applying "the basics" (fundamental scientific knowledge), large space systems are technically feasible.

The Space Shuttle, core of NASA's Space Transportation System for the 1980's and beyond, will make large space systems possible. The first test flight of the Shuttle Orbiter "Columbia" is scheduled for March 1981. The Orbiter, with its 15-by-60-foot cargo bay, has been called the first space truck -- and for good reason. It will carry many times more payload than even the largest expendable rocket used today. Columbia and its sister ships to follow will be reusable, each making many flights into the near space of Earth orbit.

As a result, many kinds of large space systems will be possible. Space antennas with surface diameters equal to or greater than a football field, for example, are planned to make communications in remote areas possible and communications elsewhere more efficient. Today's communications satellites will be dwarfed by such large space antennas in both size and communications capacity.

To illustrate the point, Langley's Robert James, manager of the Large

Continued on page 2.

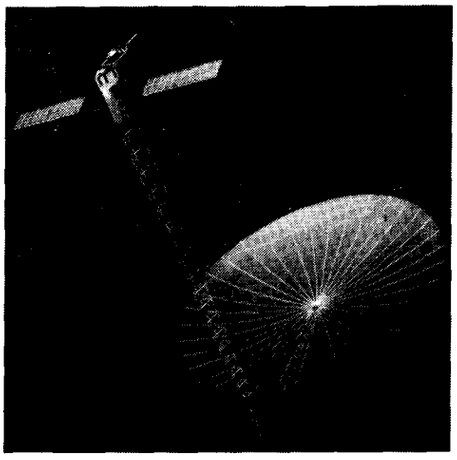
Continued from page 1.

Space Systems Technology program office, cites dramatic advances expected in the area of mobile communications. A wrist radio, a la Dick Tracy, could be used to communicate via satellite with another wearer of a wrist radio or with a motorist using a car radio.

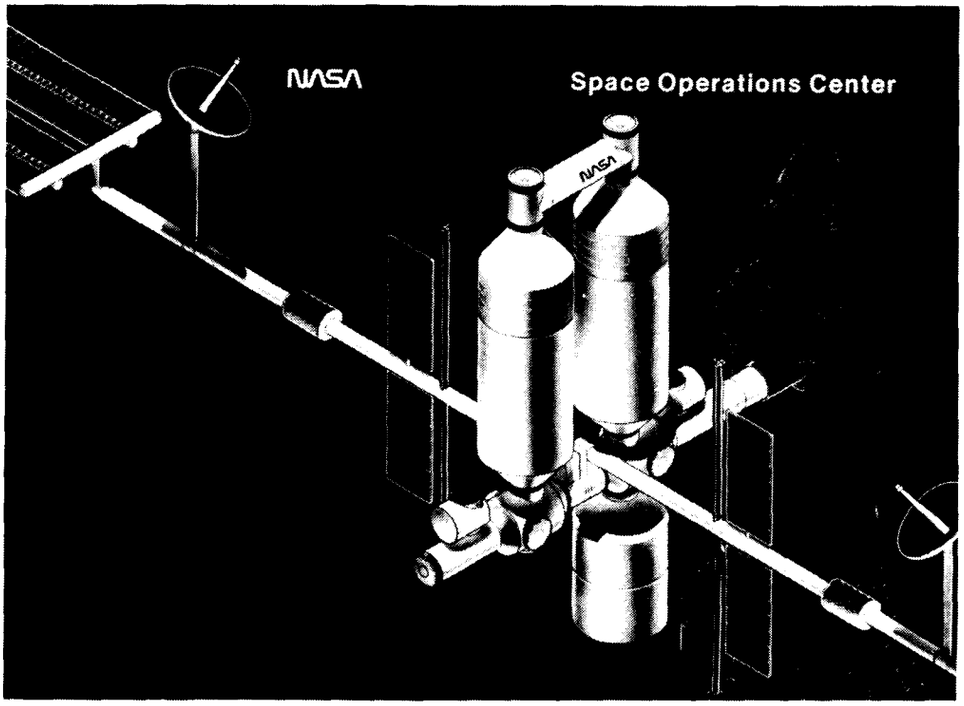
"A relatively inexpensive wrist radio," James explains, "could transmit and receive voice communications over great distances. One person with a wrist radio on the East Coast of the United States, for instance, could talk to another person with a wrist radio as far away as the West Coast. Such a national mobile communications capability is theoretically possible by the use of a single large antenna satellite in geosynchronous (fixed position) orbit over the U.S.

''And, of course, mobile communications can be important over shorter distances, too. The hiker lost in the woods or the motorist in trouble miles from help could easily make a call for emergency assistance over their radios.

"The ground units could be small and low-gain because the relay satellite would be huge and high-gain. This is the reverse of present-day systems where satellite antennas are small, necessitating large receiving and transmitting antennas on Earth. Only telephone companies and large organizations can afford the ground equipment needed today for mobile communications of personal messages and other data over great distances.



LARGE SPACE ANTENNA. Deployable antennas like this one could be brought to Earth orbit by a single Space Shuttle flight. It would unfold from the Shuttle cargo bay, its mast telescoping out and its reflector surface unwrapping to form an antenna many times larger than the Shuttle. Such a large, high-gain antenna would help to greatly improve communications.



SPACE OPERATIONS CENTER. This advanced, manned space station is an example of a large space platform that could orbit Earth before the end of this century. It would probably be preceded by smaller, unmanned platforms, but some unmanned platforms may eventually be more than a kilometer in length.

''Extending our mobile communications capabilities is just one of several applications getting a lot of attention in the development of technology for large space antenna concepts."

Much of the new technology is being directed toward making large space platforms possible, the second major application envisioned for large space systems between now and the year 2000. Large space antennas, even up to 150 meters (492 feet) in diameter, can be automatically deployed from the cargo bay of a single Shuttle Orbiter; large space platforms, however, may take many Shuttle launches to transport all the material needed for their deployment or erection.

This new class of spacecraft, James points out, will likely range from relatively small science and applications platforms to giant space operations centers. A platform would serve as the structural base for scientific studies of space and of Earth resources, among other things. It would carry a collection of instruments and provide each with utilities needed for support. This is in contrast to the more costly practice of using one satellite for one instrument.

A space operations center is conceived as an advanced, manned space station. Various space operations could be performed from it, including processing materials in zero gravity, constructing other space structures or repairing instruments from other spacecraft.

"In other words, it would give us a base of operations, and that is quite a challenge," says James. "Most people know about Skylab and its astronauts flying around, but this would provide a continuous capability of manned space operations. Depending upon the missions, the number of people would probably grow. It might start out with a few people, then if the center got more and more work to do, more and more people would be needed to work in the labs.

"This is probably going to be a

Continued on page 3.

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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.

Continued from page 2.
multiple, modular type of vehicle with housing for a unit of people here -- and then another one over here and another over there. The features of this platform are similar to those of smaller platforms in that facilities for power generation, communications, control and keeping the thing in orbit and all are there in one location. But the number of modules could be changed, or the number of work stations and that type of thing.

"Right now, the space operations center is Johnson Space Center's big contribution to NASA for the future. They're relying on the Shuttle. This is one of the platform missions that will take multiple flights. It might take five to ten flights to construct that vehicle in orbit. So there's no way it could be done without the Shuttle -- it's essential to the large space systems program."

Ironically, Bush is of the opinion that the reverse is also true: That technology flowing into large space systems is vital to NASA and the successful use of the Shuttle. "Our ability to utilize the Space Shuttle to the fullest," he says, "is largely dependent on the success of the researchers currently participating in the area of large space systems."

In addition to Langley and Johnson, technology for large space systems is being developed by NASA's Marshall Space Flight Center, Goddard Space Flight Center, Jet Propulsion Laboratory, Lewis Research Center and all their contracting organizations.

Shuttle Moved for Mating

The Space Shuttle Orbiter Columbia was moved Nov. 24 from the Orbiter Processing Facility to the Vehicle Assembly Building at the Kennedy Space Center for mating to its external fuel tanks.

Scheduled for moving Nov. 23, the Orbiter move was delayed one day to allow workers to apply gap filler between protective thermal tiles on the Columbia.

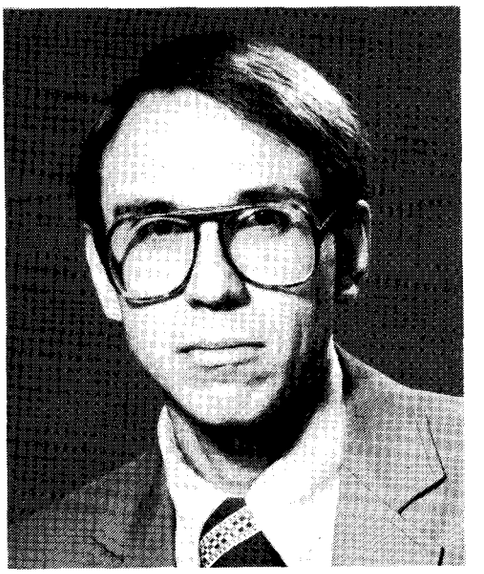
The delay should not interfere with the Shuttle's March 14 launch date. The Shuttle is scheduled to be moved from the VAB to the launch pad late in December and undergo test firing of the main engines Feb. 7.

Tung Wins November Drawing

Yi Tung of the Analysis and Computation Division is the November winner of $20 given to a registered car pool participant.

Monthly drawings are held as an incentive to expand the number of car pools at Langley.

Energy 'hot line' is 4641.



Wilms Appointed Visitor Center Lecturer

The Langley Visitor Center has announced the appointment of Bruce H. Wilms as a staff lecturer.

Wilms, who will be involved with program development and presentations for groups from pre-school through adult, is enthusiastic about educational opportunities at the Visitor Center. "I love working with children," he says, "and am pleased to be a part of the imaginative programs being offered at the Visitor Center for children of all ages. I'm particularly excited about ongoing changes at the Visitor Center -- especially the Smithsonian participation in redesign of exhibits."

Wilms was formerly a lecturer at the Lewis Research Center. He was employed for eight years as an elementary teacher by the West Geauga School System in Chesterland, Ohio.

1981 Calendars Available from Stock

Requests for 1981 desk and wall calendars can be submitted to the Stockroom, Mail Stop 382, on NASA/Langley Form 55 for issue in December. Stock numbers for the calendars are listed below:

NSN	DESCRIPTION
7510-01-020-7520	Calendar pads, flipover pad, 3" x 3-5/8" (EA)
7510-01-022-4973	Calendar pads, executive flipover, 3-3/4" x 5-7/8" (EA)
7510-01-024-4026	Wall calendars, 11-5/8" x 8-7/8"

In addition, there are a few other type calendars available. Since there is a limited quantity of these calendars, requests will be filled on a first-come, first-served basis. Stock numbers for these calendars are:

NSN	DESCRIPTION
7510-01-073-8932	Calendar, desk blotter, 22" x 17", padded
7510-01-024-9590	Pocket planning sets, looseleaf, incl. 12 monthly diaries with expense summaries, phone index, and file box
7530-01-022-3570	Looseleaf appointment book, refill, daily and monthly calendar sheets, 6-1/2" x 5-1/2"
7510-00-285-1765	Binder, 6-ring, for use with looseleaf appointment book

Each branch secretary should submit branch and section requirements to reduce the number of requests. Other stock supplies should not be ordered on the same request.

Key Positions

James L. Harris has been selected Head, Computer Operations Section, Computer Management Branch, Analysis and Computation Division, under Competitive Placement Plan 80-34.

James R. Rooker has been selected Head, Structural Engineering Section, Mechanical Design Branch, Research Facilities Engineering Division, under Competitive Placement Plan 80-36.

Dr. Edmund J. Conway has been selected Head, Space Technology Branch, Space Systems Division, under Competitive Placement Plan 80-44.

Langley Exhibitors Attend Louisville Expo

More than 40,000 people turned out for the Louisville Defender's 43rd Annual Expo, and among the sights they saw was Langley's Aeronauticsmobile and Exploratron, the center's nimble home-built robot.

The Defender, one of the nation's oldest black newspapers, holds an exposition each year to provide consumer information of a regional and national flavor. The exhibitors included community, industry, state and government agency representatives.

On hand for NASA was an astronaut, Michael Coats from the Johnson Space Center, and Roger Hathaway and Ben Smith of Langley's External Affairs Office. Between them, they accounted for telling and showing thousands of people about NASA. Hathaway and Coats lectured to well over 1,000 high school students, as well as speaking to agency and industry representatives.

Among the guests at the Expo was former Kentucky Governor and now U.S. Senator Wendell Ford, a member of the Senate Commerce, Science and Transportation Committee; Kentucky Third District Congressman Romano L. Mazzoli, and city officials.

Exploratron upstages the astronaut as he, or rather it, and Michael Coats bid students greetings outside the Aeronauticsmobile. Exploratron was built by an Explorer Scout group of eighth to twelfth graders who met at Langley.

It works! Students are wide-eyed over the Space Shuttle piloting demonstrator. The outfit gives an idea of what it would be like to fly the Orbiter.

Speakers Bureau

Ira Abbott spoke Oct. 8 to the James City Ruritan Club members about the Tech House.

Cary Spitzer spoke to the University of Virginia graduate students in Norfolk Oct. 15 on the Jupiter fly-by and to the Hampton Institute Physics and Astronomy Club Nov. 3 on planetary exploration.

Sheila Long spoke on "Medical Benefits from the Space Program" to Peninsula Shriners, Oct. 17; Hilton Senior Citizens, Oct. 20; North Phoebus Senior Citizens, Oct. 21; Denbigh Senior Citizens, Oct. 22; Poquoson Senior Citizens, Oct. 24; and the Math Club at Menchville High School, Nov. 26.

Lester J. Rose spoke to the Chesterfield County secondary school science teachers on Oct. 24 on the Tech House.

John Samos spoke to the Hellenic Women's Penelope Society at their annual banquet Nov. 9 on "Spinoffs from the Space Program."

Felix Pitts spoke to the Institute of Electrical and Electronic Engineers about aircraft lightning strikes Oct. 21.

Andronicos Kantsios spoke to the Ashrae Society on "Thermographic Methods of Detecting Anomalies in Buildings" Nov. 5.

Jim Harris spoke to the students at Newport News Intermediate School Nov. 17 about computer career preparation.

Dr. Nelson Jalufka spoke to the Institute of Electrical and Electronic Engineers on nuclear-pumped lasers Nov. 18.

Jim Arrington spoke Nov. 19 to the American Society of Mechanical Engineers about the Space Shuttle.

Gregory Selby spoke to the Hampton Institute Physics Department about careers in engineering Nov. 19.

Recent Retiree

Ann F. Bristow, Systems Engineering Division, retired Nov. 14.

Autumn is Furnace Safety Check-Up Time

Editor's Note: The following article appeared in the September 1980 issue of National Safety News and is reprinted with permission.

Shorter days, cooler weather and the changing hues of autumn leaves are signs that winter is on its way. While you are readying yourself for the less friendly climate of winter days, take time to prepare your home heating system for the demands put on it by cold and stormy weather.

Underwriters Laboratories Inc. (UL), a non-profit product safety testing organization since 1894, reminds you that defective or poorly maintained heating equipment deprives you of needed warmth while raising fuel bills. More importantly, turning on a furnace that hasn't been serviced properly or inspected creates a risk of asphyxiation or fire. So take time now to check your heating system carefully:

- Replace disposable air filters when dirty with replacements that bear the UL listing mark. Wash permanent filters in mild soap and water to help increase furnace efficiency and promote safety operation.
- Clean warm air outlet registers and air returns of any accumulated dust, and be sure they are not covered by rugs, drapes, or curtains.
- Make certain room thermostats are free of dust and correctly set.
- Keep the furnace area clear of combustible materials. Never store liquids with flammable vapors, such as gasoline and paint thinners, in the furnace room.
- Clean and inspect your humidifier for optimum operation.
- Clean all combustion air intake openings of accumulated dust and dirt.

Even if you feel you have kept your heating unit in top operating condition, UL recommends that a qualified serviceman make the following inspections and services at the start of each heating season:

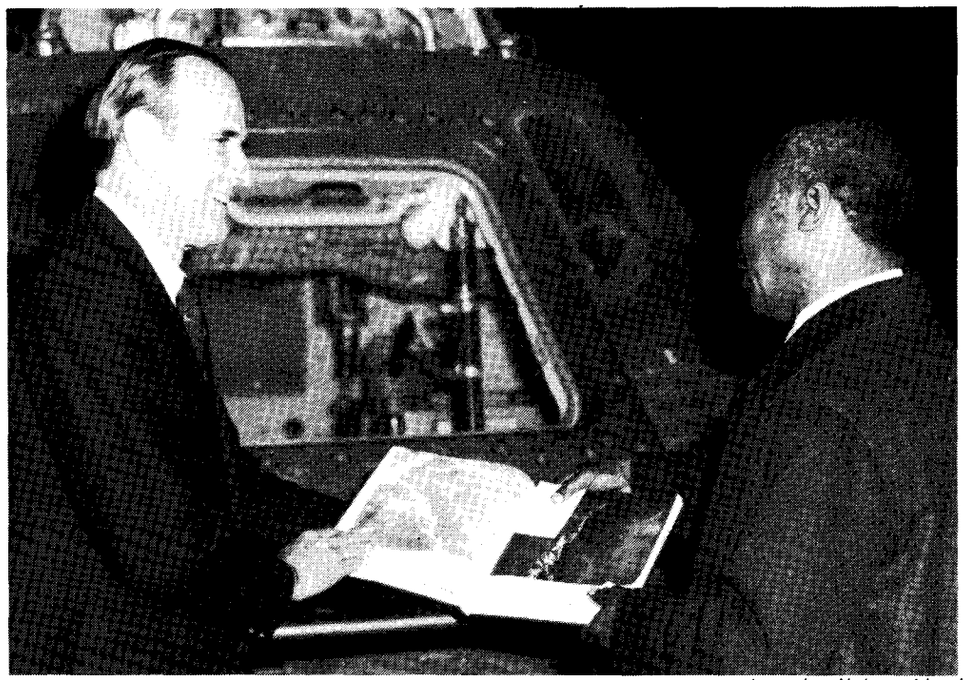
- Inspect air blower belts; adjust the tension or replace them if worn.
- When applicable, depending on the type of equipment, eliminate accumulated scale from the firebox and combustion chamber. Inspect for perforations, cracks or openings in the heat exchanger, which may permit byproducts of combustion to leak into the heated air supply.
- Inspect the flue pipe and connections between the heating unit and chimney.
- Check the chimney for any blockage or accumulation of soot.
- Clean the circulating air blower wheel and the combustion air blower wheel if one is provided on your heating unit.
- Check boilers for proper water level. If a low water cut-off is provided, determine that the cut-off is functioning properly.
- Determine that all safety controls (limit and primary safety controls) and fuel shut-off valves are in working order.
- If the unit contains an adjustable fan switch, the controls should be set to the manufacturer's recommendations.
- If the unit is provided with an automatic vent damper, determine that it functions properly, opening when the burner is in operation, and closing after the burner shuts down.

For gas-burning units, these additional inspections should be conducted:

- Determine that the pilot or pilots are burning properly, and that the burner ignition by the pilot is satisfactory. It is important that the pilot flame be steady. A small or yellow flame indicates that the pilot burner is either dirty, or the pressure regulator needs adjustment.
- Check to see that the main burner gas is burning properly. Adjust the primary air shutters if required.
- Test for spillage at the draft hood.

In addition, a qualified serviceman should perform these inspections on oil burners:

- Clean and adjust ignition electrodes and replace them if worn.
- Inspect oil pumps, lines, and fittings to assure that they are free of oil leaks.
- Check the burner flame for the proper pattern. Replace the nozzle if necessary.
- Check the draft regulator for proper operation.



– photo by Hubert Lloyd

Dr. Luis Lansana Beavogui (right), prime minister of the Republic of Guinea, visited Langley Nov. 12, where he viewed the television broadcast of the Voyager I encounter with Saturn. During a tour of the Visitor Center, Beavogui was presented the book "This Island Earth" by Jack Van Ness, Head of the Office of External Affairs. Accompanied by his minister of protocol and an interpreter from the U.S. State Department, Beavogui also visited Colonial Williamsburg's Historic Area and Yorktown.

Langley Employees Receive Special Awards

Special Achievement Awards have been presented to the following Langley employees:

Harold R. Compton, for "contributions to the development of a Langley program to analyze shuttle flight aerodynamic data."

Miles L. Lockard, for "significant contribution in the conception, design, and assembly of a variable temperature cycling device to accommodate development and testing of concepts, materials, and components for use in the National Transonic Facility."

John M. Seiner, for "a high level of achievement in supersonic jet noise research."

Earl H. Andrews, for "significant contribution to NASA's hypersonic program by leading the effort to establish a Mach 4 engine test capability at Langley."

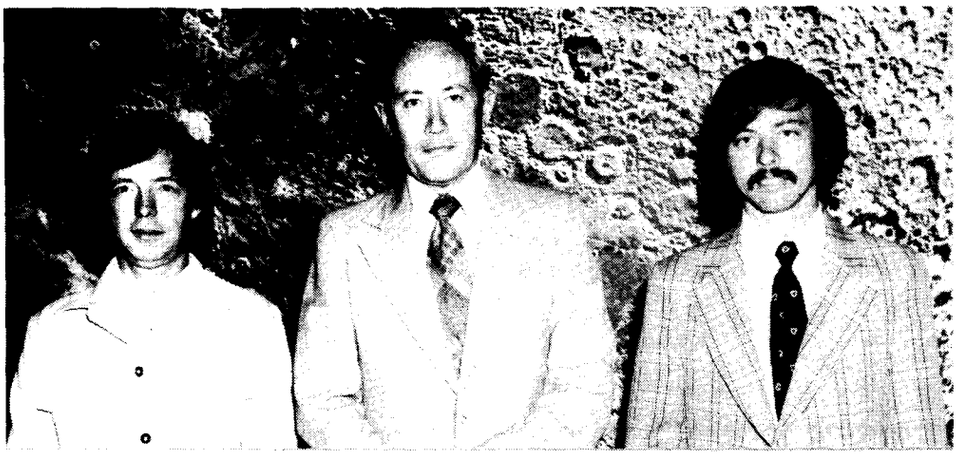
Daniel J. Crawford, for "outstanding efforts in the design, development and installation of a High Speed Remote Data Channel to provide remote processing of magnetic tapes on the real-time computers within the Langley Research Center Central Scientific Computer Complex."

Billie Jean Neil, for "outstanding support in the administration of the Analysis and Computation Division Computer Complex budget for calendar year '79."

Shirley D. Adams, for "maintaining high standards of quality in training others to become responsible secretaries, and for implementing innovative techniques in document preparation."

— photo by Bob Nye

A cash award and a Certificate of Recognition were recently presented to Ronald N. Jensen, Plant Engineering Division, for his NASA Tech Brief "Energy and Cost Saving Thermostat."



— photo by Bob Nye

Robert J. Swaim, Dr. John C. Buckley and Robert L. Fox of the Fabrication Division were recently presented certificates and cash awards for their NASA Tech Brief "Inductive Heating Techniques for Joining Plastic Components."

James R. Williams, in "recognition of the leadership provided to the Programming Techniques Branch during branch management transition and continuing in the management of flight software projects."

William H. Richards, for "exceptional performance in the planning, conduct and documentation of flow resistance tests for candidate thermal insulation materials for the National Transonic Facility and candidate porous wing materials for laminar flow controlled aircraft surfaces."

Otis L. Artis, for "outstanding performance and willingness to assume responsibility in the support services area."

Richard W. Faison, for "exceptional performance and accomplishments as task manager of the NTF drive system dynamics analysis and design effort and for his innovative and efficient application of structural finite element methods to many of the NTF major structural elements and to the Laminar Flow Control Airfoil Experiment Model."

Thomas C. Jones, for "exceptional performance and accomplishments in carrying out analyses and testing activities to understand and characterize the nonlinear structural behavior of the Long Duration Exposure Facility Structure."

Donald F. Booth, for "exceptional contributions in the planning and implementation of major improvements in the electrical power distribution and control, during rehabilitation of the Analysis and Computational Division facility."

Jack T. Kayton, for "continuing excellence and dedication in support of more than twenty ground test facilities which rely on the Central Data Recording Facility in ACD for acquisition of research data."

Norma K. Campbell, for "exceptional contributions and dedication to improved data acquisition techniques and timely dissemination of research results."

Suggestion and Honorary Suggestion Awards

Suggestion Awards have been presented to:

William F. Stewart and **Grace C. Sain**, "improved instrument records control system;" **Virginia H. Jones**, "claim transmittal and acknowledgement card;" **Woodrow W. Midgette**, "identification of electrically static sensitive printed circuit boards;" and **James D. McMillan**, "relocate 400 Hz disconnect switch outside of plenum."

Honorary Suggestion Awards were presented to **James R. Maley, Sr.**, "special wrench for liquid nitrogen trailer hose coupler," and **Mildred F. Hartman**, "notification of changes to contracts/orders."

Planetary Exploration Programs

Langley Visitor Center December 1980

From the scorched surface of Mercury through the mysterious rings of Saturn to the unfathomable cold of Pluto, the Visitor Center takes you on a planetary journey during the month of December. Special speakers, including Gentry Lee of Carl Sagan Productions, will provide the latest scientific information available on each of the planets. A number of films and a display including video tapes of the Voyager Saturn encounter are also featured.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	FILM: 1 "Partnership in Space-Mission Helios" 12 p.m.	FILM: 2 "Jupiter and its Moons" 12 p.m.	PROGRAM: 3 "Project Galileo — The Next Mission" Gentry Lee-JPL 10 — 11 a.m.	FILM: 4 "Partnership in Space-Mission Helios" 12 p.m.	FILM: 5 "Mars — The Search Begins" 12 p.m.	PROGRAM: 6 "Exploration of The Solar System" George Hastings 2 p.m.
PROGRAM: 7 "A Martian Chronicle-The Cary Spitzer 2 p.m.	FILM: 8 "Mars — The Search Begins" 12 p.m.	PROGRAM: 9 "A Snapshot of Mars" Cary Spitzer 12 — 12:30 p.m.	PROGRAM: 10 "Exploration of The Solar System" Ray Goodman 12 — 12:30 p.m.	FILM: 11 "Planet Mars" 12 p.m.	FILM: 12 "Assignment: Shoot the Moon" 12 p.m.	PROGRAM: 13 "Exploration of The Solar System" Ray Goodman 2 p.m.
PROGRAM: 14 "Exploration of The Solar System" Ray Goodman 2 p.m.	FILM: 15 "Jupiter and its Moons" 12 p.m.	PROGRAM: 16 "Evolution of the Atmospheres of Terrestrial Planets" Dr. Joel Levine 12 — 12:30 p.m.	PROGRAM: 17 "Voyager to Saturn" Dr. Wm. Michael 12 — 12:30 p.m.	FILM: 18 "Jupiter and its Moons" 12 p.m.	PROGRAM: 19 "Phobos and Deimos-The Moons of Mars" Robert Tolson 12 — 12:30 p.m.	PROGRAM: 20 "Exploration of The Solar System" Bruce Wilms 2 p.m.
PROGRAM: 21 "Exploration of The Solar System" Bruce Wilms 2 p.m.	FILM: 22 "Who's Out There?" 12 p.m.	PROGRAM: 23 "Exploration of The Solar System" Bruce Wilms 12 — 12:30 p.m.	FILM: 24 "Jupiter and its Moons" 12 p.m.	25 CHRISTMAS HOLIDAY NASA-Langley Visitor Center Closed	FILM: 26 "Clouds of Venus" 12 p.m.	PROGRAM: 27 "Exploration of The Solar System" George Hastings 2 p.m.
PROGRAM: 28 "Exploration of The Solar System" George Hastings 2 p.m.	FILM: 29 "Clouds of Venus" 12 p.m.	FILM: 30 "Mars — The Search Begins" 12 p.m.	FILM: 31 "Planet Mars" 12 p.m.			

Happenings

CHRISTMAS PARTY. The Children's Christmas party will be held at 1 and 3 p.m. Dec. 7 in the Activities Center. Entertainment will include Walt Disney cartoons and a visit from Santa. Tickets are available for $1 at the Activities Office. Everyone attending must obtain a ticket.

CHRISTMAS SHOP. The Visitor Center Souvenir Counter will hold its annual Christmas Shop in the rear of the Cafeteria, Building 1213, from Dec. 10–19. The shop hours will be from 10:30 a.m. to 1:30 p.m. Gift wrapping will be available.

BASKETBALL LEAGUE. There will be an organizational meeting of the NASA Basketball League at 4:30 p.m., Dec. 8, in the Activities Center. This year the league will be limited to 18 teams. If your team is not represented at this meeting it may be unable to participate.

LAA TRAVEL. December 15 is the deadline for receiving the special discount of $100 per person for the Bermuda cruise May 12–19. Call Ernie Greene, ext. 2312 or 838-0567 or the LAA Office, ext. 3139, for ship layout.

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. Fred Montgomery and his orchestra will provide music of the '50s and '60s. The cost of the semi-formal dance is $15 per couple and includes setups, party favors, danish pastries and coffee; BYOB. Reservations are required. Tickets are on sale at the Activities Office.

FEDERAL ALMANACS can be ordered from the Activities Office or any LAA representative for $2.35 each.

MEDICAL TRANSLATION GUIDE. The American Red Cross, Tidewater Chapter, has developed a Medical Multilingual Translation Guide for use in physicians' offices, hospital emergency rooms and by rescue squad personnel. The guide offers 38 questions designed to initiate patient care in situations where a translator is not readily available. Twenty-four languages from Arabic to Vietnamese are represented. Each guide also contains a 12-language frostbite supplement which was added for the 1980 Lake Placid Winter Olympics. Copies are available for a cost-recovery fee from the Tidewater Chapter's Office of Volunteers' Language Bank. Call 446-7749 in Norfolk for further information.

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swap and shop

FOR SALE

Articles

Ski boots, size 10-1/2, Dynafit, used one year, EC, $35. Call Davis, ext. 3483 or 898-6834.

Honey: local extracted honey, light or dark, $3/qt. Call Harvey, ext. 2576.

Vehicles

Buick LaSabre, two door, one-person owner, 81,000 miles, excellent price and condition, AC, PS, PB, radio. Call 826-1174.

1978 Alpha Romeo Spider convertible sports car, EC, $6,900. Call 599-4321.

FOR RENT

Large bedroom/sitting room, 20' x 16', with furniture and prive bath at 4023 Chesapeake Avenue in Merrimac Shores. Call 722-4725.

Grandview on Chesapeake Bay: private beach, three bedrooms, one bath, living room, eat-in kitchen, utility room, large glass-enclosed porch, $400/mo., $200/dep., year lease. Call 851-9299.

LOST

Kiwanis "K" lapel pin. Call Reed, ext. 2265.

FOUND

One pair of men's sun glasses in Building 1194. Call ext. 3017 and identify.

WANTED

The Public Mail operation needs the assistance of someone who can translate Italian. Contact Renee Benton, ext. 2932.

To trade high-back Volkswagen Beetle seats in good condition (new seat covers) for low-back seats in comparable condition. Call 596-1679, evenings.

Person(s) interested in a car pool from the Southern Shopping Center area of Norfolk for the 7:30 a.m. shift. Call Charlie Harris, ext. 3937 or 424-1013 after 5:30 p.m.

Old data books 1970-79: National, T.I., Signetics, Linear, CMOS, TTL, Opto., Data Aq. Call Hefner, ext 3581 or send to Mail Stop 488.

To join or form car pool from Norfolk to West Area on 7:30 a.m. shift. Call Hudgins, ext. 3072 or 587-9023, Norfolk.

cafeteria menu

WEEK OF DECEMBER 1

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

TUESDAY: Manhattan Clam Chowder; Roast Beef; Port Chops; Fried Filet of Fish; Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Baked Ham; Meatloaf. Snack Bar: Chicken Cutlet; Ham & Turkey; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Beef Balls Stroganoff; Braised Short Ribs of Beef. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken & Spanish Rice; Polish Sausage. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF DECEMBER 8

MONDAY: Ham & Lima Bean Soup; Hot Roast Pork Sandwich; Beef Enchiladas; Chicken & Dumplings. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

TUESDAY: Bull Island 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: French Onion Soup; Roast Turkey Dinner; Broiled Beef Liver; Knockwurst & Reuben. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

THURSDAY: Turkey Noodle Soup; Veal Parmesan; Half-pound Chopped Steak; Quiche Lorraine. Snack Bar: Hot Italian Sausage Sub; Ham & Turkey Club; Roast Beef & American Cheese; Hot Ham & Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Stuffed Fresh Bell Peppers; Chicken Chow Mein. Snack Bar: Hot Roast Beef; Turkey & Bacon Club; Deluxe Sub; BBQ.

Cross-Country Meet Scheduled

The third annual Interdirectorate 5 km cross-country race will be held Saturday, December 6 at 11 a.m. near the Activities Center. The eight directorate teams and a contractor team are vying for the championship.

All runners are encouraged to run for their directorate team. There is no limit to the number of runners a team may have, and a runner cannot hurt his team's score if he runs slowly that day; that is the nature of cross-country scoring.

Family members and guests are welcome to run. They will not affect the team scoring. Fruit and water will be furnished at the finish line by the Langley Runners' Club.

Previous winners of this event were the Electronics Directorate in 1978 and the Contractor team in 1979.

Thanks

Ernest Rowe writes, "I would like to express my appreciation to my many friends who planned, contributed to and attended my retirement luncheon. The gifts and mementos will long be treasured as will my association with a wonderful group through the years at NACA-NASA."

E. Thomas Freeman writes, "I'd like to express my deep appreciation to my friends who attended my retirement dinner. Thanks to all for the gifts. I've enjoyed working with everyone at Langley. Best wishes to all of you."

Insurance Comparison Charts on Display

"Open Season" for the Federal Employees' Health Benefits Program will continue until December 5.

As a means of assisting employees in selecting a health benefits plan most suitable to their needs and the needs of their families, comparison charts are on display at the Langley Federal Credit Union and the NASA Cafeteria. These charts provide a columnar summary of the benefits of each available plan.

Since the quantities of brochures and comparison charts are limited, several books containing plan summaries, rate sheets and brochures for the various plans are available for study in Building 1195C, Room 158. Employees are encouraged to examine the brochures and comparison charts before enrolling or changing enrollment in a plan. Several books are also available for loan.

If you are interested in borrowing one of the books or if further information is needed, contact Lahoma Hart, extension 2523.

I never behold the stars that I do not feel that I am looking in the face of God. I can see how it might be possible for a man to look down upon the earth and be an atheist, but I cannot conceive how he could look up into the heavens and say there is no God.

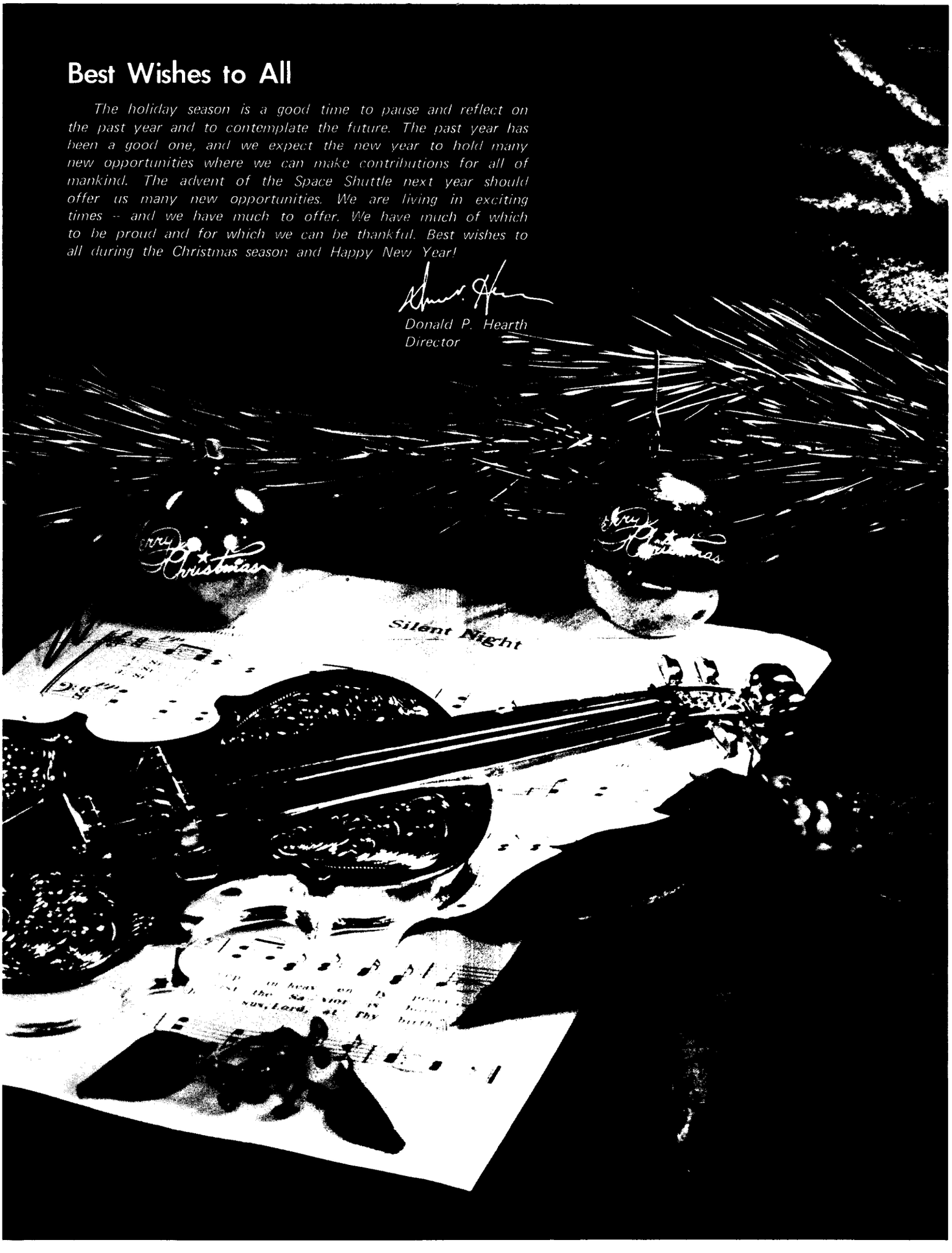
Abraham Lincoln, at age of 19.

Berryman

Best Wishes to All

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, and we expect the new year to hold many new opportunities where we can make contributions for all of mankind. The advent of the Space Shuttle next year should offer us many new opportunities. We are living in exciting times -- and we have much to offer. We have much of which to be proud and for which we can be thankful. Best wishes to all during the Christmas season and Happy New Year!

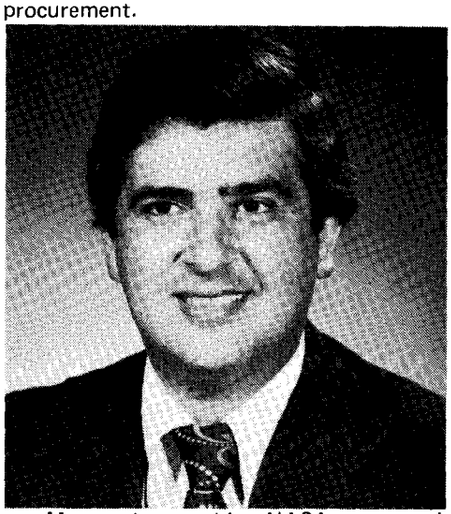
Donald P. Hearth
Director



Moore Named Wallops Director of Administration

Frank V. Moore, Chief of the Acquisition Division since 1975, has been named Director of Administration at the Wallops Flight Center, effective in late January.

Moore will be responsible for public affairs, financial management, administrative management, personnel and procurement.



Moore began his NASA career in 1962 as a Contract Assistant. He was appointed Head of the Contract Administration Section in 1970 and Assistant Head of the Research and Development Contracting Branch in 1972. In 1973 he became Assistant Chief of the Procurement Division, now known as the Acquisition Division.

As Chief of the Acquisition Division, Moore is responsible for managing the center's procurement program, which totals nearly $200 million annually, and advising center management on acquisition-related matters.

Moore was born in Providence, R.I., where he graduated from Mount Pleasant High School. He earned a bachelor of science degree in business administration from the Richmond Professional Institute of the College of William and Mary in 1962. He attended Cornell University from 1969 to 1970 under a National Institute of Public Affairs/Career Educational Award Fellowship. He received a master of business administration degree from the College of William and Mary in 1974.

He is a charter member of the Hampton Roads Chapter of the National Contract Management Association and was designated a NCMA Fellow in 1975. In 1976 Moore received an award from the William A. Jump Memorial Foundation for his achievements in public administration.

The author of numerous articles and papers on contracting and management, Moore received a NASA Special Service Award in 1967 and was recently selected to participate in a Brookings Institute Conference on Business Policy and Operations to be held early next year.

Moore and his wife, Rose, live in Williamsburg. They have two sons.

Langley Research Center

NASA

Langley Researcher

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.

Stickle Selected to Head Division

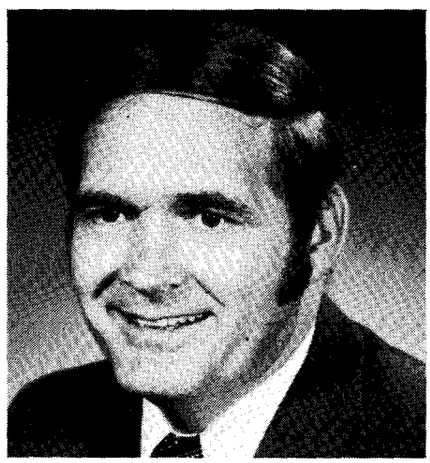
Joseph W. Stickle has been selected to head the Flight Mechanics Division at Langley. He is former Assistant Chief of that organization.

Pending formal approval from the Office of Personnel Management, Stickle will be responsible for the division that plans, develops, coordinates and directs flight and wind tunnel research programs on aeronautical technology and aircraft operating problems. The division maintains and operates the center's fleet of 18 research and support aircraft and manages the operation of the Full-Scale Tunnel, the Spin Tunnel and the Vortex Research Facility.

Stickle joined the Langley staff in July 1959 as an engineer, conducting research in aircraft operating problems, including runway roughness, aircraft landing contact conditions, clear air turbulence, flight path control, aircraft trailing vortices and fuel reserve requirements for advanced aircraft.

In 1970 Stickle was selected to represent NASA on the Aeronautics Staff of the National Aeronautics and Space Council, where he worked on national aeronautical programs, policies and problems.

He returned to Langley in July 1971 as Technical Assistant to the Director for Aeronautics, assisting in planning, coordinating and evaluating aeronautical and aerospace research programs. In 1972 he became Assistant Head of the Airworthiness Branch, Research Aircraft Flight Division, responsible for the center's general aviation programs, covering aerodynamics, structures, avionics, propulsion, noise and human factors, and research on accelerated breakup of aircraft trailing vortices.



Stickle became Assistant Chief of the Flight Research Division, now the Flight Mechanics Division, in September 1973, where he has been active in formulating and directing flight research programs for rotary wing, V/STOL, fighter, transport and general aviation aircraft, and responsible for coordinating Langley programs in general aviation and aircraft trailing vortices.

Before joining NASA, Stickle served in the U.S. Army Signal Corps from 1955 to 1957.

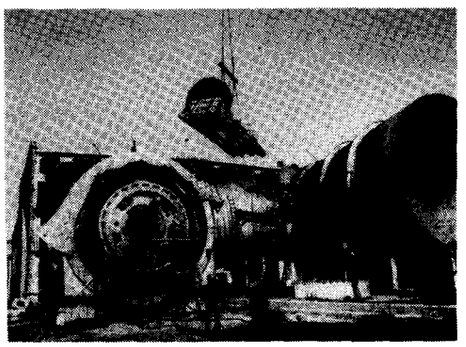
A native of Hampton, Stickle received a bachelor of science degree in physics from Wofford College in Spartanburg, S.C., in 1959.

The author or co-author of 21 technical publications, Stickle is a member of the American Institute of Aeronautics and Astronautics. He holds a patent for a slot-spoiler direct-lift control system for light aircraft.

Stickle and his wife, the former Peggy Darnell, live in Hampton with their three children.

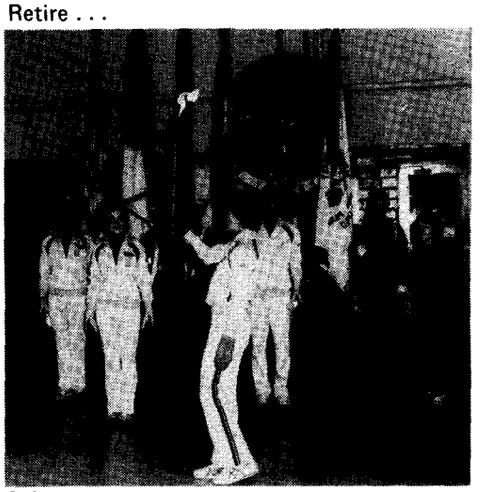
Headline Highlights of 1980

It Was a Busy Year at Langley



January

Goddard Scientist to Speak at Colloquium . . .NTF Get Shaft . . .Director's Comments: Langley Faces A New Decade . . .Warning System Awareness Urged . . .2,937 Apply for Astronaut Positions . . .Hearth Featured on 'Focus' Program . . .On the Front Lines with Langley's Aerospace Education Unit . . .Aircraft Art Displayed at Visitor Center . . .The 70s: A Decade of Progress Amid Cuts, A Time of Ingenuity, Resilience and Growth . . .Thompson Fellowship can Produce Blissful Research . . .Olympic Torchbearer Speaks at Langley . . .Public Invited to Welcome Olympic Torch . . .Sixty-five Employees Retire . . .



February

O'Neill to Speak on 'The High Frontier' . . .Geer Honored During National Engineers Week . . .Olympic Flame Arrives on American Soil for First Time . . .Langley to Sponsor Career Day . . .Roots of Culture Presented . . . Black History Month Observed at Langley . . .Hearth Named to WHRO Board . . .Anderson Invited to Panama . . . Seventy-two Employees Leave in February . . .Student Symposium to be Held . . .Astronaut Portraits Displayed at Visitor Center . . .Astronaut Optimistic About Shuttle Operations . . .Langley Featured on 'NOVA' Tuesday . . . Procurement Urges Proper Paperwork . . .

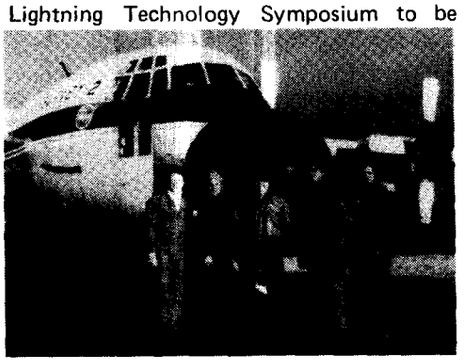
March

Kilgore Named NASA Associate Administrator . . .Lorincz Selected for Rotary Foundation Exchange Program . . .Remembering the Blizzard of '80 . . .Nicks Honored at Reception . . . Langley Aids State in Creation of

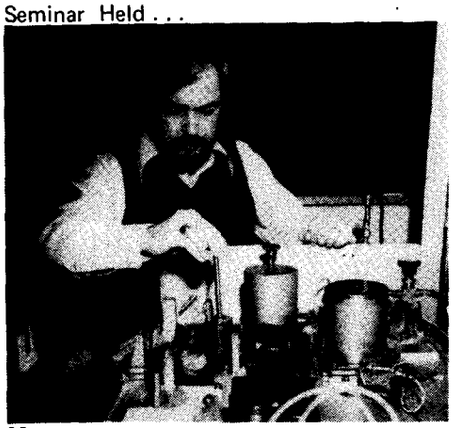
Resources System . . .Whitcomb: Aeronautical Research and the Better Shape . . .A Day at the Crashes . . .Visitor Center Honors X-15 Anniversary . . .

April

Hearth Details Replacement Strategy . . .NASA FY '81 Budget, 'Painful but not Crippling' . . .Einstein Remembered at Langley, CNC Colloquium . . .NASA Scientists Uncover Icy Arctic Secrets . . . Alternate Shuttle Thermal System to be Studied . . .Shuttle Bus Service Stops . . . Flint to be Visitor Center Distinguished Lecturer . . .McCormick Receives Arthur Flemming Award . . .Breakfast Honors Langley Secretaries . . .Langley to Host Mechanisms Symposium . . .NASA Film Earns Award . . .'New Discoveries in Old Virginia' Featured at Colloquium . . . Lightning Technology Symposium to be



held at Langley . . .Langley Environmental Office Meets Goal, Closes . . .Management Urges Traffic Safety . . .Safety Record Needs Improvement . . .Sexual Harassment Seminar Held . . .

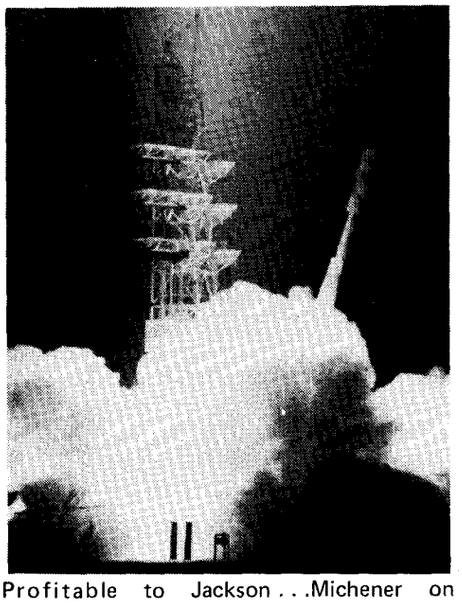


May

Petersen Named Langley Deputy Director . . .Thirteen Employees Take Part in AIAA Meeting . . .Langley Launches Savings Bond Campaign . . .Patton Receives SAE Award . . .Langley to Host Federal Laboratory Consortium . . .Phillips Awarded Thompson Fellowship . . .Langley to Observe Sun Day . . .Research Sheds Light on Ammonia Source . . .Langley Co-op to Represent Virginia in National Business Skills Competition . . .Vietnam War Prisoner to Speak at Colloquium . . . Federal Women's Week to be Observed . . .18th Century Science Lecture Featured at Colloquium . . .Equal Opportunity Committee Steers Improvements . . .NASA to Look at Automated Decision-Making . . .Moore, Williams Paper Judged Best . . .NOAA-B Satellite Featured at Visitor Center . . .Mace, Goetz Named Langley Directors . . . Langley Named Employer of the Year . . .Researchers Track Volcanic Plume . . .

June

Employees Among Delegation to Visit China . . .NASA Receives Civil Service Award . . .Denver Pays Tribute to Manned Flight . . .Anderson Honored . . .Male Joins Female Candidates in Carnival Contest . . .The Langley Aero Club, an Opportunity to Fly . . .Summer Fellowships Underway . . .Inventors Honored at Awards Luncheon . . .Dixon, Card, Blankenship to Head Divisions . . .Scout Observes 20th Anniversary of First Launch . . .Viking Fund to Further Mars' Exploration . . .MacCready Awarded Collier Trophy . . .Profit Sharing Plan



Profitable to Jackson . . .Michener on Space, Prudence and the Lessons of History . . .

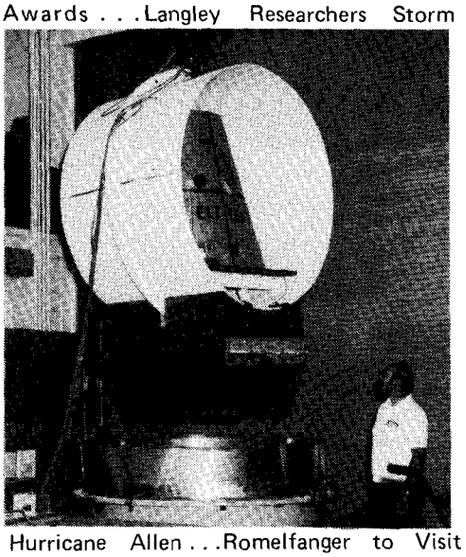
July

Viking Orbiter 1 Near Shutdown . . . Langley Concerned About High Noise Levels . . .Langley Sets Bond Record . . . Scout Plaque Unveiled . . .Back from China, Harris and Copeland Reminisce . . .Jupiter Moons Featured . . .Willis Proud of Son's Design . . .Phillips Named Employer of the Year . . .Stokes Named Management Operations Director . . .

Bowen is Manager of California Office . . .Hohl, Pauls Chosen for Management Positions . . .Langley Researchers Study Lightning From the Inside Out . . .Franke Chosen for Reserve Awards . . .

August

Shuttle Support, High-Tech Problem Solving . . .Hearth Rates New Management Team Excellent . . .Latest NTF Test Termed '100 Percent Successful' . . . Langley Sets New Bloodmobile Record . . .Three Longtime Managers Retire from Langley . . .Gibson Places First in Stenography Contest . . .Mars, Orbital Debris Topics of Two Colloquiums . . .Safety Trends Show Improvement . . .Vehicle Analysis Branch: Eyes to the Future of Spaceflight . . .LAA Schedules Carnival Events . . .NASA's 'House' Film Gets Two Awards . . .Langley Researchers Storm



Hurricane Allen . . .Romelfanger to Visit Langley . . .Researchers Improve Emergency Transmitters . . .Departing Flight Chief Reflects on Change, Progress . . .

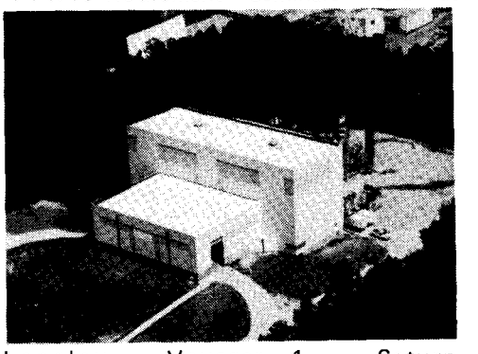
September

Moore Named Flight Electronics Division Chief . . .Swain is Combined Federal Campaign Chairman . . .Aviation's McDonnell Dies . . .Fifty-six Employees Retire in August . . .Biomass: Renewable Energy, New Jobs and Economic Gains for Virginia . . .Spinoff 1980, 'A Remarkable Publication' . . .Edwards Looks Back on Fifty Years . . .Shuttle Student Project Rules Announced . . .

Langley Managers Receive Presidential Honors . . .Chinese Aeronautics Delegation Visiting Langley . . .NASA and Universities Team Up for Significant Mount St. Helens Mission . . .Garner Receives Stan Dzik Award . . .Langley Staff Members Receive Advanced Degrees . . .Visitor Center Remembers the Early Years of Langley . . .

October

Service Awards Ceremony Honors Employees . . .'Roots' Author to Speak at Colloquium . . .Small Business Workshop Planned at Langley . . .Refuse-Fired Steam Generating Plant Dedication Set . . . Langley Researcher to Join International Science Expedition . . .Langley Apprentices Graduate Next Friday . . .Global Picture Emerging from Recent Research Mission to Mount St. Helens . . .Scout Included in Busy Launch Schedule . . .Langley Summer Employees Honored . . .Frosch to Leave NASA in January . . .Krieger to Speak for Awards Ceremony . . .Mutch Dies in Mountain Climbing Expedition . . .Warner Praises NASA, Hampton . . . Data Point: Young Engineers Plan for the Future . . .Carpenter Sees America by Bike . . .Grady Receives NASA's Outstanding Handicapped Employee Award . . .NASA Publishes Mars Photo Book . . .Pre-Retirement Seminars Held at



Langley . . .Voyager 1 — Saturn Encounter Televised . . .Sauber Probes 'Fourth Kingdom' . . .Visitor Center Announces New Educational Programs . . .CFC: NASA Langley Over the Top . . .Bill Michael Looking for Work--for VARC . . .FEHB Program Open Season to Begin . . .

November

Langley Pays Tribute to Employees . . .Tales of a Natural Laboratory: Scientists Will Gather to Discuss Mount St. Helens . . .Pope Discusses Energy Process . . .CFC Goal Met: Generosity Will Help Others . . .Guastaferro Named Ames Deputy Director . . .Visitor Center Plans Planetary Exploration Programs . . . Instrument Tested for Geological

Continued on page 6.

Director's Discretionary Fund

Innovative Research Ideas Supported

During FY 1980, 11 research projects were funded by the Director's Discretionary Fund, which is available to support promising research ideas by Langley researchers that would not otherwise be funded.

The FY 1980 projects were an increase of three over the previous year. The funds for FY 1981 have doubled and should allow expansion of the ongoing program.

Guidelines established by Director Donald Hearth require that the research be high-risk, innovative and not part of Langley's currently approved program. Research ideas may be proposed for funding at any time during the year.

The research projects approved for FY 1980 range in scope from the determination of basic molecular properties to more applied anti-icing investigations.

- Charles Camarda, LAD, is investigating the use of heat-pipe cooled sandwich panels to reduce thermal gradients and stresses in the honeycomb walls of the Langley scramjet engine. If successful, this method could alleviate the need for a complex and heavy cooling system for the scramjet engine.

- The optical properties of Tropospheric Aerosols as a function of their chemical properties are investigated by Carmen Batten, MATD. The aim of this research is to demonstrate the feasibility of using reflectance methods to obtain the spectral optical constants of aerosols independent of their size and size distribution. Since aerosols in the earth's atmosphere scatter and absorb significant amounts of solar energy, their detailed properties are important in determining the earth's radiation budget and climate.

- Harold Murrow, SDD, is conducting an experimental research program to determine the variation of atmospheric turbulence along the span of an aircraft. This work will provide basic information on atmospheric turbulence and is especially important for the design of large flexible aircraft.

- A study of ion-induced nucleation processes should provide new insights to determine exactly how aerosols form in the earth's atmosphere and in high temperature combustion processes. In performing this research, Dr. Jag Singh, Alphonso Smith, and Glenn Yue of IRD are using a quadruple mass spectrometer to investigate nucleation in binary mixtures of H_2O and H_2SO_4 vapors. The next step will be the modification of classical nucleation theory on the basis of comparison of the experimental cluster spectra with the classical theory calculations.

- Three researchers of AESD, Dr. William Grose, Thomas Blackshear, and Richard Turner, are developing an advanced model for realistic simulation of atmospheric dynamics and transport. When completed, the model should provide NASA with the capability to predict long-term transport of trace constituents and will assist in the analysis and interpretation of remote satellite measurements.

- Dr. Joel Levine, AESD, has nearly completed a study of the effects of atmospheric lightning on the production nitrous oxide. Nitrous oxide is environmentally significant since it controls ozone levels, which in turn shields the earth from harmful ultraviolet radiation. Flight tests performed by Dr. Levine have shown that the maximum nitrous oxide enhancement associated with thunderstorm lightning is about 60 percent above the clear air level.

- A global geochemical model is under development by Dr. Robert Harriss of MATD, which quantitatively links energy and economic decisions and their potential impact on global trace element cycles and environmental quality. The model now includes global sources of mercury and chlorine, with additional pollutants to be included. A comprehensive data base is being assembled to provide the volatile trace element chemistry of petroleum, coal, iron ore, and other vital raw materials.

- James Youngblood, SSD, is examining concepts for solar-powered, high-altitude remotely powered, unmanned aircraft for use as observation or communication platforms. Several new technologies are investigated to determine their effect on energy storage, propulsion, and photovoltaic conversion efficiencies.

- A team of researchers including Dr. Harry Beach, Ernest Mackley, Clayton Rogers, Allen McLain, and W. Chinitz are investigating the properties of monosilane (SiH_4) as an ignition aid for hydrogen-fueled scramjets. A chemical-kinetic model for the silane-hydrogen-air mixture has been developed and the results obtained agree with experimental data. Considerable success has already been achieved in actual tests using monosilane.

- An experimental and theoretical effort to investigate the potential of anti-icing by means of microwave heating is conducted by William Croswell, Dr. Leo Staton, and Dr. Marion Bailey of FED. Initial work will concentrate on theoretical considerations of the thermal energy balance of supercooled water droplets impinging on an aircraft wing. As a next step, a small-scale experiment will be constructed to test the quantitative predictions.

- Dr. Harold Maahs of MATD is performing research to determine rate constants of aqueous phase reactions under ultraviolet photoexicitation. This work will provide data to determine the processes in tropospheric clouds operating as active chemical systems in transforming various gaseous species to other chemical forms.

Researchers are encouraged to submit proposals that meet the guidelines for the Discretionary Fund.

Highlights

Continued from page 5.

Exploration . . .Dual Ladder: Langley Offers Research Incentives . . .Crumbly Selected to Head PMSD . . .NASA Reviews Technology for Large Space Systems . . .Shuttle Moved for Mating . . . Langley Exhibitors Attend Louisville Expo . . .Insurance Comparison Charts on Display . . .

'No Parking' Signs Installed

Due to several emergencies that have occurred recently at the Activities Center, "No Parking" signs have been placed along the curb directly in front of the center.

This regulation will be strictly enforced. Tickets are being given to anyone parking in this area.

Employees are urged to park in the parking lot behind the center.

Solar Powered Laser Breakthrough Made

The world's first gas laser that is directly pumped by simulated solar energy has been developed by two researchers at Langley.

Ja H. Lee and Willard R. Weaver, SSD, call their achievement a major breakthrough in developmental studies of a potential solar power system.

This breakthrough is the first positive evidence of direct solar energy conversion which has the potential for transmitting the enormous power necessary to make feasible the beaming of solar energy to Earth.

The solar powered laser is one of several space power systems NASA is investigating. Solar power generated in space and transmitted to Earth is believed by many scientists to be the best possible solution to relieving mankind's dependence on fossil fuels.

Laser power transmission is especially suitable for space and space-to-Earth applications since there is no obscuring atmosphere in space and only little interference from dense clouds in the Earth's atmosphere.

One concept of a solar powered laser system directs the solar energy collected in space onto a gas filled tube which, without generating electricity, emits a beam of light to Earth. This laser beam, on reaching Earth, can be transformed to conventional energy sources, such as electricity.

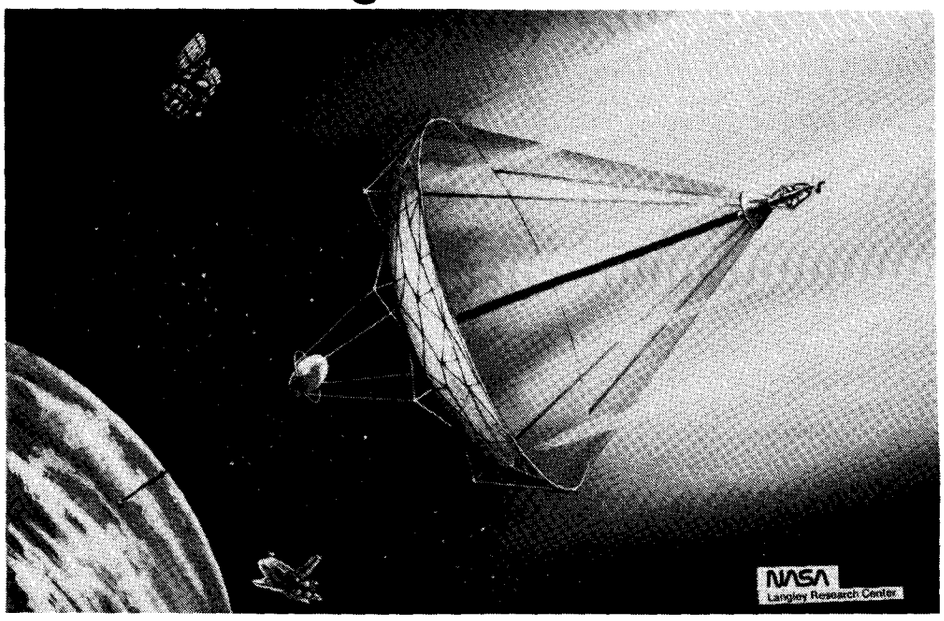
In addition to its use on Earth, the system can also direct the converted solar energy to individual satellites, airplanes and Space Shuttles, obviating the need for separate power generators on each vehicle.

The space power systems under investigation can be divided into three major stages: collection, conversion and transmission. Solar energy in space is collected either optically by a shiny collector or electrically by solar cells.

Captured energy from a collector can be used to heat a fluid which then goes through a steam generator cycle to produce electricity. This electricity, or that directly generated from solar cells, must then be transmitted to Earth.

Two transmission techniques are microwaves and laser beams, both of which can be conventionally generated from the electricity produced in space. The laser is preferred because of the compactness of its beam and its ability to transmit energy over long distances with little power loss.

The direct conversion offered by the solar pumped laser in effect eliminates the middle component, or conversion process. The elimination of the middle step should offer many savings in construction, weight and money in the search for efficient methods of capturing the Sun's ever-present energy in space.



This artist's drawing is one concept of a solar powered laser system. The disk reflects light from the Sun to a gas-filled tube, which emits a high-intensity light beam. This laser beam can be directed to various locations and transformed into conventional energy sources, such as electricity.

The breakthrough by Lee and Weaver in the solar powered laser studies was accomplished by directing the light output from a solar simulator onto a quartz tube filled with a small amount of gaseous iodide.

The light excites the gas, which emits a burst of light, called a laser. The light that is produced is invisible to the human eye, but can readily be seen by detectors made of germanium.

Measured laser outputs of up to five watts have been obtained in tests at Langley. The power output is now limited by the beam power input from the solar simulator, but this limitation would not exist in space.

The power output using the gaseous iodide is already comparible to the maximum output ever achieved with a solid-state solar pumped laser. The power output of a solid-state laser is limited, however, because the solid cannot be effectively cooled.

The Langley researchers agree that one of the more interesting aspects of the present research with the iodide lasant, the gas which when stimulated by solar energy emits the laser beam, is that the power input is deliverable by solar collector only about seven feet in diameter.

Another iodide lasant under study that has a somewhat better solar spectrum utilization holds the promise of sea-level operation. This will allow research to proceed from present power-limited solar simulators to high-power solar collectors and ultimately to completely ground-based conversion systems for at least some parts of the world, according to Weaver.

He said, "The initial success with existing lasants gives much hope for success in another major thrust of the present research, the search for lasants that more effectively utilize the solar spectrum as well as possess the necessary characteristics for being used unattended in space."

Thanks for Your Help

Special thanks to **Wesley T. Berryman, Jr.**, Scientific and Technical Information Programs Division, for designing the cover of this Christmas issue and to **Robert E. Nye**, STIPD, for taking the photograph on page 2.

The *Researcher* staff also appreciates the Aerospace Penpoints and all the graphic and photographic assistance that Wes and Bob have provided all year long.

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Happenings

HONEY BUNCH. The NASA-Langley Apicultural Club will meet Monday, Dec. 15, from 7 to 9:30 p.m. in Room 180 of Building 1209. After a brief business meeting, Steve Brooks, CPA with Gayle-Rauch Associates, will speak on "Income Tax Record Keeping for Beekeepers."

LAA TRAVEL. Even though all category 4 and 5 cabins have been filled for the May 12–19 cruise to Bermuda from Norfolk, you can still be guaranteed these category rates (by means of a cabin upgrade) in addition to the $100 per person discount if your reservation is in by December 15. Call Ernie Greene, extension 2312 or 838-0567, or the LAA Office, extension 3139, for detailed information.

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. Fred Montgomery and his orchestra will provide music of the '50s and '60s. The cost of the semi-formal dance is $15 per couple and includes setups, party favors and a Continental Breakfast from 1 to 2 a.m.; BYOB. Reservations are required. Tickets are on sale at the Activities Office.

BINGO. The Langley Activities Association will start the 1981 Bingo season Thursday, Jan. 8, in the Activities Center. Games will begin at 7:30 p.m.

HAPPY HOURS. To welcome in the new year, a special Happy Hour will be held Jan. 9 in the Activities Center from 4 to 7 p.m. The regular Happy Hour is scheduled for Jan. 16 from 4 to 6:30 p.m.

SKI TRIPS are planned for Thursdays, Jan. 8, to Bryce Mountain; Jan. 15 to Massanutten; Jan. 22 to Snow Shoe; Jan. 29 to Massanutten; and for Friday, Jan. 23 to Snow Shoe. The cost of each trip is $31 ($5 less with own equipment). A bus will depart Newmarket South (in front of Hechingers) at 5 a.m. and return there by 9:30 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. Please specify the date you wish to ski. For further information, call 599-6293.

swap and shop

FOR SALE

Articles

Folding Ping Pong table with net and paddles. Cannon automatic zoom 5181SV movie camera. Both items like new. Call Earl Hastings, ext. 3631 or 229-7242.

Ski boots, Koflach, men's size 10, GC, $20. Call Short, ext. 3483 or 838-1919.

Regency Touch K100 programmable scanner, EC, $125. Call Hudgins, ext. 4544 or 642-2501.

Seasoned oak firewood, split, delivered and stacked; half-cord $45. Call Dow, 595-1029.

Vehicles

1977 Honda CB 550K, 4 cyl, 15,000 miles, 50-60 MPG, clear fairing, tour seat, very clean and dependable motorcycle, $1,295. Call Supplee, ext. 3483 or 827-7735.

1970 Dodge Dart Swinger, V-8, AC, PS, VT, RAD, one owner, 75,000 miles, EC, new sticker, $1,000 OBRO. Call Long, ext. 4621 or 851-3748.

Real Estate

Mobile Home; Castle '75, 2 BR, 1 Ba, 52x12, EC, washer/dryer, all elec., part. furn. 898-3617.

Animals

For sale or lease: Anglo-Arab Hunter Mare to intermediate or advanced rider, good mover, good show record. Call Youngblood, 877-1224 after 6 p.m.

FOR RENT

Room with private bath and large sundeck. Residence located on Poquoson River in Tabb area. Call 877-2341.

LOST

Gold five-point star-shaped ring with diamonds on each point. This ring was left to me by my mother and has sentimental value. Reward. Last seen on top of my desk. Call Martin, ext. 3631.

Men's eyeglasses in brown plaid case. Call Keesee, ext. 2641.

FOUND

Cross pencil, chrome, in front ob Building 1195B. Call Greg Riebe, ext. 3294.

WANTED

Person(s) interested in forming a car pool from Norfolk on the 8 a.m. shift. Call Cindy Albertson, ext. 2325 or 853-8437 after 5:30 p.m.

To join or form car pool from Norfolk to West Area on 7:30 a.m. shift. Call Hudgins, ext. 3072 or 587-9023, Norfolk.

cafeteria menu

MENU

WEEK OF DECEMBER 15

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

TUESDAY: Manhattan Clam Chowder; Pork Chops; Roast Beef AuJus; Fried Filet of Fish. Snack Bar: Hot Reuben; BBQ; NASA Sub; Roast Beef & American Cheese.

WEDNESDAY: Beef Noodle Soup; Fried Chicken Dinner; Meatloaf; Ham & Cheese Omelette. Snack Bar: Chicken Cutlet; Ham & Turkey Club; Steak, Onion & Cheese Sub; Bacon, Lettuce & Tomato.

THURSDAY: Chicken Gumbo Soup; Braised Chicken Livers; Beef Balls Stroganoff; Baked Ham. Snack Bar: Submariner; Ham & Cheese Club; BBQ; Roast Beef & American Cheese.

FRIDAY: Vegetable Soup; Fish Dinner; Chicken Pot Pie; Polish Sausage. Snack Bar: Deluxe Sub; Hot Roast Beef; Tuna Salad; Turkey & Bacon Club.

WEEK OF DECEMBER 22

MONDAY: Ham & Lima Bean Soup; Teriyaki Beef Kabobs; Chicken Chow Mein; Stuffed Bell Peppers. Snack Bar: Pizza; Egg Salad; Steak, Onion & Cheese Sub; Hot Reuben.

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

WEDNESDAY: French Onion Soup; Roast Turkey Dinner; Broiled Beef Liver; Knockwurst Reuben. Snack Bar: Tuna Salad; Chicken Cutlet; Teriyaki Steak & Onion Sub; Bacon, Lettuce & Tomato.

CAFETERIA will be CLOSED until Wednesday, January 5, 1981.

Deadline Notice

The next issue of the *Langley Researcher* will be distributed Friday, Jan. 16, 1981. The deadline for this issue will be 12 p.m. Friday, Jan. 9, 1981.

Retirement Party

Kenneth D. Albert, Acquisition Division, will be honored with a retirement party Friday, January 16, 1981, at the Langley Officers' Club. A cash bar social with hors d'oeuvres will begin at 5 p.m. The cost will be $8 per person or $13.50 per couple including donation for gift. Contributions for gift only are welcome. Checks, payable to Marguerite Proffitt, should be sent to her at Mail Stop 126 by January 9, 1981.