Langley Researcher

VOLUME 8, NUMBER 1 LANGLEY RESEARCH CENTER JANUARY 10, 1969

WILLIAM SCHNEIDER APPOINTED NASA DIRECTOR OF APOLLO APPLICATION

William C. Schneider, Apollo Mission Director, has been appointed NASA Director of Apollo Applications.

Schneider, who succeeds the late Harold T. Luskin in the Apollo Applications post, assumed his new duties after the completion of the Apollo 8 lunar orbit mission. Luskin, who was an internationally known aerospace leader, died November 25.

Replacing Schneider will be George Hage, Deputy Director of the Apollo Program. He will be Acting Mission Director in addition to his present duties.

In his new post, Schneider will have overall responsibility for the Apollo Applications program. Apollo Applications is designed to make use of the hardware developed for the Apollo manned lunar landing program to carry out extensive and long-duration Earth orbital operations.

Flights in Apollo Applications are scheduled to begin in 1971. Missions include the establishment of the Saturn I workshop in Earth orbit and the later attachment to the workshop of the Apollo telescope mount. Three-man crews will occupy the workshop and operate the telescope system for periods of up to 56 days.

Schneider became Apollo Mission Director in July 1967. Prior to that he had been Apollo Applications Mission Director. He was Gemini Mission Director for nine of the manned Gemini missions and also served as Deputy Director of the Gemini Program.

PERSONS WHO RETIRE BY FEB. 28 MAY RECEIVE ANNUITY INCREASE

Federal workers who retire between now and midnight February 28 may receive an annuity increase of at least 4 per cent. The raise will also go to the 800,000 retirees and their survivors now on the annuity rolls. Present federal workers who retire after Feb. 28 will not get the increase.

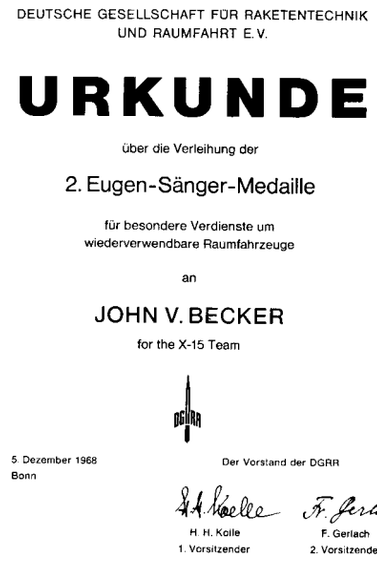
The way for the automatic annuity increase was paved last week when the Bureau of Labor Statistics showed that living costs jumped six-tenths of one per cent in October.

Rep. Wilbur D. Mills, chairman of the House Ways and Means Committee, who initiated the law this year which limits government agencies to filling only 70 per cent of their job vacancies, acknowledges that some agencies will need more employees next year even if their programs are not expanded.

Mills said additional employees probably will be needed by the Post Office Department, Federal Aviation Administration, Internal Revenue Service, and National Park Service.

Other Ways and Means Committee members say they expect other government agencies will also make a good case for additional employees.

But Mills did not say what, if anything, he intended to do to ease the personnel ceiling restrictions on government agencies.



DEUTSCHE GESELLSCHAFT FÜR RAKETENTECHNIK UND RAUMFAHRT E.V.

URKUNDE

über die Verleihung der

2. Eugen-Sänger-Medaille

für besondere Verdienste um wiederverwendbare Raumfahrzeuge

an

JOHN V. BECKER

for the X-15 Team

DGRR

5. Dezember 1968
Bonn

Der Vorstand der DGRR

H. H. Koelle — 1. Vorsitzender

F. Gerlach — 2. Vorsitzender

These photographs depict the two sides of the Eugen Sanger medal and the certificate that accompanied the award. The obverse face (left) of the medal has the name of the Society, German Society for Rocket Technology and Space Travel. The reverse face (center) bears the inscription: Eugen Sanger Medal for Special Merit in the Field of Reusable Space Systems. The right panel is the society's certificate on the award of the Second Eugen Sanger Medal to John V. Becker, Chief of Aero-Physics, for the X-15 team. Becker accepted the medal for NASA at Bonn, West Germany on Dec. 5. He also presented the Eugen Sanger Memorial Lecture. His subject was "The X-15 Program in Retrospect."

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

AD POLICY. . .Staff members are reminded that effective today all advertisements for publication in Langley Researcher must be submitted in writing. No ads will be taken over the telephone. All for sale and for rent ads must have the employee's name and home telephone number. The number of the Center telephone extension may be used on ads concerning rides or driving combinations to and from work. As stated in the staff box of Langley Researcher "the privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised must be offered for sale or rent without regard to race, creed, color or national orgin." Articles should be addressed to Langley Researcher, Mail Stop 154.

SKYWATCHERS. . .The Langley Skywatchers Club will meet on Thursday, January 16 at 7:30 p.m. at the Peninsula Nature Museum and Planetarium located just off of J. Clyde Morris Boulevard. This will be the second in a series of lecture/work sessions on techniques for making various astronomical measurements. The sessions will be conducted by Richard E. Davis, Flight Instrumentation Division. The subject will be "Kepler's Laws as Applied to the Motions of the Planets."

NOTE OF THANKS. . .Betty Joyner, Aero-Physics Division, and Joe Pencola, Fabrication Division, wish to thank the donors who donated blood in their mother's name, Mrs. Pencola.

ENGAGEMENT. . .Making plans to desert the bachelor ranks is Jerry A. Williams, Research Support Division. He is engaged to Nancy Anne Burton, Newport News, and plans call for a spring wedding.

BOATING COURSE. . .A free 13-week boating safety course in Piloting is being offered by the Hampton Roads Power Squadron, Inc. Registration will be held at 7 p.m. on Jan. 14 at Ferguson High School Cafeteria.

THANKS STAFF. . .Robert E. McGee, Technical Information and Utilization Division, and his family wish to thank their friends and co-workers for the many favors and thoughtfulness shown Bob during his seven-month illness.

FOR SALE: AKC registered Boston Terriers. Boyle, 723-3400.

HAVE YOU SEEN THIS MAN? Telephone installer Bob Parker, C&P Telephone Company, explains the telephone number change to Sharyn Hilstrom, Administrative Services Division. Bob and other C&P installers are changing telephone numbers throughout the Center in preparation for the LRC Centrex System conversion on February 16. The 827 prefix numbers which will be used beginning February 16 are being placed on some 3,300 instruments at Langley Research Center.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of January 13:

Monday - Puree of bean soup, grilled ham steak, beef pot pie, chicken croquettes, cheese omelette. Snack bar - Soup, hamburger, grilled ham, French fries.

Tuesday - Tomato-barley soup, beef stroganoff, roast fresh ham, fried fish, grilled spiced luncheon meat. Snack bar - Soup, grilled luncheon meat, hot roast pork.

Wednesday - Chicken gumbo, barbecued spare ribs, baked lasagna, fried chicken, chili-mac. Snack bar - Soup, barbecued pork, hot corned beef, German potato cakes.

Thursday - Cream of tomato soup, Spanish pot roast, broiled halibut steak, liver and onions, franks and beans. Snack bar - Soup, hot dog, hot roast beef, corn fritters.

Friday - Manhattan clam chowder, hot roast beef sandwich, fried oysters, ham and noodle casserole, cheese ravioli. Snack bar - Soup, fish sandwich, hot pastrami.

The menu for the week of January 20 is as follows:

Monday - Scotch broth, roast ribs of beef, grilled Canadian bacon, fried fish sticks, chili con carne. Snack bar - Soup, ham and egg sandwich, flying saucer, French fries.

Tuesday - French onion soup, baked ham, chicken-fried beef, spaghetti and meat balls, wieners and sauerkraut. Snack bar - Soup, hot dog, baked ham, German potato cakes.

Wednesday - Green split pea soup, hot turkey sandwich, shrimp Newburg, Polish sausage, tamale pie. Snack bar - Soup, sea dog, sliced turkey, corn fritters.

Thursday - Vegetable-beef soup, grilled rib eye steak, barbecued pork chunks, fried chicken, baked hash. Snack bar - Soup, barbecued pork, steak sandwich, French fries.

Friday - Chicken-rice soup, half-pound chopped steak, stuffed shrimp, broiled fish, western omelette. Snack bar-Soup, western omelette, Lou's satellite special.

TECHNOLOGY UTILIZATION NEWS

Two new survey publications are available from the Technology Utilization Office. SP-5049 "Visual Information Display Systems" is a 95-page treatise on computer-related visual information display systems. This immediately popular publication should stimulate applications of this technology ranging from jetliner control panels and stockbrokers' offices to our schools and laboratories. The requirements for such systems are determined by human input-output capabilities which are essentially the same whether within or outside the aerospace field.

"Applications of Systems Analysis Models" SP-5048 also enables industry and the government to benefit from NASA's experience and findings in the important new area of systems analysis technology. Potential non-aerospace applications exist in marketing, urban and regional planning, as well as in public health and educational programs. The systems approach to problem solving is systematic and usually quantitative, concentrating on the system as a whole, as opposed to its constituent elements. This 69-page survey covers what is often referred to as operations research, operations analysis, cost-benefit analysis or engineering-economic analysis. The whole field is treated as the technology of mathematical management models or systems analysis.

A limited number of new technological surveys are conducted each year. If you feel that a particular subject or area of technology should be covered by a NASA Special Publication, please notify the T.U. Office, telephone 3281.

GUEST SWORN IN AS CONSULTANT

Dr. Robert H. Guest, a professor at Darmouth College, has been sworn in as a consultant by Dr. Thomas O. Paine, Acting Administrator of NASA.

He will serve on the Management Advisory Panel which is concerned with broad questions of organization and management of NASA.

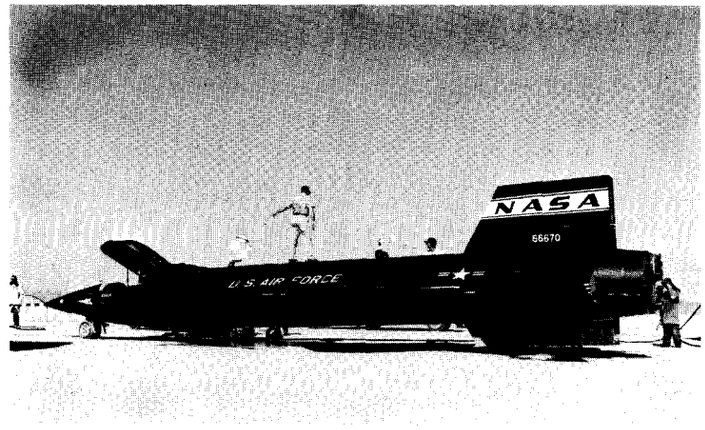
Dr. Guest, professor of organizational behavior in the Amos Tuck School of Business Administration, has been at Dartmouth for the past eight years. Before that he served 13 years at Yale University where he was associate director of research of the Yale Technology Project at the Institute of Human Relations.

Dr. Guest is a native of East Orange, N.J., and was educated at Amherst, graduating in 1939. He received M.A. and Ph.D. degrees at Columbia University.

He became director of industrial relations for a textile firm in Maine before joining the Navy in World War II. In 1946-47 he was senior field examiner for the National Labor Relations Board.

Co-author (with C. R. Walker) of a book on management, "Man on the Assembly Line," Dr. Guest wrote "Organizational Change: The Effect of Successful Leadership," which won the book of the year award of the Organizational Development Council.

Presently he is a member of the New Hampshire Aeronautics Commission.



The X-15, the world's only manned aircraft capable of hypersonic flight, has made its final flight.

X-15 FLIGHT PROGRAM ENDS

NASA Release 68-22

The world's only manned aircraft capable of hypersonic flight - above five times the speed of sound - has made its final flight. The X-15 flight research program has been completed as planned.

The final flight of the rocket-powered airplane was flown October 24 by NASA research pilot William H. Dana, to a peak altitude of 255,000 feet. This was the 199th flight in the X-15 research program.

The X-15 flight research program has been a joint NASA-USAF-USN research effort. Additional support has been supplied by other government agencies and the two prime contractors, North American Rockwell and the Thiokol Chemical Corporation. NASA's Flight Research Center has been responsible for the operational management of the flight program.

Three X-15 aircraft were built for the government by North American Rockwell. One airplane was destroyed in an accident in November 1967. The remaining two aircraft will be retained at Flight Research Center.

The first X-15 flight was on June 8, 1959. Since that time, the three airplanes have made a total of 199 flights, reaching a peak altitude of 354,200 feet (67 plus miles), and a top speed of 4,520 miles-per hour (6.7 Mach). Over 82 minutes of flight time at speeds in excess of five times the speed of sound and a total flight time of over 30 hours has been attained during the 9-1/2-year program.

Twelve men have flown the rocket powered airplane. In order of flight, they are:

A. Scott Crossfield, North American Rockwell; Joseph A. Walker, NASA; Col. Robert M. White, USAF; Capt. Forrest S. Petersen, USN; John B. McKay, NASA; Col. Robert A. Rushworth, USAF; Neil A. Armstrong, NASA; Maj. Joe H. Engle, USAF; Milton O. Thompson, NASA; Maj. William J. Knight, USAF; William H. Dana, NASA; and Maj. Michael J. Adams, USAF.

The late Dr. Hugh L. Dryden, NASA Deputy Administrator, called the X-15 "the most successful research aircraft ever built."

FOR SALE: 1961 Buick Special, 2-door, V-8. Allred, 877-5881.

FOR SALE: 3-burner gas stove with oven and 6000 btu gas heater for Travel trailer. Insley, 868-6203.

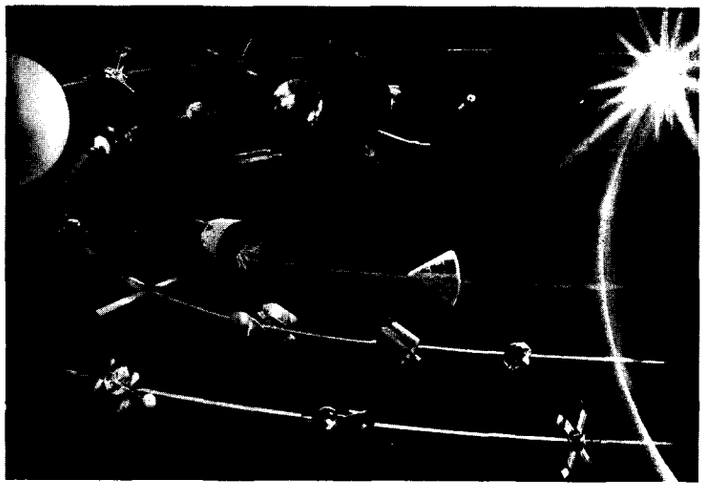
FOR SALE: Golden Retriever pups - AKC registered - 8 weeks old. Johnson, 868-9030.

FOR SALE: 1956 Ford with Thunderbird engine - 2-door - $100. Verser, 868-4731.

FOR SALE: Mahogany dining set with corner china cabinet, best offer. Wright, CH7-1305.

FOR SALE: 1964 Volkswagon - $750. Manning, Williamsburg 229-1578.

1968 EVENTFUL YEAR FOR NASA



A DECADE OF PROGRESS: Representative spacecraft, shown in this artist's conception, are symbolic of NASA's 10 years of space exploration.

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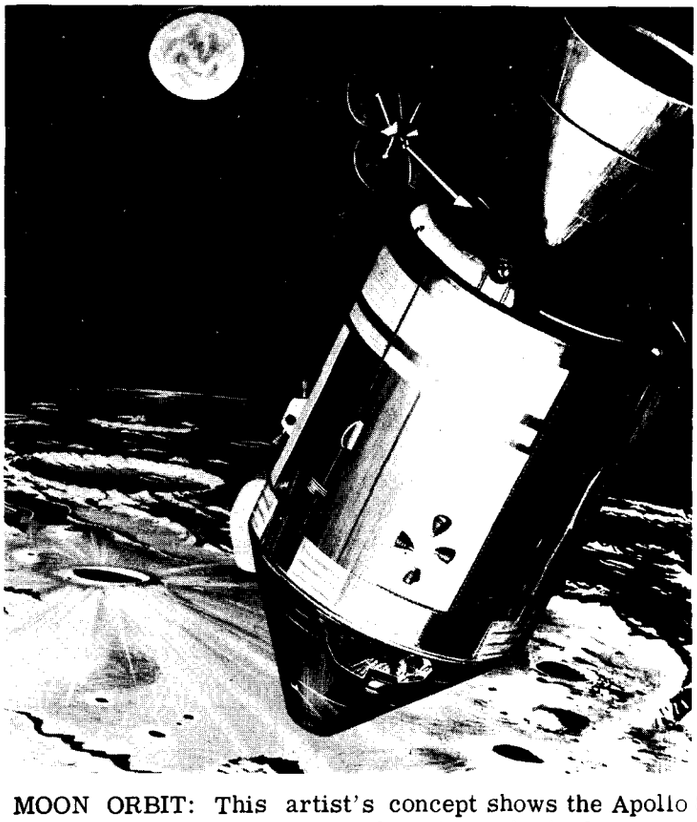
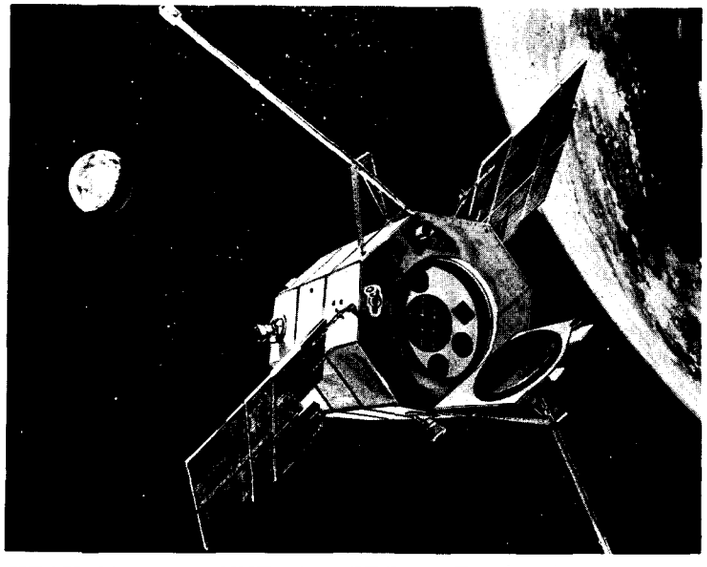
In 1968, its Tenth Anniversary year, the NASA marked a decade of progress in all aspects of space exploration and rallied its resources for the lunar landing scheduled for 1969.

The year 1968 saw the first two manned launches -- Apollo 7 and 8 -- in the Apollo program plus successful missions by unmanned satellites which brought new knowledge of the solar system which American astronauts hope to explore after the lunar landing.



MOON ORBIT: This artist's concept shows the Apollo 8 spacecraft, its nose pointed down towards the lunar surface, as it photographs the moon.



HEAVIEST UNMANNED SPACECRAFT: This is an artist's concept of the 4400-pound Orbiting Astronomical Observatory with its solar paddles extended and facing the sun.

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Surveyor 7, NASA's first 1968 mission, wrote a rewarding scientific finish to the Surveyor lunar photography program which successfully soft-landed five spacecraft on the Moon.

Scientists, astronomers and engineers estimate that, in the brief months since the summer of 1964 when NASA's Ranger spacecraft flew its first successful mission, man has learned more about the Moon than in all the 350 years since Galileo first viewed it through his telescope.

Other significant 1968 unmanned satellites include the Radio Astronomy Explorer (RAE), launched July 4, and the Orbiting Astronomical Observatory (OAO-II), launched December 7.

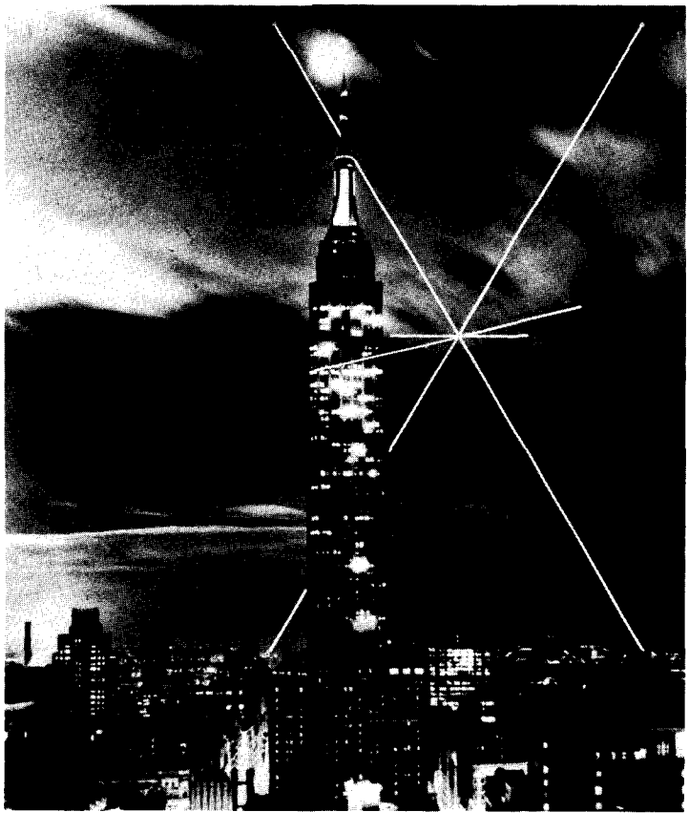
RAE, with its antenna booms extending more than 1,500 feet from tip to tip, has the largest span of any spacecraft orbited to date. It has monitored low-frequency radio signals from space sources, including the Sun's galazy, the Milky Way, from the Sun and from Earth itself.

The OAO-II is the heaviest (4,400 pounds) and most complex unmanned spacecraft launched by the U.S. to date. Its successful orbit and operation provides astronomers with a new vantage point for "seeing" in the ultraviolet, infrared, X-ray and gamma radiations for looking at most of the ingredients necessary for knowing the solar system's makeup today and what course it may be taking.

During the first quarter of 1968, OGO-V joined its sister geophysical observatories after its launch March 4, into a long elliptical orbit around the Earth. It is concentrating on a study of energetic particles, electric and magnetic fields and other phenomena in Earth's vicinity, while OGO-IV, in a low altitude polar orbit, studies principally the Earth's atmosphere and ionosphere, including auroral phenomena in the polar cap regions.

GEOS-II, launched January 11, joined GEOS-I in continuing measurements of the Earth's gravity field and in establishing more precisely the shape and size of the planet.

Operating from a stationary orbit over the Equator at an altitude of 22,240 miles, NASA's ATS-III continued its significant contributions to meteorology and communications. Its communications channels served to augment



ANTENNA BOOMS: The antennas of NASA's Radio Astronomy Satellite are shown in comparison to the Empire State Building. The antennas extend more than 1,500 feet.

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commercial circuitry in helping to bring the events of the Olympic Games in Mexico City, the Apollo 7 and 8 space flights, and other world news to television viewers in Europe and North America.

Pioneer-IX, launched November 8, added a new space craft to NASA's team of Sun-orbiting satellites assigned to study space continuously from widely separated positions.

Riding piggy-back into orbit with Pioneer IX was the 40-pound TETR-2 satellite. In its 200-by-500-mile Earth orbit, it is currently being used as an orbiting target for checking out equipment and training personnel of NASA's Manned Space Flight Network in preparation for future Apollo missions.

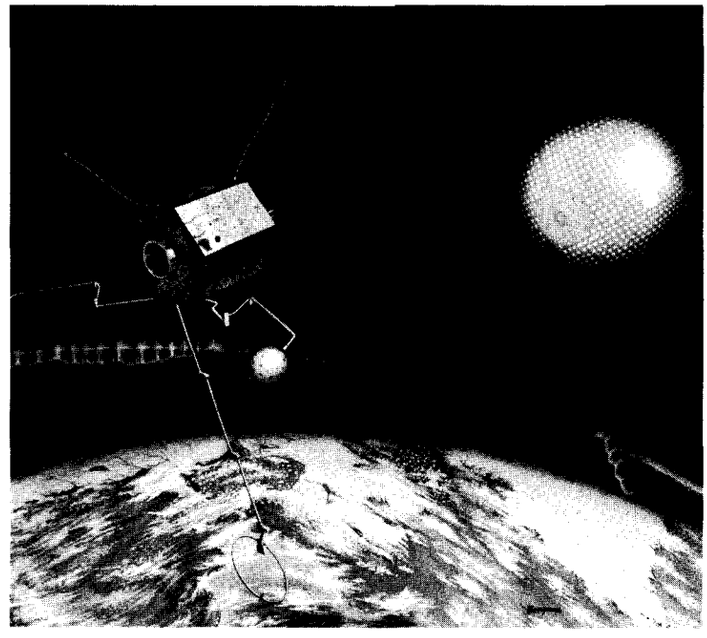
Preparations continued during 1968 for Mariner flights to Mars in 1969, 1971 and 1973. NASA announced that the 1973 mission would be named Project Viking and would use the Titan III-D/Centaur as its launch vehicle.

The orbiting of Air Density and Injun satellites (Explorers XXXIX and XL) August 8 with a single Scout launch vehicle extended studies of complex radiation-air density relations to areas in space above the Earth's polar regions.

Besides launches serving its own experiment programs, NASA also launched spacecraft for other agencies and foreign countries during the year.

In manned flight, the decision to boost Apollo 8 to orbital flight around the Moon December 21 directly reflected the Apollo program's overall maturity and operational readiness, progressively demonstrated by three flights and supporting ground test programs during 1968.

The precise reentry and splashdown October 22 of the 11-day Apollo 7 flight ended what was called a 101-percent



TWO EXPLORER SPACECRAFT: The Air Density and Injun satellites (Explorers XXXIX and XL) were launched August 8 by a single Scout launch vehicle.

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successful mission. Manned by Astronauts Walter Schirra, Donn Eisele, and Walter Cunningham, the Apollo 7 performed flawlessly for more than 260 hours in space, including firings of the spacecraft's primary propulsion system and the first live TV from a U.S. manned vehicle.

Among the continuing research and development projects in aeronautics are noise abatement, flight safety, the materials, propulsion and flight dynamics of supersonic and hypersonic aircraft, lifting bodies and Vertical Short Take-off and Landing (VSTOL) craft.

NASA scientists and engineers, working with university and industry groups, pushed ahead in the fields of space power, electric, nuclear and chemical propulsion to enhance the capability of already-proven launch vehicles.

NASA continued to transfer to industry, small business and the scientific community the new technology coming out of space-related research and development activity. Most of this technology comes from NASA field centers where specialists continuously review research and development projects for promising new ideas. In addition, NASA contractors are required to report inventions, discoveries, innovations and improved techniques they develop in work for NASA.

Three basic tracking networks keep tabs on NASA's orbiting satellites: Manned Space Flight Network (MSFN), Deep Space Net work (DSN) and the Space Tracking and Data Acquisition Network (STADAN).

There are 26 sites in the three networks, some single, some of multiple purpose, located in 15 countries around the world. Each network is designed to support specific types of missions, depending on whether it is near Earth, manned or probing deep space.

These networks are constantly being strengthened to handle the demands of the newer and increasingly sophisticated satellites. In 1969, NASA plans to add a 210-foot-diameter antenna in Spain and in Australia to beef up the DNS for future missions into deep space.

IEEE MEETS JANUARY 16

John C. Mercer

The Hampton Roads Section of the Institute of Electrical and Electronics Engineers will meet on Thursday, January 16 at Eli's Restaurant, Hampton. John C. Mercer, Chief of Air Traffic Control Development Division, Federal Aviation, will be guest speaker.

Mercer will review the current problems the nation is facing with regard to air traffic control and the actions that are currently underway to aid in solving the problems. A projection into the future planning for improvement of the air traffic control system will also be discussed. The talk will be supplemented with the use of slides.

The meeting will be preceded by a social hour at 6:30 p.m., followed by a filet mignon dinner at 7:30 and the meeting at 8:30. Reservations may be made by calling Frank Senft, 3461, by noon on Wednesday, January 15.

LECTURE SERIES PLANNED

The first in a series of 18 lectures to be given one each week on "Oceanography as Applied to Aerospace Programs" will be presented in the 7 x 10-foot Tunnels Projection Room, Building 1212, Room 200, on January 15 at 9:30 a.m.

Arrangements have been made to obtain the services of lecturer-consultants from the Virginia Institute of Marine Science, Old Dominion College, and George Washington University.

The following general topics will be discussed in a series of six lectures for each topic:

Virginia Institute of Marine Science - Chemical and biological aspects of marine sciences.

Old Dominion College - Physical oceanography, ocean bottom topology, geology, minerals, and waves/tides - air sea interface.

George Washington University - Ocean engineering, bottom and shore movement, and energy propagation.

The first lecture, "Historical Aspects and General Introduction to Oceanography," will be presented by Dr. William J. Hargis Jr., Director, Virginia Institute of Marine Science.

Those interested in attending the series of lectures should contact their division executive or division chief for enrollment in the lecture program. Information has been provided to the division offices giving more detailed information on individual lectures.

FOR SALE: Small white, male, miniature French Poodle - 8 weeks old - $75. Price. 826-2693.

WANTED: Driving combination from Old-Farm-Estates subdivision to W.A. on 8 shift. Kyle, 3194.

FOR SALE: 1968 Mustang, 8-cylinder, two new tires in addition to 5 original tires - purchased Dec. 23, 1968 for $2900 will sell for $2500. Burcher, LY6-8335 after 5 p.m.

ASME GROUP TO HEAR KUHN

Richard E. Kuhn

Richard E. Kuhn, Assistant Head of the Low-Speed Vehicle Branch, Full-Scale Research Division, will be guest speaker at a meeting of the Eastern Virginia Section of the American Society of Mechanical Engineers on January 16 at the Holiday Inn, Hampton.

Kuhn will speak on "Recent Developments in High Speed Ground Transportation." He will discuss some of the latest concepts and developments in solving the East Coast Corridor problems in surface transportation. Kuhn has a wealth of data on the subject with an interesting historical background on various transportation means. Two short films in sound and color will be shown, including the "Turbo-Train" and the French "Aero-Train."

Kuhn is a graduate of Parks Air College (now part of St. Louis University) with a B.S. in Aeronautical Engineering. He has been with NASA since 1943 and is responsible for research work on all types of V/STOL aircraft (other than helicopters), parawings, and high-speed ground transportation vehicles.

He has been active in V/STOL work for 15 years, conducted early research investigations on the tilt-wing deflected slipstream types, and is currently active in the areas of jet V/STOL research. He is responsible for the design of the new Langley V/STOL Tunnel. Currently, he is assisting the Department of Transportation on some of their work on high-speed ground transportation vehicles.

The meeting will be preceded by a social period at 6:15 p.m., followed by a prime ribs of beef dinner at 7 and the meeting at 8. Reservations may be made by calling Lana Couch, 4633, or Robert Basford, 2635.

COIN CLUB MEETS JAN. 15

The monthly meeting of the LRC Coin Club will be held January 15 in the Conference Room, Building 587, at 7 p.m. Guests are invited and new members are welcome.

Membership is restricted to LRC employees and their families. The present membership consists of about 50 hobbists who collect and trade all types of coins and paper money.

The short business meetings never interfere with the real enjoyment of the meetings which feature an auction of selected coins which are offered by the club members and some purchased for auction by the club. Professionals are called in for special lectures and refreshments are served.

Interested persons are invited to join the group.

FOR SALE: 1959 Plymouth Fury, 4-door sedan. Miller, 595-0731.

FOR SALE: Large screen black and white TV in blonde cabinet with detachable legs - $25. Silsby, 596-3252.

FOR SALE: 1963 T-Bird, full power - $1150. Kyle, 595-3923.

A Group Achievement Award for the Planetary Entry Parachute Program was recently presented to a group of staff members "For providing in a 24-month period, the management, fabrication, environmental testing, and flight testing of nine rocket-launched and four balloon-launched spacecraft which significantly advanced high altitude parachute technology, afforded timely publication of the results of the investigation and made a substantial contribution to scientific balloon technology." Members of the team are top photo, front row (from left): David P. Haynes, Granville L. Webb, J. W. Wilkey, Elmer J. Wolff, W. L. Newcomb, Titus Harrison, James E. Michael, C. P. Eichelberger, and C. S. Gilliland. Second row - R. L. McArthur, Vernon L. Alley, Richard W. Faison, Ross L. Goble, R. Bruce Grow, Charles A. Baldwin, Walter M. Cook, E. A. Council, and George W. Ivey. Bottom picture, front row - L. O. Harcum, Randolph M. Smith, W. L. Cutchins, Howard L. Pendleton, Lewis T. Dunaway, Dayton G. Wagner, A. B. Stacey, Tut B. Huffman, Lucille C. Coltrane, Helen B. Mulcahy, Remona R. Sturgill, Elva L. Rollins, Shirley L. Davis, Lahoma L. Hart, Linda R. Lee, Lula R. Agee, Edward G. Fink, and Allen B. Henning. Second row - Alvin Verell, Randy Powell, Robert Rhodes, J. R. Ellingsworth, George Lemke, Harold Pritchard, G. W. Johnson, Linwood Burcher, Karl Michaelis, Earle N. Koch, Russell K. Nevins, Paul L. Yeager, Thomas G. Campbell, Woodrow W. Johnson, James N. Chacamaty, Raymond D. Selby, E. Thomas Freeman, and Reginald R. Lundstrom. Third row - Joseph F. Dixon, Clyde G. Morgan, Rodney Smith, William R. Rash, E. N. Vandebree, Johnny P. Arrington, William Von Wald, Henry A. Smith, Henry F. Weber, Vernie H. Knight, Winn R. Vaughan, Charlie Johnson, James M. Munden, and Harold L. Decker. Fourth row - Charles Wood, William F. Veatch, Jacob E. Wagner, James L. Jones, William L. Gaster, James C. Ward, John C. McFall, James W. Youngblood, C. S. Laird, R. J. Bendura, C. H. Whitlock, R. R. Hall, E. K. Huckins, Johnnie Smith, H. N. Murrow, S. H. Scher, C. V. Eckstrom, W. L. Darnell, and Bradford Jones.

ASME MEETS JANUARY 16

Eric R. Morgan, Vice President of Jones & Laughlin Steel Corporation, will speak at a meeting of the Engineers' Club of the Virginia Peninsula on January 16 at 8 p.m. at Thomas Eaton Junior High School.

Morgan will speak on "Pollution Control in the Steel Industry." The degradation of our environment by air and steam pollution is today an important social and political issue. Industry, while not always the villian, does have a major responsibility for helping to prevent or control pollution of vital resources. The steel industry typifies the industrial approach to pollution control because of its great variety of potential sources of both air and stream pollution. The speaker will take the guests on a verbal and pictorial tour of an integrated steel company and will describe the pollution problems as they occur. There will be a frank discussion of these problems, the control actions already taken and plans for further corrective actions.

Morgan was born and educated in England. He received his degrees in Theoretical Physical Metallurgy from the University of Birmingham (England). In 1951 he immigrated to Canada and taught at the University of British Columbia. He joined Jones and Laughlin Steel Corporation in 1956.

The meeting will be preceded by a social hour at 6 p.m. followed by dinner at Eli's Restaurant. Reservations may be made by calling Paul Fournier, 3611 or 596-0758.

CAFETERIA FOOD PRICES TO INCREASE

Staff members at the Center will notice a small increase in the prices of some food items being served in the cafeterias. These increases were made effective after serious consideration by members of the Langley Exchange Council and are attributable to increased labor cost and rising food cost.

Every effort is being made to maintain prices at a minimum consistent with providing quality food and good service.

BOOKS FOR SALE

The following books are for sale by the NASA Exchange, telephone 2209:

Servomechanisms and Regulating Systems Design, Volume I by Chestnutt and Mayer

Servomechanisms and Regulating Systems Design, Volume II, by Chesnutt and Mayer

Complex Variable Methods in Science and Technology by J. Cunningham

Computer Programming by Flores

Communication Systems by Carlson

Conduction Heat Transfer by Schneider

Elements of Partial Differential Equations by Sneddon

Methods of Applied Mathematics by Hildebrand

Fundamentals of Acoustics by Kinsler and Frey

Contributions to the Theory of Nonlinear Oscillation by Cesari, LaSalle and Leftshetz (Princeton series-paperback)

Pertubation Methods in Fluid Mechanics by Van Dyke

Use of Handbook Tables and Formulas by Amiss and Jones (Based on Machinery's Handbook)

Time-Harmonic Electromagnetic Fields by Harrington

Tensor Analysis by Sokolnikoff

WANTED: Driving combination from Edgewood to W.A. on 8 shift, Ely, 3041.

APOLLO 8 EARTH VIEW: A striking view from the Apollo 8 spacecraft showing nearly the entire Western Hemisphere, from the mouth of the St. Lawrence River including nearby Newfoundland, extending to Tierra del Fuego at the southern tip of South America. Central America is clearly outlined. Nearly all of South America is covered by clouds, except the high Andes Mountain chain along the west coast. A small portion of the bulge of West Africa shows along the sunset terminator at the right.

LAST CHANCE TO PURCHASE BOOK

About 30 unfilled orders for the book "Exploring Space With a Camera" remain at the Activities Building. Since the reduced price of $3.25 can be had only when purchasing a lot of 100 or more copies, this notice is given that another order for the book will be placed with the Superintendent of Documents, Government Printing Office, if the demand warrants it.

Any staff member still desiring to purchase a copy of the book is asked to advise Bruce Amole, 4583, prior to January 16. More than 700 copies have been sold to date at Langley.

FOR SALE: Two rims, 1 new tire 670 x 13, mounted and balanced, from 1961 Falcon - $15. Fiorella, CH5-6833.

FOR SALE: Simmons hide-a-bed sofa, modern styling - $100. Lawson, 838-5043 after 5 p.m. on week days.

CREDIT UNION HAS BANNER YEAR

Climaxing a year of steady growth, the Board of Directors again announced an annual dividend of 5%. Paid on shares held December 31, this return was credited to the members' accounts on January 1. Remember it is 1969 interest income with the associated tax payable in 1970.

Membership now stands at 13,500; assets are at $8,800,000 - up substantial $900,000 over 1967; shares at $8,000,000; and loans at $6,200,000. Most encouraging is the improvement in the loans to shares ratio. Once under 70% and deteriorating, the trend changed in 1967 and in 1968 rose from 72% to 78%. With the new personal loan limit of $2500, continued improvement can be expected in this area.

Langley Researcher

VOLUME 8, NUMBER 2 LANGLEY RESEARCH CENTER JANUARY 24, 1969

TRIAL RETIREMENT PROGRAM UNDER CONSIDERATION HERE

Langley Research Center is considering the possibility of adopting a trial retirement program that would give qualified employees reemployment rights and an opportunity to take a one-year grace period before deciding on permanent retirement.

Under this program, the retiree would receive his full annuity. At the end of the one-year trial period, an employee would have the right to return to his former or a similar position, at the same grade and salary step.

Persons eligible to participate in the plan would be employees eligible for optional retirement. Employees eligible for optional retirement are persons 62 and older who have five years or more service; age 60 and older with 20 years or more service; and those 55 and older with 30 years or more service.

Employees eligible for either disability retirement or age retirement could not participate.

Complete information concerning the Trial Retirement Program will be made available to each employee after all details have been worked out and the plan published. Any immediate questions concerning retirement may be referred to James C. Tingle, extension 2605, or J. Norwood Evans, extension 2568.

GEORGE DOERNER AND ORCHESTRA TO PLAY FOR DANCE FEBRUARY 27

George Doerner, known as that Genial Southern Gentleman, and his orchestra, will be presented by the Activities Association at a dance on Thursday, February 27 at the Activities Building. Dancing will be from 8:30 p.m. until 12:30 a.m.

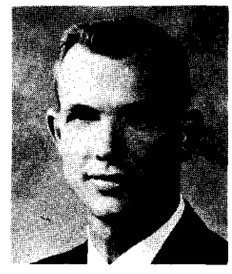
George Doerner

Admission will be four dollars per couple, including setups. Tickets may be purchased at the Activities Building. Reservations may be made with Bruce Amole, extension 4583.

After playing trumpet in college, Doerner played with the Johnny Mack orchestra at Myrtle Beach, S.C. He was brought to the attention of Tommy Dorsey, who hired him. He played two years with Dorsey, then two more years with Johnny Long, then a stretch with Jan Garber and his orchestra.

(Continued on page 8)

McDivitt



Scott

Schweickart

APOLLO 9 SCHEDULED FOR LAUNCH FROM CAPE KENNEDY FEBRUARY 28

The Apollo 9 flight, scheduled by the NASA for launch Feb. 28, will evaluate spacecraft lunar module systems performance during manned Earth orbital flight.

Apollo 9 is planned for liftoff at 11 a.m. EST from Kennedy Space Center. James M. McDivitt is spacecraft commander, David R. Scott is command module pilot, and Russell L. Schweickart is lunar module pilot.

Following insertion into a 109-by-112-nautical-mile Earth orbit, the crew will perform a simulated translunar insertion. This will be followed by command service module separation, transposition, and docking with the lunar module still attached to the rocket's third stage.

After extracting the lunar module from its adapter section, the docked spacecraft will maneuver away from the rocket stage.

Two unmanned restarts of the rocket stage are planned. The second restart of the rocket stage 80 minutes after the first, will boost the stage to Earth escape velocity.

The first spacecraft service propulsion system burn will occur between restarts of the rocket stage and will raise the Apollo orbit to 113-by-131 nautical miles.

During the second day in orbit, three service propulsion system burns are planned to obtain proper rendezvous lighting later in the mission. After the third burn, Apollo 9 will be in a 115-by-271-nautical-mile orbit.

During the third day of the mission, McDivitt and Schweickart will enter the lunar module through the connecting tunnel, power up its systems, and conduct a three-hour check of systems.

Following systems evaluation, a lunar module descent propulsion system firing of about 367 seconds duration will test lunar module attitude control capability and manual throttling of the engine. This will be done with the lunar module docked with the command/service modules.

The lunar module will be powered down and the crew will return through the tunnel to the command/service module. The service module 20,500-pound-thrust engine will be

(Continued on page 7)

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

AMATEUR ASTRONOMERS. . .A movie entitled "Star Gazing Under the Winter Sky" will be shown each Sunday afternoon through February 9 at the Peninsula Nature Museum and Planetarium located just off of J. Clyde Morris Boulevard. Two showings are scheduled each Sunday with the first one set for 3 p.m. and the second one at 4. Admission is fifty cents for children and seventy-five cents for adults.

CLASSIFICATION ASSOCIATION. . .Robert A. Myers, a classification specialist in the Classification and Organization Branch, Personnel Division, has been elected treasurer of the Hampton Roads Classification Association. Other newly elected officers of the group are: Kenneth C. Morris, Civilian Personnel Office, Fort Monroe, president; Don M. Mills, CAASA, Fort Eustis, vice president; Patricia J. Cannon, IRD, Naval Air Station, Norfolk, secretary; and Barbara M. Palmer, CIRO, Naval Station, Norfolk, and William A. Caldwell, Dow Badische Co., Williamsburg, members of the Executive Committee.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, January 29 at 7:30 p.m. at the Central Labor Union Hall.

PROFESSOR TO VISIT. . .Dr. J. B. Jones, Head of the Department of Mechanical Engineering, Virginia Polytechnic Institute, will visit the Center on Wednesday, January 29 to discuss the graduate program with staff members. Persons desiring an appointment with Dr. Jones may call Training Branch, extension 2517.

IAM MEETING NOTICE. . .The NASA Lodge No 892, International Association of Machinists, will hold its monthly meeting on Tuesday, February 6 at 7 p.m. at the Central Labor Union Hall.

FOR SALE: 16-inch Schwinn Pixie sidewalk bike for boy or girl - training wheels and kick stand included - $15. Deaton, 877-4976.

FOR SALE: Convertible 20-inch bicycle - $15; white vinyl brass-studded headboard for single bed frame - $5. Essick, 596-3674.

FOR SALE: 22-foot centerboard Deadrise sloop, Morgan jib, 5 hp inboard - boat and engine just overhauled - $1100; also 9-foot rowing and sailing dinghy, fiberglas over plywood - $125. Hunter, 596-2872.

CBS News Correspondent Walter Cronkite (second from left) prepares to simulate a "walk" on the moon at Langley Research Center's Lunar Walker. Assisting him in his rig and harness are (from left): Amos A. Spady, Aeronautical and Space Mechanics Division, and Jack L. Smith and Daniel R. Hamlin, both of Research Support Division. Cronkite's moon walk and other Langley applications of simulation are scheduled to be shown on "The 21st Century" TV broadcast Sunday at 6 p.m. on Channel 3.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of January 27:

Monday - Puree of bean soup, roast veal, grilled smoked ham, chicken croquettes, macaroni and wieners. Snack bar - Soup, hot dog, grilled ham, French fries.

Tuesday - Beef broth with barley, barbecued spare ribs, stuffed flounder, sauteed chicken livers, grilled cheese sandwich. Snack bar - Soup, grilled cheese, hot pastrami, French fries.

Wednesday - Vegetable-beef soup, roast beef, shrimp gumbo, veal stew with dumplings, fish cakes. Snack bar - Soup, fish sandwich, hot roast beef, hush puppies, French fries.

Thursday - Chicken-rice soup, chicken and dumplings, chuckwagon steak, knockwurst, grilled spiced luncheon meat. Snack bar - Soup, barbecued meat, chuckwagon steak, baked beans, French fries.

Friday - Manhattan clam chowder, corned beef and cabbage, fried oysters, stuffed peppers, chili con carne. Snack bar - Soup, sea dog, hot corned beef, French fries.

The menu for the week of February 3 is as follows:

Monday - Cream of potato soup, pot roast of beef, fried fish, grilled pork chops, franks and beans. Snack bar - Soup, hamburger, cheeseburger, pork loaf. German potato cakes.

Tuesday - Cream of tomato soup, fried shrimp, chicken pie, liver and onions, baked hash. Snack bar - Soup, ham and egg sandwich, flying saucer, French fries.

Wednesday - Chicken-noodle soup, pepper steak, boiled ham, fried chicken, Austrian ravioli. Snack bar - Soup, sea dog, Lou's satellite special, baked beans, French fries.

Thursday - Vegetable-beef soup, grilled rib eye steak, stuffed shrimp, baked ham loaf, chili-mac. Snack bar - Soup, hot dog, steak sandwich, French fries.

Friday - Manhattan clam chowder, braised short ribs of beef, broiled halibut steak, creamed dried beef on biscuit, Spanish omelette. Snack bar - Soup, fish sandwich, sliced turkey, hush puppies, French fries.

BORMAN PROMOTED TO NEW NASA JOB

Astronaut Frank Borman, Commander of Apollo 8, has been named Deputy Director, Flight Crew Operations, Manned Spacecraft Center.

The promotion to the division direction level includes responsibilities for activities of the Astronaut Office, the Aircraft Operations Office and the Flight Crew Support Division. Director of Flight Crew Operations is Donald K. Slayton.

"Frank has a tremendous background in engineering, flight test and as an instructor," Slayton said. "He will be of enormous help to us in assuring proper pilot training in the critical months ahead."

Prior to the historical Apollo 8 flight around the Moon in December, Borman, a USAF Colonel, performed a variety of special duties, including backup command pilot for the Gemini 4 flight and member of the Apollo 204 Review Board.

As command pilot of NASA's history-making Gemini 7 mission, launched Dec. 4, 1965, he participated in establishing a number of space "firsts" - among which are the longest manned space flight (330 hours and 35 minutes) and the first rendezvous of two manned maneuverable spacecraft as Gemini 7 was joined in orbit by Gemini 6. He was selected as an astronaut by NASA in September 1962.

Borman entered the Air Force after graduation from the U.S. Military Academy at West Point and received his pilot training at Williams Air Force Base, Ariz.

From 1951 to 1956, he was assigned to various fighter squadrons in the United States and the Philippines. He became an instructor of thermodynamics and fluid mechanics at the USMA in 1957, and subsequently attended the USAF Aerospace Research Pilots School from which he graduated in 1960. He remained there as an instructor until 1962. He has accumulated over 5,500 hours flying time, including 4,500 hours in jet aircraft.

Awards to Astronaut Borman include the NASA Distinguished and Exceptional Service Medals, Air Force Astronaut Wings, and Air Force Distinguished Flying Cross; recipient of the 1966 American Astronautical Flight Achievement Award and the 1966 Air Force Association David C. Schilling Flight Trophy; co-recipient of the 1966 Harmon International Aviation Trophy; and recipient of the California Institute of Technology Distinguished Alumni Service Award for 1966.

Born March 14, 1928, in Gary, Indiana, Borman grew up in Tucson, Arizona. He received a Bachelor of Science degree in Aeronautical Engineering from the California Institute of Technology, Pasadena, in 1957.

He is married to the former Susan Bugbee of Tucson. They have two sons, Frederick and Edwin.

BOOKS FOR SALE

The following books are for sale by the NASA Exchange, telephone 2209:

Introduction to Electromagnetic Fields and Waves by Corson and Lorraine

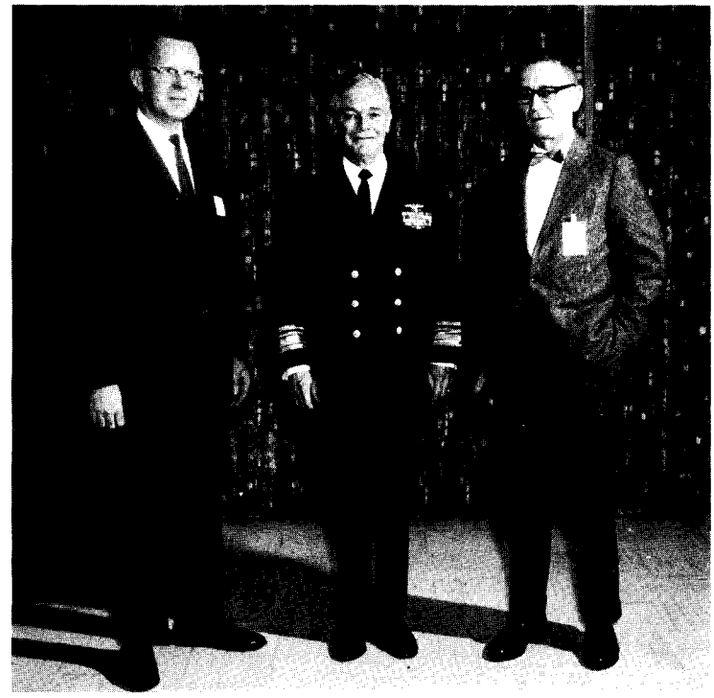
Thermodynamics by Lewis and Randall (Revised by Pitzer)

Complex Variables and Applications by Churchill

Quantum Mechanics by Schiff

Digital Transistor Circuits, Volume 6 of SEEC Series, by Harris, Gray and Serle

Classical Mechanics by Goldstein



LANGLEY Research Center hosted a Civil Service Commission sponsored seminar on "The Federal Manager's Role in Equal Employment Opportunity" on January 7-9. Approximately 50 persons representing all Federal agencies in the local area attended. Keynote speaker for the seminar was Rear Admiral James C. Dempsey, Commandant of the Fifth Naval District, shown above with John J. Lafferty (left), Civil Service Commission Representative from Norfolk, and T. Melvin Butler, Assistant Director for Administration at Langley.

EVENING COURSES OFFERED

The Evening College classes of Christopher Newport College will start February 3. The last day to register by mail is January 27 and the final date for registration is January 30 from 7 to 9 p.m. at Ratcliffe Gymnasium.

The curriculum of the Evening College is similar to that offered in the Day College. It includes a few non-credit courses designed to prepare adults for more rigorous credit classes in English and Mathematics. The major portion of course offerings are at the freshmen and sophomore levels with a few junior courses available. The instructors used to teach are for the most part members of the regular day faculty.

Courses are being offered in the following subjects: Biology, Business, Chemistry, Cooperative Distribution, English, Economics, History, Mathematics, Physics, Psychology, Sociology, Speech, French, German, and Spanish.

JPL CONTRACT RENEWED

The Government's contract for the operation of the Jet Propulsion Laboratory has been renewed for a period of three years.

JPL operates a major installation of the NASA, under a cost-plus-fixed-fee contract between NASA and the California Institute of Technology. The Government owns the property, facilities and equipment. Cal Tech staffs and operates it.

The original contract with NASA was revised in December 1964 and the action just concluded extends it through December 31, 1971.

EFFECTIVENESS OF STUDDED TIRES

The studded tire has caught the fancy, in less than a decade, of a steadily increasing proportion of automobile drivers. As with many new products, the studded tire achieved popular acceptance before careful scientific research had established its precise operating characteristics and best use.

Tires were offered with as few as 50 studs and as many as 150 studs. Some motorists mounted studded tires on their rear wheels only, some on front wheels only, and some on all four wheels. In the meantime, a number of studies were being carried out -- mostly on behalf of highway departments and legislatures -- in an effort to determine quickly how much damage tire studs might do to pavements.

Acceptable evidence is now at hand that studded tires can, under certain conditions, significantly improve braking and traction on ice. It is also clear that studded tires do speed up pavement wear. This makes it a matter of public interest to establish the trade-offs, so that studs will be used in a way that will maximize vehicle performance and minimize highway damage.

Cornell Aeronautical Laboratory conducted a series of vehicle tests on specially flooded and frozen areas at Stevens Point, Wisconsin, concurrent with the 1966 Winter Driving Hazards Program tests carried out by the National Safety Council. The CAL research on braking and traction correlated studded tire data compiled from its own test data and from tests by a number of other research groups.

Suppose you are driving along at 20 mph and find yourself on ice. You slam on the brakes. How far will your car slide?

About 170 feet, if you have typical highway tires all around. And just about the same distance, if you have regular snow tires on the driving wheels.

140 feet, if you have studded snow tires on two wheels.

115 feet, if you have studded snow tires on all four wheels. That's a reduction in skid of 33%, or nearly three car lengths.

But there's a proviso: these figures apply only to skids on ice close to 32 degrees F.

Research at Cornell Aeronautical Laboratory shows that of the half-dozen or more factors which bear on the relative effectiveness of studded tires, the temperature of the ice holds a position at the top of the list. Studs exert their greatest stopping power on ice near the melting point (where, incidentally, the skid hazard is greatest). As the ice temperature falls, the studs lose their effectiveness. Extrapolation of existing data, which go only to -5 degrees F, indicates that studded tires will have no more braking power at -10 degrees than ordinary snow tires.

Some of the other CAL findings concerning the relation between tires and braking on ice are as follows:

Tire Brands. Friction coefficients for some brands of studded tires were found to be as much as 15% higher than coefficients for other brands.

Number of Studs. Adding more circumferential lines of tires increases braking power, up to a total of at least 260 studs. However, simply increasing the number of studs in the same number of lines offers no distinct increase in effectiveness.

Placement of Studs. Tire manufacturers generally have modified existing tread molds to provide holes for studs, rather than designing new treads to provide greatest stud effectiveness.

Stud Protrusion. In test runs, studs which extended .045 inch beyond the tire surface provided an average of 11% more braking power than studs which projected .029 inch. Both long and short studs have greater braking power near freezing temperature than at zero.

Effect of Wear. The RCAF drove a vehicle with four studded tires 5,300 miles, mostly on dry pavement. The front tires wore .08 inch and the studs in those tires wore down by an equal amount. The rear tires wore .30 inch and the studs in those tires wore .11 inch, but stud protrusion remained relatively constant; apparently the studs worked themselves deeper into the rear tires as the treads wore away.

As studs wear, their sharp ends disappear and the ends assume a semi-spherical shape. The combination of worn tire and worn studs has less braking power than new tires with new studs.

Braking on Bare Pavement. Stopping distances for tires with up to 100 studs are usually within 1% of stopping distances for unstudded tires, on both wet and dry pavement. With more studs, stopping distance gradually lengthens; the increase is about 4%, at most, for tires with 144 studs.

As for acceleration and "holding the road" on icy pavements, studs appear to improve traction by about the same percentage that they improve braking.

(Extracted from "Research Trends," Autumn 1968 issue. Permission to reprint received from Cornell Aeronautical Laboratory, Inc.)

THOMAS K. Lusby (left), Fabrication Division, and Glenn A. Gates, Research Models and Facilities Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance. Lusby received his award for "his outstanding skill and ingenuity in coordinating the scheduling and testing of electronic circuitry for aeronautical and space research and for his superior work in fabricating microminiaturized circuitry." Gates was cited for "sustained superior performance in planning, drafting, and placing into operation high pressure fluid handling systems in a most efficient manner which has permitted the continuation of timely research efforts."

FOR SALE: Professional stereo tape recorder, Roberts Model 770X - $240. Samos, 244-7508.

TECHNOLOGY UTILIZATION NEWS

Manned space flight efforts by NASA are continuing to benefit mankind in the medical field. Space flight medical monitoring systems, for example, enable doctors here on Earth to constantly observe an Apollo astronaut's physical condition, even when he is in the vicinity of the moon. The same type of equipment can be used in an ambulance to relay information on the condition of an accident victim while enroute to a hospital. Doctors in the emergency room would thus be better prepared to save the victim's life.

Most physiological conditions can be measured and transmitted, including heart rates (EKG), blood pressure, temperatures, respiration, and brain waves (EEG). Details of the measurement techniques, instrumentation, and biomedical data processing are contained in the latest NASA Special Publication (SP-5054) entitled "NASA Contributions to Bioinstrumentation Systems," a 97-page survey.

The Biomedical Application Teams, incidentally, are still seeking solutions to a number of outstanding biomedical problems. The Technology Utilization Office maintains a list of these problems and solicits your ingenuity and cooperation in solving them. Please call 3281 for details or for your copy of SP-5054. A brochure explaining The important functions of the Biomedical Application Teams is also available.

POTTERY MAY CONTAIN POISON

Safety Newsletter, published by the National Safety Council, recently ran an article on "Pitcher Poisons." The article is reprinted here for the benefit of staff members.

"Two children were hospitalized for lead poisoning and all the family were found to have abnormally high lead concentrations ranging from 67 to 144 micrograms.

"Tests showed that a single washing of a colorful Mexican pottery pitcher with 25 ml of 5 per cent acetic acid contained 1/16 gram of pure lead (precipated as lead chromate). The pitcher had been received as a gift from friends residing in Mexico and was being used as a refrigerator container for fruit juices.

"Most firing glazes contain lead oxide. Unless the kiln can attain and maintain 1382° F, the lead of imperfectly fired glazes can be leached out by food and drinks."

BEWARE OF STRAY ANIMALS

During the past several months two person have been bitten by "wild" cats in Center buildings. Medical treatment was administered and the animals quarantined. The bites were suffered in both cases while attempting to catch the animals to eject them from the buildings.

In order to avoid future incidents, it is requested that anyone having knowledge that stray animals are frequenting buildings report their presence to principal facility coordinators or to Burley Miller, extensions 3238 or 3305. The pest control contractor will arrange for removal of the offending animals.

It has been reported that in some cases the animals are encouraged to stay in or around the building by receiving food from persons occupying the buildings. Principal facility coordinator and organizational heads are asked to discourage this practice, if they are aware that it is taking place.

FOR SALE: Male and female Gerbils. Holley, 722-7178.

William Gracey

Emilie C. Coe

John L. Hudson

THREE STAFF MEMBERS RETIRE

Three staff members retired this month with a combined total of over 98 years of Federal service. The retirees are William Gracey, AST, Fluid and Flight Mechanics, Airworthiness Branch, Flight Mechanics and Technology Division; Emilie C. (Patsy) Coe, Supervisory Mathematician, Computing Unit, Applied Materials and Physics Division; and John L. Hudson, Assistant Chief of Research Models and Facilities Division.

Gracey attended the University of Pennsylvania and received his B.S. and M.S. degrees in Chemistry from the College of William and Mary. He joined the Center staff on January 6, 1936 as a scientific aide in the Flight Research Division. In 1947 he was named head of the Instrumentation Section of Flight Research Division and in 1950 he became Division Executive Engineer. Before joining NASA he worked as a chemist for Proctor and Gamble in Portsmouth.

Miss Coe is a native of Front Royal. She received her B.A. degree in Mathematics from Randolph-Macon College and was associated with the National Congress of Parents and Teachers in Chicago before joining NASA. She entered on duty at the Center on September 26, 1938 as a Computer.

Hudson was born in Portsmouth. He graduated from Churchland High School and received his B.S. degree in Physics from the College of William and Mary. From 1920 to 1928 he was a principal in the Norfolk County Public School system. Before joining NASA he worked for the U.S. Department of Engineers and the U.S. Navy Yard in Norfolk. He started his NASA career on July 26, 1937 as a scientific aide. In 1945 he was named Division Executive of the Engineering Service Division and in 1949 was appointed Assistant Head of Construction and Electrical Engineering Branch in 1949. His other appointments included Head of Construction Engineering Branch in 1954, Head of General Engineering Branch in 1956, Head of Engineering Projects Analysis Office in 1960, and Assistant Chief of RMFD in 1962.

FOR SALE: Rolleiflex with 3.5 Zeiss planar lens and built-in meter; Minetta 3R-1, 1.8 auto Rokkor lens, clip on cds meter. Lane, 723-4307.

FOR SALE: Remington electric adding machine, 10 keys - $45. Watkins, 596-1924.

FOR SALE: 1957 Oldsmobile '98, 4-door. Carmines, 868-3341.

WANTED: Alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3247.

FOR SALE: 1960 Plymouth station wagon - $295. Childs, 898-6719.

AIAA ELECTS SEAMANS PRESIDENT

Members of the American Institute of Aeronautics and Astronautics have elected Dr. Robert C. Seamans Jr. to be their president for 1969, the 32,000-member professional society announced.

Seamans, who has been appointed Secretary of the Air Force, succeeds Dr. Floyd L. Thompson, former Director of Langley Research Center, who continues as a director of the Institute.

Edgar M. Cortright, Director of Langley Research Center, was elected a member of the Board of Directors. Also elected as a director was Charles W. Harper, Deputy Associate Administrator (Aeronautics), Office of Advanced Research and Technology, NASA Headquarters.

Seamans, who resigned last year as Deputy Administrator of NASA, was a visiting professor of aeronautics at Massachusetts Institute of Technology until his appointment to become the civilian chief of the Air Force.

KAMM APPOINTED NASA CONSULTANT

Robert W. Kamm, former Langley staff member who retired from NASA last year, has been appointed consultant to Harold B. Finger, Associate Administrator for Organization and Management.

Kamm, who was Director of the Western Support Office for nearly nine years, is now Assistant to the Director of the Space Institute of the University of Tennessee.

As a consultant, he will advise Finger on technical management, policy and planning and relations between NASA and the universities and industry.

A native of Minneapolis, Kamm earned a degree in aeronautical engineering at New York University. For six years he did stability research at Langley Research Center, then worked for the Martin Company, the Research and Development Board, and the Arnold Engineering Development Center.

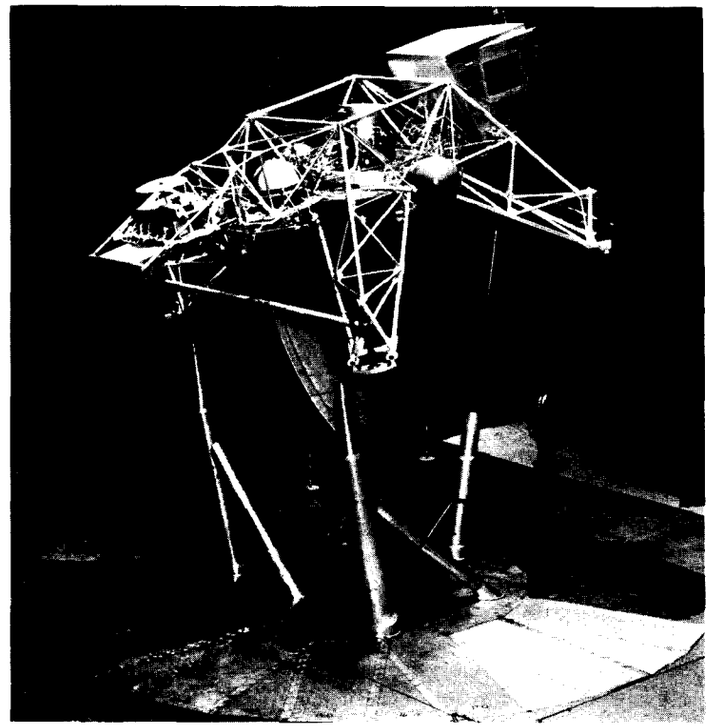
CREDIT UNION NOTICE

As part of the annual audit of the Langley Federal Credit Union, the Supervisory Committee has mailed statements of share and loan accounts to all members. Those who do not receive statements are requested to notify the Chairman, Supervisory Committee, P.O. Box 607, Langley Air Force Base, Virginia 23365.

Members are also requested to check their records and to report any discrepancies to the Supervisory Committee at the above address. Please do not contact the Credit Union Office. Please note that the date of the audit is December 31. The January 1, 1969 dividend and any other transactions after December 31 will appear on the next semi-annual statement issued as of June 30.

CREDIT UNION AUCTION: On Wednesday, January 29, at 1 p.m. the Credit Union will sell a 4-door, 1965 Galaxie 500, as is, to the highest bidder. Car may be seen on the Credit Union parking lot anytime between 8:30 a.m. and 3:30 p.m. Excellent chance to acquire a good second car at a bargain.

FOR SALE: 2-story, 10-room house with hot water heat and central air conditioning - 5 bedrooms, office, family room - 2740 sq. ft. living area plus 400 sq. ft. shop-utility room and patio. FHA approved for $32,000. Hassell, 851-3359.



NASA's lunar landing simulator has been installed for study of flight characteristics in the Full-Scale Wind Tunnel. The measurements of static stability are being made at the request of an accident investigation board at Manned Spacecraft Center where an identical craft was destroyed in a crash last December 8. Known as the Lunar Landing Training Vehicle (LLTV), the machine has a jet engine whose downward thrust makes up for 5/6 of the Earth's gravity, thus simulating Moon's gravity. It is controlled by small rocket thrusters like those of the Apollo spacecraft which astronauts will land on the Moon.

CREDIT UNION NOMINATIONS

The annual meeting of the Langley Federal Credit Union will be held on February 18. Part of the business will be the election of three directors and three members of the Credit Committee.

Credit Union members may submit nominations for any of these positions to the Chairman, Nominating Committee, Langley Federal Credit Union, Langley Air Force Base, Virginia 23365. They must be received no later than February 10.

TWO STAFF MEMBERS DIE

Sanford D. Saunders, Stores Attendant, Procurement Division, and Marvin G. Lambert, Experimental Machinist, Fabrication Division, died this month.

Saunders was born October 2, 1908 in Manteo, North Carolina. He graduated from Holland High School, Holland, Va., and attended Norfolk Business College. He joined the Center staff on October 21, 1948 as a Storekeeper.

He is survived by his wife, Mrs. Leila M. Saunders, two stepdaughters, and a stepson.

Lambert was born February 16, 1926 in Richmond. He attended Virginia Polytechnic Institute and served in the Navy from 1943 to 1946. He entered on duty at the Center on February 2, 1948 and graduated from the Apprentice School as a machinist in 1953.

He is survived by his widow, Mrs. Marjorie M. Lambert.

APOLLO LAUNCH SCHEDULED

(Continued from page 1)

fired to circularize the orbit at about 133 nautical miles.

On the fourth day McDivitt and Schweickart will again transfer to the lunar module and prepare for an extravehicular return to the command module. Schweickart will put on the extravehicular maneuvering unit and perform about a two-hour space walk. This will include transfers between the lunar and command modules, collection of thermal samples, evaluations of EVA lighting provisions, extravehicular maneuvering unit evaluation, and selected photography and TV operations. The crew will then secure the lunar module and return to the command module through the docking tunnel.

A manned lunar module-active rendezvous is planned for the fifth day. This will begin with a command/service module reaction control system separation burn. The lunar module will complete a sequence of maneuvers, including a descent propulsion system burn, lunar module staging, and ascent stage docking with the command/service module some six hours later.

An unmanned lunar module ascent stage propulsion system burn-to-depletion is planned at the end of the day. The burn will be initiated by ground command.

During the balance of the 10-day flight, two service propulsion system burns to change orbital parameters and another to deorbit the spacecraft are planned.

Touchdown is planned in the prime recovery area, 33 degrees north latitude and 60 degrees west longitude, about 1,000 nautical miles east of Cape Kennedy.

XB-70 RESEARCH PROGRAM ENDS

NASA has announced termination of the joint NASA-DOD XB-70 flight research program.

Because of its large size and supersonic speed capability, the XB-70 has been a productive flight research vehicle for studying sonic boom, flight dynamics and handling problems associated with the development of advanced supersonic aircraft.

The XB-70 was built by North American Rockwell Corp., for the U.S. Air Force as a high speed bomber prototype. Only two aircraft were constructed when it was decided to use them for research. The number two aircraft was destroyed June 8, 1966, in a mid-air collision.

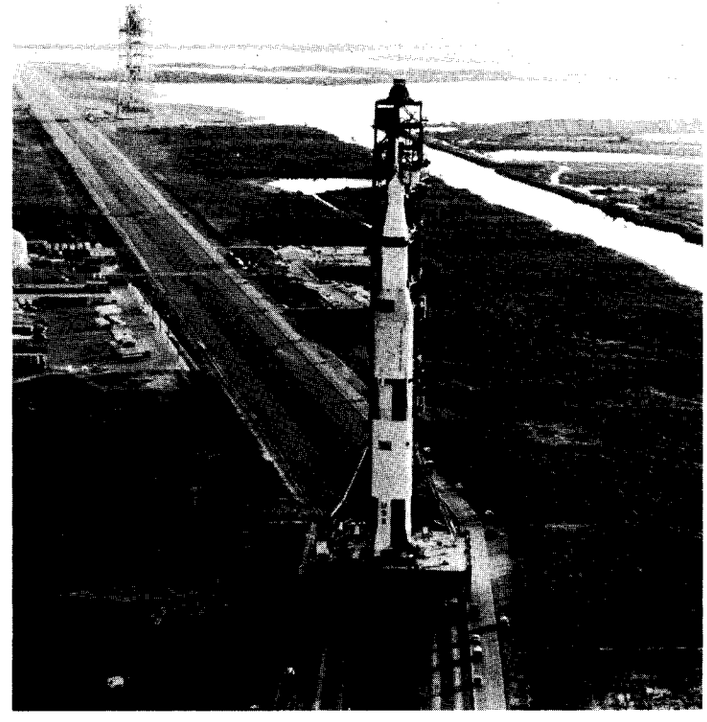
NASA assumed management responsibility for the joint flight research program in March 1967.

The first XB-70 flight was made September 21, 1964. A top speed of three times the speed of sound (about 2,000 miles-per-hour), and a peak altitude of 74,000 feet have been attained during the four-year flight program.

The aircraft will be flown from Flight Research Center to Wright Patterson Air Force Base where it will be turned over to the USAF Museum. Date and final flight plans will depend on weather; however, plans call for the aircraft to fly at subsonic speed to permit a chase plane to accompany the bigger aircraft.

On the 2,000-mile flight, NASA plans to gather research data on handling qualities of the airplane and its structural response to air turbulence.

FOR SALE: 12-foot Jon boat - $50. Bright, 868-6530.
WANTED: Passengers or driving combination from vicinity of Gloucester Point to W.A. on 7:30 shift. Beckwith, 4677.



LOOKING EASTWARD from roof of Vehicle Assembly Building, the 363-foot-high Saturn V space vehicle that will launch Apollo 9 Astronauts James McDivitt, David Scott and Russell Schweickart, is carried atop transporter along Crawlerway to Launch Complex 39's Pad A. The transporter moved the rocket and its mobile launcher along the 3-1/2-mile roadway at an average speed of one-half-mile-per-hour after rollout from the Vehicle Assembly Building's High Bay 3.

APPRENTICE CLASSES START FEB. 3

The Langley Apprentice School will start its spring semester on February 3 and classes will be held in Building 586. Courses offered and instructors are as follows:

Monday and Wednesday - College Algebra, J. L. McCarty, and Blueprint Reading and Sketching, J. L. Puffenberger.

Tuesday and Thursday - Engineering Drawing II, W. M. Cooke and R. W. Buchan; Handbook, J. W. Simpson; and Fundamentals of A.C., A. L. Jones.

Friday - Trade Fundamentals (Elect.), R. E. Campbell, and Trade Fundamentals (Mech.), J. R. Davenport.

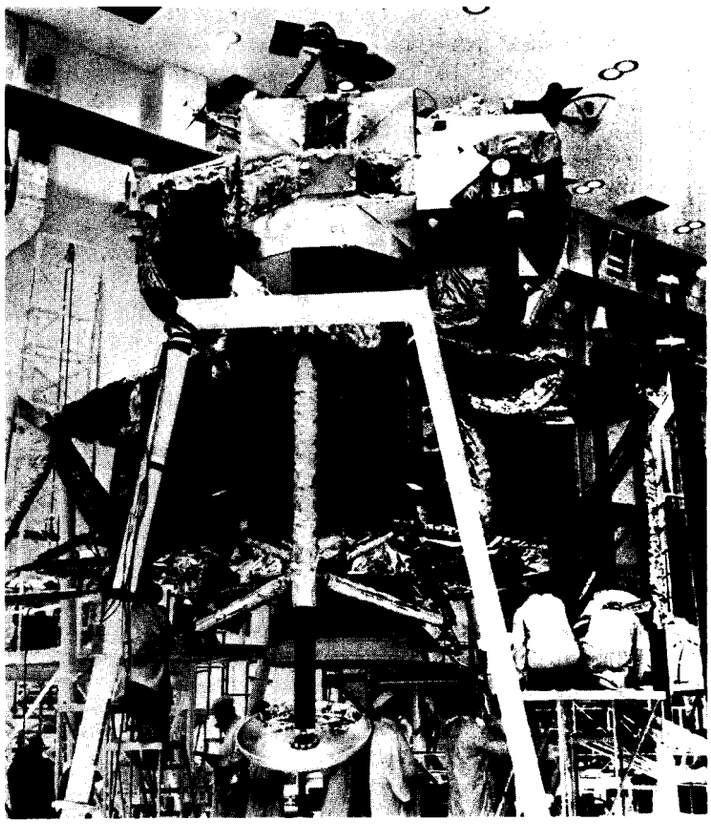
Chemistry classes will start on March 31 and will be held at Thomas Nelson Community College. The Chemistry lecture class will be held on Monday and the Chemistry labs will be held on Wednesday and Friday.

FOR SALE: Set of three wireless talk/listen/monitor intercoms - $30. Sawyer, 722-8970.
FOR SALE: Five Colonial dining room light fixtures. Lockett, 595-6262.
FOR SALE: 4-bedroom, 2-story house with 2-1/2-baths, attached garage, fenced yard - located in Bethel Park. Muraca, 826-6607.
LOST: Library book "Fortran IV - Self-Taught" by Farino. McCormick, 4766.

NASA Langley Research Center
Langley Station
Hampton, Virginia 23365

The telephone system at the Langley Research Center is being modified to permit direct-in-dialing on all calls. The changeover to the new Centrex system will take place on February 16, 1969. Effective that date, you may reach me by dialing my number directly, 827-_____. The area code for the State of Virginia is 703. You might wish to make a note of my new number for future reference.

SPREAD THE WORD: All telephone numbers will change when the Langley Research Center converts its telephone system to Centrex service on February 16. The post card pictured above is available from your Time and Attendance Clerk and should be used by all employees to notify outside business contacts of your new telephone number. The postage free card should be used in late January so business callers will not be inconvenienced by having to get new numbers through the information operator. Number plates on telephone instruments are being changed to the new 827 prefix. A new Center telephone directory will be distributed before February 16. The Communications Section personnel hopes all employees will use the post card and other information on the telephone conversion so that the change on February 16 will not hinder work at the Center and cause a minimum amount of inconvenience.



LUNAR Module 4, which will fly on the Apollo 10 lunar mission, is shown having its landing gear attached in the Manned Spacecraft Operations Building at Kennedy Space Center. Apollo 10 will be flown by Astronauts Thomas P. Stafford, John W. Young and Eugene A. Cernan.

THE COMEDY team of Lewis and Kip Kimberly will be featured with George Doerner and his orchestra at the Activities Building on Thursday, February 27.

GEORGE DOERNER AND ORCHESTRA

(Continued from page 1)

Doerner patterns his musical stylings after Garber, the dean of the dance band field.

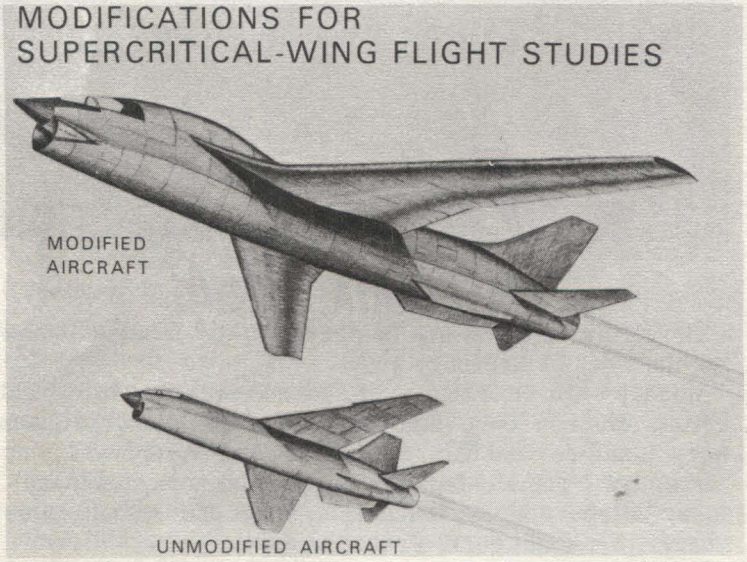
The orchestra will present a 45-minute show featuring acrobatics by the Four Keppo's and the team of Lewis and Kip Kimberly.

Now rated as the new comedy find of 1968, Lewis and Kip blend a mixture of song, dialogue, music and dancing into a sensational routine. Their quick changes of mood and costume keep the youthful team moving at a furious pace. There is excitement from start to finish in their presentation of comedy at its sophisticated best.

FOR SALE: Hid-a-bed - $75. Fox, 877-3266 after 5 p.m.
FOR SALE: Snow tires, 7.35 x 13, with 4 lug rims. Morris, 723-8686.
WANTED: Alternate drivers from Hunt Club Terrace-Lynnhaven area to W.A. on 8 shift. Conway, 3194, or Morris, 3431.
FOR SALE: 15-1/2-foot Thompson Lapstrake boat with 30 hp Evinrude motor and two 6-gallon gas tanks - $375. McClelland, 868-9151.
FOR SALE: 1963 Monza coupe - $375. Verser, 868-4731.
FOR SALE: Top carrier and trailer hitch for Volkswagon-$20. Davis, 877-9042.

Langley Researcher

VOLUME 8, NUMBER 4 LANGLEY RESEARCH CENTER FEBRUARY 7, 1969



THE LANGLEY-developed supercritical wing will be tested in flight by Flight Research Center on a modified Navy F-8 jet fighter aircraft.

LANGLEY-DEVELOPED SUPERCRITICAL WING TO BE FLIGHT-TESTED BY NASA

Dr. Richard R. Whitcomb

NASA will evaluate the potential of a new airfoil shape that could substantially improve the performance and efficiency of future aircraft, particularly commercial jet transports. A wing, called the NASA supercritical wing, will be tested in flight by Flight Research Center on a modified Navy F-8 jet fighter aircraft.

The supercritical wing was developed at Langley Research Center as a result of wind-tunnel studies conducted by Dr. Richard T. Whitcomb, Head of 8-Foot Tunnels Branch, Full-Scale Research Division. The wing utilizes a new airfoil shape with a flat top and downward curved rear section as opposed to the curved top and sloped rear section of a conventional wing.

If the performance measured in Langley's wind tunnel tests is fully achieved in flight, the new airfoil shape could allow highly efficient cruise flight near the speed of sound, approximately 660 mph at a cruising altitude of 45,000 feet.

(Continued on page 5)

CENTREX TELEPHONE SYSTEM TO SERVE CENTER FEBRUARY 16

Centrex (Central Exchange), the new modern telephone system, will be placed into operation at the Langley Research Center on Sunday, February 16. It will be the first installation of this type on the Peninsula.

The Chesapeake and Potomac Telephone Company of Virginia is completing the testing on the Centrex system which will bring to the Center one of the most flexible, up-to-date communication systems in the world.

The cord switchboards, familiar to most people, will disappear from the Langley communications center and in their place will be four desk-top consoles with pushbutton controls. At these consoles, not much larger than a typewriter, operators will depress buttons to perform the same functions they did with cords and keys.

One of the biggest advantages of Centrex is that it gives you the same kind of direct, fast and personal telephone service at LRC that you have at home. There will be no more delays while calls come in through the switchboard because everyone will place calls direct by dialing the individual telephone number. For best results, all those calling you should be encouraged to dial your telephone direct.

You will be able to dial your own "off Center" calls just as you do now. You will reach another extension by dialing the four digit extension number.

Several new features are being installed into this new communications system. For instance, it will be possible to transfer incoming "off Center" calls, if necessary, without the assistance of the LRC operators. The "Con-

(Continued on page 3)

THE CENTREX equipment receives a final inspection before the new telephone exchange is placed into operation at the Center on Sunday, February 16.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

ENGAGEMENT. . .Mary Lou Staton, Aero-Physics Division, has announced her engagement to Garland S. Hudson, West Virginia University. The wedding will take place on May 31.

COMMUNITY ACTIVITIES. . .Approximately 400 questionnaires concerning participation of staff members in community activities have been turned in by employees. Results of the survey are being compiled. Persons who have not returned the questionnaire and who wish to do so are requested to send them to J. Norwood Evans, M.S. 307.

FLYING CLUB. . .The Icarian Flying Club will hold its annual dinner-dance on Saturday, February 22. Tickets are five dollars each and may be purchased from Paul Kurbjun, 3281; Bob Champine, 4511, or Norman Crabill, 3081.

REPRESENTATIVES TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on February 12 from 9 to 10 a.m. Anne Shepherd, Government-wide Service Plan representative, will be here on February 19 from 1 to 2 p.m. Employees having problems or questions concerning either plan may call Lois Taylor, 2605, for an appointment.

SKYWATCHERS. . .The Langley Skywatchers Club will meet on Thursday, February 13 at 7:30 p.m. at the Peninsula Nature Museum and Planetarium located at 524 J. Clyde Morris Blvd. The session (third in the series) will be conducted by Ian O. MacConochie, Flight Vehicles and Systems Division. The subject will be "'Un-empty' Space."

GOLDEN ANNIVERSARY. . .The Alumni Association of the Newport News Shipbuilding and Dry Dock Company will celebrate its 50th anniversary with a banquet on Friday, March 14 at the Williamsburg Lodge. A special celebration is planned. Each alumnus must have paid his 1968 dues, which expire on March 31, in order for him to attend the banquet. The speaker for this special occasion will be announced later. There will only be room for about 600 persons at the banquet. The tickets will be sold on a first come first served basis. All questions should be directed to Ray Goodman, extension 3231.

FOR SALE: 1963 Buick Wildcat, 2-door sports coupe, fully equipped, less than 24,000 miles - $1500. Lambert, 244-2369.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of February 10:

Monday - Puree of bean soup, baked Smithfield ham, veal cutlet, chicken chop suey, macaroni and wieners. Snack bar - Soup, deviled ham, hot pastrami, French fries.

Tuesday - Tomato-barley soup, roast pork, fried scallops, Salisbury steak, tamale pie. Snack bar - Soup, hamburger, hot roast pork, French fries.

Wednesday - French onion soup, roast ribs of beef, fried croaker, spaghetti and meat sauce, western omelette. Snack bar - Soup, western omelette, roast beef, French fries.

Thursday - Vegetable-beef soup, grilled steak, broiled Canadian bacon, fried chicken, grilled cheese sandwich. Snack bar - Soup, grilled cheese, steak sandwich, French fries.

Friday - New England clam chowder, pot roast of beef, grilled smoked ham, broiled perch, baked hash. Snack bar - Soup, sea dog, fried ham, corn fritters.

The menu for the week of February 17 is as follows:

Monday - Cream of tomato soup, braised beef tips, grilled pork steak, Polish sausage, cheese omelette. Snack bar - Soup, hot dog, grilled pork loaf, corn fritters.

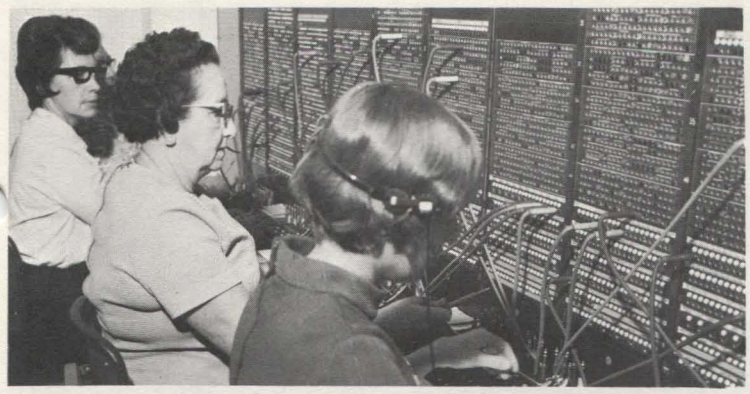
Tuesday - Beef broth with barley, baked ham, beef stew, sauteed chicken livers, fish cakes. Snack bar - Soup, fish sandwich, baked ham, hush puppies, baked beans.

Wednesday - Vegetable-beef soup, roast beef, stuffed flounder, smoked pork sausage, chili con carne. Snack bar - Soup, barbecue, hot roast beef, French fries.

Thursday - Cream of chicken soup, chopped steak, beef pie, fried chicken, franks and beans. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Manhattan clam chowder, hot turkey sandwich, fried croaker, liver and onions, Austrian ravioli. Snack bar - Soup, sea dog, sliced turkey, hush puppies, French fries.

NOTICE: A new base traffic regulation prohibits the operation of trucks in excess of 1/2-ton capabity on Dodd Boulevard in the East Area. The use of alternate route around Dodd Boulevard is requested. This is brought to the attention of Center personnel and appropriate supervisors are requested to bring this new change to the attention of NASA contractors who may be operating trucks larger than 1/2-ton capacity on the base.



BEFORE AND AFTER: Demonstrating the old cord switchboard system are LRC operators (from left): Bela Park, Robena Watkins, and Marie Barbour. Bela Park (right) operates one of the four pushbutton desk-top consoles which will be used with the new Centrex system. The new telephone system will be placed into operation Feb. 16.

CENTREX TELEPHONE EXCHANGE

(Continued from page 1)

sultation Hold" feature will permit you to hold an incoming call (without using your "Hold" button), originate a call to another extension and consult privately, then return to the original caller. The consulted party may be "added on" if desired, allowing the three of you to talk.

Two types of conference equipment are being provided - extension controlled and operator controlled. Extension controlled permits the extension user to establish the conference with up to five conferees, plus the originator, without the assistance of an operator. All five may be LRC extensions or four extensions and one IDS or FTS. An "off Center" number can be added on by the LRC operator. Operator controlled is established by the LRC operator.

Post cards are available from your Time and Attendance Clerk and should be used by all employees to notify outside business contacts of your new telephone number. The postage free card should be used now so business callers will not be inconvenienced by having to get new numbers through the information operator.

CENTREX DIALING INSTRUCTIONS

Effective February 16, 1969, the New Listed Number for Langley Research Center is 827–1110. Tell everyone to dial you directly. Your extension number is the last four digits of the 827 number shown on your telephone.

INTERNAL CALLS: Dial only the four-digit extension number.

OUTGOING LOCAL CALLS: Dial "9" and listen for second dial tone. Dial seven-digit number.

IDS CALLS: Refer to Langley Directory for new IDS agency codes.

FTS CALLS: Dial "88" for FTS dial tone. Dial area code, then seven-digit FTS number.

NORFOLK or ASSISTANCE: Dial "0" for your Langley operator.

TRANSFER CALLS (Incoming off-Center calls only): Depress switchhook firmly, listen for dial tone, then dial four-digit extension number. When extension answers, announce call then hang up. If busy, depress switchhook once and inform caller.

CONSULTATION HOLD & ADD ON (Incoming off-Center calls only): Depress switchhook firmly and listen for dial tone. When dial tone is received, the incoming party is automatically placed on "Hold." Dial four-digit extension number. When the extension answers, the originating extension can consult privately with the called extension. At the end of the consultation, one of two things will happen. The consulted party will terminate the call by hanging up or will be ADDED ON by holding the line. The originator depresses the switchhook and continues the conversation with the original extension or both.

CONFERENCE (Station controlled): Dial Code "83"

Permits extension to establish conference with up to five conferees plus the originator, without the assistance of an operator. All five may be LRC extensions, or four extensions and one IDS or FTS.

Dial Conference Code "83," listen for second dial tone.

Dial extension, FTS, or IDS number of first conferee.

Advise called party of conference, depress switchhook, listen for dial tone again.

Dial extension number of second conferee.

Advise called party of conference, depress switchhook.

At this point the originator and the first two conferees can talk. Additional stations are added by repeating the same procedure as used for the second conferee.

An outside line can be put on conference with assistance of your LRC operator. Connect extensions to conference first, then depress switchhook, dial "0," and when the number is on the line depress switchhook to connect to the conference circuit.

Incoming off-Center calls cannot be connected to conference by extension user. If only one additional extension is required, use "ADD–ON" feature. For more than one, depress switchhook, dial "0" and give your operator the extension numbers. Hang up and your LRC operator will ring you back.

CONFERENCE (Operator controlled): Dial Code "82"

To originate a conference call when one of the conferees is reached on outside line, conference must be operator controlled.

Dial "82" for your LRC conference operator and give her the numbers you wish on conference. You may hold the line while conference is being established.

ENGINEERS' CLUB MEETS FEB. 13

The Engineers' Club of the Virginia Peninsula will meet on February 13 at 8 p.m. at Thomas Eaton Junior High School. Dr. E. W. Windrey, Resident Surgeon in Thoracic and Cardiovascular Surgery at Riverside Hospital, will be guest speaker.

Dr. Windrey will speak on "Engineering Aspects of Cardiovascular Surgery." The talk will relate current advances in the mechanical and electronic applications of instrumentation as they pertain to the practice of Cardiovascular Surgery. This will include a discussion of the operational aspects of the heart lung machine, vascular prosthesis, mechanical heart valves, electronic monitoring equipment, and electronic cardiac pacemakers.

The meeting will be preceded by a social hour at 6 p.m. and a dinner at 7 p.m. at Eli's Restaurant. Reservations for dinner should be made with Paul Fournier, 596-0758.

VIKING SCIENCE TEAMS TO MEET

Thirty-one scientists will hold a three-day meeting Feb. 19-21 at Langley at the invitation of the Viking Project Office. This group has been selected by NASA Headquarters in order to assist the project in the development of candidate instruments for the Viking Lander.

The eight teams will work towards the development of cameras, biological detectors, gas analyzers, meteorological sensors, atmospheric mass spectrometers, a UV spectrometer and a seismometer.

Among the group are some of the most notable scientists and engineers in the country: astronomers, biologists, chemists, atmospheric physicists, including three Nobel laureates. The leaders of these teams will assist the project in early planning activities.

REFRESHER COURSE OFFERED

A non-credit course in Advanced Engineering Mathematics I will be offered each Monday and Thursday from 4:30 to 6:30 p.m. The first class will be held on February 17.

Topics to be covered include a review of ordinary differential equations, power series and their application to differential equations, special functions, Taylor series expansion, generalized Fourier series, and topics in high-dimensional calculus.

The course is being offered as a refresher or preparatory course to graduate mathematics courses. Dr. Edwin T. Kruszewski, Structures, will be instructor.

Persons interested in enrolling are requested to call the Training Branch, extension 2517.

COURSE OFFERED: A course in Introduction to Digital Computer Programming will start at 7 p.m. on February 10 at York High School in room 101. The class is sponsored by the York Technical School and meets on Monday and Thursday nights from 7 to 10 o'clock. The class is planned for persons with no background in the subject. The material covered includes a description of digital computer hardware and how it works, machine language and symbolic programming on the IBM 1401 digital computer. Registration fee is $10 and the books are $5. For further information contact the York Technical School Office, 898-5957.

FOR SALE: 1964 Pontiac Gran Prix, all power accessories, factory air conditioning - $1195. Eaton, Norfolk 583-1246.

OFFICIALS of the Langley Research Center and the Newport News Office of Economic Opportunity launched a pilot clerical training program last Monday. Discussing the program are seated (from left): Edward T. Maher, Deputy Equal Employment Opportunity Officer at Langley, E. C. Young, New Careers Director, OEO; Mrs. Norvleate Downing, OEO Executive Director; and T. Melvin Butler, Assistant Director for Administration. Standing - Kenneth Goode, OEO Manpower Development Supersivor; J. Norwood Evans; Assistant Personnel Officer; and Henry B. Lane, OEO Guidance Counselor.

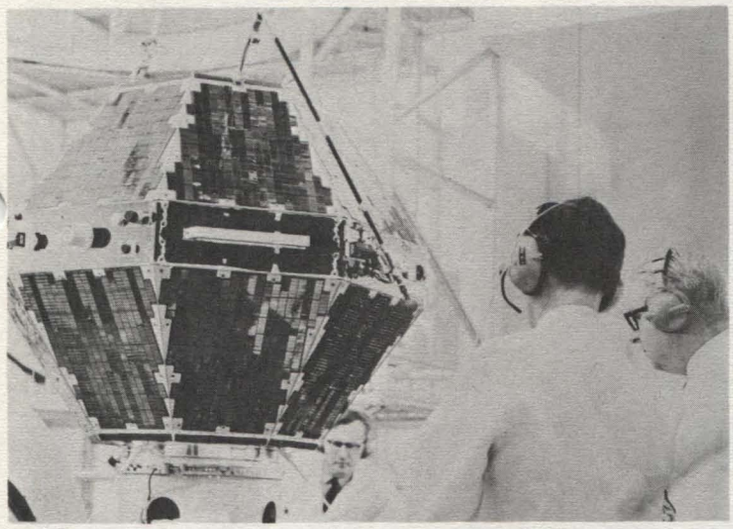
CLERICAL TRAINING PROGRAM

Langley Research Center and the Newport News Office of Economic Opportunity launched a pilot program on Monday, February 3, under which fourteen trainees will participate in a one year training effort designed to improve skills of the trainees to permit their handling increasingly more difficult clerical assignments. At the end of the year of training, it is hoped that each trainee will be equipped to qualify for productive employment.

In keeping with the Center program to provide equal opportunity without regard to race, creed, color, sex, or national origin, an arrangement was made with the local OEO office to provide a year of training to selected recruits from the area's poverty families. The agreement setting forth the training objectives and means for achieving them was signed jointly by T. Melvin Butler, Assistant Director for Administration at Langley, and Mrs. Norvleate Downing, OEO Executive Director. Details of the program were worked out by representatives of Langley Research Center and the Office of Economic Opportunity, who will continue to play a role in the handling of the program to insure it meets program objectives.

The trainees will work a 40-hour week and are assigned to offices in Building 647. Glenna Martin is in charge of the office and she will also be available to coordinate work assignments between the trainees and representatives of the many organizational elements of the Center who have an overload of work which can be handled by this group. Specific training programs designed to improve typing skills, enhance their ability to use office equipment, such as copying machines, desk calculators, etc. will be handled by Eloise McGehee, Head of the Stenographic and Special Typing Section, and by Evelyn Myers, Office of the Chief Counsel.

At the end of the training period of one year, each trainee will be given the opportunity to take the Civil Service examination and be eligible for selection in Government agencies, or be assisted in obtaining gainful employment in the private sector of business on the Peninsula.



THE JOINT Canadian-United States program of ionosphere research moved into a new stage with the launching of the Canadian satellite ISIS-A on a NASA Delta rocket from the Western Test Range on January 30. ISIS-A (International Satellite for Ionospheric Studies) is the third Canadian ionospheric satellite to be launched in a cooperative Canadian-U.S. effort. It will continue the study of the ionosphere from above (topside sounding) successfully begun with the Alouette I satellite.

SUPERCRITICAL WING TEST

(Continued from page 1)

In addition to permitting a substantial increase in cruise speed without increases in power, the new wing might significantly reduce the operational cost of subsonic jet transport flights. Because the jet transport could cruise faster with the same power settings, it would be possible to either increase the operational range or carry less fuel and more payload on faster schedules.

When the speed of an aircraft approaches the speed of sound, regions of high supersonic airflow develop about the aircraft. This supersonic flow develops particularly above the wing and can cause severe local disturbances, known technically as shock waves and surface boundary layer flow separation. These disturbances can bring a substantial loss in flight efficiency (increase in drag), severe aircraft buffeting (shaking), and adverse changes in the stability of the aircraft (the capability of the aircraft to fly straight and level).

Normally, subsonic flight operations are kept below the speeds at which such effects take place. For present day subsonic jet transport aircraft, the adverse effects begin to occur at approximately Mach 0.8 (about 530 mph) at a cruising altitude of 35,000 feet. Wind tunnel and analytical studies indicate the NASA supercritical wing has the potential of permitting subsonic speeds in excess of Mach 0.95 before such disturbing effects occur.

The most widely used method to delay the rise of the drag force and onset of the buffet has been to angle the wings of the aircraft back toward the tail. However, excessive wing sweep increases structural weight, creates problems relating to the low speed flying qualities, and possibly requires longer take-off and landing distances.

The supercritical wing shape has been developed to substantially delay the onset of these adverse effects. It is designed to reduce the intensity of the airflow disturbances at the higher speeds by reducing curvature or flattening out the upper portion of the wing. This change, together with the downward curvature at the rear portion of the wing which supplies the lift lost by flattening the forward portion, increases the basic speed at which the drag rise and buffet begin to take place and, thus, results in a more efficient wing for cruise.

MONTGOMERY NAMED LIAISON OFFICER

Major C. A. Montgomery

Major Charley A. Montgomery Jr. has assumed his new duties as Chief of the AFSC Scientific and Technical Liaison Office, Langley Air Force Base. He replaces Major Thiophilos Andrada.

Major Montgomery entered the U.S. Air Force as an aviation cadet in 1952. He was commissioned a 2nd Lieutenant, Radar Intercept Officer, in 1953. He served as backseater in fighter interceptor aircraft as well as navigator in EC-121 aircraft from 1953-1964. Prior to his Langley assignment, he served three and a half years with the Air Force Armament Laboratory conducting studies relating to analysis of Air Force conventional weapon systems. He also served as AFATL representative to AFSC Liaison Office at Saigon, Republic of Vietnam, from May-Dec. 1967.

Major Montgomery was born in Talmage, Nebraska. He graduated from Nebraska City High School and attended Nebraska State College. He received his B.A. degree in Mathematics from Baylor University in 1963 and did graduate work in Mathematics at the University of Texas.

CREDIT UNION NOTICE

The Thirty-Third Annual Meeting of the Langley Federal Credit Union will be held on Tuesday, February 18 at the Riverdale Theatre, Riverdale Shopping Center. Doors open at 7 p.m. with the business portion of the meeting starting promptly at 7:30. Admission tickets may be obtained at the Credit Union Office beginning February 10 on a strictly first come first served basis.

Following last year's successful format, the affairs of the Credit Union and the accomplishments of 1968 will be reviewed by appropriate officials after the annual President's Report of Bob Girouard has set the stage. Then, too, there will be the election of three directors and three members of the Credit Committee.

The entertainment portion will include a drawing for two worthwhile door prizes. The highlight, however, will be the screening of the comedy sensation, "Buona Sera, Mrs. Campbell," with Gina Lollobrigida, Phil Silvers, Shelley Winters, Peter Lawford and an all-star cast. Three ex-GI's find they are in the same class as Germany when it comes to paying "war damages."

If you fail to get tickets before the supply is exhausted, try again on February 17. Usually enough tickets are turned back to satisfy a reasonable number of applicants.

REVISED MERIT PROMOTION PLAN

Employees will have better opportunities to be considered for advancement and agencies will have greater assurance that the best-qualified employees are selected for higher level jobs under a revised Federal Merit Promotion Policy that will go into effect July 1. The revised policy is the result of a thorough study by the U.S. Civil Service Commission of the 10-year-old Government-wide merit promotion system and was issued after extensive consultation with employee organizations and Federal agencies.

The merit promotion policy is intended to help management select the best talent in the ranks of the career service to meet the many challenging problems facing the Nation and to assure employees that promotions are made on a fair and equitable basis. The revised policy should correct many of the weaknesses in present promotion procedures that employees have complained about. It places renewed emphasis on:

-Assuring that employees are considered for higher-level jobs for which they are eligible and in which they are interested.

-Providing the most effective evaluation methods to identify highly-qualified candidates for promotion, with written tests being allowed only when approved by the Commission.

-Requiring selection from among the best-qualified candidates.

-Eliminating all forms of discrimination or personal favoritism.

-Keeping employees fully informed about their agency's promotion program and about their own promotion opportunities.

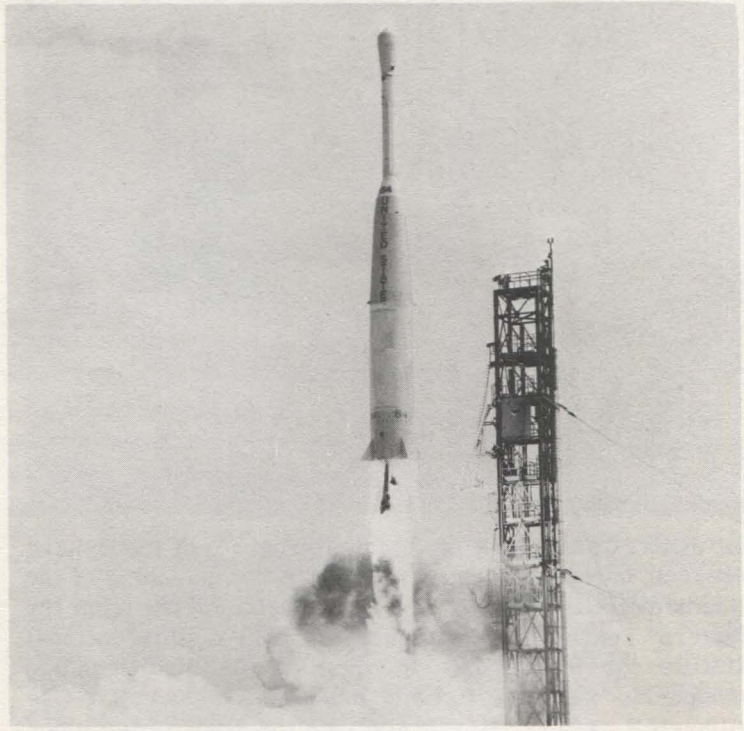
-Providing attractive career opportunities for employees.

The merit promotion policy doesn't guarantee every employee a promotion, but it does give every employee an opportunity for fair consideration under his agency's promotion program.

In revising the merit promotion policy, the Commission had to keep in mind the size, complexity, and dispersion of the Federal work force. All employees in the competitive service are covered by the policy. All white-collar and blue-collar occupations are represented, with jobs ranging from the simplest to the most complex. Over 60 agencies, varying in size from just a few employees to hundreds of thousands and in complexity and dispersion from a single headquarters office to an intricate structure of worldwide installations, are involved. This is why promotion procedures will vary to some extent from agency to agency or occupation to occupation.

As under the present policy, agency promotion programs will operate under merit principles and general procedures established by the Commission. Each agency develops its own promotion guidelines, adapted to the agency's own needs, which set forth the agency policies and procedures governing promotion practices.

Each agency will continue to develop promotion plans which establish the specific methods to be followed in selecting employees for promotion within the framework of the agency guidelines. Similar kinds of jobs are usually grouped under the same plan. For example, all engineering and scientific jobs may be under one plan, all clerical jobs may be under another, all trades and labor jobs under a third, etc. Each employee should find out which plan applies to him.



The OSO-V (Orbiting Solar Observatory V) was successfully launched into orbit January 22 from Cape Kennedy. Liftoff occurred at 11:48 a.m. EST. OSO-V is designed to continue observations of the Sun as part of a continuous program to monitor an 11-year solar cycle. The launch was the 60th success for the NASA three-stage Delta rocket, and its 64th launch.

ACM MEETS FEBRUARY 11

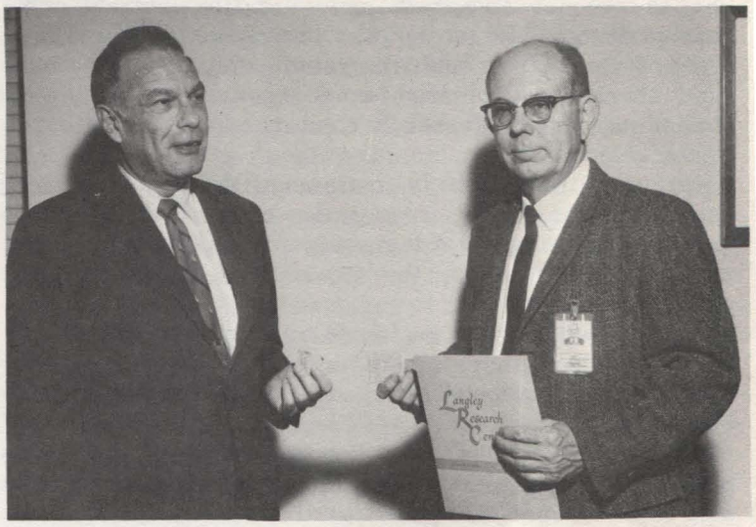
The Virginia Peninsula Chapter of the Association for Computing Machinery will meet on Tuesday, February 11 at the Williamsburg Room of the Langley Officers Club. Guest speaker will be George G. Heller, IBM Corporation, Poughkeepsie, New York, who will speak on "Computers in the Instructional Environment."

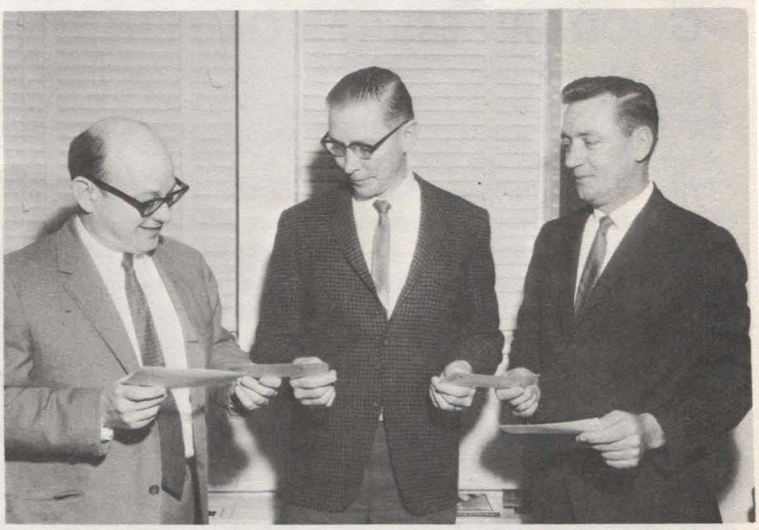
Heller is particularly interested in the problems of the educational community and directs much of his personal efforts towards the problems of introducing computers and computer concepts into secondary schools. During 1960-62 he was the originator, organizer, and director of a large scale experiment in high school computer education conducted by the Washington, D.C. Chapter of ACM. In the course of this program, Heller and his colleagues taught many hundreds of high school students about computer programing, computer design and even about such difficult topics as Heuristic Programing and Artificial Intelligence.

Representatives from local high schools and colleges have been invited to hear his talk.

The Virginia Peninsula Chapter of the ACM was formed in 1967 and meets each month to hear both local and national speakers discuss subjects related to computers and their application. It has also sponsored a symposium on computer graphics and is in the process of setting up a speakers bureau. Current membership numbers about 50, many of whom are Langley employees.

The meeting will begin with a social hour at 6:30 p.m., followed by dinner at 7:30, and the guest speaker at 8:30. For further information contact Floyd Shipman or John Shoosmith, extension 3544.





EIGHT staff members have received cash awards from the NASA Inventions and Contributions Board. In the top left photo John G. Davis (left), Structures Research, receives a $400 check from Eldon E. Mathauser for his invention concerning a tube fabricating process. Donald E. Barthlome (top center), Flight Vehicles and Systems, was awarded $200 for a space suit pressure stabilizer. John R. McGehee, Structures Research, receives a check for $300 from Lloyd J. Fisher for an omnidirectional multiple impact landing system. Center left photo - Thomas N. Bartron (left), Flight Vehicles and Systems, gives Nathan D. Watson a $400 award for his payload/burned-out motor case separation system. Center right - Upshur T. Joyner (right), Dynamic Loads Division, received $200 for a steering system. Sidney A. Batterson made the presentation. Lower left - Joseph D. Perdue (left), Fabrication Division, receives a check for $300 from David F. Fromal for his cryogenic liquid level sensor. Lower right - William E. Howell (left) and Kazmere C. Romanczky (right), both of Flight Instrumentation Division, shared a $500 award for fringe counter for interferometers. Henry J. E. Reid Jr. made the presentation.

M-2 LIFTING BODY MODIFICATIONS

The M-2 lifting body will be repaired, modified, and returned to service as the M2-F3. It then will rejoin the HL-10 and X-24 in a joint Air Force-NASA flight research program to explore the use of wingless vehicles for manned horizontal landings at air fields after return from space.

The M2-F2, as initially designated, was damaged in a wheels-up landing accident in May 1967.

As modified, the M2-F3 will be fitted with a center stabilizing fin and will be equipped for special use as a test bed for research on lateral control systems.

Among the special provisions will be a jet reaction roll control system which may, in future applications, simplify the control designer's problem by using a common system that works all the way from orbit to landing. Other provisions are for improved and versatile internal components designed to aid the pilot in precise maneuvering.

The several test control systems and techniques have been checked out by wind tunnel research and simulator studies at Flight Research Center and Ames Research Center.

Meanwhile, the HL-10 is continuing its series of rocket-powered flights with progressive exploration of vehicle behavior and control at transonic and supersonic speeds. Following these tests, the HL-10 will be modified for powered landings.

The X-24 will begin a series of transonic and supersonic speed flights within a month, and during the next year an extensively automated afterbody control system will be investigated.

Thus, the three vehicles will soon be compiling the long lead time research which can be used as a basis for design of future manned space logistics systems.

GODDARD ESSAY COMPETITION

The National Space Club announces the opening of the Robert H. Goddard Historical Essay Award competition for 1969. This annual nationwide competition, with a $500 prize, is open to any U.S. citizen.

The contest is named in honor of the world rocket pioneer, Dr. Robert H. Goddard, whose scientific and technological contributions -- although belatedly recognized in the United States -- helped open the door to space.

Essays may treat with any significant aspects of the historical development of rocketry and astronautics and will be judged on their originality and scholarship. They may bring new information to light or may cast a new and different light upon events or individuals influencing rocketry and astronautics in the United States.

Entries should be submitted by November 1 to the Goddard Historical Essay Contest, c/o National Space Club, 1629 K Street, N.W., Washington, D.C. 20006.

The winner will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1970.

The Robert H. Goddard Historical Essay Award was the first literary competition devoted to historical affairs in the field of rocketry. Members of the NSC's Committee for the History of Rocketry and Astronautics serve as judges for the contest. They include Dr. Eugene M. Emme, NASA Historian, chairman.

Rules of the contest may be obtained by calling the Langley Researcher Office.

THE FOUR KEPPO'S will be featured with George Doerner and his orchestra at the Activities Building on February 27.

GEORGE DOERNER AND ORCHESTRA TO PLAY FOR DANCE FEBRUARY 27

George Doerner and his orchestra, the comedy team of Lewis and Kip, and the Four Keppo's will be presented by the Activities Association on Thursday, February 27 at the Activities Building.

Doerner and his orchestra will come to the Activities Building after completing an engagement at the Roselan Ballroom in New York City. The evening's entertainment will feature a 45-minute show.

Dancing will be from 8:30 p.m. until 12:30 a.m. and admission will be four dollars per couple, including setups. Tickets may be purchased at the Activities Building. Reservations may be made with Bruce Amole, extension 4583.

NOTICE: Peninsula Catholic High School has expressed an interest in obtaining services of NASA retirees to teach physics or business courses (typing, shorthand and possibly bookkeeping) during the school year beginning in September. A degree is required. Interested persons may contact Sister Mary Catherine, school principal. The school is located at 332 34th St., Newport News. Telephone number during school hours is 245-4216 and at other times call CH7-3802.

PROFESSORS TO VISIT: Dr. Fred R. DeJarnette and Fred H. Lutze, Department of Aerospace Engineering, Virginia Polytechnic Institute, will visit the Center on February 17 to discuss the graduate programs with interested staff members. Appointments may be made by calling 2517.

Langley Researcher

VOLUME 8, NUMBER 5 LANGLEY RESEARCH CENTER FEBRUARY 20, 1969

NATIONAL ENGINEER'S WEEK OBSERVED BY LOCAL GROUPS

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will participate with local sections of other engineering societies in a dinner-dance program during National Engineer's Week. The purpose of National Engineer's Week is to focus public attention on the achievements and accomplishments of engineers. Emphasis this year is on "Engineering. .Partner in Rebuilding Urban America."

John A. Charles, Head of the Newport News Redevelopment Program, will speak on local urban redevelopment.

The program will be held tomorrow night at the Activities Building with a social hour starting at 6:30 p.m., roast beef dinner at 7:30, the talk at 8:30, and the dance beginning at 10 and continuing until 1 a.m. Music will be by Charlie Johnson and his orchestra.

Tickets for the dinner-dance must be purchased in advance and will be five dollars per person (not including social hour). Tickets may be obtained from Bernard Spencer, 722-6478, or Bill Woods, 851-5331.

THE FOUR Keppo's will be featured with George Doerner and his orchestra at the Activities Building on Thursday, February 27. Also featured with the group will be the comedy team of Lewis and Kip. Dancing will be from 8:30 p.m. until 12:30 a.m. The evening's entertainment will include a 45-minute show. Admission will be four dollars per couple, including setups. Tickets may be purchased at the Activities Building. Reservations may be made with Bruce Amole, extension 2183.

MARINER MARS 1969 LAUNCHES SCHEDULED TO START FEB. 24

Two 900-pound Mariner spacecraft, F and G, will be launched from pads 36A and 36B at Cape Kennedy on fly-by missions to Mars by NASA during a period beginning February 24.

Launch dates are 8 p.m. EST, Feb. 24, for spacecraft F and 4 p.m. EST, March 24, for G. If successfully launched, the spacecraft will become Mariners VI and VII. The launch vehicle for each will be the Atlas-Centaur.

Arrival dates at Mars are July 31 for F, and August 5 for G, each arriving at about 1 a.m. EST on these dates. Mariner F will make an equatorial pass over the Mars surface and Mariner G is scheduled for a polar pass five days later to furnish data as different as possible from the standpoint of geography and climate.

The 1969 mission is a follow-on to the 1964-65 Mariner flight to Mars and a precursor to the 1971 and 1973 Mars missions. In 1971 two Mariner-class vehicles will orbit Mars for three months, and in the 1973 mission, Project Viking, two spacecraft will orbit Mars and detach soft landers to descend to the surface.

The Mars 1969 mission objectives are to study the surface and atmosphere of Mars to establish the basis for future experiments in the research for extra-terrestrial life and to develop technology for future Mars missions.

The 1969 flights will not determine if life exists on Mars but will help establish whether or not the Martian environment is suitable for life.

Two television cameras aboard each spacecraft will photograph the disc of Mars during the approach to the planet and the surface during the fly-by. The best resolution of the approach pictures will be about 15 miles. Best resolution from Earth is about 100 miles. The highest resolution in the surface pictures will be about 900 feet, compared with two miles in the Mariner IV pictures taken in 1965.

Two instruments, an infrared spectrometer and an ultraviolet spectrometer will probe the atmosphere of Mars. An occulation experiment, in which radio signals pass through the Martian atmosphere, will yield data on atmospheric pressures and densities.

An infrared radiometer will measure surface temperatures on both the light and dark sides of Mars. A celestial mechanics experiment will utilize tracking information to refine astronomical data. This mission represents the first opportunity to make scientific measurements on the night side of Mars.

All the instruments on the spacecraft are designed to return information on Mars itself. No interplanetary instruments will be flown.

The instruments were chosen to allow correlation of the returned data.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

ENGAGEMENTS. . .Making plans to desert the bachelor ranks is Dennis W. Bartlett, Full-Scale Research Division. He is engaged to Serene Marie Herndon, Hampton, and plans call for a July wedding. . .William P. Gilbert, Flight Mechanics and Technology Division, is engaged to Carolyn Sue Gibson, Hampton. The wedding will take place on April 5.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on February 26 at 7:30 p.m. at the Central Labor Union Hall

NEW ARRIVALS. . .Clifford Gentry, Research Support Division, recently became the father of a seven pound, four ounce daughter, Traci Lynn. . .Celebrating the birth of a six pound son, Robert Kirk, on February 12 is Robert Rhinehart, Applied Materials and Physics Division.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on March 4 at 7 p.m. at the Central Labor Union Hall.

NOTE OF THANKS. . .A note has been received at the Center from Bernice Richardson, formerly of the Director's Office, thanking her many associates for their kind expressions and remembrances on the occasion of her recent retirement from federal service.

BLOODMOBILE VISIT. . .The Red Cross Bloodmobile will visit the Center on March 5 and 25 donors with B positive type blood are needed by noon for heart surgery in Richmond. Persons with this blood type are requested to call East Dispensary, 2243.

BARBERSHOP QUARTET SHOW. . .Chords will ring in old fashioned harmony from the Hampton Roads Chorus and three outstanding quartets in their annual show on March 1 at the Warwick High School Auditorium. Proceeds from the show will benefit the Peninsula Speech and Hearing Clinic in keeping with the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. (SPEBSQSA, Inc.) motto "We sing that they shall speak." Tickets may be obtained from John McFall, AMPD; Norman Crabill, Viking Project Office; Harold Murrow, Dynamic Loads; Jim Youngblood, Viking Project Office; Charles Laird, Flight Instrumentation; and Bill Ramsey, Viking Project Office.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of February 24:

Monday - Puree of bean soup, hot turkey sandwich, baked ham, fried fish, western omelette. Snack bar - Soup, barbecued meat, sliced turkey, French fries.

Tuesday - Cream of mushroom soup, Swiss steak, fried oysters, ham and noodle casserole, grilled luncheon meat. Snack bar - Soup, spiced luncheon meat, steak sandwich, baked beans, French fries.

Wednesday - Vegetable-beef soup, roast corned beef, fried shrimp, liver and onions, baked hash. Snack bar - Soup, fish sandwich, hot corned beef, French fries.

Thursday - Chicken noodle soup, chicken and dumplings, veal cutlet, broiled fish, macaroni and wieners. Snack bar-Soup, hot dog, flying saucer, French fries.

Friday - Cream of celery soup, beef stroganoff, grilled pork steak, baked lasagna, fish cakes. Snack bar - Soup, sea dog, hot pastrami, French fries.

The menu for the week of March 3 is as follows:

Monday - Cream of tomato soup, roast ribs of beef, fried scallops, Salisbury steak, chili con carne. Snack bar - Soup, hamburger, roast beef, French fries.

Tuesday - Tomato-barley soup, broiled smoked ham, chuckwagon steak, salmon cakes, franks and beans. Snack bar - Soup, hot dog, chuckwagon steak, French fries.

Wednesday - Split green pea soup, roast pork, chicken pie, fried fish sticks, chili-mac. Snack bar - Soup, fish sandwich, baked ham, French fries.

Thursday - Vegetable-beef soup, grilled rib eye steak, stuffed shrimp, spaghetti and meat sauce, tamale pie. Snack bar - Soup, barbecued meat, steak sandwich, French fries.

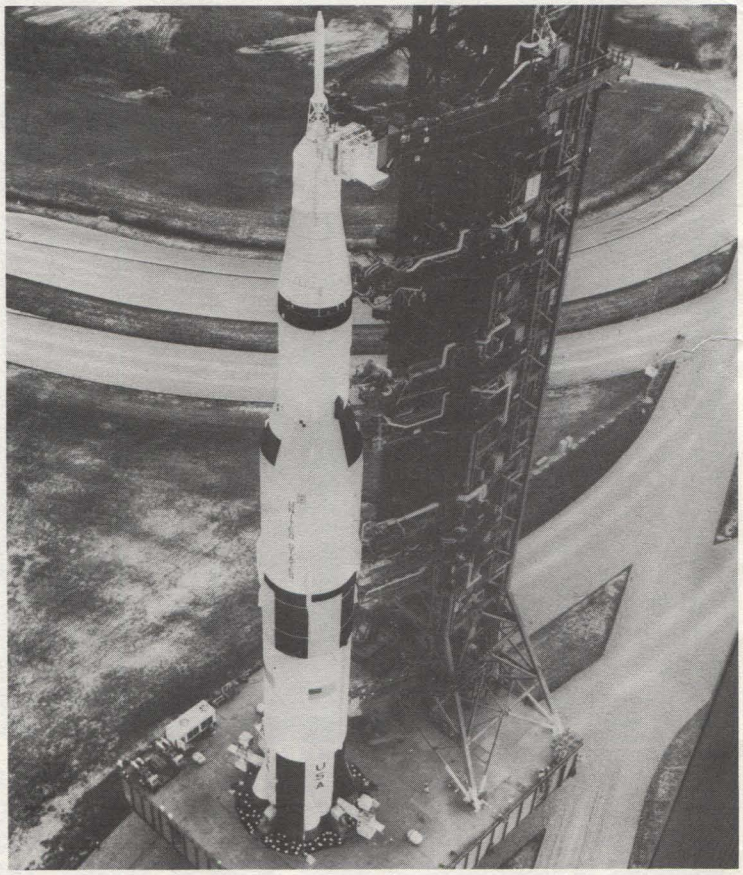
Friday - Manhattan clam chowder, pot roast of beef, broiled fish, smoked pork sausage, Austrian ravioli. Snack bar - Soup, cheeseburger, hot roast beef, French fries.

BOOKS NEEDED: Anyone having gifts of used books to contribute to the annual used book sale of the Hampton Branch of the American Association of University Women is requested to call Mrs. Billy Ray Turner, 851-5418.

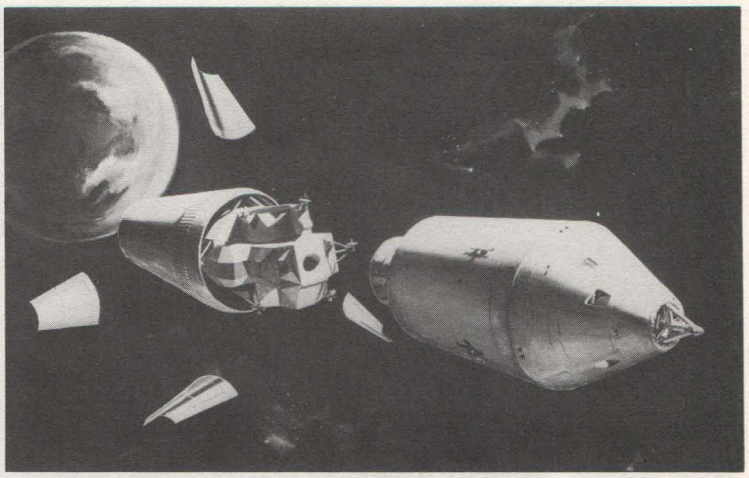
FOR SALE: Apartment size Magic Chef gas stove - $30. Wray, 722-7335 after 5 p.m.

WANTED: Alternate drivers from Glendale to W.A. on 8 shift. Zoby, 2871.

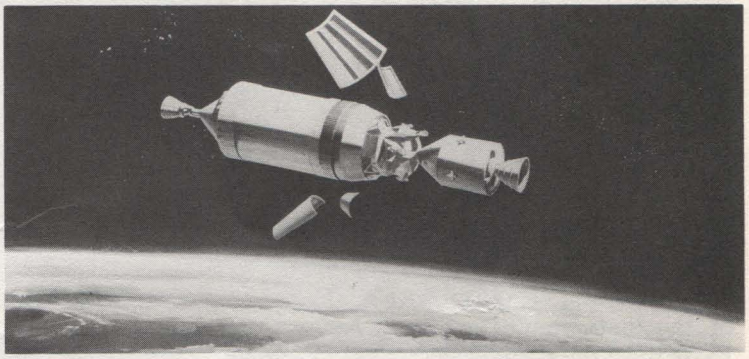
MEMBERS of the Apollo 9 crew are (from left) James A. McDivitt, spacecraft commander; David R. Scott, command module pilot; and Russell L. Schweickart, lunar module pilot.



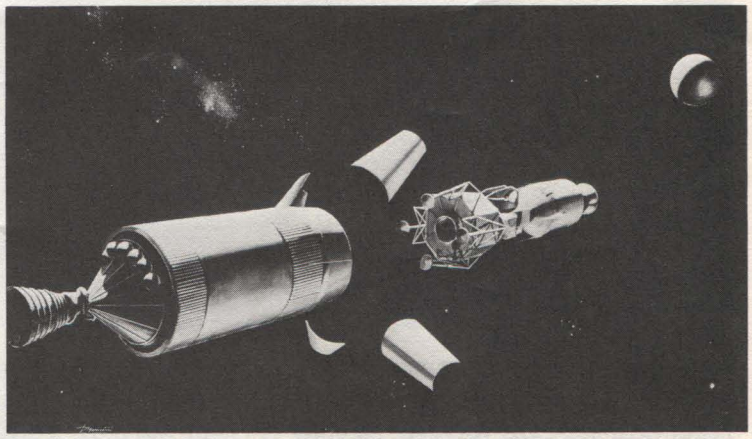
MOVING TO THE PAD: The 363-foot-high Saturn V rocket goes by transporter to Launch Pad A, Complex 39, for the Apollo 9 mission, scheduled for February 28 from Cape Kennedy. The 12-million-pound load travels at a speed of half-a-mile an-hour over a three and one-half mile course. It will launch Astronauts James McDivitt, David Scott and Russell Schweickart on their 10-day Earth orbital mission to test the lunar module for future manned lunar landings.



SEPARATION: Artist's drawing shows how the adapter panels will be jettisoned during the Apollo 9 flight, exposing the lunar module still attached to the third stage of the Saturn V launch vehicle. The command and service modules move away from the third stage for a later linkup with the LM. At this stage the astronauts are in the command module.



DOCKING: In this drawing the Apollo 9 command and service modules do a 180-degree turn and link up with the lunar module. McDivitt and Schweickart will enter the lunar module through a three-foot tunnel while Scott continues to fly the command module.



ON ITS WAY: This drawing shows the command and service modules attached after separation from the third stage of Saturn V. In Apollo 9, McDivitt and Schweickart will man the lunar module in Earth orbit separated from the command and service modules. They will rendezvous and dock with the command and service modules and transfer to the command module before the lunar module is sent into a high Earth orbit. The crewmen will return to Earth in the command module.

FOURTEEN Research Clerical Trainees have been assigned to the Center for a one-year training program under an agreement with the Newport News Office of Economic Opportunity. Members of the group are front row (from left): Carolyn Scott, Kay Burroughs, Dorothy Valentine, Marion Savage, Alberta Reid, and Joanne Chadwick. Back row - Synade Bailey, Carolyn Brown, Diane Robinson, Jackie Boyd, Millie Boone, Claudia Ervin, and Gwendolyn Burton. Not pictured is Margaret Moss. The trainees will work a 40-hour week and are assigned to offices in Bldg. 647.

ISA GROUP TO HEAR PROTHRO

Benjamin E. Prothro, Army Trnsportation Engineering Agency, Fort Eustis, will address the Tidewater Section of the Instrument Society of America on Wednesday, Feb. 26 at the Longhorn Steakhouse on Mercury Blvd.

Prothro, a branch chief in the Agency's Engineering Research Division, will discuss "Instrumentation for Transportation Research" and will show slides and a sound film to illustrate his talk. The film, entitled "The Transportation Environment," covers an instrumented movement of an electronic shelter from Alexandria, Virginia, to Bangkok, Thailand.

Prothro received his B.S. degree in Electrical Engineering from the University of Arkansas in 1949 and has done graduate work at several schools including the University of Virginia. He is a registered professional engineer in Virginia and a member of the IEEE and the Society of American Military Engineers. He has authored numerous technical papers including a recent one on "Development of a Railroad Surface Roughness Index and Simulation Procedure" which will appear in the next issue of Shock and Vibration Bulletin.

A social period at 6:30 p.m. and a steak dinner at 7:15 will precede the technical presentation at 8 o'clock. For reservations call Warren Thomas or Tom Carpini, 3492. Guests are invited.

FOR SALE: 110 x 200-foot wooded lot in Edgehill - $4200. Turner, 851-6557.

FOR SALE: 1958 English Ford, new tires - $150. Barritt, 877-9429.

FOR SALE: Bozak hi-fi console speaker enclosure, 12-inch #B-207B two-way system, 33 long x 16 deep x 27 high - $85. Ramsey, 596-2449 after 5:30 p.m.

NASA BASKETBALL NEWS

Misfits lead League A in the NASA Basketball League with a perfect record of 4 wins. ACD is in second place with 3 wins and 1 loss. Top scorers in the league are Williss, Misfits, with a total of 66 points for an average of 16.50; Ramsey, Raiders, with 53 points for a 13.25 average; and Ward, ACD, with 50 points for a 16.67 average.

LEAGUE A STANDINGS

Team	Won	Lost	Pct
Misfits	4	0	1.000
ACD	3	1	.750
KNADS	2	2	.500
Raiders	1	3	.250
Dribblers	0	4	.000

In League B there is a three-way tie for first place with Outcasts, Westside, and Net Nuts battling for the spot with 3 wins and 1 loss each. Top scorers are Horne, Short Circuits, with 60 points and a 15 average; Wallace, Replacements, with 58 points and a 14.5 average; Roberts, Short Circuits, with 53 points and a 13.25 average; Midden, Net Nuts, with 52 points and a 13 average; and C. Smith, Replacements, with 50 points and a 12.5 average.

LEAGUE B STANDINGS

Team	Won	Lost	Pct
Outcasts	3	1	.750
Westside	3	1	.750
Net Nuts	3	1	.750
Short Circuits	2	2	.500
Replacements	2	2	.500
Alchemists	1	3	.250
Eastside	0	4	.000

FOR SALE: 1953 Chevrolet with 1954 motor, 4-door - best offer. Privette, 247-1625.

LANGLEY Research Center was host for a Space Station Technology Symposium February 11-13. In the upper left photo Edgar M. Cortright (left), Langley Director, greets Dr. Thomas O. Paine, Acting Administrator of NASA, as he arrives for the symposium. Dr. Paine (upper right) welcomes the guests who attended the three-day event. Center left - Attending the conference were (from left) Charles W. Mathews, Deputy Associate Administrator for Manned Space Flight; Dr. Robert R. Gilruth, Director of Manned Spacecraft Center; Dr. George E. Mueller, NASA Associate Administrator for Manned Space Flight; and Cortright. Center right - Astronaut Neil Armstrong (right) explains the Lunar Landing Research Facility to (from left) Donald T. Gregory and Thomas U. McElmurry, Manned Spacecraft Center; Dr. Homer E. Newell, NASA Associate Administrator; Dr. Mueller; and John D. Stevenson, NASA Office of Manned Space Flight. Lower left - Dr. Floyd L. Thompson (second from right), retired Director of Langley and Special Assistant to the NASA Administrator, talks with Dr. Paine. To the left of them are Charles J. Donlan, NASA Deputy Associate Administrator (Technical) for Manned Space Flight, and Dr. Gilruth. Lower right - Donlan explains something to Cortright while Dr. Kurt Debus (center), Director of Kennedy Space Center, looks on.

STAFF MEMBERS TO APPEAR ON TV

The Hampton Roads Section of the AIAA has set up an Education Committee under the chairmanship of E. Brian Pritchard, Aero-Physics Division, for the purpose of informing the local community on space and aeronautics activities. This committee has set up a speakers bureau of Langley staff members to accomplish this purpose.

Lists of the speakers and topics have been sent to area high schools and colleges. This list has also been made available to local civic organizations through articles in the local newspapers.

As a result of this effort several speakers have already been requested. In particular, four speakers will appear on the Mildred Alexander Show during the month of March. This program is a half-hour show using a conversation type format which is seen daily, Monday through Friday, at 1 p.m. on WTAR-TV in Norfolk. The dates of appearance of the four speakers and their topics are:

March 6 - Stepping Stones to Mars by E. Brian Pritchard.

March 17 - Missions to the Outer Planets by Edwin F. Harrison.

March 18 - High Speed Ground Transportation by K. J. Grunwald.

March 24 - Life on Other Worlds by David Adamson.

The available speakers and their topics are as follows:

Life on Other Worlds - David Adamson

Supersonic Transport - Donald D. Baals

Manned Aerospace Simulation Research - R. F. Brissenden

High Speed Ground Transportation - K. J. Grunwald

Future V/STOL Aircraft - A. D. Hammond

Missions to the Outer Planets (Jupiter and Beyond) - E. F. Harrison

Landing Sites for Future Space Missions - P. F. Holloway

Manned Orbiting Research Laboratory - W. R. Hook

Research Aircraft - C. H. McLellan

Earth Resources - R. N. Parker

Stepping Stones to Mars - E. B. Pritchard

The Apollo Program - Dr. C. H. Robins, Jr.

Wallops Island Facilities and Research - C. A. Sandahl

Lunar Orbiter Results - W. I. Watson

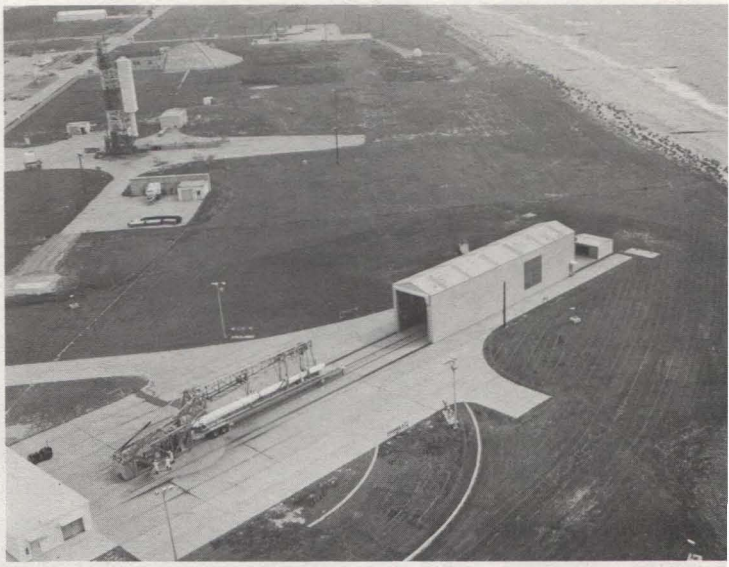
Aerodynamic Structures and Propulsion Integration for Hypersonic Cruise Vehicles - D. E. Fetterman

NEW PROCEDURES FOR RETIREES

The Civil Service Commission is attempting to assure that nondisability retirees will receive their initial annuity checks soon after separation. To accomplish this, the Commission has authorized agencies to submit claims for nondisability retirements on behalf of their employees as much as six weeks before proposed separation. This should afford the Commission sufficient time to complete the paper work before the employees separate.

Accordingly, an employee contemplating nondisability retirement should contact J. Norwood Evans, 2568, or James C. Tingle, 2605, well in advance of the date he intends to retire. This will permit completion of NASA's required preliminary paper work and submission of the claim within the CSC's six-week time frame.

Because the new procedure depends upon preliminary data, adjustment of the annuity may be required after issuance of the initial check.



NASA's Wallops Station, the Chincoteague Station of the United States Coast Guard, the Chincoteague National Wildlife Refuge, Bureau of Sport Fisheries and Wildlife, and the National Park Service announced a joint Open House to be held Saturday and Sunday, April 12 and 13. In addition to tours of the respective installations, rocket launching facilities , such as the Scout launch complex shown above, and special space exhibits will be on display at Wallops Station, the old lens system of the Assateague Lighthouse will be shown courtesy of the Eastern Shore Historical Society, a special work-display decoy and art show will be held at the Chincoteague National Wildlife Refuge, and tours of a section of Assateague Island beach will be conducted by the National Park Service.

TECHNOLOGY UTILIZATION NEWS

Special Publications are issued by NASA's Office of Technology Utilization primarily to inform potential users outside the aerospace industry about new technology generated through NASA research. Many NASA engineers and technicians, however, are finding these publications especially valuable for internal use as up-to-date supplements to their regular handbooks and texts. These free-for-the-asking publications explain new concepts, designs, techniques, materials and equipment, placing emphasis on the useful applications of this information.

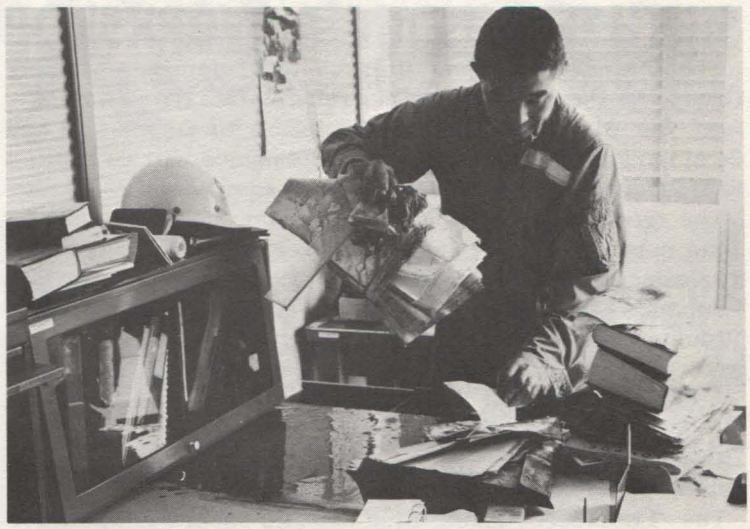
Two new Special Publications have just been announced. SP-5052, Joining Ceramics and Graphite to Other Materials, is an 84-page report prepared under a NASA contract by Battelle Memorial Institute. This report describes a number of ceramic-to-metal joints and the techniques involved in assuring reliable bonds for a variety of applications.

SP-5050, The Metallurgy Behavior and Application of the 18% Nickel Maraging Steels, is a 137-page survey also done by Battelle which conveys much new technology on this increasingly important new engineering material. Maraging steels arrived with the space-age, having been announced only ten years ago. They are desirable for ultra-high-strength precision parts for numerous applications.

Call or stop by your Technology Utilization Office for these and other valuable Special Publications.

WANTED: 50 to 100cc motorcycle. McConnell, 596-644

FOR SALE: Disappearing attic stairway. Sullivan, 596-610



THE LRC-Mission Support Office at Vandenberg Air Force Base, California, was damaged extensively during the recent flood disaster. The entrance to the NASA office building is shown in the top left photo The dark line around the wall denotes the water level. Azusa Yamamoto (top right) cleans water and mud soaked papers from his desk after flood water subsided. Maximum water level rose over top of desk. Workmen (lower left) cleaning out NASA Supply Office survey mud left after flood waters receded. GSA cars (lower right) used by NASA personnel were jumbled by the flood waters. Interiors were filled with mud. The flood was a result of nine continuous days of rain.

LRC-MISSION SUPPORT OFFICE DAMAGED IN FLOOD DISASTER

The NASA LRC-Mission Support Office at Vandenberg Air Force Base, California, was flooded to a depth of approximately three feet during the recent flood disaster. Flooding occured as a result of continued heavy rains in the area causing the normally dry Santa Ynez River to overflow its banks.

Damage to the South Vandenberg Air Force Base, where the LRC offices are located, was extensive. Fortunately, due to the weekend period no personnel were injured, and only records, office furniture and supplies were lost. The floors of the buildings and lower drawers and file cabinets were covered by a layer of thick mud deposited by the flood waters. GSA cars parked in the area were jumbled and water damaged.

The Scout launch complex located on higher ground at South Vandenberg Air Force Base was not affected.

Massive repair operations are under way to clean the mud from buildings, roads and walks and to replace bridges, roadway and rail lines washed out by the rampaging water.

COST-OF-LIVING INCREASE

Federal Civil Service retirement annuities in effect on or before March 1 will be increased 3.9%. To take advantage of the increase, employees must retire no later than the close of business February 28.

By law, increases are automatic whenever the nationwide cost of living goes up as much as three percent and stays up for three months in a row. The figure is determined by rounding to the nearest tenth the highest percentage rise in the cost of living as measured by the Labor Department's Consumer Price Index for a specific "base month." That percentage reached its highest point for the three months in December 1968, thus the index for that month becomes the new base on which any future increase will depend.

FOR SALE: One 5-light colonial dining room chandelier. Lockett 595-6262.

FOR SALE: Complete set Ben Hogan golf clubs with bag and cart - $170. Luthie, CH4-2369.

WANTED: Ride from Southampton to W.A. on 8 shift. Huggett, 3451.

SIXTH TRANSDUCER WORKSHOP

The Transducer Committee of the Telemetry Working Group of the Inter-Range Instrumentation Group is planning the Sixth Transducer Workshop for October 23 and 24 at Langley Research Center. Attendance will be limited to transducer users and government agencies.

The workshop will consist of at least one paper session and a number of panel sessions covering such subjects as: Transducer Tests and Evaluation, Transducer Application Problems, Realistic Specifications for Transducers, Heat Transfer Measurements, and Thermal Transient Effects on Transducers.

A tour of selected laboratories is planned. In addition, the Shock and Vibration Symposium will also be held at Langley on October 21, 22, and 23, thus offering an excellent opportunity to participate in both meetings.

The Transducer Committee solicits papers suitable for presentation at this workshop which should present significant contributions to the fields of transducer development or application, or the art of physical measurement. Those contemplating presentation of a paper are invited to write to the Chairman, Transducer Committee, and submit the following information: Title of paper, abstract or summary of contents, whether the paper is presently available or in the process of being written, and whether the paper has been presented before, and if so, where. This information must be received no later than March 1.

Suggestions for topics to be covered by the panel sessions are welcome as are expressions of interest in the tentative topics listed above. Those interested in being a member of a panel in one of the panel sessions are also invited to write to the Chairman of the Transducer Committee, stating which panel they wish to be a member of and giving a brief resume of their qualifications.

Langley will serve as host for this workshop and will furnish bus transportation between the official motel and the meeting room at the Center. Otis Ingebritson, Instrument Research Division, will co-ordinate workshop activities at Langley.

Invitations to attend the workshop will be issued at a later date. Address all inquiries to: Loyt L. Lathrop, Chairman, Transducer Committee, Division 7217, Sandia Corporation, Albuquerque, New Mexico 87115.

APPRENTICE HONOR ROLL

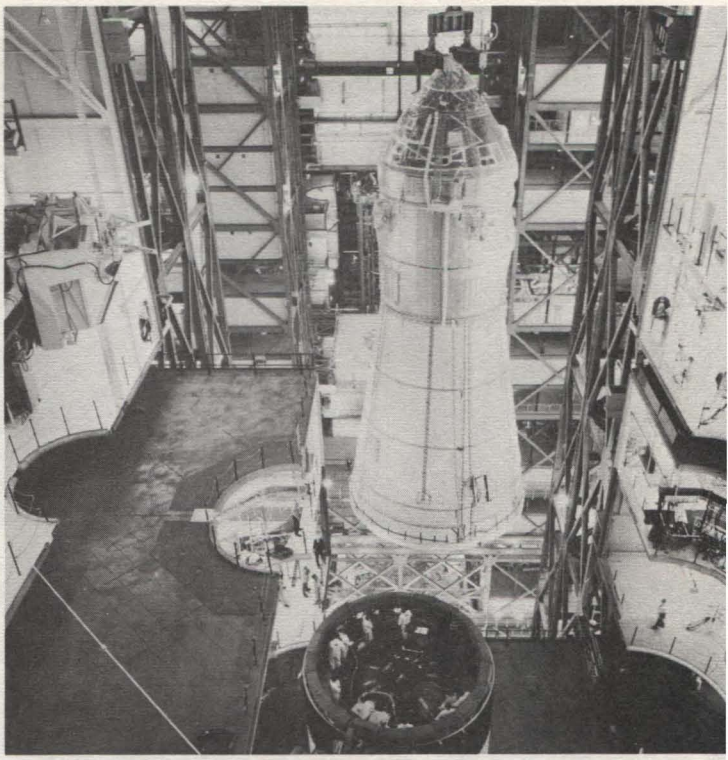
Eleven apprentices completed the fall semester with an average of 95 or better. Members of the honor roll are:

Robert A. Baals, 22-inch Helium Tunnel; Joseph P. Budik, Materials Processing and Development; James R. Clair, Pliant Model Development; John W. Cox, Spacecraft Structures; Everette L. Davis, Dynamic Model; Alton C. Hall, Simulator Development Section; Robert H. Huffman, Entry Structures; George J. Link, Composite Model Development; Barry D. Meredith, Instrument Physics Research; William O. Moore, Reentry Physics; and Homer F. Rush, Research Equipment Section.

WANTED: Alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3247.

FOR SALE: 1964 Pontiac Lemans, 2-door, V-8 engine - $975. Roberts, 877-5446.

FOR SALE: Winston guitar with 2 pick-ups and case, Univoc amplifier with 12-inch Jencen speaker, Realistic solid state reverberation system - $150. Davis, 851-3050 after 5.



THE APOLLO 10 spacecraft is set down atop its Saturn V launch vehicle inside the Vehicle Assembly Building at the NASA spaceport in preparation for a moon-orbiting flight this spring. The moonbound spacecraft is shown as it is lowered for a mating with the rocket's instrument unit.

VEHICLES MUST HAVE DECALS

A recent survey has shown an increase in the number of automobiles without a NASA decal attempting to enter Gate 5 (near the Unitary Plan Wind Tunnel). Since there is no provision for parking or turning around at this gate and the gate cannot issue decals or temporary passes, a person who is stopped by the guard is inconvenienced and all other traffic is delayed.

Staff members are reminded that an automobile must have either a NASA decal or a temporary pass and that the only West Area gate having the facilities for issuing these is Gate 4, the main West Area gate.

If a person is driving a temporary substitute automobile he may use a temporary pass; however, this is valid only on the day it is issued and is not to be used for an extended period.

An automobile which is to be driven to the Center on a regular basis must be equipped with the NASA decal which will be issued by the Badge and Pass Office. To obtain the NASA decal the owner must show that the automobile is covered by liability insurance as required by Langley regulations.

ENROLLMENT DRIVE PLANNED

During the month of March the NASA Employees Benefit Association will conduct an enrollment drive. Brochures will be distributed to all non-participants describing the plan and its many benefits.

During the drive, representatives of the underwriter Home Life Insurance Company of New York, will be available for counselling.

For further information contact the Employee Service Branch, extension 2605.

Langley Researcher

VOLUME 8, NUMBER 5 LANGLEY RESEARCH CENTER MARCH 7, 1969

DR. HANS M. MARK NAMED DIRECTOR OF AMES CENTER

Dr. Hans M. Mark, Chairman of the Department of Nuclear Engineering at the University of California, Berkeley, has been appointed Director of the Ames Research Center.

The appointment of Dr. Mark was announced by NASA Acting Administrator Dr. Thomas O. Paine.

Clarence A. Syvertson, Director of Astronautics at Ames, was appointed to the newly created position of Deputy Director of the Center. Both appointments were effective February 28.

Because of prior commitments to the University of California, Dr. Mark will spend about one-fifth of his time at Ames until July 1969. Until that time, Syvertson, as Deputy Director, will provide the necessary continuity to the Center's operations.

Dr. Mark, 39, received his A.B. degree in Physics from the University of California (Berkeley) in 1951 and returned there as a research physicist in 1955, one year after receiving his Ph.D. in Physics from the Massachusetts Institute of Technology.

An expert in nuclear and atomic physics, Dr. Mark also is Reactor Administrator of the University's Berkeley Research Reactor, professor of nuclear engineering, and a research physicist at the University's Lawrence Radiation Laboratory, Livermore, Calif. He serves as a consultant to the United States Army and the National Science Foundation.

As Director of the Ames Center, Dr. Mark will succeed H. Julian Allen, internationally known authority on reentry physics and originator of the concept of blunt-shaped reentry vehicles so successfully employed in the nation's space flight programs.

Dr. Mark was born in Mannheim, Germany, June 17, 1929, and came to the United States when he was 11 years old. He became a naturalized U.S. citizen in 1945. He attended elementary and secondary schools in New York City from 1941 to 1947.

Except for two years as an assistant professor of physics

(Continued on page 6)

DR. PAINE HEADS NASA

Dr. Thomas O. Paine, Acting Administrator of NASA, was named NASA Administrator Wednesday by President Richard M. Nixon.

Dr. Paine became NASA Acting Administrator when James E. Webb retired October 7, 1968. Dr. Paine joined the space agency on January 31, 1968 as Deputy Administrator.

APOLLO 9 VEHICLES UNDOCK, RENDEZVOUS IN SPACE TODAY

Apollo 9, launched at 11 a.m. Monday from Kennedy Space Center Launch Complex 39A, is the first manned flight of the Apollo spacecraft lunar module (LM).

The Earth-orbital mission will include extensive performance tests of the lunar module, a rendezvous of the lunar module with the command and service modules, and two hours of extravehicular activity by the lunar module pilot.

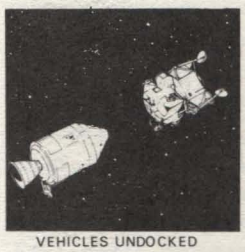
To the maximum extent possible, today's rendezvous in Earth orbit will resemble the type of rendezvous that will take place in lunar orbit following a lunar landing.

Apollo 9 crewmen are Spacecraft Commander James A. McDivitt, Command Module Pilot David R. Scott and Lunar Module Pilot Russell Schweickart. The mission is the second space flight for McDivitt (Gemini 4) and Scott (Gemini 8), and the first for Schweickart.

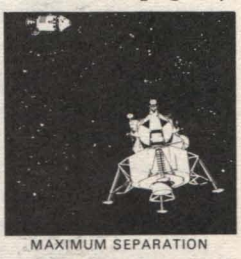
Today the commander and LM pilot will transfer to the LM and begin preparations for undocking and a sequence simulating the checkout of a lunar landing descent.

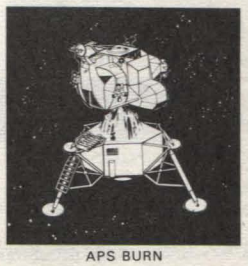
A small thrust with the command/service module (CSM) reaction control system thrusters after separation from the LM will place the CSM in an orbit for a small-scale rendezvous, "mini-football", in which the maximum dis-

(Continued on page 5)


VEHICLES UNDOCKED

LM - BURNS FOR RENDEZVOUS


MAXIMUM SEPARATION


APS BURN

FORMATION FLYING AND DOCKING

LM JETTISON ASCENT BURN

FIFTH DAY - Probably the riskiest activities in Apollo 9's complex mission come today. While Astronaut Scott remains at the controls of the Command Module, Astronauts McDivitt and Schweickart in the Lunar Module (LM) will separate and pull away. The LM descent engine will be fired in rendezvous maneuvers in which the two spacecraft will range up to 95 nautical miles from each other.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

NEWLYWEDS. . .Janet Vaughan, formerly of Fabrication Division, and Alvah S. Moore Jr., Research Support Division, were married Saturday, March 1 at the Liberty Baptist Church, Hampton.

WHAT? AGAIN?. . .The LRC-Mission Support Office at Vandenberg Air Force Base, California, has been damaged again by flood. The water-level last week was 18 inches as compared to three feet in the January flood disaster.

REPRESENTATIVES TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on March 12 from 9 to 10 a.m. Anne Shepherd, Government-wide Service Plan representative, will be here on March 19 from 1 to 2 p.m. Employees having problems or questions concerning either plan may call Lois Taylor, 2605, for an appointment.

NEW HEIRESS. . .Celebrating the birth of a five pound, ten ounce daughter, Jennifer Joann, on February 17 is James W. Ramsey, Research Models and Facilities Division.

AUTO TAGS. . .Virginia State tags and Hampton City decals will be sold at the Phoebus Amoco Station, 201 E. Mellen St., beginning March 15. The office will be open from 8 a.m. to 6 p.m. including Saturdays.

FOR SALE: 1962 Falcon bus camper, sleeps 4, gas stove and built-in cabinets. Willoughby, 898-6217.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of March 10:

Monday - Braised beef tips, grilled pork chops, salmon loaf, baked hash. Snack bar - Soup, hamburger, grilled ham, French fries.

Tuesday - Cream of mushroom soup, roast beef, veal cutlet, shrimp Newburg, broiled luncheon meat. Snack bar- Soup, hot dog, hot roast beef, French fries.

Wednesday - Split green pea soup, baked Smithfield ham, country fried steak, chicken livers over rice, fish cakes. Snack bar - Soup, fish sandwich, steak sandwich.

Thursday - Turkey-rice soup, roast turkey, barbecued pork chunks, liver and onions, meatless ravioli. Snack bar - Soup, barbecue, sliced turkey, German potato cakes.

Friday - Manhattan clam chowder, roast pork, stuffed flounder, Salisbury steak, franks and beans. Snack bar - Soup, hot dog, cheese dog, flying saucer, French fries.

The menu for the week of March 17 is as follows:

Monday - Split green pea soup, simmered corned beef and cabbage, chicken pie, broiled fish, chili con carne. Snack bar - Soup, deviled ham, hot corned beef, fried egg plant, baked beans.

Tuesday - Puree of bean soup, Swiss steak, grilled slice of smoked ham, baked meat loaf, Spanish omelette. Snack bar - Soup, sea dog, steak sandwich, French fries.

Wednesday - Tomato-rice soup, Spanish pot roast, fried scallops, Polish sausage, macaroni and wieners. Snack bar - Soup, hot dog, hot roast beef, French fries.

Thursday - Vegetable-beef soup, grilled steak, beef pie, fried chicken, meatless ravioli. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Cream of mushroom soup, roast beef, fried fish, chicken chow mein, tamale pie. Snack bar - Soup, fish sandwich, hot pastrami, hush puppies, French fries.

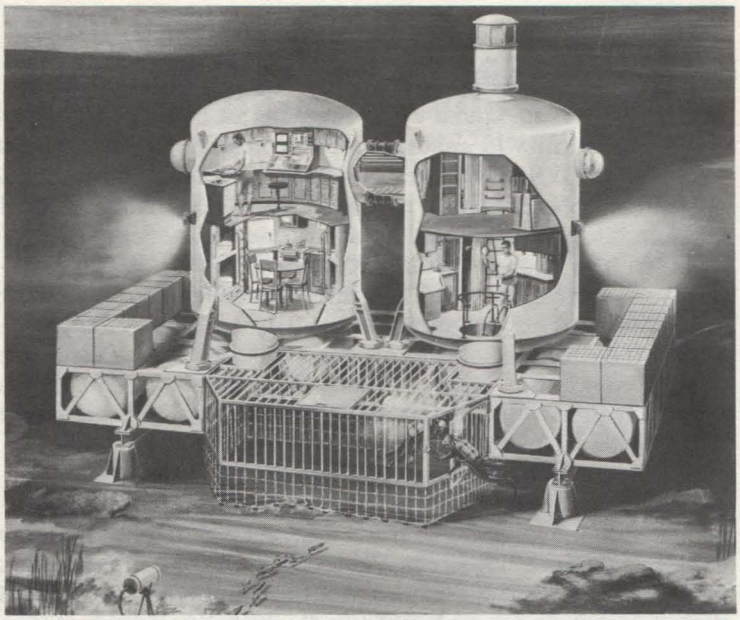
FOR SALE: 1961 Plymouth, 4-door - $225. Turner, 838-3196.

FOR SALE: 3-bedroom, 1-1/2-bath brick rancher with fireplace, dining room, large eat-in kitchen, wall-to-wall carpet, attached garage, and many extras - located in Shore Park. $4000 down and assume 5-1/2% loan with total payments of $133 per month. Avis, 877-6157.

WANTED: Alternate drivers from Deep Creek-Normandy Lane area to W.A. on 8 shift. Ely, 3041.

BLONDIE

By Chic Young



Artist's concept of Tektite I shows the four compartment home-laboratory where four marine scientists will live and work for 60 days on the ocean floor. Cupola on top of right chamber permits additional observation capability for the crew.

MARINE SCIENTISTS TO LIVE ON OCEAN FLOOR FOR 60 DAYS

Project Tektite, the $2.5-million Federal program aimed at determining how well men can function under water for long periods, was launched February 15 when four marine scientists swam to an underwater capsule moored 50 feet below the surface of Greater Lameshur Bay, Virgin Islands National Park, offshore from St. John Island. The men will live in submarine isolation for two months -- twice as long as man has done before.

Tektite I is a multi-agency/industry program to determine the capability of a small group of men to satisfactorily perform a scientific research mission while living isolated on the ocean floor under saturated diving conditions for a long period of time.

The program is jointly sponsored by the Navy, NASA, and the Department of Interior, with participation by the U.S. Coast Guard. The prime contractor is the General Electric Company, which is furnishing the undersea habitat and assisting in program planning and scientific mission coordination.

Representing Langley Research Center at the site is Robert A. Bruce, Flight Vehicles and Systems Division.

During the 60 days the men will be under water in a four-chamber habitat, they will conduct marine biological and geological surveys and test equipment. Surface scientists will monitor their medical and psychological performance.

Similar in many ways to a space flight, the project also will collect data necessary for planning the long duration astronaut missions.

It was because of the mixture of marine and space sciences that the project was named Tektite, a glassy rock believed to be of extraterrestrial origin that has been found on the sea bottom.

The long-range purpose of the project is to open to exploration the continental shelf that underlies two-thirds of the world's oceans and seas.

The capsule, built by the Missiles and Space Division of General Electric, is remarkably similar in intent to the command and service module of Project Apollo spacecraft.

The habitat, as the underwater quarters and laboratory is called, is composed of two connected vertical cylinders, 18 feet high and 12-1/2 feet in diameter mounted on a rectangular base.

The cylinders are divided into four compartments -- living quarters, a laboratory, an engine room, and a wet area for entering and leaving the capsule.

SIMS RECEIVES SPECIAL AWARD

Theo E. Sims

Theo E. Sims, aerospace technologist in the Flight Instrumentation Division, has received a Special Service Award for Exceptional Service. He was cited for "significant achievement in the planning and direction of a series of highly successful flight experiments which has resulted in greatly increased knowledge of the radio frequency transmission through the ionized plasma sheath that surrounds hypersonic reentry vehicles."

Sims is a native of Vincent, Alabama. After graduation from the Pell City (Alabama) High School, he served three years as a radio operator with the U.S. Army Air Force from 1942 to 1945, flying missions over Japan.

Following his military service, he enrolled in Auburn University, from which he was graduated in 1948 with the degree of Bachelor of Science in Electrical Engineering. During the ensuing six years, he was employed in private industry, working on the development of AM and FRM transmitters, receivers, servomechanisms, and phase measurement systems.

He joined the Langley staff in February 1955, and was assigned to the Telemeter Component Development Section, Instrument Research Division.

A specialist in the field of data acquisition and transmission, Sims served as program manager for RAM (Radio Attenuation Measurements) and was responsible for planning and executing flight experiments to investigate attenuation and resultant blackout of radio frequency transmission through the ionized plasma sheath which surrounds hypersonic vehicles during atmosphere rentry.

FOR SALE: Boy's 20-inch Hawthorne bicycle - $20. P. M. Salake, 723-5525.

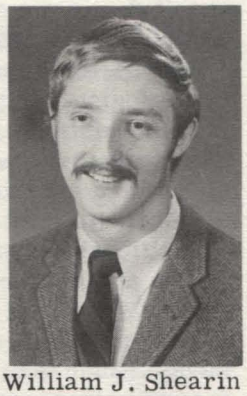
FOR SALE: 1964 Pontiac Gran Prix, power accessories, air conditioning - $995. Eaton, 827-2686.

FOR SALE: 127 x 218-foot waterfront lot on Shoreline Dr., deep mooring for boat adjacent to lot. Batten, 877-9018 after 5 p.m.

FOR SALE: 1962 Chevrolet Impala, 4-door sedan, air conditioning, power steering and brakes - $800, Painter, 595-2358.

William P. Gilbert

James F. Kibler


William J. Shearin

THREE RECEIVE BACHELOR DEGREES

Three co-operative education student trainees received Bachelor of Science degrees in Aeronautical Engineering in January and recently entered on duty as regular Center employees. All three were graduated from North Carolina State University, completing a four-and-a-half year program of alternating periods of work and study.

William P. Gilbert, a native of Durham, N.C., is assigned to the Dynamic Stability Branch of the Flight Mechanics and Technology Division. James F. Kibler, originally from Cary, N.C., is assigned to the Aerospace Mechanics Branch of the Applied Materials and Physics Division. William J. Shearin, Vienna, Va., is assigned to the Spacecraft Branch of the Flight Vehicles and Systems Division.

Both Gilbert and Shearin are members of Phi Kappa Phi and Tau Beta Pi honorary societies.

CSC BUREAU CHANGES NAME

The name and organization of a major U.S. Civil Service Commission bureau have been changed to reflect the increased emphasis that the Commission will place upon employee health and safety activities on a Government-wide basis.

Now the Bureau of Retirement, Insurance, and Occupational Health, it was formerly the Bureau of Retirement and Insurance. The Bureau administers three of the largest employee benefit programs in the world - the Civil Service Retirement system, the Federal Employees Group Life Insurance program, and the Federal Employee Health Benefits program.

As part of the change, each of the Commission's ten regional offices will establish programs to promote occupational health and safety efforts throughout their individual regional areas.

Thomas A. Tinsley, director of the Department of Labor's Bureau of Employees' Compensation, has transferred to the Commission as Deputy Director of the renamed Bureau. He will assist Director Andrew E. Ruddock in overall planning, direction, and coordination of all work of the Bureau, including occupational health and safety activities.

John E. Baer, a health administration consultant with Booz, Allen and Hamilton, Inc., has joined the Bureau in the new position of Assistant Director of Occupational Health and Safety. He will direct the activities of a newly established Division of Occupational Health and Safety. Baer will represent the Commission and the Bureau Director in promoting the development and expansion of high quality occupational health and safety programs for Federal employees. In addition to directing the work of the Division of Occupational Health and Safety, he will direct the activities of the present Medical Division which is responsible for the Commission's Government-wide disability retirement and physical qualifications programs.

PROCEDURES CHANGED TO SPEED UP CIVIL SERVICE RETIREMENT CLAIMS

Procedures to speed up processing of Civil Service retirement claims to assure more prompt payment are now in effect, the U.S. Civil Service Commission has announced.

Federal agencies are now authorized to submit optional or mandatory retirement applications and necessary records to the Commission six weeks in advance of an employee's retirement date. Similar procedures have already proved helpful in processing disability retirement applications. The Commission emphasized that, to be effective to the maximum degree, both agencies and employees must cooperate in seeing that applications for retirement are filed well in advance of the retirement date.

Under previous procedures for non-disability retirements, agencies submitted the applications after the retiring employee had received his last pay check. In some cases the time lapse in submitting the application has been as long as 30 days after the employee retired and has delayed the receipt of his first annuity check by one to two months.

The new system will permit the Commission to verify employment records and compute the annuity while the employee is still on the payroll and to notify the Treasury Department to schedule payment of the first annuity check when due.

The new procedures call for agencies to confirm no later than five days after the pay date of the employee's final salary check that the separation for retirement actually took place. Agencies also have been requested to establish a similar target date for submission of records needed to pay lump-sum refund claims.

The new system for non-disability retirements is expected to be particularly helpful at times when cost-of-living increases in the annuities of retired Federal employees come about. One such increase became effective March 1 and will be reflected in the April 1 annuity checks. All annuitants on the annuity rolls on or before March 1 will receive the increase.

Under the law, automatic increases are granted annuitants on the Civil Service retirement rolls whenever, for three consecutive months, the cost of living is increased by at least three percent over the Consumer Price Index on which the previous increase was based.

FOR SALE: Solid elm bedroom suite with double bed, chest of drawers, dresser, night stand - $100. Drummond, 851-7553.

FOR SALE: 3-bedroom brick rancher with 1-1/2-baths, den, attached garage, large screened porch - located in Fairfield. Pay equity and assume 5-1/4% loan. Wilson, 851-0806.

FOR SALE: Metal desk - $5; upholstered leatherette chair - $5; studio couch - $10; 2 twin headboards - $5 each, kitchen table - $10; 3 kitchen chairs - $5 each, 2 aluminum cots - $5 each. Miller, 595-0731.

FOR SALE: Hot Point refrigerator - $35. Ashe, 826-1014.

FOR SALE: Brown & Sharpe micrometer - 0-1 inch. Monteith, 877-0493.

INDUSTRY INVITED TO SUBMIT BIDS ON NASA'S VIKING PROJECT

Langley Research Center has asked interested aerospace firms to prepare design and financial proposals for the planetary lander and project integration portions of the Viking Project.

The Viking spacecraft -- each consisting of a lander and and an orbiter -- are to be procured for two planned flights to the planet Mars in 1973. Mission objectives set by NASA for Viking place particular emphasis on a search for scientific information relevant to life on the planet.

The request for industry proposals issued by Langley, which manages the project, will lead to a competitively selected prime contractor. The company to be selected will be responsible for the Viking Lander system and for integration of the Viking Project, including the orbiter system, launch vehicle, ground support equipment, tracking and data systems, and launch and flight operations.

The Viking Orbiter is managed by NASA's Jet propulsion Laboratory. Requests for proposals for portions of the orbiter will be issued by JPL later this year.

NASA expects to negotiate with the contractor eventually selected a cost-reimbursement type contract containing incentive provisions designed to encourage superior technical performance coupled with efficient management.

Industrial firms interested in bidding on the Viking Lander and Project Integration request have until April 2 to file their technical proposals with the Langley Research Center.

RENDEZVOUS PLANNED TODAY

(Continued from page 1)

tance between the two spacecraft will be about three nautical miles. The LM rendezvous radar will be locked on to the CMS transponder for an initial test during this period.

One-half revolution after separation, the LM descent engine will be ignited to place the LM in an orbit ranging 11.8 nautical miles above and below the CMS orbit, and after 1-1/4 revolutions it will be fired a second time, to place the LM in an orbit 11 nautical miles above the CSM.

The LM descent stage will be jettisoned and the LM ascent stage reaction control thrusters will next be fired to lower LM perigee to 10 miles below the CSM orbit and set up conditions for circularization. Maximum LM-to-CSM range will be 95 nautical miles during this sequence.

Circularization of the ascent stage orbit 10 nautical miles below the CSM and closing range will be the first duty in the mission for the 3,500-pound thrust ascent engine.

As the ascent stage approaches to some 20 nautical miles behind and 10 nautical miles below the CSM, the commander will thrust along the line of sight toward the CSM with the ascent stage thrusters, making necessary mid-course corrections and braking maneuvers until the rendezvous is complete.

When the two vehicles dock, the ascent stage crew will prepare the ascent stage for a ground-commanded ascent engine burn to propellant depletion and transfer back into the command module. After the final undocking, the CSM will maneuver to a safe distance to observe the ascent engine depletion burn which will place the LM ascent stage in an orbit with an estimated apogee of 3,200 nautical miles.

Splashdown for the 10-day mission will be at 9:46 a.m. on March 12 in the West Atlantic some 250 miles ESE of Bermuda and 1,290 miles east of Cape Kennedy.

The Apollo 9 crew and spacecraft will be picked up by the landing platform-helicopter (LPH) USS Guadalcanal. The crew will be airlifted by helicopter the following morning to Norfolk and thence to the Manned Spacecraft Center.

Robert L. Girouard (left), President of Langley Federal Credit Union, presents Roger W. Peters with a Certificate of Appreciation for 20 years of valued service as a volunteer worker. The occasion was the 33rd annual meeting of the Credit Union where Peters resignation, for personal reasons, as Chairman of the Credit Committee was announced.

CREDIT UNION NOTICE

In February, the Langley Federal Credit Union issued the first in a series of monthly newsletters or digests. Titled the "Reporter," the one page front-and-back was very well received. However, it did look a little "heavy;" the compactness of the material, because of space limitations, tended to discourage a closer look.

With that as one of several reasons, the March issue will be expanded to four pages. This will allow more white space, a question and answer column, pictures, some light material, and finally -- if the membership wishes - a classified ad section. The last, of course, depends on the members for submissions. Get your notice in by the first day and it will appear in the first week of the month. Mail to the Credit Union (14781) care of the Reporter.

Further, a little monetary reward never hurt anyone. In the belief that a steady reader can be made out of most members who will take the time to see what one or two issues contain, the Education Committee has allotted $25 for each month's copy. So take a look: five account numbers each worth $5. One of them may be yours. And while you are looking, give some thought to the information and suggestions contained, laugh a little, and see if, just maybe, next month's issue has a reader account number or no account number. Incidentally, in addition to the five in the Reporter, each article, notice or other release in the Researcher, Flyer, or Daily Bulletin will include at least one account number worth the usual $5 to its owner. So check them all.

TABLE MOUNTAIN OBSERVATORY BACKSTOPS MARINER SPACECRAFT

While the Mariner 69 spacecraft probes Mars from close in, astronomers of NASA's Jet Propulsion Laboratory will spend much of this year photographing Mars and analysing its atmosphere from Table Mountain Observatory high in the San Gabriel Mountains.

The scientists of the Jet Propulsion Laboratory Space Sciences Division will use a 40-foot-long Coude Spectrograph, one of the largest in the world, to measure light waves from Mars and to determine what constituents, particularly water vapor, might be in the planet's atmosphere.

Questions the astronomers will seek to answer are vital to the planetary exploration program under consideration by NASA.

Is the Martian atmosphere capable of supporting life of any kind? Does water vapor, already identified there in small quantities, extend entirely around the planet?

The NASA-JPL observatory, situated on 7,500-foot Table Mountain two miles west of Wrightwood, Calif., and a 90-minute drive from Pasadena, is a quiet but important element in NASA's optical astronomy program. Atmospheric data on both Mars and Venus, pertinent to various Mariner missions, have been obtained by Table Mountain observers working in the smog-free San Gabriel range.

In the past year, a new 24-inch telescope and the spectrograph have extended the capabilities of the observatory. These augment a 16-inch telescope and camera which since 1962 have produced valuable planetary observations and photographs, plus unusual photographs of the Ikeya-Seki Comet in September-October 1965 and the Leonid Meteor storm in November 1966.

In January 1968, the observatory also directed an argon ion laser beam to the moon where it was received and photographed by Surveyor VII.

While Mars' closest approach to Earth won't come until June, Table Mountain astronomers will begin observations this month and continue them for nine months.

DIRECTOR OF AMES CENTER

(Continued from page 1)

at MIT (1958-1960), Dr. Mark's administrative, academic and research career has been centered at the University of California (Berkeley). He has written many scientific papers.

Syvertson joined the Ames staff in 1948. He is a graduate of the University of Minnesota where he earned the Bachelor of Aeronautical Engineering degree and his M.S. degree. He has specialized in hypersonic aerodynamics and played a major role in the development of NASA's M-2 wingless lifting body research vehicle. Syvertson was director of the NASA Mission Analysis Division prior to his appointment as Director for Astronautics at Ames.

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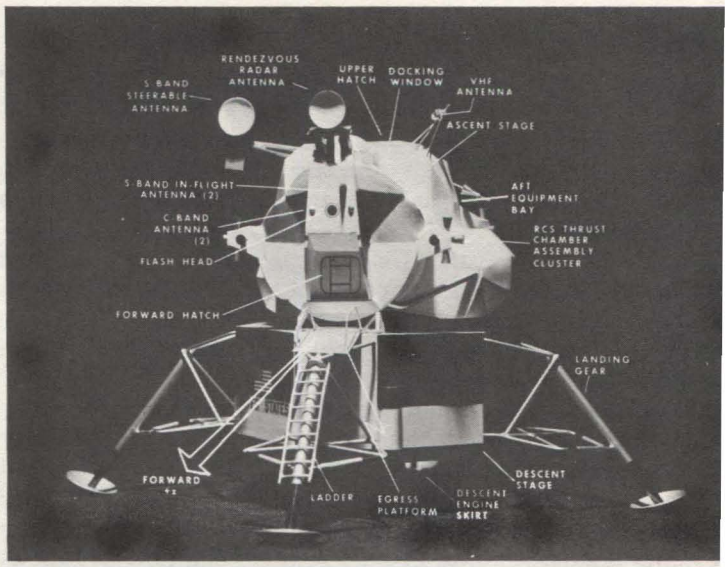
FOR SALE: 6-rifle gun cabinet with sliding class doors and bottom drawer - $50, steel desk for typewriter or student desk, 30-1/2 inches wide X 27 inches high, mist green - $15, 8 x 8-foot nylon avacado carpet - $25. Tribeck, 877 3725 after 5 p.m.

FOR SALE: 1964 Oldsmobile F85 station wagon - $750. Royster, 851 1193.



LUNAR MODULE - A lunar module like the one bei tested during Apollo 9 will ultimately land United Stat astronauts on the moon and return them to their spa ship for safe return to Earth. The strange looking, bu like vehicle above lacks the streamlined shape of mo spacecraft because it will perform its duties away fro the atmosphere of Earth where such streamlining wou be necessary. LM consists of two main parts -- a desce stage and an ascent stage. The former provides the mea of landing on the moon, carries extra supplies, and serv as a launching platform for the liftoff from the moon. T latter contains the crew compartment in which the t astronauts will spend their time while not on the moo surface and the engines which will return the astronau to the command module. Also labeled in the drawing abo are the various antennas, vital to the trip, as well thruster assemblies for controlling the attitude of t craft on its way to and from the lunar surface.

FOR SALE: 21-inch Craftsman reel-type lawn mower $50; 21-inch Firestone reel-type lawn mower - $15. Ca mines, 826-2894.

FOR SALE: 1966 Oldsmobile 442 with new radial tire best offer. McGill, 851-1219.

FOR SALE: G.E. electric floor buffer with attachment $10. Coward, 877-4696.

FOR SALE: Humidifier for forced air furnace - $15. Key 595-1448.

FOR SALE: 1961 2-door Falcon station wagon - $1 Pepe, 596-6433.

PARSONS DIES IN CALIFORNIA

John F. Parsons, Associate Director of the Ames R search Center and former member of the Langley sta died Sunday in Stanford Hospital, Palo Alto, California.

Parsons was born May 10, 1908. He received his B degree in Aeronautical Engineering from Stanford Unive sity and joined the Center staff October 31, 1931. He w transferred to Ames January 16, 1940.

He is survived by his wife, Mrs. Evelyn Hughes Parso formerly of Newport News; a daughter, and two sons.

The family has requested that expressions of sympathy sent to the John F. Parsons Memorial Fund, c/o Stanfo University, Palo Alto.

AIAA MEETING HELD IN WILLIAMSBURG

The Seventh Electric Propulsion Conference of the American Institute of Aeronautics and Astronautics was held March 3-5 at the Conference Center in Williamsburg.

Robert V. Hess, Aero-Physics Division, served as General Chairman, and Frederick W. Bowen, Research Staff Office, was Administrative Chairman.

Subjects covered during the conference included mission analysis technology, instabilities and spokes in MPD arcs, ion thruster systems technology, MPD arcs, missions and spacecraft, ion thruster research, pulsed and quasi-steady thrusters, basic plasma research, advanced thruster research, auxiliary propulsion systems, and ion thruster technology.

Hess pointed out that the international interest in the field of electric propulsion was indicated by the presentation at the conference of nine contributed and invited papers from countries outside of the United States.

A paper on "Onset of Rotating Disturbance in the Interelectrode Region and Exhuast Jet of an MPD Arc" by Dr. Frank Allario, Olin Jarrett, and Hess, all of Aero-Physics Division, was presented at the session on instabilities and spokes in MPD arcs.

GRADUATE COURSE OFFERED

The Mathematics Department of the College of William and Mary is considering the possibility of offering a graduate level course in Probability and Statistics as follows:

Topics in Probability and Statistics - continuous course; lectures three hours, three credits each semester. Prerequisite: Math 402 - Probability and Statistics, or equivalent.

The first semester will deal with probability models. Topics to be discussed are probability distributions; laws of large numbers; use of generating functions and convolutions; random walks. During the second semester, various well-known distribution free testing and estimation techniques will be covered. These will include the Kolmogorov Smirnov test, Wilcoxon-Mann-Whitney test, normal scores and others.

Persons interested in such a course should call the Training Office, extension 2517.

TECHNICAL WRITING COURSE

A contract course in technical writing will be taught at Thomas Nelson Community College during the spring quarter. The course is designed for non-professional personnel who are required to do some writing as a part of their duties. Sandia Tuttle, a faculty member of the English Department, will teach the class on Mondays from 7 to 10 p.m. It will begin on March 31 and continue through June 2.

The content of this course will include a review of the following: Punctuation and capitalization, sentence structures, vocabulary, spelling, and parts of speech. Application of the basic concepts and practices in collecting and presenting written information in an orderly and correct manner will be applied through various exercises.

Participants will be required to purchase a textbook through the Training Office. The college also requires a decal, which costs one dollar, for automobile parking while attending classes.

Enrollment will be limited to the first 25 who register with the Training Office, extension 2611.

OFFICIALS of the Langley Research Center and the Newport News Office of Economic Opportunity signed a contract last week whereby 20 mechanic trainees have been assigned to Langley Research Center. Discussing the program are seated: Mrs. Norvleate Downing, OEO Executive Director, and T. Melvin Butler, Assistant Director for Administration. Standing - Earl F. Stahl, Chief of Research Support Division and alternate administrator for the Langley program, and J. Norwood Evans, Assistant Personnel Officer and administrator for the program.

MECHANIC TRAINEES JOIN STAFF

Langley Research Center and the Newport News Office of Economic Opportunity signed a training agreement last week whereby 20 mechanic trainees are participating in a one year training program.

Under the close supervision of a journeyman or technician, the trainees will be guided towards an understanding of equipment function and the use of various tools. They will perform unskilled and semiskilled mechanical tasks in support of the Center work effort. The journeyman will give specific instructions and directions as to work methods and work sequences to be followed.

The trainees will be assigned to journeymen pipefitters, refrigeration mechanics, general mechanics, heating plant mechanics, electricians, machinists, carpenters, and research facility mechanics.

The following courses will be conducted on a semester basis by instructors from the Research Support Division: General Mathematics, B. R. Emerson Jr.; Blueprint Reading and Sketching, H. E. C. Bellamy; Shop Applications, T. H. Hall; and Counseling and Supervised Study, instructor to be announced.

In keeping with the Center program to provide equal opportunity without regard to race, creed, color, sex, or national origin, an arrangement was made with the local OEO office to provide a year of training to selected recruits from the area's poverty families. The agreement setting forth the training objectives and means for achieving them was signed jointly by T. Melvin Butler, Assistant Director for Administration at Langley, and Mrs. Norvleate Downing, OEO Executive Director. Details of the program were worked out by representatives of Langley Research Center and the Office of Economic Opportunity, who will continue to play a role in the handling of the program to insure it meets program objectives.

TECHNOLOGY UTILIZATION NEWS

The Technology Utilization program reports much new technology which ordinarily does not enter into NASA's formal report writing and distribution system. Most laboratory technicians, mechanics, or instrument men are not expected to write detailed technical reports on their work, yet they produce many innovations and incremental advances worthy of note and transfer to others. This is the information gap which Tech Briefs are most effective in closing. These concise and informative documents readily transfer to industry new ideas, inventions, techniques and processes which might otherwise filter through only by haphazard means.

Be alert for little gems of technology which could be useful to industry in increasing production or creating new or better products. A minimum cash award of $25 is given to the contributor of each Tech Brief published. Please inform your Technology Utilization Office of any items you consider worthy of Tech Brief coverage.

BRADSTREET TO GIVE LECTURES

Samuel S. Bradstreet, consultant and former Director of the Ceramics and Graphite Information Analysis Center, Air Force Materials Laboratory, Wright Patterson Air Force Base, Ohio, has been obtained as a lecturer-consultant for a two-day visit to the Center on March 10 and 11. The lectures will be held at 8:30 a.m. in Room 200, Building 1212.

Bradstreet is an expert in the fields of graphite, composites, and coating processes. He will give lectures on new graphites and advances in composite and coating technology and will consult on the properties of graphites and graphite composites as related to rocket nozzles. He will also discuss fastening methods for metal matrix composite sheetmetal with members of the Spacecraft Branch.

Staff members wishing to attend these lectures and who have not already made arrangements through their division offices are asked to call Training Office, 2517.

TELEPHONE CHANGE SUCCESSFUL

The Center's change over to the Centrex telephone system went very smoothly, according to Guy Boswick, head of the Communications Section, Administrative Services Division.

Boswick said telephone call counting equipment showed there were approximately 42,000 completed calls on Monday, February 17. That was the first day the work force was in the office after the change.

Boswick said users apparently had little or no trouble adjusting to the new numbers. He attributed this success to the many staff members who attended the briefing sessions and who took time to read and understand the instructions.

WANTED: Ride from Willow Oaks to W.A. on 8 shift. Kabana, 851-5229.

WANTED: Alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3571.

FOR SALE: 1964 Oldsmobile F85 station wagon, 4-door, straight shift. Chard, 851-6934.

FOR SALE: Sofa, portable typewriter, electric typewriter, 2 chairs, 2 office desks, portable dishwasher, meat slicer, tape recorder, living room rug. Sherwood, 596-8933 after 5.

OUTSTANDING promise is shown for this retracted rotor composite aircraft that makes helicopter take-offs and landings but flies with the speed (more than 400 miles per hour) and range (500 miles-plus) of a fixed-wing plane after folding back its blades in flight, according to a Lockheed-California Company engineer. The composite aircraft, especially a retracted rotor type, may be the next major aviation advance and could be in operation in five years. The aircraft was discussed at a joint meeting of the American Institute of Aeronautics and Astronautics and the American Helicopter Society.

NASA BASKETBALL NEWS

The Misfits have practically wrapped up the championship in the A League with an 8-0 record. With the second place team three games behind and only four games left for each team to play, the Misfits should have no trouble staying on top.

The league scorers are Ward, ACD, with 12 points for a 17.3 average; Wills, Misfits, 103 points with 14.7 average; Lee, KNADS, 85 points with 10.6 average; and Martin, Dribblers, 83 points with 11.9 average.

A LEAGUE STANDINGS

Team	W	L	Pct
Misfits	8	0	1.000
KNADS	5	3	.625
ACD	5	3	.625
Raiders	2	6	.250
Dribblers	0	8	.000

In the B League, the Short Circuits have moved out in front by one game with a 6-2 record. However, the championship is still up for grabs since three teams are tied for second place with 5-3 records.

Leading scorers are Horne, Short Circuits, 112 points for a 14 average; Wallace, Replacements, 107 points with 13.4 average; Midden, Net Nuts, 95 points with 11.9 average; and Hoffman, Westside, 89 points for 11.1 average.

B LEAGUE STANDINGS

Team	W	L	Pct
Short Circuits	6	2	.750
Replacements	5	3	.625
Net Nuts	5	3	.625
Outcasts	5	3	.625
Westside	4	4	.500
Alchemists	2	6	.250
Eastside	1	7	.125

Langley Researcher

VOLUME 8, NUMBER 6 LANGLEY RESEARCH CENTER MARCH 21, 1969

NASA WILL PRESENT AWARDS AT FOURTEEN SCIENCE FAIRS

NASA is presenting awards this spring in 14 regional and state science fairs in Virginia, North Carolina, South Carolina, and Kentucky as part of the NASA's annual participation in the International Science Fair.

Up to five NASA certificates of outstanding achievement in aeronautics and space-related categories are being awarded in the participating science fairs. The Virginia science fairs include the Tidewater Science Congress to be held March 29 at Lake Taylor High School, Norfolk, and regional competitions in Arlington, Fairfax, and Roanoke.

Representing Langley Research Center in the selection of NASA award winners at the Tidewater Science Congress are E. Brian Pritchard and W. Frank Staylor, Aero-Physics Division, and Emanuel Boxer, Full-Scale Research Division.

NASA awards are being presented by Langley at science fairs at Charlotte and Raleigh, North Carolina; Spartanburg, Greenville, Columbia, and Charleston, South Carolina; and Williamsburg, Jeffersontown, Campbellsville, and Morehead, Kentucky.

Other NASA centers will participate in similar events in their geographical areas.

Langley's participation in the science fairs is coordinated by the Office of Public Affairs.

The 1969 International Science Fair will be held in Fort Worth, Texas, May 5-9, where winners of regional and state fairs in the United States and a number of foreign nationals will compete for honors.

Axel T. Mattson, Langley's Research Assistant for Manned Spacecraft Projects, has been named for the seventh successive year as a judge for the NASA awards program at the ISF.

(Continued on page 8)

CHINCOTEAGUE PLANS OPEN HOUSE

Chincoteague is planning a number of special events in connection with the Open House observance April 12 and 13 at NASA's Wallops Island, the Chincoteague National Wildlife Refuge, the Assateague Island National Seashore, and the U.S. Coast Guard Base at Chincoteague.

Located near Wallops Station, Chincoteague plans an oyster roast from 5 to 8 p.m. on April 12 ($2.50 per person); boat tours of the island ($2 for adults and $1 for children); a movie, "Misty of Chincoteague"; and a duck decoy display -- with carvers present for instruction and sales.

Wallops will feature a drive-by tour of the NASA island, with a closeup view of long-range radars, rocket launchers and blockhouses; exhibits of full-scale rockets such as Langley's Scout, RAM and Nike-Cajun; and a tour of the island's Range Control Center.

APOLLO 10 TO ORBIT MOON; LAUNCH PLANNED FOR MAY

Astronauts Thomas P. Stafford, John W. Young and Eugene A. Cernan have been assigned as prime crewmen for the Apollo mission scheduled for May. Apollo 10 will circle the moon for 63 hours and send its lunar module to within 10 miles of the lunar surface. The actual moon landing will not be attempted until Apollo 11 in July.

Apollo 10 will be launched by a Saturn V into low Earth orbit. At the end of the second or third orbit the third stage of the Saturn V will be reignited to place the space vehicle on a trajectory to the moon. The command and service module will separate from the third stage and the spacecraft lunar module adapter panels will be jettisoned.

The command and service module then will dock with the lunar module and extract it from the rocket stage. The combined spacecraft modules will continue to the moon and enter an orbit around the moon.

Leaving Young to orbit the moon in the command module, Stafford and Cernan will enter the lunar module, detach it from the command and service modules, descend to approximately 10 miles above the moon surface, then return to the orbiting command and service module. The lunar module will be left in orbit around the moon and the crew will return to Earth in the command module.

The entire flight will take about nine days.

APOLLO 10 ASTRONAUTS: Prime crew for the fourth manned Apollo flight are (from left) Eugene A. Cernan, Command Module Pilot; John W. Young, Lunar Module Pilot; and Thomas P. Stafford, Commander.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

EASTER EGG HUNT. . .The Activities Association will sponsor its annual Easter Egg Hunt for children of Center employees on Saturday, April 5 at 1:30 p.m. at the Activities Building. Further information will be announced in the April 4 issue of Langley Researcher.

BABY DERBY. . .Celebrating the birth of an eight pound, four ounce son, Joseph Clark, on March 16 are Raye and Joe Mathis, both of Flight Vehicles and Systems Division.. Passing out cigars and candy is Robert L. Fixx, Research Support Division. He became the father of a daughter, Traci Lenore, on March 14.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, March 26 at 7:30 p.m. at the Central Labor Union Hall.

SKYWATCHERS. . .The Langley Skywatchers Club will meet on Wednesday, March 26 at 7:30 p.m. at the Peninsula Nature Museum and Planetarium located at 524 J. Clyde Morris Boulevard. The session (fourth in the series) will be conducted by Robert J. Mack, Chairman of the Skywatchers Club. The subject will be "The Theory of Stellar Formation and Evolution - According to Hoyle."

IAM MEETING NOTICE. . .The NASA Lodge No. 892, International Association of Machinists, will hold its monthly meeting on Tuesday, April 1 at 7 p.m. at the Central Labor Union Hall.

NOTE OF THANKS. . .Louise P. Earnhardt, who recently retired from the Center, has sent the following note to her many friends: "I would like to express my sincere thanks and appreciation to all my friends at NASA for the wonderful retirement party and all the lovely gifts. I will cherish the occasion always."

SEMINAR. . .Princeton Applied Research Corporation will hold a signal processing seminar and instrumentation demonstration on Tuesday, April 1 in Room 225, Building 1230. A half-hour talk on signal processing techniques will be given at 10 a.m. and again at 2 p.m. by Robert N. Rosenbaum. Rosenbaum and Glenn C. Lehman, staff members of the research corporation, will be available between 9 a.m. and 3 p.m. to discuss instrumentation.

Your favorite Uncle asks you to buy U.S. Savings Bonds, new Freedom Shares

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of March 24:

Monday - Puree of bean soup, fried oysters, grilled pork steak, Spanish franks, baked lasagna. Snack bar - Soup, hot dog, hot roast beef, French fries.

Tuesday - French onion soup, roast veal, stuffed shrimp, sauteed chicken livers, spiced luncheon meat. Snack bar - Soup, barbecued meat sandwich, hot corned beef, French fries.

Wednesday - Cream of celery soup, grilled chopped steak, chicken cacciatore with spaghetti, broiled fish, chili-mac. Snack bar - Soup, fish sandwich, Lou's satellite special, baked beans, French fries.

Thursday - Vegetable-beef soup, pot roast, baked ham, salmon cakes, baked hash. Snack bar - Soup, hamburger, cheeseburger, roast beef, German potato cakes.

Friday - Clam chowder, country-style steak, pork chop suey, fried fish, grilled cheese sandwich. Snack bar - Soup, grilled cheese, steak sandwich, French fries.

The menu for the week of March 31 is as follows:

Monday - Vegetable-beef soup, roast beef, grilled pork chops, spaghetti and meat sauce, fish cakes. Snack bar - Soup, barbecued meat, hot corned beef, French fries.

Tuesday - Chicken-noodle soup, pepper steak, shrimp creole, chicken croquettes, franks and beans. Snack bar - Soup, hot dog, cheese dog, chili-cheese dog, roast beef.

Wednesday - Tomato-barley soup, hot turkey sandwich, broiled smoked ham, meat loaf, cheese omelette. Snack bar - Soup, ham and egg sandwich, sliced turkey, French fries.

Thursday - Cream of potato soup, chicken and dumplings, fried scallops, Polish sausage, tamale pie. Snack bar - Soup, hamburger, hot pastrami, French fries.

Friday - Cream of tomato soup, fried oysters, beef pie, broiled fish, western omelette. Snack bar - Soup, sea dog, flying saucer, French fries.

FOR SALE: Standard jet black Poodles, champion blood line, AKC registered, 6 weeks old with shots. Eisenhart, 596-7885.

FOR SALE: AKC registered French Poodles, miniature, 6 weeks old - $75. Price, 826-1447.

WANTED: Alternate drivers from Williamsburg to W.A. on 8 shift. Maiden, 2134.

FOR SALE: Reconditioned Eureka canister vacuum cleaner with attachments - $20. Miller, 595-0731.

FOR SALE: Norge up-right freezer, 525-pound capacity, warranty included - $194.50. Constance, 826-1962 after 5.

REVISED MERIT PROMOTION PLAN

(This is the second of a series of articles on the Revised Federal Merit Promotion Policy.)

In each promotion action there is an area of consideration which consists of the part of the agency or installation in which an intensive search is made for eligible candidates to fill a vacancy. The area may be a division office in a field installation, or other appropriate part of the agency. It must be as broad as practicable so that enough highly qualified candidates can be located and employees have adequate opportunities for advancement.

There are two new features in the promotion policy to assure selection of highly qualified candidates and to increase advancement opportunities for employees. First, the agency generally must broaden the area of consideration when fewer than three highly qualified candidates are located in the area. The initial area, for example, may consist of an installation in a particular city. The broadening may extend the area to include a region. For most trades and labor jobs and for jobs at GS-4 and below, however, the agency does not have to go beyond the wage or commuting area.

The second feature is that agencies must set up procedures for accepting voluntary applications from employees who are interested in jobs outside their own area of consideration. The procedures can vary from agency to agency. One agency, for example, may allow its employees to submit their applications at any time; another agency may set a specific time once a year. Allowing voluntary applications will create additional advancement opportunities for employees who are in dead-end jobs within their own area of consideration and will give all employees a greater chance to be considered for jobs in which they are interested no matter where in the agency.

All employees in the area of consideration must be given an equal opportunity to be considered for a job vacancy. There are various ways for agencies to locate eligible candidates; and different ways may be appropriate for different occupations and grades.

Posting or circulating notices of vacancies is one effective way of calling promotion opportunities to the attention of interested employees. These announcements must receive sufficient publicity and contain sufficient information so that all eligible employees in the area of consideration know about the vacancy and what they have to do to apply for it.

Vacancies do not have to be announced, however. When they are not, all eligible employees within the area of consideration must be considered.

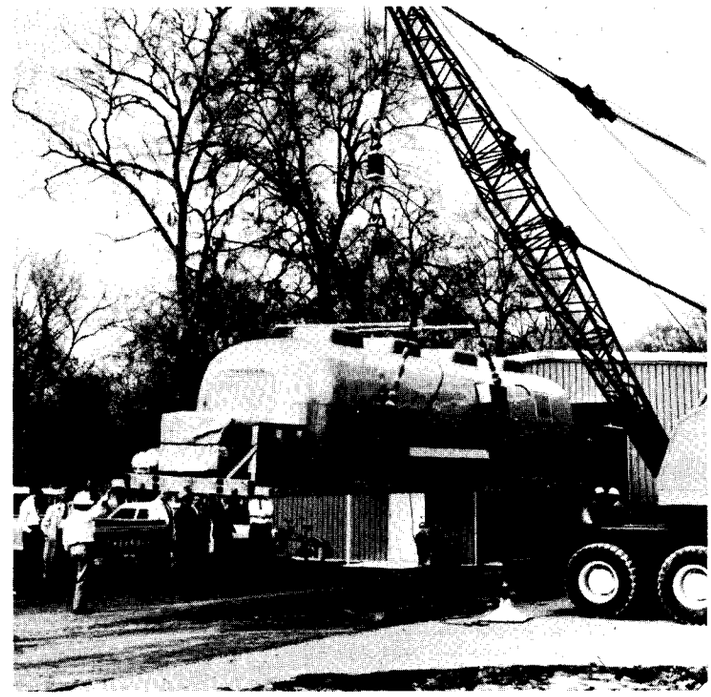
WANTED: Alternate driver from Norfolk to W.A. on 7:30 shift. Johnson, 3661.

FOR SALE: 3-bedroom frame rancher with built-in-kitchen with dishwasher, attached garage, wall-to-wall carpet - located off Fox Hill Rd. $2500 equity and assume loan of $103.50 per month. Mangum, 595-4525 or 596-0435.

FOR SALE: Home-made camping trailer, sleeps 4, has gas stove - $300. Ward, 868-9093.

FOR SALE: 1962 Chevrolet Impala, 4-door sedan, air conditioning, automatic transmission, power accessories - $775. Painter, 595-2358.

FOR SALE: 1956 Dodge 1/2-ton panel pick-up. Hubbard, 877-2225.



QUARANTINE UNIT: This Mobile Quarantine Facility, shown being delivered to Manned Spacecraft Center, will be a temporary home for American astronauts after the first manned flight to the moon.

ASTRONAUTS WILL BE QUARANTINED

The world will want to welcome back the first American astronauts after their trip to the moon, but the world will have to wait two weeks to do it.

For this two-week quarantine period only about 15 people - - medical doctors, technicians, housekeepers and a cook -- will have direct access to the astronauts.

NASA plans call for the crew to be transferred directly from the Apollo command module, once it is recovered in the Pacific, to a specially designed Mobile Quarantine Facility.

Special airtight plastic transfer tunnels will connect the spacecraft and the quarantine facility, which resembles a mobile home without wheels.

For the trip back to Houston, the astronaut crew will be joined in the quarantine facility by an MSC physician and a recovery technician.

Once the prime recovery ship docks, the quarantine unit will be placed aboard an aircraft for the flight to Houston.

During their two-week quarantine, the members of the astronaut crew will be debriefed and examined.

FOR SALE: 9-foot, 6-inch Hobie surfboard. Campbell, 596-3240.

FOR SALE: Mark's Standard Handbook for Mechanical Engineers, 7th edition. Jackson, 851-2845.

FOR SALE: Pickering turn-table - $25, Dumont TV - $25. Holmberg, 229-8836.

FOR SALE: 21-inch Firestone reel-type lawn mower - $15. Carmines, 826-2894.

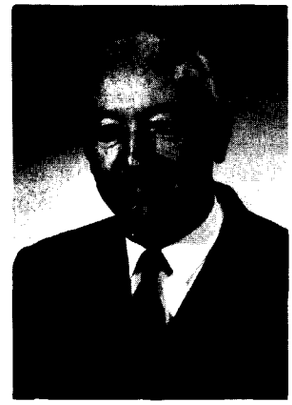
FOR SALE: 30-watt Kalamazoo bass amplifier. Williams, 596-7320.

FOR SALE: 1966 Vactioneer camping trailer - $250. Taylor, 826-8879.

Tilford R. Crandol

Raymond M. Hulcher

Louise P. Earnhardt


James C. Ferguson

Walter A. Porter

Arthur K. Grow

Paul Kuhn

Milton A. Wallio

William H. White

STAFF MEMBERS RETIRE

Twelve staff members retired during the month of February with a combined total of over 355 years of Federal service. The retirees are:

Tilford R. Crandol, head of Mechanical Systems Support Section, Fabrication Division, retired February 26 with almost 31 years of servicee. Crandol was born in Hampton. He attended Hampton High School and worked at the Newport News Shipbuilding and Dry Dock Company and Mariners Museum before joining the Center staff on October 23, 1939. He served in the U.S. Army from April 1944 to August 18, 1945.

Raymond M. Hulcher, head of Instrument Construction Shop, Fabrication Division, is a native Hamptonian. He graduated from Hampton High School and attended the College of William and Mary. He entered on duty at the Center on December 16, 1938 and graduated from the Apprentice School in 1943 as a machinist. He retired February 26 with over 30 years of service.

Louise P. Earnhardt, Payroll Supervisor, Fiscal Division, was born in Salisbury, North Carolina. She graduated from Boyden High School in Salisbury and started her NASA career on May 14, 1947 as a typist. She retired February 28 with almost 22 years of service.

James C. Ferguson, assistant head, Structural Fabrication Branch, Fabrication Division, is a native of Mogadore, Ohio. He attended State Trade School in Bridgeport, Conn. and worked for Sikorsky Aircraft Company and Glenn L. Martin Company before joining the staff on July 29, 1937. He retired February 28 with over 31 years of service.

Joshua P. Fitchett, Experimental Machine Shop, Fabrication Division, was born in Hampton. He attended Hampton High School and graduated from the Apprentice School of the Newport News Shipbuilding and Dry Dock Company. He started his Government service with the Norfolk Navy Yard and transferred from the Naval Air Station to Langley on June 28, 1948. He retired February 28 with almost 30 years of service.

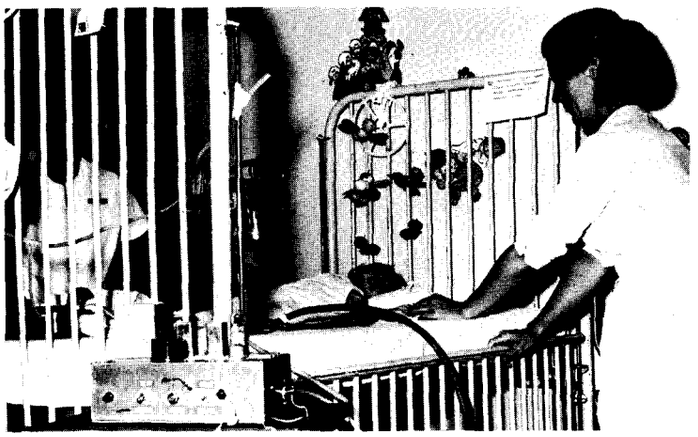
Arthur K. Grow, head of Research Equipment Mechanical Section, Research Support Division, is a native of Tunkhannock, Pennsylvania. He graduated from Rochester Shop School and was self-employed before joining the Center on October 29, 1941. He retired February 28 with almost 28 years of service.

Paul Kuhn, Staff Scientist, Structures Research Division, was born in Berlin, Germany. He received his B.S. degree in Aeronautical Engineering from University of Michigan and served in the U.S. Air Corps from 1924 to 1928. He joined the Center staff on June 29, 1931 as an aeronautical engineer. In 1953 he was cited by the University of Michigan as a Distinguished Alumnus. He retired February 28 with over 42 years of Feberal service.

Walter A. Porter, assistant head, Stores Branch, Procurement Division, was born in Wythe County, Virginia. He attended Ivanhoe High School in Ivanhoe and worked for a contractor in Wytheville before joining NASA on January 20, 1936. He retired February 28 with over 33 years of service.

Milton A. Wallio, Electrical Engineer in Research Projects Engineering Branch, Research Models and Facilities Division, was born in Virginia, Mississippi. He received his B.S. degree in Electrical Engineering from the Univer-

(Continued on page 5)



WIRED UP: Recovering from surgery, this four-month-old girl wears at her neck a tiny sensor and radio transmitter, developed for space research, that sounds an alarm if she experiences breathing difficulty. Being used on an experimental basis, monitoring of patients by this radio alarm system may save lives while eliminating thousands of hours and expense involved in continuous watch by nurses or other attendants.

SEAMANS RESIGNS AIAA POSITION

Dr. Robert C. Seamans Jr., Secretary of the Air Force and former NASA Deputy Administrator, has resigned as president of the American Institute of Aeronautics and Astronautics. The board of directors of the 32,000-member professional society elected Dr. Donald Smelt, Vice President and Chief Scientist, Lockheed Aircraft Corp., Burbank, Calif., to replace him.

Dr. Seamans was elected president of the AIAA several weeks before he was named Air Force Secretary. In his letter of resignation he said that for "numerous reasons" he has found "it is not in the best interest of either the Air Force or the AIAA for me to continue with AIAA responsibility. I have arrived at this decision with considerable regret. . .I can assure you that in my view the AIAA performs many important, useful functions, and as a continuing member of the Institute, I will support its activities."

STAFF MEMBERS RETIRE

(Continued from page 4)

sity of Minnesota and worked for the Locks Division of the Panama Canal before joining the Center staff on February 7, 1949. He retired February 28 with 30 years of service.

William H. White, Engineering Technician in Instrument Construction Shop, Fabrication Division, is a native of Decatur, Alabama. He attended Jefferson County High School and worked for the Tennessee Valley Authority and the Norfolk Naval Shipyard before starting his NASA career on April 15, 1946. He retired February 28 with almost 33 years of service.

Oscar D. Frye, Research Operations Branch, Research Support Division, was born in Holmes County, Mississippi. He worked for the Post Office Department, Department of Army at Fort Monroe, and the Naval Supply Center in Norfolk before joining NASA on February 19, 1962. He retired February 13 with almost 14 years of service.

Bessie V. Stokley, head of Report Typing, Technical Editing Section, Technical Information and Utilization Branch, is a native of Portsmouth. She graduated from Maury High School in Norfolk and the Newport News Business College. She worked for the Veterans Administration and the Federal Trades Commission before joining NASA on August 12, 1941. She retired February 28 with over 33 years of service.

TECHNOLOGY UTILIZATION NEWS

NASA's Aerospace Research efforts are generating much new knowledge which is finding its way into university classrooms. To speed this process the NASA Office of Technology Utilization has prepared, under contract, a number of Educational Monographs suitable for science and engineering classes at the advanced undergraduate and graduate levels. Each monograph, prepared by an experienced writer and teacher in the field, presents the results of NASA research which have been extracted from recent technical reports.

Three categories of these Educational Monographs are available as follows:

THERMODYNAMICS

TD-1-67 Calculation of Complex Chemical Equilibrium

TD-2-68 Thermodynamic Equations, Data and Techniques for Preparing Properties Compilations

TD-3-67 Critical Flow of Real Gases Through Nozzles

TD-4-67 Thermodynamic Consistency of Vapor-Liquid Solubility Data

TD-5-68 Computer Program for Thermodynamic Performance of Brayton Cycle Space Power Systems

TD-6-68 Enthalpies of Co-Existing Equilibrium Vapor and Liquid Mixtures from Solubility Data and Equation of State Calculations

TD-8-68 Thermodynamics of Space Flight

HEAT TRANSFER

HT-1-67 Calculation of Radiant Heat Exchange

HT-2-67 A Generalized Correlation of Vaporization Times of Drops in Film Boiling on a Flat Plate

HT-3-67 Method of Estimating Ratio of Absorptance to Emittance

HT-4-67 Formulas for Radiant Heat Transfer Between Non-Gray Parallel Plates of Polished Refractory Materials

HT-5-67 Pool Boiling Heat Transfer at Reduced Gravity

HT-7-67 The Method of Zones for the Calculation of Temperature Distribution

HT-8-67 Heat Pipes and Vapor Chambers for Thermal Control of Spacecraft

CONTROL SYSTEMS

CS-1-67 An Example of Compensation Network Design

CS-2-67 An Application of Root Locus Technique to Lunar Vehicle Control

CS-3-67 An Example of Nuclear Rocket Control Design

CS-4-67 An example of Bang-Bang Control System Design

CS-5-67 Controller Design for Nonlinear and Time-Varying Plants

CS-6-67 An Example of Optimal Control Design

Contact the T. U. Office about these valuable instructional supplements.

FOR SALE: Baby carriage - $5. Powell, 723-1250.

FOR SALE: 5 x 7-foot pool table with folding legs, includes balls and cue sticks - $40. Emond, 826-0024.

FOR SALE: 16-foot Comet class sailboat and trailer - $525. Bavuso, 838-0606.

TWENTY Mechanic Trainees have been assigned to the Center for a one-year training program under an agreement with the Newport News Office of Economic Opportunity. Shown with the group are front row (from left): S. Walter Hixon Jr., head of Training Branch, Marvin Lowrie, Donald E. Chavers, Samuel W. McKoy, Luther B. Willis, Thomas E. Acker, Perry Ford, Clarence B. Mason, Thomas L. Hill, and David L. Ward. Back row - Earl F. Stahl, Chief of Research Support Division, Tommy Facen, Raymond Carter, Robert E. Brown, Ronald L. Chavers, Frederick Fitchett, William H. Malone, Frank E. Williams, Linwood D. Cosby, Joe Facen, and McKinley Price.

SECURITY VIOLATIONS CITED

During recent weeks there have been an increasing number of incidents involving personnel of the Center bringing members of their families or visiting relatives within facilities. This is in violation of Security Regulations.

Any person visiting Langley Research Center must be badged before he can enter a facility, except the Activities Building, Credit Union, and Cafeterias.

This matter is particularly serious when it involves visits by members of families or visiting relatives during off-duty hours, and the infraction of the Security Regulations could subject the employee to disciplinary action.

EMPLOYEES DONATE BLOOD

The Bloodmobile visited the Center on March 5 and staff members donated a total of 197 pints of blood. During the visit 25 pints of B-positive type blood were collected for open heart surgery.

Peter F. Korycinski and Charles E. Edmiston completed their quota for a total of seven gallons. Marvin L. Leffel and John W. Paulson reached the four-gallon mark.

Three-gallon pins were presented to Mary Fetner, Sandy M. Stubbs, Claude Coffee, David Vohringer, and Orian R. Moss. Bill McCloud reached the two-gallon mark.

One gallons donors included Brickey J. Hughes, Gordon Owsley, William Moore, George F. Pezdirtz, Charles G. Evans, Bruce C. Warburton, and Weldon L. Staton.

The next Bloodmobile visit will be on May 7. Persons interested in donating blood are requested to call East Dispensary, extension 2243.

DR. HARLOW NASA CONSULTANT

Dr. James G. Harlow, President of West Virginia University, has been sworn in as a consultant by Dr. T. O. Paine, NASA Administrator.

As a consultant to the Administrator, Dr. Harlow will serve on the Management Advisory Council, a senior group of advisors on matters concerned with NASA Policy and Action. He previously served in a similar capacity from July 17, 1961 to June 30, 1962.

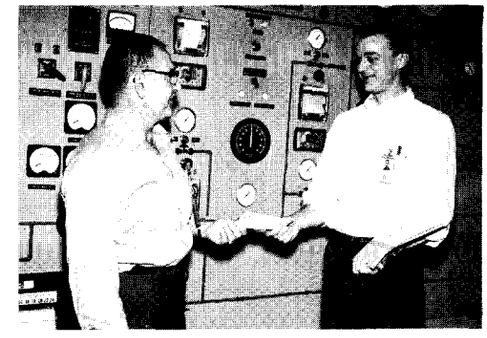
President of West Virginia University since 1967, Dr. Harlow has spent more than 35 years in education, beginning as a high school teacher in Oklahoma in 1933. He joined the faculty of the University of Oklahoma as a physics instructor in 1948, later became associate dean of the university, assistant professor physics, dean of the college of arts and sciences, and was professor and dean of the college of education from 1958 to 1967.

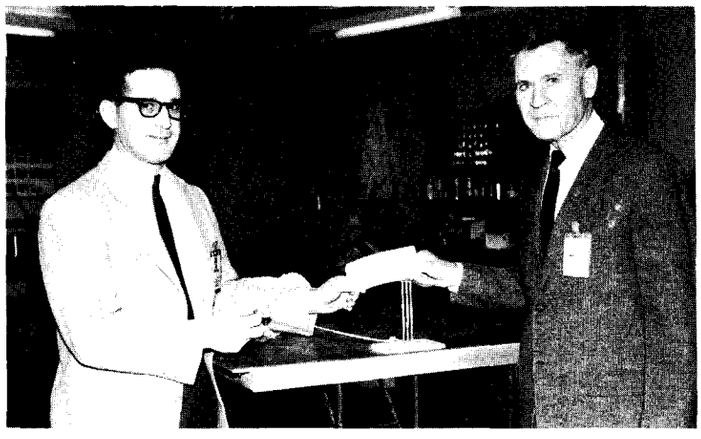
Born June 11, 1912 in Oklahoma City, he attended Oklahoma City University and was graduated from the University of Oklahoma in 1931 with a Bachelor of Arts degree. In 1933 he earned a Master of Science degree at Central State College, Edmond, Okla., and his Ph.D. at the University of Chicago in 1954. He is a member of Phi Beta Kappa and author of a number of articles on education and science.

Dr. Harlow formerly served as editor, board chairman and president of Harlow Publications; was a board member of the Oklahoma City Chamber of Commerce, and later became executive director of Frontiers of Science Foundation. He is a Fellow of the Oklahoma Academy of Sciences and a member of a number of professional groups.

FOR SALE: 3 Mershman tables, Danish modern style, 2 end tables and one round cocktail table, 2 years old - $50. Davis, 838-1391 after 5 p.m.

WANTED: Two alternate drivers from South Colony Rd. to W.A. on 8 shift. Fichter, 3860, Schrader, 3631, or Roper, 3159.





TEN staff members have received cash awards for suggestions under the Incentive Awards Program. Top left - David C. Duxbury (left), Research Support, receives two checks for two suggestions from James S. Collins. He received $15 for his suggestion concerning the development of a better method for obtaining more accurate force data on air jet models by using light load force balances. He was awarded $25 for his suggestion on designing nose cones which can be slipped on wind-tunnel models during assembly or disassembly thus eliminating the possibility of twisted nose leads which frequently resulted from screw-on type nose cones. Top center - William C. Tennis (left), Fabrication, receives $15 from Claud R. Panz for installing a flow rate switch in the welding torch cooling line of an AC-DC welder thus preventing line damage during inert arc and metal arc welding. Top right - Collins presents a $35 check to Thomas H. Hall, Research Support, for his suggestion concerning the development of an improved and more reliable procedure for calibrating and leak-checking pressure measuring equipment in the Continuous Flow Hypersonic Tunnel. Center left - William C. Phaup (left), Fabrication, receives two awards from Lawrence E. Perry. He received $35 for the design and development of a Scani Valve Tube Separator which will provide an accurate means for locating leaking tubes and expedite tube selection. He was awarded $15 for the design of an ultraviolet light setter which increases employee safety by eliminating the possibility of burns and electrical shocks. Center - Simeon R. Hunnicutt (right), Research Support, presents a $40 check to Vincent W. Foretich for his recommendation to use gage tubes in place of absolute pressure indicator gages which will provide more reliable vacuum readings on air conditioning and refrigeration equipment. Center right - Charles M. Southall (center), Research Support, received $795 for his design and development of a differentiator circuit for the Apollo Lunar Module. Shown with him are Ernest L. Rowe (left) and Kenneth N. Cole. Lower left - Kenneth E. Singleton (right), Research Support, presents $200 to William J. Block for his suggestion relative to implementing a new method for cutting deployment restraining lines on payload recovery devices by means of a hot wire thus eliminating the use of pyrotechnic line cutters. Lower right - Joseph J. Sprouse (left) and Rodney C. Wyatt (right), Research Support, share a $25 award for designing a weather shield and test section security gate for the open diffuser of the 9- by 6-Foot Thermal Structures Tunnel. Making the presentation is Peter P. Staphilus.

COUNTDOWN

FAMILY FILM FESTIVAL - The Activities Association will present a series of family film nights with the first one scheduled as a double feature on Thursday, March 27 at 7:15 p.m. at the Activities Building. The first film, Apollo 8, will be in color and viewers will accompany the astronauts in their capsule as they orbit the lunar surface in their quest of a landing area for the crew of Apollo 11. The second film will be a full length black and white movie and will star the late W. C. Fields in "My Little Chicadee."

TENNIS FILM - "A History of Tennis" is a color film which has been obtained by the NASA Tennis Club for family viewing on Saturday, April 19 at 7 p.m. in the Activities Building. The film is 40 minutes long. No admission will be charged for the two film nights; however, a small fee to drfray the cost of the films may be charged at some of the later features. The series will include early and late releases in color and black and white, drama and comedy. This program will be continued throughout the year so check Langley Researcher for dates and titles of future films.

ELECTION REDISTRICTING - The Election Committee is in the process of redistricting Center facilities for the election of representatives to the General Assembly of the Activities Association. The election will be held on Tuesday, April 29. After the redistricting has been approved, election supervisors will be appointed in each district to carry out the election processes.

CREDIT UNION NOTICE

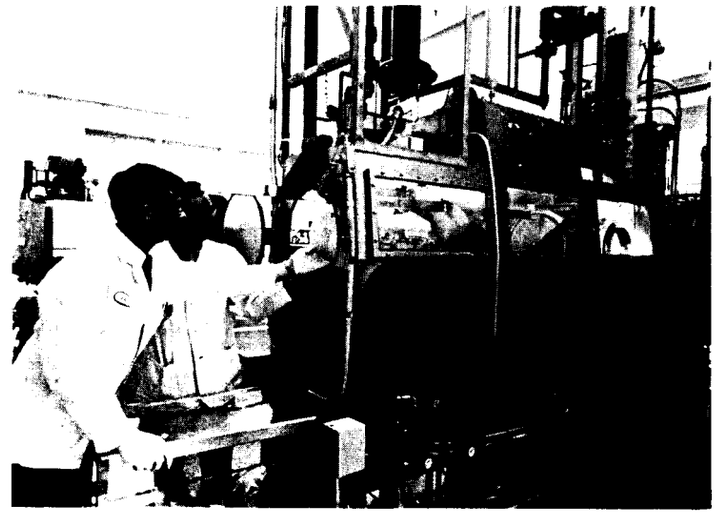
A member asks: Why is the Credit Union with its background, philosophy, and generally accepted image always promoting car loans, $2,500 personal loans, FHA Home Improvement loans, or what have you? There are two valid reasons.

One, it believes in most instances, that it can give its members the better deal and save them money. Anyone who doesn't think so has only to multiply the amount of each payment by the number of payments to find out. But it takes constant repetition of this fact, in varying ways, to save the member from the old point-of-purchase bugaboo. The Credit Union does not sell debt. It does not urge a member to buy a thing. It does say, once the decision to buy is made, for the member to consider his own best interests. . .pay no more than he has to, check with his Credit Union.

The second, lesser reason is equally valid. The Credit Union needs the loan-income to pay a fair dividend to those whose shareholdings make the loans possible. The Credit Union does not want any member to borrow just for the sake of borrowing. It does want the business now going elsewhere at greater cost. Business which, if it gets it, will benefit borrower-shareholder-Credit Union alike. Remember, in practically every instance, loans to $10,000 are insured at no out-of-pocket cost.

FOR SALE: 1967 Suzuki motorcycle - $225. Goldsmith, 244-4166.

FOR SALE: 1963 Corvett hardtop convertible, 327 engine, 3-speed - $1560. Jackson, 244-3085 after 5 p.m.



ROCK BOX - The Apollo Lunar Sample Return Container is placed in the atmospheric decontamination cabinet line much as it will be when Apollo astronauts bring it back from the moon later this year. The sample container is cleansed of possible terrestrial contaminants before it is entered into the vacuum chamber line at the Lunar Receiving Laboratory at Manned Spacecraft Center.

ISA GROUP MEETS MARCH 26

The Tidewater Section of the Instrument Society of America will hear a discussion of industrial control instrumentation at the March 26 meeting at Longhorn Steak House on Mercury Blvd.

Charles L. Mamzic, Moore Products Company, will present a talk entitled "Solving Tough Control Problems" which he will supplement with a series of slides. His talk will cover many schemes of process control instrumentation including feedforward control, override control and cascade control.

Mamzic received his B.S. degree in Mechanical Engineer- from Villanova University in 1948 and, except for a three-year tour of duty as an engineering officer in the Navy, has been with Moore Products since his graduation.

He is a member of the American Society of Mechanical Engineers and the ISA and is recognized nation-wide as an authority in his field. He has written numerous papers and magazine articles on control instrumentation and holds a number of instrument patents.

The technical meeting at 8 p.m. will be preceded by a social period at 6:30 and a steak dinner at 7:15. Reservations for dinner may be made by calling Warren Thomas, 3492. Guests are welcome.

NASA PRESENTING AWARDS

(Continued from page 1)

NASA awards at Fort Worth will include certificates of merit to seven winners for their exhibits in aeronautics and space-related categories. A copy of the NASA book, "Exploring Space with a Camera," will be presented to each of the winners and a copy will also be sent to a teacher selected by each winner, and to his school library. "Exploring Space with a Camera" was compiled and edited by Edgar M. Cortright, Langley Director.

--Buy U.S. Savings Bonds and Freedom Shares--

Langley Researcher

VOLUME 8, NUMBER 7 LANGLEY RESEARCH CENTER APRIL 4, 1969

DISCOVERY BY SCIENTIST MAY HELP EXPLAIN CANCER SPREAD

Clarence D. Cone Jr.

Engaged in basic research into the effects of space radiation on body cells, Clarence D. Cone Jr., head of the Molecular Biophysics Laboratory, Instrument Research Division, has discovered intercellular linkages that may help in understanding the behavior of certain types of cancer.

As a result of his observations, Cone was selected by a committee of the American Cancer Society to explain his research work to some of the nation's top science writers at a seminar held Monday in New Orleans.

Cone was studying the effects of ionizing space radiations in interfering with normal cell division. His discovery was made through the use of time-lapse motion picture micro-photography of mouse cancer cells grown in culture in tiny ponds where their movement was restricted.

This technique enabled Cone to observe and record, possibly for the first time by anyone, a phenomenon in which one dividing cancer cell appears able to induce connected cells to also divide by transmitting a sort of chain reaction stimulation through a thin linkage of cytoplasm.

Cone refers to these linkages as "bridges" or "cytopons," his own Greek-Latin acronym for cytoplasmic bridge. His observations revealed the existence of networks of these stimulus-transmission bridges.

Such bridge networks permit the continued division of large numbers of cells and, if present in the human body, may constitute a basic mechanism for the spread of cancer.

Cone's discovery is serving as the basis for further study by scientists to determine if these cell bridges exist in, and possibly constitute the basic cause of uncontrolled proliferation in, any types of human cancer of primary medical importance.

In addition to his seminar discussion of his observations concerning the characteristics of dividing cancer cells, Cone explained some of Langley's basic laboratory research in the field of space radiation.

The most significant acute pathological result of exposure to the highly ionizing radiations of space is the arrest or inhibition of cell division. The Molecular Biophysics Lab-

(Continued on page 3)

RAYMOND G. ROMATOWSKI NAMED DEPUTY TO T. MELVIN BUTLER

Raymond G. Romatowski

Raymond G. Romatowski, a management official in NASA Headquarters the past ten years, has been appointed as Deputy Assistant Director for Administration at the Langley Research Center.

His appointment as deputy to T. Melvin Butler, Assistant Director for Administration, is effective April 8, it was announced by Edgar M. Cortright, Director.

Romatowski, 39, is presently the Deputy Director of Program Review and Resources Management in the NASA Office of Space Science and Applications.

A graduate of the State University of New York, he received a degree as Associate in Applied Science (Chemistry) in 1952, a Bachelor of Arts degree in Political Science in 1954, and a Master of Arts degree in Political Science in 1955.

He studied the following year at the School of International Studies at Columbia University on a graduate scholarship, transferring in September 1956 as a Graduate Fellow at Georgetown University, where he completed most of his course requirements leading to a Ph.D. in Government.

He began his Civil Service career in 1956 as a Management Analyst in the Department of Agriculture. He joined NASA in January 1959 as a Management Analyst.

(Continued on page 3)

EASTER EGG HUNT TOMORROW

The Activities Association's annual Easter Egg Hunt for children of Center employees will be held on Saturday, April 5 at 1:30 p.m. on the Activities Building grounds.

The annual event is free for NASA children. Two areas will be marked off - one for the smaller children and one for the larger children. Six regular chicken eggs (well marked) will be hidden and prizes will be awarded to the children who find them.

Parents are requested to stay out of the hunting area and let the children have the pleasure of finding the eggs. Please have each child bring a basket or a small paper bag for the eggs.

The hunt will continue until the supply of eggs has been exhausted.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

TAX NOTICE. . .The Center's Chief Counsel recommends that individual's social security number be entered on the face of a tax payment check. If a check is accidentally separated from a return during processing, it will be far easier for the Internal Revenue Service to eventually match up the two since social security numbers are the primary identifying symbols utilized by the Internal Revenue Service computers.

NEW HEIRESS. . .Announcing the birth of a six pound, thirteen ounce daughter, Amy Marie, on March 12 are Mary Ella, formerly of Flight Instrumentation Division, and Leonard P. Kopia, FID.

NOTE OF THANKS. . .Bessie V. Stokley, who recently retired from the Center, wishes to express her sincere thanks and appreciation to all her friends at Langley for the gifts she received on the occasion of her retirement.

REPRESENTATIVES TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on April 9 from 9 to 10 a.m. Anne Shepherd, Government-wide Service Plan representative, will be here on April 16 from 1 to 2 p.m. Employees having problems or questions concerning either plan may call Lois Taylor, 2605, for an appointment.

CREDIT UNION AUCTION: On Wednesday, April 9, at 1 p.m. the Credit Union will sell, as is, a 1965 Ford Mustang hardtop with 4 on-the-floor to the highest bidder. Car may be seen on the Credit Union parking lot anytime between 8:30 a.m. and 3:30 p.m. Excellent chance to acquire a second car at what could be a bargain price.

WANTED: Ride from Warwick Gardens to E.A. on 8 shift. Burroughs, 2542.

FOR SALE: Travel Equipment Corp. camper conversion kit for Dodge A-100 van - $200. Garner, 596-5209.

FOR SALE: Love seat, goose neck rocker and 68 pieces of sterling silver in Norfolk pattern with "H" monogram. Howe, 838-0254.

LOST: "Nondestructive Testing Handbook," Vol. I, edited for the Society of Nondestructive Testing by R. C. McMaster. Thurston, 2781.

FOR SALE: 1960 Fedders window air conditioner, 16000 btu, 220-volt - $50, 1965 Fedders air conditioner, 14000 btu, 220-volt - $125. Lisagor, 877-9442.

LANGLEY was host for the Third Annual NASA Historians Workshop on March 18 and 19. Approximately 27 persons attended including NASA historians, representatives from the Library of Congress, historians on contract to NASA, and members of the NASA Historical Advisory Committee. Among those attending were (from left): Dr. Eugene M. Emme, NASA Historian; Dr. James L. Cate, NASA Historical Advisory Committee; William L. Williams, Executive Assistant to the Assistant Director of Administration; and Dr. Michael Keller, contract employee for Langley Research Center history.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of April 7:

Monday - Vegetable-beef soup, Spanish pot roast, baked hash, chicken pie, Salisbury steak. Snack bar - Soup, hamburger, cheeseburger, hot roast beef, French fries.

Tuesday - Split green pea soup, baked Virginia ham, breaded veal cutlet, pasta e fasoi, Spanish franks. Snack bar - Soup, hot dog, breaded veal cutlet, French fries.

Wednesday - Puree of bean soup, grilled steak, roast pork, stuffed flounder, chili con carne. Snack bar - Soup, fish sandwich, steak sandwich, French fries.

Thursday - Chicken-noodle soup, braised beef tips over noodles, liver and onions, fried chicken, Austrian ravioli. Snack bar - Soup, deviled ham, flying saucer, French fries.

Friday - Clam chowder, roast beef, fried shrimp, salmon cakes, franks and beans. Snack bar - Soup, hot dog, hot pastrami, French fries.

The menu for the week of April 14 is as follows:

Monday - Cream of tomato soup, corned beef and cabbage, chuck wagon steak, ham and noodle casserole, western omelette. Snack bar - Soup, ham and egg sandwich, hot corned beef, French fries.

Tuesday - Cream of mushroom soup, hot turkey sandwich, grilled pork steak, meat loaf, fish cakes. Snack bar - Soup, hamburger, cheeseburger, hot turkey sandwich, German potato cakes.

Wednesday - Minestrone soup, chopped steak, baked ham, Polish sausage, beef ravioli. Snack bar - Soup, sea dog, Lou's satellite special, corn fritters.

Thursday - Vegetable-beef soup, Swiss steak, stuffed shrimp, spaghetti and meat sauce, tamale pie. Snack bar-Soup, barbecued pork sandwich, steak sandwich, French fries.

Friday - Clam chowder, roast beef, fried oysters, chicken pie, chili-mac. Snack bar - Soup, hot dog, hot roast beef sandwich, French fries.

DISCOVERY BY SCIENTIST

(Continued from page 1)

oratory is engaged in studying the molecular mechanisms by which this damage occurs so that development of effective countermeasures can be undertaken.

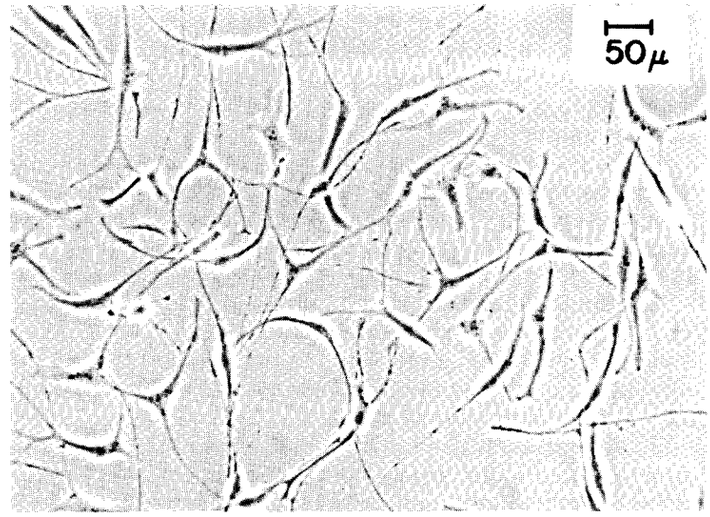
While Langley is not engaged in cancer research as such, the Center does have a keen interest in the cancer problem. One of the most significant latent effects anticipated from accidental exposure of moon explorers, orbiting space station personnel, and other astronauts to space radiations is the increased risk of cancer development in later life.

Cone is hopeful that Langley's work on the basic molecular mechanisms of cell division initiation in relation to the intricate space radiobiological problem will generate a considerable amount of new information on the processes of mitosis control in the body, and that much of this knowledge may prove to be significant in helping to understand the complex mechanisms of cancer and similar diseases.

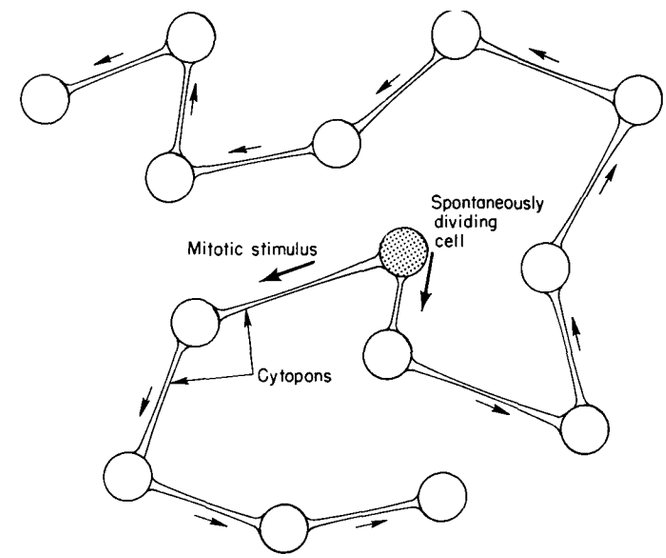
Cone received a degree as an Associate of Arts in Chemistry from Armstrong College, a Bachelor of Chemical Engineering degree from Georgia Institute of Technology, and a Master of Aeronautical Engineering degree from the University of Virginia. He is working for his doctorate in biophysics through the NASA graduate study program at Langley.

In addition to his present studies in molecular aspects of cell biophysics, Cone has been engaged for several years in research on various aspects of avian biophysics, particularly on the aerodynamic theory of soaring and flapping birdflight. He is an international authority on natural aerodynamics, including the fluid mechanical theory of static and dynamic soaring flight.

Born in Savannah, Georgia, on April 17, 1931, Cone conducted basic and applied research in plant biochemistry at the Herty Foundation Laboratory in that city before joining Langley.



A NETWORK of mouse cancer cells in culture shows connecting intercellular bridges through which the mitotic stimulus is passed from cell to cell.



SCHEMATIC drawing illustrates mitotic stimulation through the cytopons.

HYBRID ROCKET CONTRACT AWARDED

NASA has awarded a contract to the United Technology Center, Sunnyvale, California, for the development and ground demonstration tests of a high performance hybrid rocket engine. The contract is Part I of a hybrid rocket program to acquire the technology for a 16,000-pound thrust propulsion system which might be developed into a high-energy upper stage for deep space missions.

The contract is valued at $1,321,000 and covers a 21-month period. It will be managed for NASA by the Langley Research Center.

Hybrid rocket systems combine solid fuel and a liquid oxidizer, forced into the thrust chamber only when burning is desired. Ground tests have shown that hybrid propulsion is a practical and useful technique and the program now starting is intended to scale the technology up to flight-sized motors capable of burning up to 80 seconds.

United Technology will, under the contract:

--Design and build full scale thrust chamber assemblies for the test engines;

--Develop an advanced rubber-based propellant for the hybrid motors;

--Design, build and test a cryogenic helium system for supplying the fluorine-liquid oxygen oxidizer to the motors;

--Carry to completion tests of five full-scale non-flight motors, with two of the tests at simulated altitude.

Although only static ground tests of the hybrid motors are included under the contract, United Technology will prepare an upper stage vehicle design and performance analysis to furnish preliminary design information on a flight-weight system.

The contract is one of the programs of NASA's Office of Advanced Research and Technology, Chemical Propulsion Division.

ROMATOWSKI NAMED DEPUTY

(Continued from page 1)

Romatowski's other appointments at NASA Headquarters included Assistant to the Director of Financial Management, in March 1960; Executive Assistant to the Associate Administrator, in March 1961; Deputy Assistant Administrator for Legislative Affairs, in November 1963; Assistant Deputy Associate Administrator for Administration, in July 1965; and Director of Management Analysis and Research, in January 1966. He assumed his present NASA position in January 1968.

WATER OBSERVED ON MARS

Astronomers at the McDonald Observatory of the University of Texas have obtained the first conclusive proof of the existence of water on Mars.

An observing team including Dr. Ronald Schorn, Jet Propulsion Laboratory, and Stephen Little, University of Texas Astronomy Department, obtained several spectra of Mars in the critical wave-length region which were greatly superior to any previously available.

The spectra were analyzed by Schorn, Little and Dr. C. B. Farmer, a planetary scientist also of JPL. These spectra give unambiguous proof of the existence, amount and uneven distribution between hemispheres of water-vapor in the atmosphere of Mars.

The amount of water vapor measured was equivalent to a film of liquid water about two-thousandths of an inch thick in the Southern lunar hemisphere and about half that in the Northern. This corresponds to a little more than one cubic mile of water evaporated into the Martian atmosphere.

At this season on Mars the North Polar Cap has almost completely disappeared, and the South Polar Cap is now forming. Many astronomers believe that the polar caps are mostly frozen carbon dioxide (dry ice). These new observations show that an appreciable amount of water ice must also be present.

The observed amount of water vapor, if deposited as frost or snow, would form a layer some millimeters thick over the poles, and would look quite white and opaque as seen from Earth. The observations are also consistent with the white clouds often seen on Mars being formed of ice crystals like ordinary cirrus clouds on Earth.

These new spectra were made possible by NASA-supported improvements in the McDonald 82-inch Struve reflecting telescope and its large spectrograph. Observations of Mars are also just beginning this month with the even more powerful, new 107-inch relfecting telescope at McDonald Observatory, built through funding by NASA, NSP and the University of Texas at Austin.

Use of these instruments, together with an unusually favorable placing of Mars in its orbit, on several very dry days at the Observatory, made the new observations possible. In particular, it is necessary for Mars to be moving rapidly toward or away from Earth.

This motion shifts the apparent position of the Martian water-vapor spectral absorptions far enough away from their much stronger terrestrial counterparts so that they can be observed. This is important because, at the time the observations were made, there was more than 20 times as much water in the Earth's atmosphere above this desert mountain-top Observatory as in the atmosphere of Mars.

Although there have been previous reports of the detection of water on Mars, the spectroscopic data were not taken under as ideal conditions. These new plates show the unmistakable presence of water vapor on Mars.

The Mariner space probes now on their way to Mars are primarily designed to send back extremely detailed photographs of the Martian surface. However, they also offer the possibility of mapping in more detail the distribution of water vapor over the surface of the planet, during the Martian fly-by.

FOR SALE: Skylark 300 watt projector for 35mm slides. Good condition - $19.75. Wentz, 722-1166.

Savings Bonds bail you out!
(Why not increase your allotment today)

TECHNOLOGY UTILIZATION NEWS

COSMIC is in need of more Langley computer programs to incorporate in its ever increasing bank of computer software. These programs, in addition to those which COSMIC collects from the AEC and Department of Defense, are made available to industry and the public at minimum cost.

COSMIC is short for the Computer Software Management and Information Center located at the University of Georgia. It operates under contract to NASA as part of the Technology Utilization Program. Catalogs of the currently available COSMIC computer programs are kept at the T.U. Office. These programs can generally be made available to NASA centers at no cost.

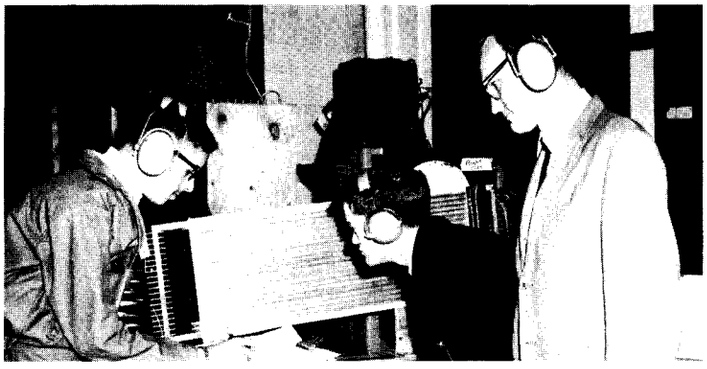
Many of the programs submitted to COSMIC are described in Tech Briefs and thus entitle the originators to cash awards of $25 when selected for publication. Don't miss out on benefits available to you through participation in the Technology Utilization Program. Contact the T. U. Office, extension 3281, for details.

FOR SALE: 15-gallon aquarium with stand, pump, filter, heater, thermostat, reflector light, gravel, plants - $35. Diggs, 722-4637 after 5 p.m.

FOR SALE: 1955 DeSoto - $100. Meidinger, 244-2452.

FOR SALE: Complete set of Wilson Staff golf clubs - 9 arms and 4 woods - $75. Maiden, 229-3153.

NASA AEROSPACE EXPLORER SCOUT POST 36 ACTIVITIES AT LRC



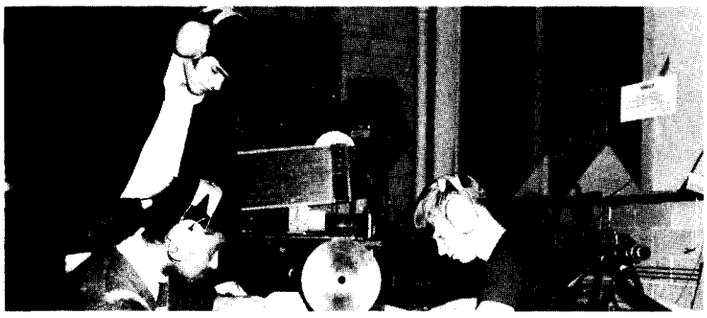
EXPLORER Scouts James Hopson and Philip Caldwell record manometer pressures under the direction of Richard J. Margason, Full-Scale Research Division.

A group of 55 young men representing 12 high schools on the Peninsula is currently engaged in a variety of aerospace projects at the Langley Center. These students are members of NASA Aerospace Explorer Scout Post 36, led by Joshua R. Royles, Personnel Division, Advisor, and Wilmer H. Reed III, Dynamic Loads Division, Associate Advisor.

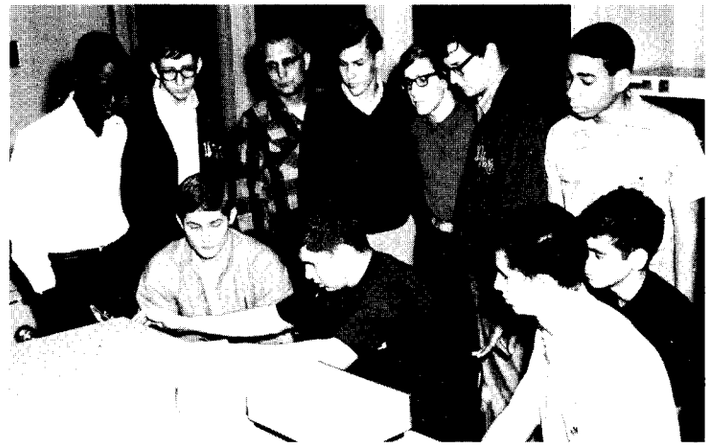
A number of the young men are participating in an aerodynamics program under the direction of Edward C. Polhamus, Full-Scale Research Division. These boys have been using the facilities and instruments used in regular NASA research to perform experiments related to current airplane design problems. The experiments include measurement of pressure distribution on the wings of high-speed airplanes, determination of the drag of aerodynamic shapes, and studies of effects of jet blast and recirculation during landing of VTOL airplanes.

A second group of young men is learning the secrets of programming and solving problems on electronic computers under the direction of Roger V. Butler, Analysis and Computation Division. The basic computer program language of the IBM 1620 computer is used to give an insight into the operation of modern high-speed computers. The boys program solutions to problems, punch cards to be used in the calculation, and check the computed answers.

The student officers of the explorer scout post are Anthony C. Diggs, president, and Henry A. Huggins, vice president, both of Hampton High School; Veerland F. Thompson III, treasurer, Huntington High School; Doug Juanarena, secretary, Mark A. Spiers, quartermaster, Bobby Fairbairn, cabinet representative, and Robert B. Haley, cabinet representative, all of Warwick High School.

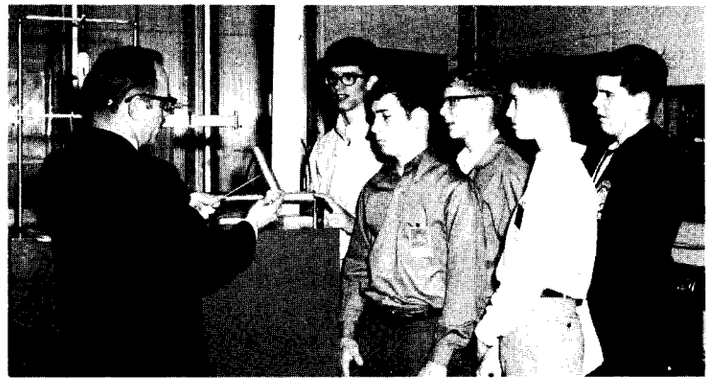


PREPARING a jet exhaust experiment are (from left): Anthony Diggs, Mark Spiers, and Howard Day.



RECEIVING instructions on computer console operations from George Boyles, Analysis and Computation Division, are (standing from left): Veerland Thompson, Lee Gregory, Roger Butler, ACD, David Burns, Doug Juanarena, Don Evans, and Ronald Harris. Seated - Roy Blackwell, Boyles, Nick Viattas, and Alain Louka.

CALCULATING pressure distributions on high-speed airplane wing are (from left): Pat Foretich, Garth Morgan, Tommy Henderson, Bob Haley, John Leftwich, and Jimmy Stevens. Instructor Linwood W. McKinney, Full-Scale Research Division, is standing.



ASSOCIATE Advisor Wilmer H. Reed III, Dynamic Loads Division, explains wind tunnel experiment to Explorer Scouts Wilson Stevens, Bobby Fairbairn, Andrew Hill, Jack Boyenton, and Hank Huggins.

REVISED MERIT PROMOTION PLAN

(This is the third of a series of articles on the Revised Federal Merit Promotion Policy.)

Under the revised promotion policy, all candidates who meet the qualification standard prescribed by the Commission for promotion to a position will be considered basically eligible for the position.

The standard for promotion generally is the same as that for competitive appointment, although some standards contain special provisions for promotion. All standards allow agencies to use "selective placement factors" in determining eligibility. These are factors which are essential to successful job performance, and they are considered part of the qualification standard. If an employee must be able to speak Spanish to perform a job, for example, the agency can require that applicants have a speaking knowledge of Spanish in order to be eligible.

It is not enough, however, to be merely basically eligible for promotion. The cornerstone of merit promotion is the identification of the persons who are best qualified. An agency must therefore evaluate the basically eligible candidates to determine which are the best ones.

The evaluation can include such methods as review of training and experience, written or performance tests, supervisory appraisals, and interviews. The agency has to use methods which are related to the job; provide an adequate measure of the skills, abilities, knowledges, and personal characteristics needed to perform most successfully on the job; make meaningful distinctions among candidates; and are practical and feasible.

Experience relevant to performance in the job being filled is one of the most important evaluation factors. The revised policy stresses that the type and quality of experience, rather than its length, are the crucial things to look at. What is important is how well the employee will perform in a higher grade and more difficult job, not how long he has worked at a less responsible one.

Strict controls have been established by the revised policy to assure that when written tests are used they are appropriate and valid for the job being filled. Agencies have to submit to the Commission for approval all written tests they want to use after June 30, 1969, if the tests are not required by the Commission.

The revised policy also requires that supervisory appraisals of performance be used as one method in evaluating employees, since it is important to know how well the employee has been doing his present job. An employee must be shown an appraisal of his performance used in a promotion action if he requests to see it. He is not entitled, however, to see an appraisal of another employee.

In addition to the above evaluation methods, an agency must consider any award an employee has received, as well as pertinent training, self-development, and outside activities which would increase the employee's potential for effective performance in the position to be filled.

Based on their evaluations, the candidates are ranked so that it can be seen which are the best ones. The ranking may be in numerical 1-2-3 order or by categories. The revised promotion policy requires that selection be made from the top available candidates (normally three to five). The selecting official may choose any of these candidates. He decides on the basis of his judgment of how well the candidates will perform on the job and, when relevant, what their potential is for future advancement.

The selecting official must make his choice without any form of personal favoritism and without discrimination for any nonmerit reason such as race, color, religion, sex, national origin, politics, or age. Tighter controls have been established on agency promotion programs to discourage practices, such as last-minute additions to certificates, that may lead employees to believe that a person was preselected for promotion. Once an employee has been selected, normally he must be released from the position he occupies within two to four weeks.

Because of the importance of supervisory positions and their particular requirements, special procedures are required for filling them. Further, the revised policy requires that agencies provide all first-level supervisors with supervisory training either before they assume their new duties or as soon afterward as possible.

Frances M. Arnn

Mary W. Catlett

Richard J. Bendura

PERFORMANCE AWARDS PRESENTED

Frances M. Arnn, Structures Research Division; Mary W. Catlett, Aero-Physics Division; and Richard J. Bendura, Applied Materials and Physics Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Miss Arnn was cited for "her sustained performance in effectively managing numerous administrative functions of the Structures Research Division and for her overall continued excellence in the performance of her duties."

Miss Catlett received her award for "sustained superior performance in notable administrative and secretarial support and supervision that have been a significant contribution to the operations of the Aero-Physics Division."

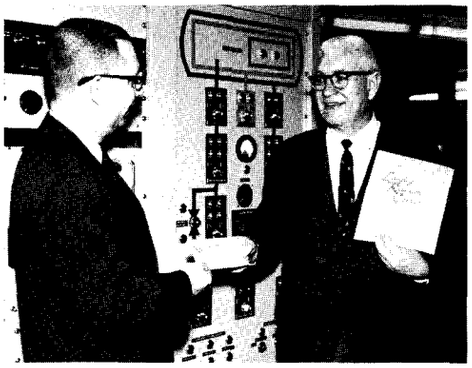
Bendura was cited for "sustained superior performance in rendering an unusual quantity of highly effective experimental aerodynamic tests, technical reports, and conference papers at a high level of technical accomplishment."

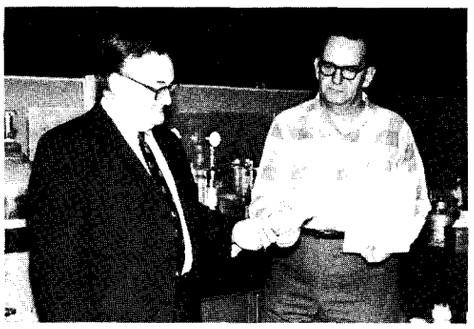
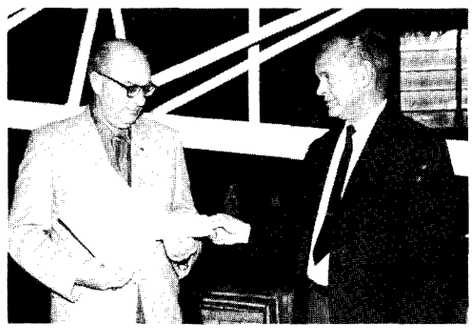
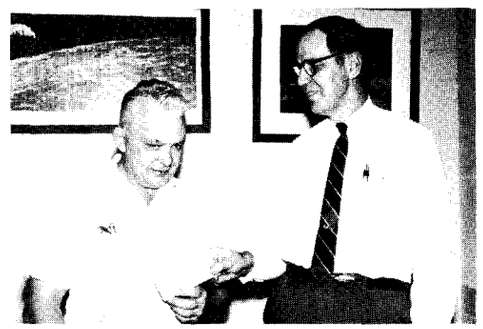
SOCIETY TO HEAR FRIEDLANDER

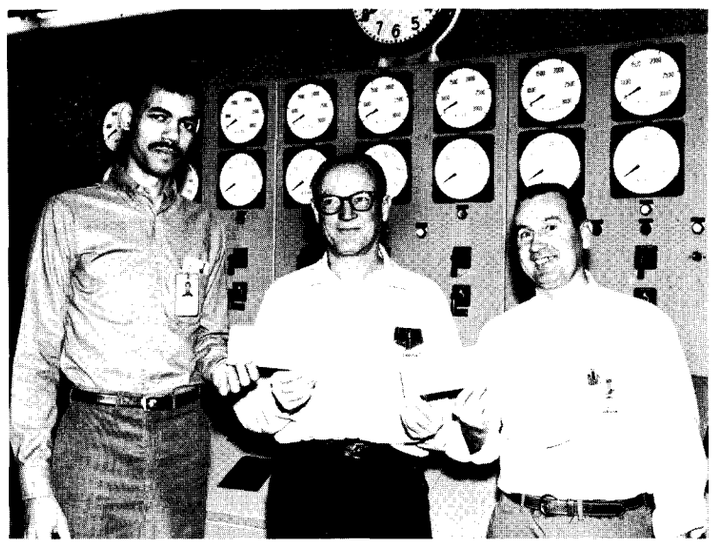
Dr. Gerhart Friedlander, Chairman of the Chemistry Department, Brookhaven National Laboratory, will lecture on "Radioactive Clocks" at 4:30 p.m. on Saturday, April 26. Sponsored by the Virginia Section, American Chemical Society, the lecture will be given in the Student Activities Building, College of William and Mary.

All interested persons are invited to attend. Details are available from Dr. George Sands, extension 3041.

FOR SALE: Apartment size Wurlitzer piano. Norsworthy, 723-3783.





TWELVE staff members have received cash awards for suggestions under the Incentive Awards Program. Top left - Charlie E. Dameron (right), Instrument Research, receives a $35 check from Paul R. Yeager for designing and developing an automatic protective vent for vacuum equipment used by the cyclotron at the Space Radiation Effects Laboratory, which can be operated independently of electrical power. Top center - Maxwell F. McNear (right), Flight Instrumentation, receives congratulations from Duncan McIver for installing a switch for altering the battery circuit of a Minimite Pyrometer Indicator thus minimizing the possibility of damage to the standard cell in the measuring circuit. Top right - Dr. Hans J. C. Blume (left), Flight Instrumentation, presents $105 to Harry H. Becker for designing and developing an improved liquid helium level detector. Center left - Robert W. Moore (right), Fabrication, receives $35 from George L. Meidinger for redesigning stainless steel canister filters so they can be reused for filtering water for the life support system. Center - Everett S. Browne (left), Research Support, receives $15 from Wilton J. Miller for the development of a more rapid, economical, and safer method of applying an ortholeum coating which prevents oxidation on the Landing Loads Track. Center right - Ralph E. Waagner (right), Fabrication, presents $15 to George F. Lemke for the placement of a machined plate in a ground opening of the Machine Shop which will provide a level base for placing large jobs while concurrently increasing employee safety. Lower left - Martin J. Menges (second from left), Research Support, presents a $50 joint award to (from left) Charles A. Sweet, Willie E. Wright, Thomas E. Pepe, and Leon V. Cole for modifying the control system of fatigue testing equipment thus improving the operational reliability in the simulation of real time flights of the supersonic transport. Lower right - James E. Davis (left) and Kenneth R. Williams (right), Research Support, receive a $135 joint award from George B. McGehee for automating the operating system controls for environmental cycling of the Supersonic Transport Material Test Facility so a greater number of test cycles could be performed.

HONORARY AWARDS PRESENTED

Eight staff members recently received Honorary Suggestion Awards under the Center's Incentive Awards Program. The award is in the form of a certificate which becomes a permanent part of the employee's personnel record. It gives recognition to an individual who has made a suggestion that has been accepted and put into use. The Honorary Suggestion Award is presented when a cash award is inappropriate because the suggestion is related to the employee's regular duties.

Awards were presented to the following:

Charlie E. Dameron and Alphonsa Smith, Instrument Research Division, were honored in recognition of a suggestion relative to designing and developing a universal control for use in operating facility pressure gages.

C. Michael Hudson, Structures Research Division, was cited for his suggestion relative to developing an automated system for monitoring photographically fatigue crack growth.

James H. Parker, Fabrication Division, was honored for modifying the sting holders and struts for the 20-Inch Mach 6 Tunnel by utilizing a screw adjustment method which will eliminate the clearance and resultant roll of models during testing.

Gideon J. Hagood Jr., Research Support Division, received his award for the development of a new and better method of photographing an oscilloscope during its recording of damping or oscillation decay on dynamic models.

Ben A. Goddin, Research Support Division, was cited for his suggestion relative to extending two valve handles which are used to control cooling water valves for research equipment, and which are located below a metal grated floor, to a safer work area, thus eliminating unsafe work conditions.

David C. Duxbury, Research Support Division, received his award for using a pressure reducing station to facilitate tunnel output and capabilities in the 11-inch Hypersonic Tunnel.

Harry V. Fuller, Flight Instrumentation Division, received his award for a suggestion relative to designing a tunnel connection device attachment for use on the Bio-Isolator suit system which will provide airtight conditions in which pressure operations are not delayed.

'BOOK OF MARS' AVAILABLE

"The Book of Mars," a one-volume digest of facts and theories about that planet, has been released by NASA.

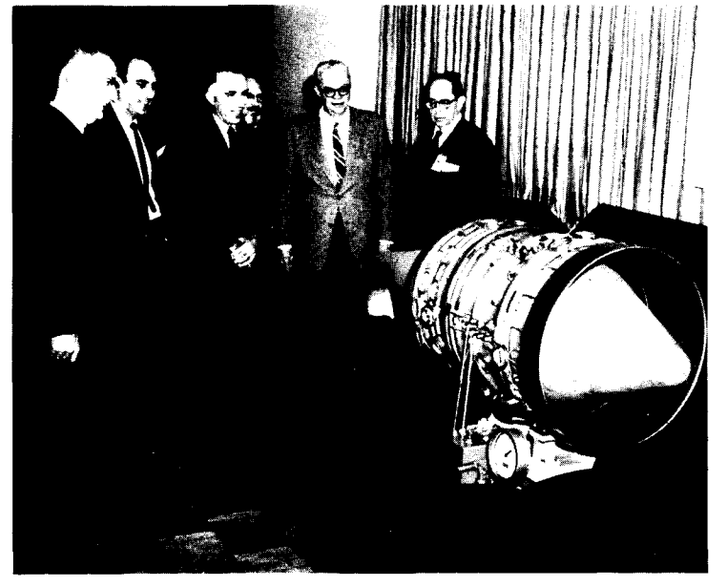
Written by Dr. Samuel Glasstone, the book represents the baseline of man's knowledge of Mars, a baseline that may be extended by spacecraft exploration.

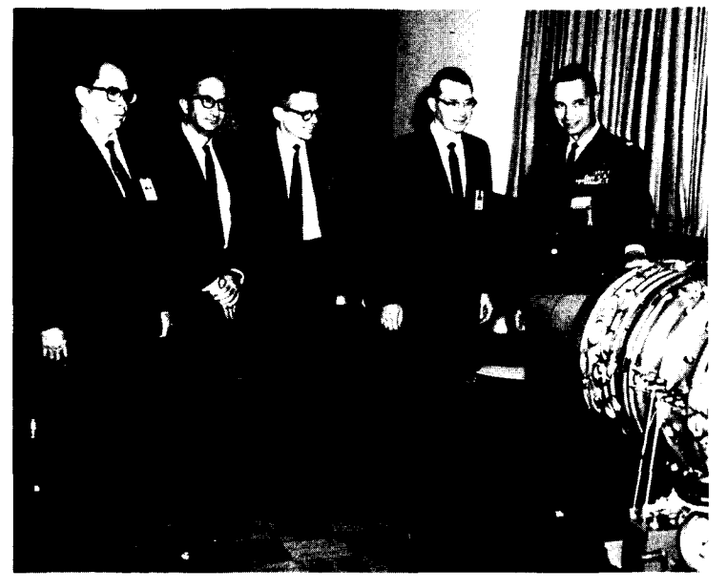
Illustrating the book are telescopic views and photographs taken during NASA's Mariner IV 1964-65 mission. The Mariner spacecraft flew within 6,000 miles of the planet's surface. The book also contains maps, drawings and charts.

Dr. Glasstone traces the history of man s slow acquisition of information about the fourth planet from the Sun and compares it with other planets.

Publication of the book comes at an appropriate time. NASA launched February 24 the first of two Mariner spacecraft bound for Mars and its twin was launched last week.

The 314-page "Book of Mars" (NASA SP-179) is available for $5.25 from the U.S. Government Printing Office, Washington, D.C. 20402.





THE FOURTH Oral Review of progress and plans for the Hypersonic Research Engine Project was presented March 25 and 26 by representatives of Airesearch Manufacturing Company, a division of The Garrett Corporation. Top photo - Inspecting the engine are (from left): Sherwood L. Butler, Chief of Procurement Division; H. J. Lopez, Airesearch Program Manager; Edgar M. Cortright, Langley Director; H. A. Wilson, Chief of Applied Materials and Physics Division; L. K. Loftin, Assistant Director; and Dr. K. F. Rubert, AMPD - Project Manager. Lower photo-Lt. Col. R. G. Dingman (right), USAF - Defense Contract Administration Region, explains the engine to Dr. Rubert, Erwin A. Lezberg, Lewis Research Center; W. G. Beecroft, USAF - Air Force Aero-Propulsion Laboratory; and Stafford W. Wilbur, NASA Headquarters.

FOR SALE: Honeywell tilt-a-mite flash unit. Miller, 595-0731.

FOR SALE: Dodge Dart station wagon, 6-cylinder. automatic transmission. Weaver, 877-4255.

WANTED TO RENT: 2 or 3-bedroom furnished house or apartment for summer. Robertson, 3761 or 898-6782.

FOR SALE: 500 cc Triumph Tiger 100 motorcycle. Hook, 877-6230.

Langley Researcher

VOLUME 8, NUMBER 8 LANGLEY RESEARCH CENTER APRIL 18, 1969

NASA HOST FOR YOUTH SCIENCE CONGRESS HELD ON PENINSULA

Langley Research Center was host for a Youth Science Congress held April 9-11 on the Peninsula. NASA and the National Science Teachers Association were sponsors. The congress included 32 high school students from Virginia, North Carolina, South Carolina, and Kentucky as participants.

Once each year a Youth Science Congress is held at 12 locations in the United States, including nine NASA centers, to encourage and recognize original scientific research by outstanding high school students.

Twenty students were selected for the congress from the

(Continued on page 8)

BEGINNING OF AN ERA: It was ten years ago this month that NASA's seven Project Mercury astronauts reported to the Langley Research Center to begin this nation's pioneer manned space flight program. As members of the original Space Task Group, they trained at Langley and made their headquarters here until about mid-1962 when they moved to the new Manned Spacecraft Center in Houston, Texas. The seven are shown in the Unitary Plan Wind Tunnel a decade ago during a tour of Langley facilities with representatives of the news media. The astronauts (clockwise) included John H. Glenn Jr., M. Scott Carpenter, Virgil I. Grissom, Walter M. Schirra Jr., L. Gordon Cooper, Alan B. Shepard Jr., and Donald K. Slayton. There were six manned space flights in the Mercury program, two suborbital and four orbital. All but Slayton flew in space. Grissom died in an Apollo launch pad fire in 1967 at Cape Kennedy. Only Cooper of the original seven continues in space flight status.

F. V. MOORE SELECTED RECIPIENT OF CAREER EDUCATION AWARD

Frank V. Moore

Frank V. Moore, head of the Scout Contract Administration Group, Procurement Division, has been selected for a year's graduate study at Cornell University in public policy and the management of public programs.

The National Institute of Public Affairs annually presents the Career Education Award to a small group of public servants who have shown exceptional ability, outstanding performance, and high potential for future leadership in government. The awards are made under a Ford Foundation grant.

Moore was born July 19, 1939 in Providence, Rhode Island, and is a graduate of Mount Pleasant High School (Providence). He attended the University of California and earned the degree of Bachelor of Science in Business Administration from Richmond Professional Institute of the College of William and Mary in 1962. Currently he is working toward a Master of Business Administration degree from the College of William and Mary

He joined the Center staff in July 1962 as a contract negotiator and was promoted to his present position in May 1968. He was awarded a NASA Special Services Award for Achievement in 1967.

Moore is co-author of a Langley publication "Structuring, Analyzing, and Evaluating Multiple Incentive Contracts -- The Value Statement Concept."

The National Institute of Public Affairs, located in Washington, D.C., is a non-profit educational organization dedicated to improving the quality of the public service and the ideas and information used in developing public policy.

(Continued on page 8)

SCOUT DECADE CELEBRATION

All Center and Ling-Temco-Vought staff members are invited to attend the Scout Program's Tenth Anniversary Celebration on Saturday, April 26 at the Activities Building.

The Scout Decade Celebration will start with a social hour at 6:30 p.m., followed by a roast beef dinner at 7:30 and dancing at 9 o'clock to the music of Janice and the Moonlighters.

Admission will be four dollars per person and reservations may be made by calling 827-2614.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

DAYLIGHT TIME. . .Staff members are reminded that in accordance with the Daylight Saving Time Bill, all clocks in Virginia will be moved forward one hour at 2 a.m. on Sunday, April 27. Daylight Saving Time will be observed for a period of six months. Accordingly, clocks will be moved back one hour at 2 a.m. on Sunday, October 26.

PANEL MEMBER. . .Donald Eide, Scout Project Office, will participate in a science symposium to be held in Richmond today and tomorrow by the Mathematics and Science Center in commemoration of the silver anniversary of the National Science Teachers Association. Theme for the symposium is "Science for the Future - Beyond the Four Walls." Eide will serve on the panel for "Space Science and Science Education." The meeting is designed to focus on future needs in science teaching rather than past achievements and to bring together teachers from all disciplines and interested citizens and students for a closer understanding of the significance of science and science education. The entire symposium is open to the public.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, April 30 at 7:30 p.m. at the Central Labor Union Hall.

BOOK SALE. . .The Hampton Branch of the American Association of University Women will hold its annual book sale today, tomorrow, and Monday at Brittingham's Furniture Company, 55 West Queen Street, Hampton. The hours of the sale will be: Friday - 8:30 a.m. - 9 p.m., Saturday-8:30 a.m. - 5:30 p.m., Monday - 8:30 a.m. - 3 p.m.

SPRING CONCERT. . .By popular demand the Peninsula Choral Society has made plans to feature a repeat performance of Dave Brubeck's modern jazz cantata "Light in the Wilderness" in its spring concert to be given April 26 at the Jefferson Davis Jr. High School on Todds Lane. The second work to be presented will be the inspiring "Ode to the Virginian Voyage" which was written a few years ago by Randoll Thompson especially for the Jamestown Tricentennial Exposition. The Peninsula Choral Society is directed by George Bailey and composed of only local singing enthusiasts. Included in the group are Stanley E. Pearson, Instrument Research; Mary W. Catlett, Aero-Physics; and Don E. Hewes, Aero-Space Mechanics.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of April 21:

Monday - Tomato-rice soup, pot roast, grilled pork chops, chicken chow mein, baked hash. Snack bar - Soup, ham and egg sandwich, hot roast beef, corn fritters.

Tuesday - Puree of bean soup, breaded veal cutlet, liver and onions, broiled fish, franks and beans. Snack bar - Soup, hot dog, chili dog, cheese dog, French fries.

Wednesday - Vegetable-beef soup, roast beef, barbecued pork chunks, Salisbury steak, grilled cheese sandwich, Snack bar - Soup, grilled cheese, barbecued pork, flying saucer, French fries.

Thursday - Chicken-noodle soup, country-fried steak, broiled smoked ham, fried chicken, beef ravioli. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Clam chowder, beef stroganoff, baked Canadian bacon, stuffed flounder, cheese omelette. Snack bar - Soup, fish sandwich, hot pastrami, French fries.

The menu for the week of April 28 is as follows:

Monday - Consomme Julienne, pepper steak, baked ham, sauteed chicken livers, fish cakes. Snack bar - Soup, sea dog, steak sandwich, German potato cakes.

Tuesday - Cream of celery soup, barbecued spare ribs, beef pan pie, fried fish, western omelette. Snack bar - Soup, hot dog, chili dog, cheese dog, French fries.

Wednesday - Vegetable-beef soup, Spanish pot roast, stuffed shrimp, Polish sausage, tamale pie. Snack bar - Soup, hamburger, cheeseburger, hot roast beef.

Thursday - French onion soup, grilled steak, spaghetti and meat sauce, knockwurst with beans, macaroni and wieners. Snack bar - Soup, fish sandwich, steak sandwich.

Friday - Clam chowder, hot roast beef sandwich, boiled ham, broiled fish, baked hash. Snack bar - Soup, sliced pork barbecue, boiled ham, French fries.

✯✯✯✯

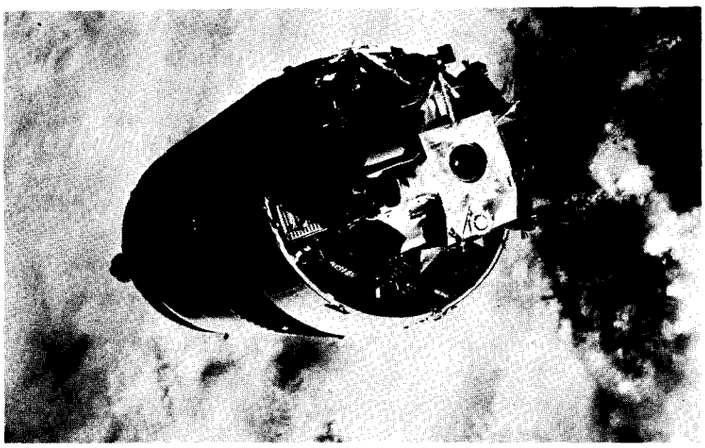
FOR SALE: Electric dryer, needs no vent - $20. Henry, 596-7829 after 5 p.m.

FOR SALE: 1965 Datsun station wagon - $900. Painter, 595-2358.

WANTED: Toy trains, preferably Lionel. Shuster, 868-6575.

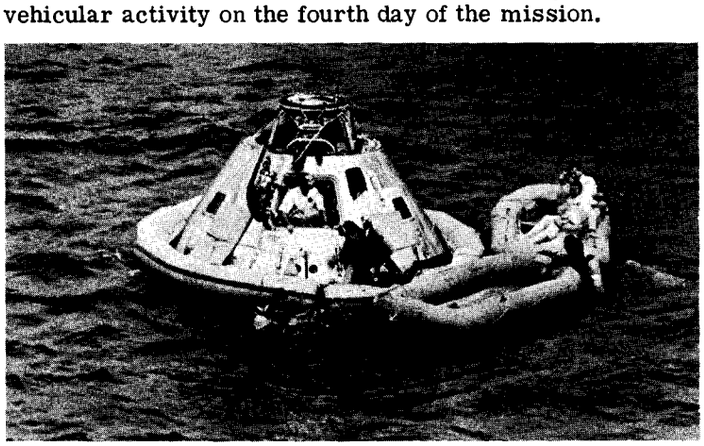
FOR SALE: 2-barrel carburetor for Pontiac 326 engine - $5. Shuster, 868-6575.

UNIQUE PHOTOGRAPHS TAKEN DURING APOLLO 9 FLIGHT

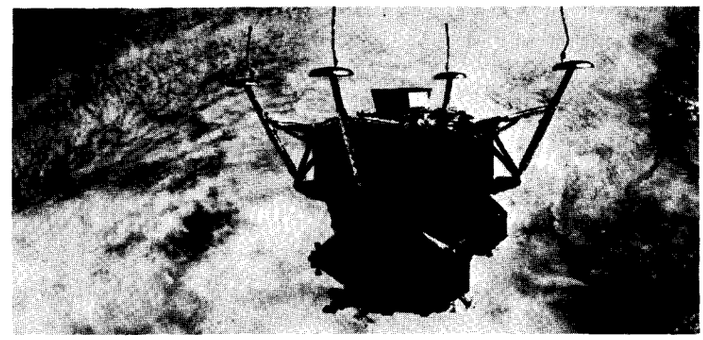


THE LUNAR Module 3 "Spider," still attached to the Saturn V third (S-IVB) stage is photographed from the Command Module "Gumdrop" on the first day of the Apollo 9 earth-orbital mission. This picture was taken following CSM/LM-S-IVB separation and prior to LM extraction from the S-IVB. Inside the Command Module were Astronauts James A. McDivitt, commander; David R. Scott, command module pilot; and Russell L. Schweickart, lunar module pilot.

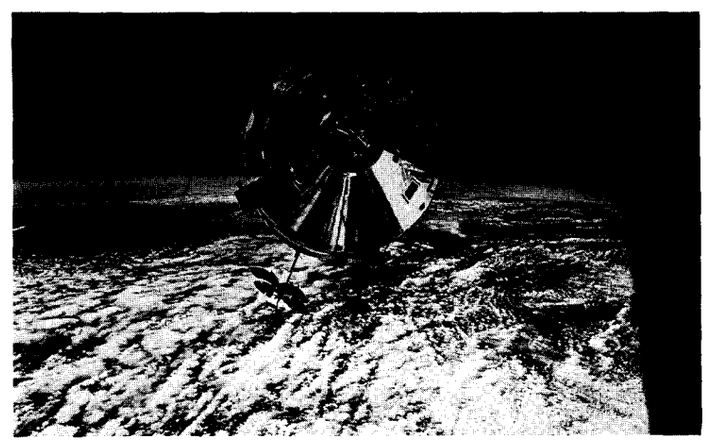
SCHWEICKART uses EVA hand rails during his extravehicular activity on the fourth day of the mission.



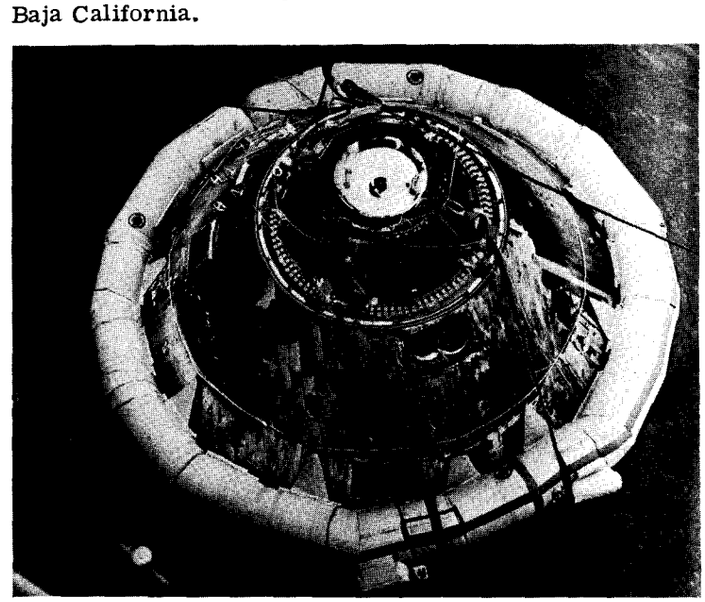
SCOTT, at extreme right in life raft, photographs McDivitt as he prepares to leave spacecraft through open hatchway shortly after splashdown at 12:01 p.m., EST, March 13.



LUNAR MODULE, in a lunar landing configuration, is photographed from the CSM on the fifth day of the mission. The "Spider" is flying upside down in relation to the Earth below. McDivitt and Scott are inside LM.



APOLLO 9 Command Module as seen from the LM. Apollo 9 is crossing southwest United States. Running across foreground is the Rio Grande River in southern New Mexico At the upper left background is the Gulf of California and Baja California.



THE SCORCHED Apollo 9 spacecraft cradled in a flotation collar, is hoisted aboard the USS Guadalcanal, prime recovery ship. The spacecraft shielded the astronauts from reentry temperatures which exceeded 2,000 degrees.

SCOUT LAUNCH VEHICLE CELEBRATES DECADE OF SERVICE

As we look back to 1958 we focus on NACA (The National Advisory Committee for Aeronautics). A deeper look brings our vision on PARD (the Pilotless Aircraft Research Division) at the Langley Research Center. A look-see inside brings our vision on a group of engineers: Max Faget, William Stoney, Guy Thibodaux, Paul Hill, Abraham Leiss, and Andrew Swanson. Their problem: to develop a relatively inexpensive, reliable, solid-propellant rocket vehicle for use as a satellite launcher and research vehicle.

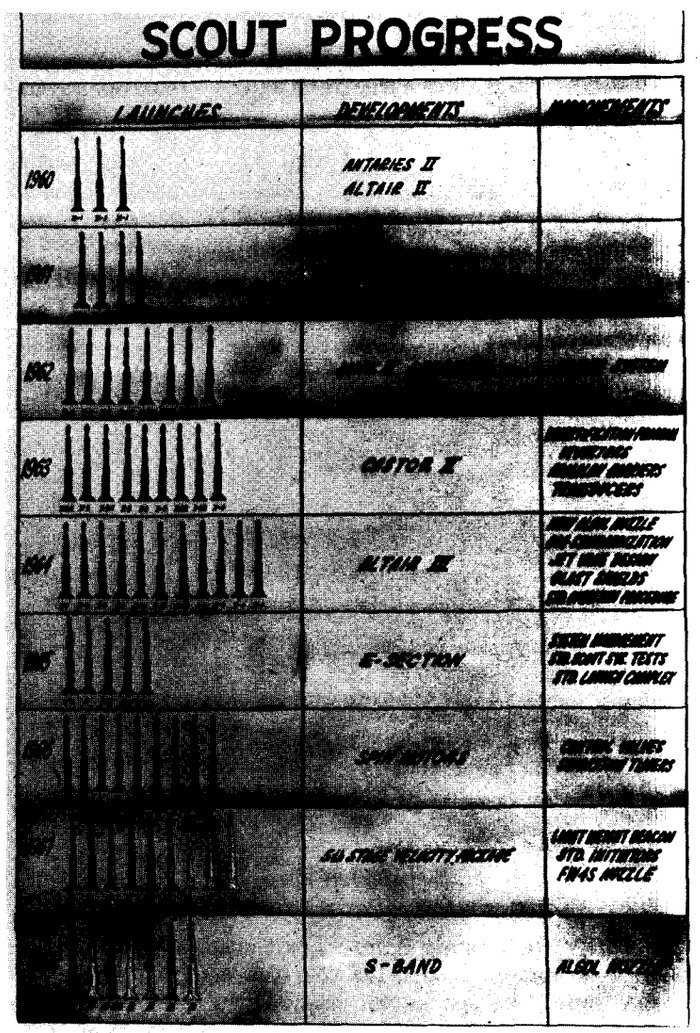
Time passes: April 1959, the signing of the first contract for this vehicle which they named the SCOUT. Chance Vought was the winning contractor. It is now 10 years later. What has been accomplished in this decade? The most significant events are as follows:

March 1960 - established a Scout Project Office.

July 1, 1960 - launched the first Scout.

October 3, 1968 - launched the 65th Scout.

The Scout explored space by transporting Explorers IX, XVI, XIX, XX, XXII, XXIII, XXIV, XXV, XXVII, XXX, XXXVII, XXXVIII, XXXIX, XL, XLI, and a number of international experiments. A telescope can see 36 Scout spacecraft in earth orbit. Five others have since decayed and five more were deep-space research probes. Eight earth reentry experiments round out the Scout's history. The original experimental Scout had a capability of placing a 131-pound spacecraft in a 300-nautical mile easterly earth orbit. The present Scout-B has a capability of 310 pounds. Scout-C has solar-orbit capability, and Scout-D presently on the drawing board will increase the 300-nautical mile easterly earth orbit capability to 400 pounds. Scout-D may also be used for small lunar experiments.



In the past 10 years, Scout has become the most used international space work horse. It is the Saturn V of the Italian space program. It has launched experiments for France, United Kingdom, West Germany, ESRO (European Space Research Organization), and Italy.

The Scout can be launched from California, Virginia, or from the coast of Africa (equatorial orbit).

The management team behind this program is a small group of dedicated professionals and non-professionals, four of whom were charter members of the original Scout Project Office -- Roland English, Clarence Robins, Abraham Leiss, and Edith Horrocks.

The Scout Project management has changed four times:

July 1960 - June 1961 - William E. Stoney (presently with NASA Manned Space Program in Washington, D.C.)

July 1961 - June 1963 - Lt. Col. George R. Rupp, USMC (presently with Martin Marietta Company in Marietta, Ga.)

July 1963 - December 1965 - Eugene D. Schult (presently Head of Space Vehicle Design Criteria Office at Langley)

December 1965 - Present - Roland D. English (formerly Head of Little Joe I)

Through these years Eugene C. Draley, Assistant Director for Flight Projects, and his technical assistant, Andrew G. Swanson, have guided the Scout Project Office.

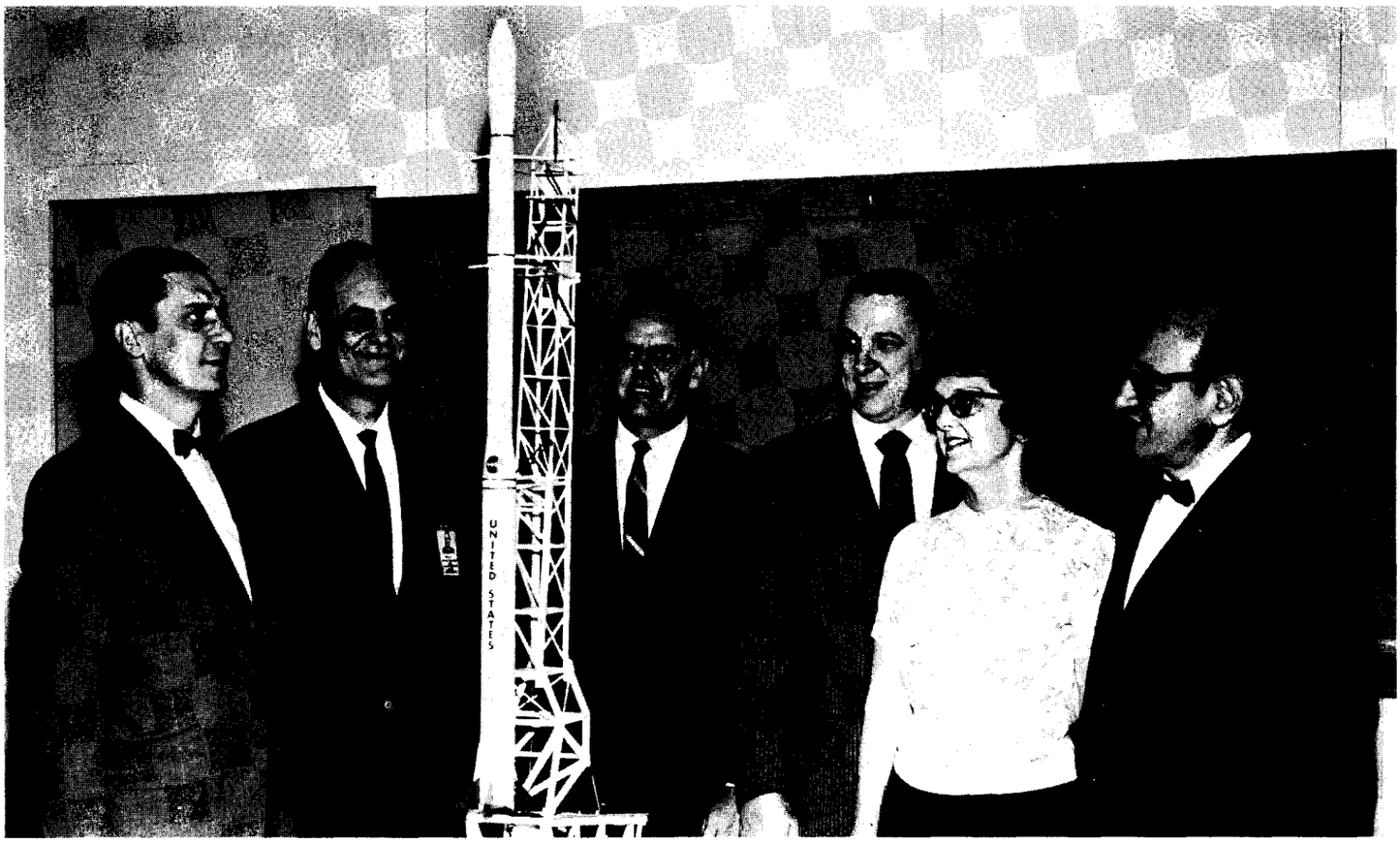
The present Scout OSSA Program Manager in Washington is Paul E. Goozh.

In these ten years NACA has changed its name to NASA, Chance Vought has changed its name to the Missiles and Space Division of LTV Aerospace Corporation, the initial contract of hardware has now expanded to a total management contract, the experimental Scouts have gone through 15 different configurations to the present three - Scout-A, Scout-B, and Scout-C; and Scout-D is on the drawing board. Scout-A is used by the DOD and has a X-258 fourth stage. Scout-B is the current NASA Scout and uses a FW-4S fourth stage. Scout-C is the five-stage Scout. Scout-D includes a new improved first stage. Of the 65 Scout launches, 18 had Langley Research Center managed payloads.

Scout is the smallest of the United States controlled orbital launch vehicles, the only one that uses solid propellant rocket motors exclusively, the least publicized, the lowest costing vehicle program, and the only launch vehicle with a foreign launch complex.

Through launch after launch, Scout has built a strong success record. With each new mission it continues to demonstrate its economy and its wide ranging versatility. The Department of Defense, the NASA, the international programs, the University programs all continue to rely on Scout for a variety of specialized missions.

These missions will continue to be launched by one of the three launch teams available -- the LTV contract launch team at Wallops Island, the Air Force launch team at Vandenberg Air Force Base or the Italian launch team at Kenya, Africa.



CHARTER members of the original Scout Project Office are (from left): Roland D. English, Head of Scout Office; Eugene C. Draley, Assistant Director for Flight Projects; Clarence A. Robins; Andrew G. Swanson, Technical Assistant, Office of Assistant Director for Flight Projects; Edith R. Horrocks; and Abraham Leiss.

TECHNOLOGY UTILIZATION NEWS

Teleoperator Controls, SP-5070, is the latest Technology Survey to be published jointly by AEC and NASA. It covers the current state-of-the-art developments in the exciting new field of cybernetic machines.

These mechanical "slaves" enable a man to operate tools in a hostile environment without entering that environment. Wherever barriers, such as distance, space, temperature, pressure or radiation, might endanger or prevent man from working directly, he might send his mechanical slave to do his work. By definition, however, man remains in the control loop and must sense all activities of the slave mechanism through proper feedback. This feature distinguished teleoperator control systems from automation.

Such general purpose cybernetic machines, developed to meet the needs of nuclear energy and space exploration, promise to have profound effects in industry and agriculture as well as for use in exploiting the ocean's resources.

Copies of the new report may be obtained by calling the T.U. Office, extension 3281.

WANTED: 15,000 btu air conditioner, also carpets sizes 9 x 12 ft. and 12 x 16 ft. Caldwell, 838-4526.

FOR SALE: 4-week-old miniature Silver poodles, male and female - $75. White, 868-6508 after 4 p.m.

FOR SALE: Bell and Howell movie camera and projector - $75; Motorola floor model record player with records - $100. Maynard, 595-2133 after 6 p.m.

GOLF ASSOCIATION FORMED

A NASA Golf Association has been formed under the auspices of the Activities Association to establish and promote golfing activities for all NASA employees.

Officers of the organization are: Frank Lawrence, president; Charles Downing, vice president; Willis Simmons, treasurer; and Robert Turner, secretary.

Membership fee is three dollars per year which will be used for purchasing trophies and prizes. Three tournaments a year are planned with a banquet at the end of the season.

The first tournament will be held on May 9 at the Langley Golf Course. Details will be announced in the next issue of Langley Researcher.

The next meeting of the association will be held on April 21 at 7:30 p.m. in the Activities Building. All interested NASA employees are invited to attend.

Staff members must join by May 2 to be eligible for the first tournament. To become a member, fill out the form below and send it along with the three-dollar membership fee to Lemuel (Buddy) Forrest, M.S. 236. Make checks payable to Willis A. Simmons.

NAME_____ M.S._____

Bldg. No._____ NASA Phone_____ Home Phone_____

FOR SALE: New odd pieces of Old Lace silverware by Towle, half-price. Summerfield, 898-6208.

FOR SALE: Polaroid Swinger camera - $10. Timberlake, 247-1988.

REVISED MERIT PROMOTION PLAN

(This is the fourth of a series of articles on the Revised Federal Merit Promotion Policy.)

Competitive promotion procedures apply to all promotions except as otherwise permitted by the Civil Service Commission. They also apply to certain other placement actions.

One of the complaints of employees has been that sometimes persons are brought in from other agencies who are not as good as employees already in the agency.

Under the revised promotion policy, however, if a person from another agency (or a former employee eligible for reinstatement) is being considered for a higher grade job, he may be selected only if he is as well qualified as agency employee eligible for promotion to the job.

In some instances, employees are appointed to jobs at grades below the full performance level of the jobs and are given assignments and training to prepare them for the higher level work. These are jobs with "known promotion potentials." Examples are trainee and understudy jobs.

Under the revised policy, persons selected for jobs like these generally must be chosen either from a civil service register or under competitive promotion procedures. After this initial merit competition for entrance to the jobs, employees may be advanced to the full performance level without further competition with other employees. This is called a career promotion.

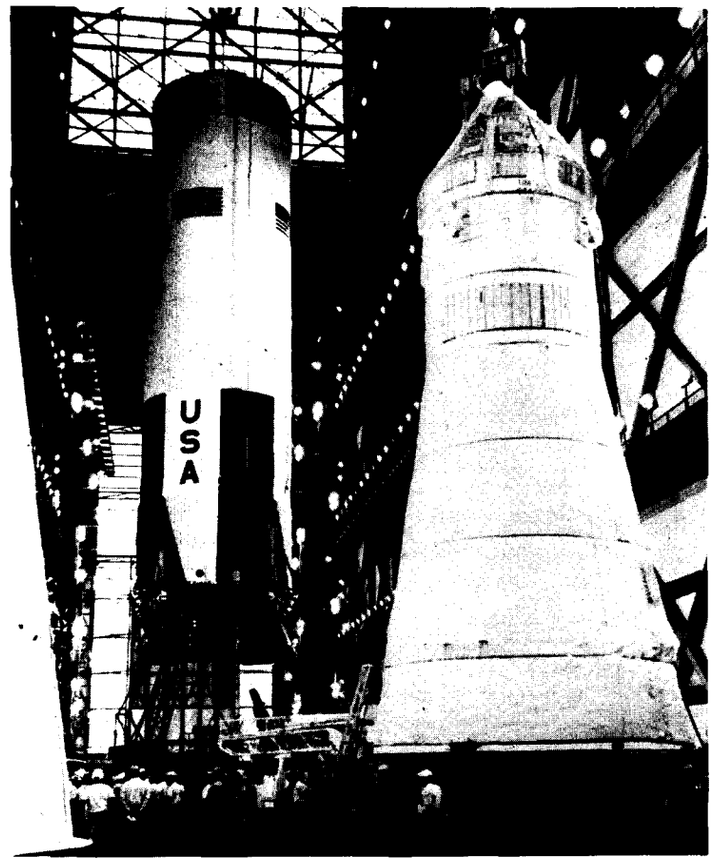
Likewise, if an employee is under a training or executive development agreement or has been detailed for training or evaluation, and was originally chosen from a civil service register or by competitive promotion procedures, he can receive a career promotion when he successfully completes his training.

These procedures assure that all employees receive fair consideration for assignments that are intended to lead to promotion and allow systematic and equitable career programs for employees.

An employee also may be given a career promotion when his job is upgraded because of the addition of other duties and responsibilities, provided the addition is not the result of planned management action. It is only fair that an incumbent of a job who builds it up through his own ability should move up with it. But when a job is built up because management chooses one of a number of employees to give higher grade work, then the job must be open to competition.

A few exceptions to competitive promotion procedures are allowed in the interest of employee equity, such as when a new classification standard raises an employee's grade. An employee also may be repromoted without competition to a position or grade from which he has been demoted without personal cause, that is, without misconduct or inefficiency on his part and not at his request. This provision helps an employee who took a lower grade after separation.

The revised promotion policy provides that the demoted employee must be considered for repromotion before any other means are used to fill a position he is qualified for. Normally he should be repromoted if he is well qualified for the job, unless there are persuasive reasons for not doing so. It is simple justice to give back to the employee what he has already earned through merit procedures as soon as it is possible to do so.



MATING: The first stage of the Apollo 10 Saturn V space vehicle is hoisted above the transfer aisle in preparation for erection on a mobile launcher within High Bay 2 of the Vehicle Assembly Building. The erection of the 138-foot long stage marks the first use of Mobile Launcher 3 and High Bay 2. Apollo 10 will be piloted by Astronauts Thomas Stafford, John Young, and Eugene Cernan. Launch date will be May 18.

WANTED: 1966 or 1967 Ford Country sedan wagon, V-8, automatic transmission. Senft, 596-7808.

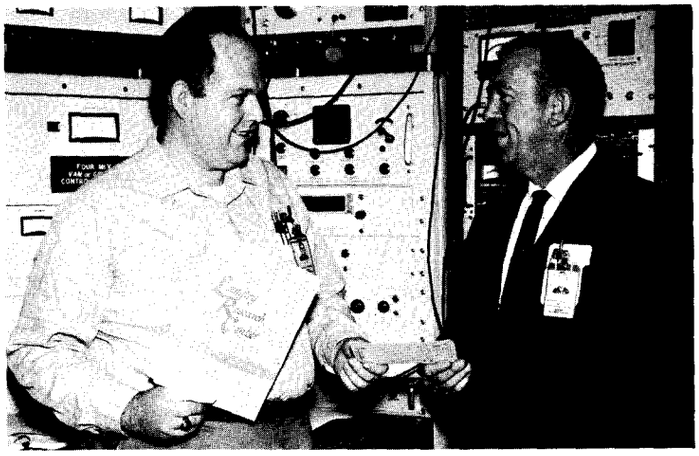
FOR SALE: 16-foot Comet sailboat and trailer - $525. Bavuso, 838-0606.

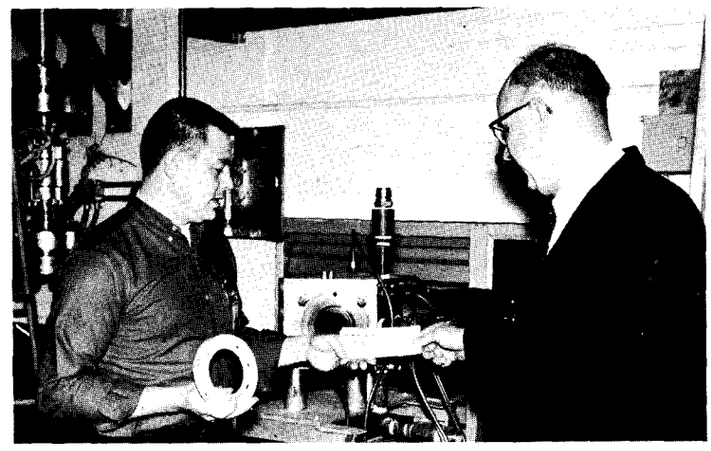
FOR SALE: Lady's full-length white formal - $27.50; red chiffon cocktail dress - $17.50; mauve cocktail dress - $17.50 - all size 7. Turner, 838-3196.

FOR SALE: 1963 Chrysler hardtop, 383 engine, 2-door, 2-door, power accessories. Crumbly, 851-2002 after 5 p.m.

Under the revised promotion policy, competitive procedures must be used if a temporary promotion will last more than 120 days or if a detail to a higher grade position or to a position with known promotion potential will last more than 60 days. (Formerly there was no requirement for competition on details.)

Further, the revised policy emphasizes that agencies should not detail an employee to work temporarily at a higher grade level unless there are compelling reasons for doing so. Normally, except for a brief assignment, an employee should be given a temporary promotion instead of being put on detail, since a temporary promotion gives better recognition to management needs and, in turn, assures the employee of appropriate compensation for his higher grade work.





SIX staff members have received cash awards for suggestions under the Incentive Awards Program. Top left - Tucker A. Clark (left), Research Support, receives a check for $50 from Orian R. Moss for his suggestion relative to using a check valve for holding high vacuums and releasing high pressures on liquid nitrogen sorption pumps thus providing greater employee safety. Upper right - George L. Meidinger (left), Fabrication, presents a $35 check to W. Richard Burks for his suggestion to alter standard General Services Administration cabinets so that they could be used in place of more expensive film storage cabinets. Center left - Philip F. Walker (left), Research Support, receives congratulations and a $15 check from George R. Oden for his suggestion relative to using a screw-on type spout for transferring solvents from a commercial can to a safety can thus decreasing spillage, eliminating fire hazards, and providing greater protection of employees' clothing. Center right - Fred F. Eichenbrenner (right) Research Support, awards a $35 check to Mickey R. Gardner for the development of an improved method for maintaining uniform temperatures on fatigue test sections. Lower left - George T. King (right), Fabrication, receives a $25 check from Meidinger for a suggestion relative to replacing the stainless steel handles on heating fluid lines with teflon valve handles thus preventing burns and insuring greater employee safety. Lower right - James P. O'Briant (right), Research Support, presents a $35 check to Frank J. Jones for suggesting the use of teflon in place of ceramic material as an electrical insulator and gas induction ring for experimental arc heaters.

ISA CHAPTER PLANS MEETING

The April 23 meeting of the Instrument Society of America will be in the form of a field trip to Surry to tour the nuclear power station of VEPCO. Company officials, in their specially prepared presentations, will focus on that phase of the operation dealing with monitoring and control instrumentation.

The plans are to meet at Howard Johnson's Restaurant parking lot (James River traffic circle) at 7 p.m., leave the lot at 7:15, and arrive at the power plant at 8 o'clock.

For rides to and from the plant, non-members should call Warren Thomas, 3492, or Andy Kantsios, 3234. Guests are welcome.

KNOW YOUR CREDIT UNION

Interest paid, and how computed, is a matter of direct concern to some 8200 borrowing members and almost as much as to our 5300 savers whose dividends it affects. To begin with, there are two basic rates: 1% and .75% of the unpaid balance each month. The 1% is charged on personal loans, including the Reddy Fox variety, and compares very favorably with the 2-1/2% collected by small loan companies and the 1-1/2% service charge of most retail outlets with time payments. The .75% is charged, primarily, on share-pledge, real-estate, and new car loans. It competes with a bank's so-called 4-1/2% rate but has the added advantage of loan-life insurance at no additional cost. The other rates in use are established by law for FHA Home Improvement loans: .8% on loans up to $2500 and .735% on the entire amount of loans over $2500.

Interest is neither added to nor subtracted from the amount of a loan. As a result, an early pay-off involves no penalty (a Credit Union plus) nor any refund. The interest is deducted as each payment is made with the remainder going to reduce the outstanding loan balance. The charge is based on the exact number of days since the last previous payment. Thus it is possible for interest, as shown on the statement, to go up while the loan balance is coming down. It all depends on the number of days between payments.

And, finally, one last reminder. Interest paid the Credit Union is 100% deductible for income tax purposes while store service charges are not. In this, as in most respects, you get the better deal in Building 1310. CHECK IT OUT!

MOORE RECEIVES AWARD

(Continued from page 1)

The awards permit the recipient to study at one of eight universities. In addition to Cornell, these include Virginia, Indiana, Harvard, Princeton, Stanford, Southern California, and Washington.

In cooperation with the U.S. Civil Service Commission, the NIPA is sponsoring an orientation meeting for all 1969 Career Education Award winners from April 25-27 at Charlottesville. Its purpose is to prepare recipients of awards for their year of university study so that they may take maximum advantage of this opportunity.

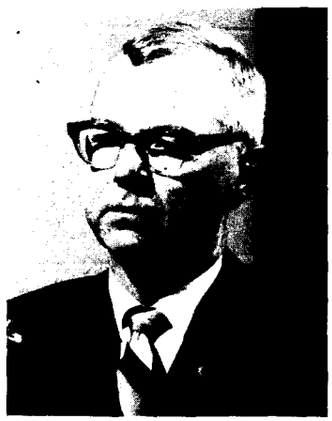
FOR SALE: 1960 Dodge Matador, 4-door, power accessories. Brooks, 596-5164.

FOR SALE: Yellow, White, and Pink formal gowns, Size 7, Best offer. Adams, 595-0557.

FOR SALE: Briggs and stratton 21-inch rotary lawn mower - $15. Youngblood, 877-1224 after 5:30 p.m.

WANTED: Chord organ. N. H. Johnson, 877-0842.

THEO SIMS DIES IN ALABAMA



Theo E. Sims

Theo E. Sims, aerospace technologist in the Flight Instrumentation Division, died Sunday in a Birmingham, Ala., hospital after a brief illness.

Sims was a native of Vincent, Alabama. He graduated from the Pell City (Ala.) High School and served three years as a radio operator with the U.S. Army Air Force.

Following his military service, he enrolled in Auburn University, from which he was graduated in 1948 with a Bachelor of Science degree in Electrical Engineering. He joined the Center staff in February 1955 and was assigned to the Telemeter Component Development Section, Instrument Research Division.

Last month he received a Special Service Award for Exceptional Service. He was cited for "significant achievement in the planning and direction of a series of highly successful flight experiments which has resulted in greatly increased knowledge of the radio frequency transmission through the ionized plasma sheath that surrounds hypersonic reentry vehicles."

YOUTH SCIENCE CONGRESS

(Continued from page 1)

four states on the basis of an outstanding research type science project they completed. There were six students from Virginia, five from Kentucky, four from North Carolina, and five from South Carolina.

Each student presented an oral report of his science project and had an opportunity to engage in discussion sessions with fellow students, NASA scientists, science teachers and other professionals in the science field.

The congress began with an organization dinner at the Hotel Chamberlin where they were greeted by officials of NASA and the NSTA.

A recognition banquet was held Thursday evening at the Activities Building. Each student congress member received a bronze medallion and certificate presented by Dr. John E. Duberg, Langley Associate Director, who also was principal speaker. S. Walter Hixon, head of Langley's Training and Educational Services Branch, presided at the banquet.

Twelve Peninsula high school students were invited to join the visitors. They included Clarence Cain, Carver; Frances Anne Moore, Ferguson; Keith Witherspoon, Huntington; Gary Hankins, Newport News; Bruce Cole, Bethel; Michael Spade, Warwick; Bobby Hallissy, Hampton; Betty Swenson, Denbigh; Paul Volckhausen, Kecoughtan; Russell B. Leighten, Pembroke; David Ray Fox, York; and James Michael Hunt, Poquoson.

The congress delegates also toured a number of Langley research facilities.

FOR SALE: Glasspar G-3 skiboat and trailer with 65 hp Mercury outboard - $1000. Fernald, 898-5698 after 6.

WANTED: Ping pong table. Willey, 596-0443 after 5 p.m.

Langley Researcher

VOLUME 8, NUMBER 9 LANGLEY RESEARCH CENTER MAY 2, 1969

ABNER M. Askew (standing), Chairman of the Center's 1969 U.S. Savings Bond Campaign, discusses the advantages of ownership of Savings Bonds and Freedom Shares with Dr. John E. Duberg, Associate Director. Dr. Duberg launched the 1969 effort by increasing his present allotment.

X-15 AIRCRAFT TO BE PLACED IN SMITHSONIAN INSTITUTION

The final flight of the X-15 research aircraft early this month will be out of character for an airplane famous for hypersonic speeds and towering altitudes.

Unmanned and without power, the X-15 will ride as dismantled cargo aboard a jet freighter. However, it will be headed for reassembly and a place of honor in the Smithsonian Institution, Washington, D.C.

In retirement, the X-15 will be on display with the Wright Kitty Hawk Flyer and the Spirit of St. Louis. Future generations will be able to view the vehicle that extended the frontiers of aerodynamic flight into space itself.

Three X-15 aircraft were built for the government by North American Rockwell Corp., and the "No. 1" being delivered to the Smithsonian made the first flight June 8, 1959. The joint U.S. Air Force-U.S. Navy-NASA program recorded 199 flights.

The X-15 was conceived more than 15 years ago as a step in a series of rocket research airplanes. The X-15 was designed for manned hypersonic flight in a joint USAF-NASA research program at speeds up to 4,000 miles-per-hour and altitudes of 50 miles. It exceeded both goals.

Recognizing the future of space flight, NASA and associ-

(Continued on page 3)

ABNER ASKEW NAMED HEAD OF CENTER'S BOND CAMPAIGN

Abner M. Askew, Fiscal Division, has been named Chairman of the Center's 1969 Savings Bond Campaign. The drive will be conducted during the period May 5 through June 21.

The theme of this year's campaign is SHARE IN AMERICA and affords each employee an opportunity to purchase U.S. Series E Savings Bonds and Freedom Shares (savings notes) through the Payroll Savings Plan. Series E Savings Bonds now earn 4.25% interest, compounded semi-annually, when held to maturity of seven years. Freedom Shares earn a full 5% when held to maturity of four and a half years. An employee may sign up for Savings Bonds alone, or for the Bond/Share combination.

Askew pointed out there are numerous advantages in the ownership of U.S. Savings Bonds and Freedom Shares including safety, tax advantages and liquidity. Savings Bonds and Freedom Shares are fully guaranteed as to principal and interest. They are backed by the full faith and credit of the U.S. Government. In a survey as to advantages, thousands of buyers rated safety as the most important quality of Savings Bonds. If lost, stolen, or destroyed, they will be replaced free of charge. There is no risk of market fluctuation and they are always worth what they

(Continued on page 8)

PREPARING to cut the cake at the Tenth Anniversary Celebration of the Scout Project are (from left): Roland D. English, head of Scout Project Office; Kenneth Gustafson, Project Manager for Scout at Ling-Temco-Vought; Eugene D. Schult, former head of Scout Project Office; and Milton Green, former Scout Project Manager at LTV and now head of all launch vehicles for LTV.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

NEW HEIR. . .Celebrating the birth of a six pound, three ounce son, Don Clay III, on April 11 are Pat, formerly of Technical Information and Utilization Division, and Don C. Marcum Jr., Aero-Physics Division.

SOFTBALL NOTICE. . .Anyone interested in entering a team in the NASA Softball League is requested to call Joe Nolan, 3026, or Larry Brumfield, 2840.

WEDDING BELLS. . .Willie G. Goodwin, Fabrication Division, took his final vows with Peggy Callis, Hampton, on Saturday, April 26 in the Parkview Presbyterian Church.

RAZOR BLADE HOLDERS. . .Approved razor blade holders may be obtained from the East and West Area Dispensaries.

REPRESENTATIVE TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on May 14 from 9 to 10 a.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on May 6 at 7 p.m. at the Central Labor Union Hall.

ENGAGEMENT. . .Making plans for a June 20 wedding is Darlene H. Graham, Flight Instrumentation Division. She is engaged to Vernon Edward Watkins Jr., Poquoson.

FOR SALE: 10-foot aluminum Jon boat - $50. Bright, 868-6530.

FOR SALE: 1961 Falcon, 4-door, automatic transmission-$265. Bendura, 838-5311.

FOR SALE: Zenith portable stereo record player - $20; 8 mm movie camera with electric eye - $5; 1/4-inch electric drill - $3. Gibson, 826-2678.

FOR SALE: Kennedy machinist's tool box with assorted precision tools - $50. Lambert, CH4-2369 after 5 p.m.

FOR SALE: 1966 27-foot Chris-Craft Cavalier cruiser. Harrington, 877-1701.

WANTED: Canoe about 15 ft. long, preferably fiberglas. Jones, 898-5760.

FOR SALE: 1965 Ford Mustang, 6 cylinders, automatic transmission. Adams, 595-0557.

PRESENT and former members of the Scout Project Office who attended the tenth anniversary celebration held last Saturday are kneeling (from left): Aaron Ostroff, James Hall, Richard Wilem, and Roland English. Standing - Abraham Leiss, John Goslee, Edith Horrocks, Allan Churgin, Cy Salmirs, Diane Harris, Clarence Robbins, Leonard Richardson, Gene Schult, and Elmer Wolff.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of May 5:

Monday - Tomato rice soup, corn beef brisket, grilled pork steak, chicken chop suey, Spanish omelette. Snack bar - Soup, hamburger, cheeseburger, hot corned beef.

Tuesday - Puree of bean soup, braised beef tips, chuckwagon steak, ham loaf, franks and beans. Snack bar - Soup, hot dog, chili dog, cheese dog, chili cheese dog, chuckwagon steak, French fries.

Wednesday - Vegetable-beef soup, roast beef, grilled smoked ham, fried chicken, Austrian ravioli. Snack bar - Soup, barbecued pork, hot roast beef, French fries.

Thursday - Chicken-noodle soup, chicken and dumplings, grilled pork chops, meat loaf, cheese omelette. Snack bar-Soup, grilled cheese, hot pastrami, corn fritters.

Friday - Clam chowder, Swiss steak, fried fantail shrimp, stuffed pepper, Spanish franks. Snack bar - Soup, fish sandwich, steak sandwich, hush puppies.

The menu for the week of May 12 is as follows:

Monday - Cream of tomato soup, pot roast of beef, baked hash, chicken pie, Salisbury steak. Snack bar - Soup, hamburger, cheeseburger, hot roast beef, French fries.

Tuesday - Cream of celery soup, country fried steak, baked ham, Polish sausage, fish cakes. Snack bar - Soup, sea dog, steak sandwich, German potato cakes.

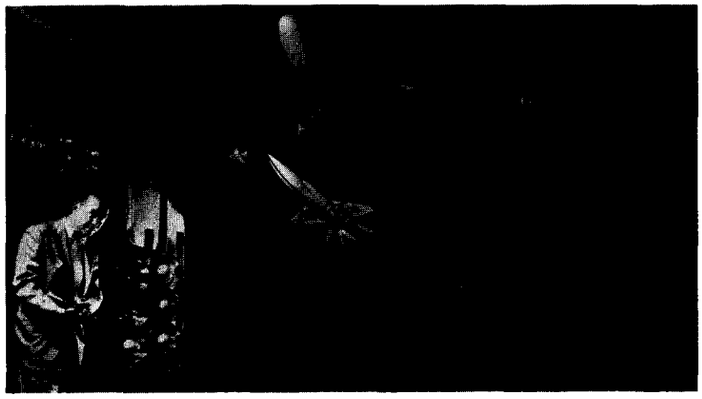
Wednesday - Chicken-vegetable soup, chopped steak, barbecued pork chunks over rice, fried chicken, macaroni and wieners. Snack bar - Soup, hot dog, chili dog, Lou's satellite special, French fries.

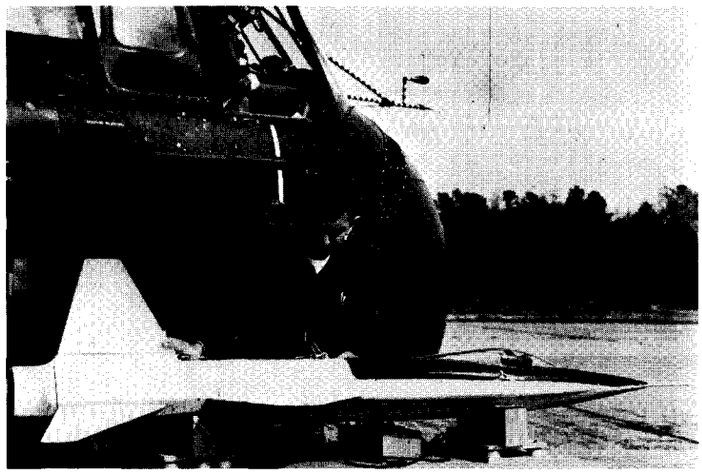
Thursday - Vegetable-beef soup, grilled steak, stuffed flounder, spaghetti and meat sauce, western omelette. Snack bar - Soup, barbecued pork, hot corned beef.

Friday - Clam chowder, roast ribs of beef, liver and onions, fried fish, chili con carne. Snack bar - Soup, fish sandwich, flying saucer, French fries.

WANTED: Home for 6-months old cat, black, female, house trained, gentle. Lewis, 247-6563 after 6 p.m.

FOR SALE: Four 5:00 x 8 tires - $20. Crate, 596-5136.





EXTENSIVE RESEARCH was conducted at Langley in wind tunnels, specialized laboratories, and in free flight in support of the design, development and operation of the X-15. A model (top left), originally suspended beneath the wing of a B-52 model in the 7 by 10-Foot Wind Tunnel, is observed to determine the release characteristics and drop motion. Another model (right) undergoes stability, control and aerodynamic performance research in the 4-Foot Supersonic Pressure Tunnel, where scientists studied Schlieren photographs such as this to suggest design improvements. A helicopter drop test model (above), using a horizontal tail for roll control, is prepared for radio-controlled research to study characteristics in the range from unstalled flight through the fully developed spin.

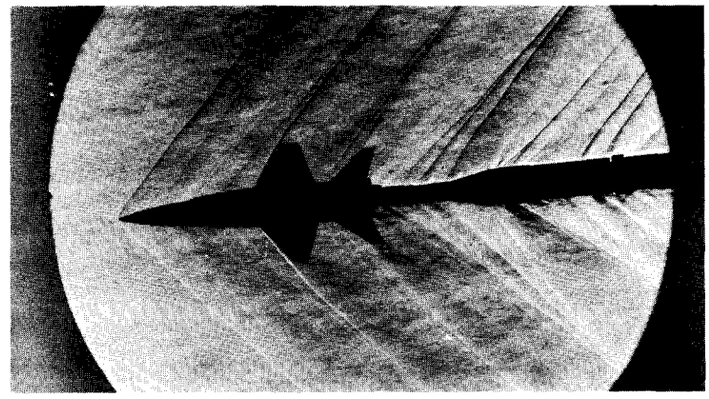
FLETCHER TO PRESENT SPECIAL PROGRAM JUNE 5 ON DRUG ABUSE

Donald K. Fletcher, Manager of Distribution Protection for Smith, Kline and French Laboratories, pharmaceutical manufacturers, will present a program on Drug Abuse at 8 p.m. on June 5 at the Activities Building.

Fletcher has been engaged in this field for eight years and has lectured on the subject many times all over the country.

Employees and spouses are invited to attend this timely and informative program which will present a factual and non-sensational insight into the presently highly-publicized problem.

The size of the audience will be limited to approximately 400. Admission will be by free tickets which may be obtained until the supply is exhausted from district representatives; the Activities Association Office, extension 2183; or the Employee Services Branch, extension 2605.



X-15 SMITHSONIAN BOUND

(Continued from page 1)

ated X-15 designers anticipated that the vehicle could explore for the first time some of the problems of manned space flight during brief periods at extremely high altitudes.

Thus, they included rocket thrusters (reaction controls) for attitude control in space flight and developed a combination aircraft-spacecraft, yielding significant benefits for NASA's manned space flight program.

After test flights by the contractor, the X-15 made its first research flight on March 25, 1960, with NASA's chief pilot, the late Joseph A. Walker, at the controls. By the end of 1961, the original design goal of 4,000 miles-per-hour had been achieved. In a later flight, the aircraft exceeded its original 250,000 foot altitude goal. Two unofficial world records -- 350,000 feet (67 miles) and 4,520 miles-per-hour, or 6.7 times the speed of sound -- were established in the X-15 program.

By 1962, a decision was made to use the X-15 in a follow-on program to carry scientific experiments to the edge of space economically.

The three aircraft served as reusable manned platforms for a wide range of experiments that helped advance the development of vital aeronautical and space flight systems. Materials, instrumentation, space suits, and techniques were developed for NASA as well as for the military.

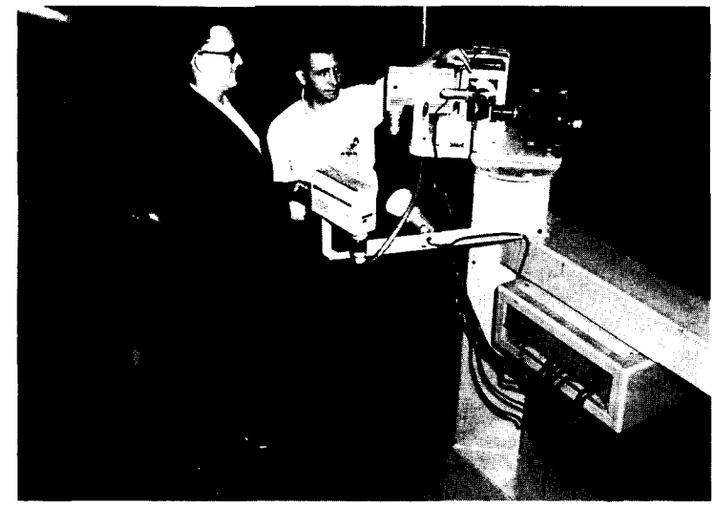
Twelve military and civilian test pilots flew the stub-winged research airplane, including two who are now NASA astronauts -- Major Joe H. Engle, USAF, and civilian Neil A. Armstrong. Several other Air Force pilots have received USAF astronaut wings for X-15 flights above 50 miles.

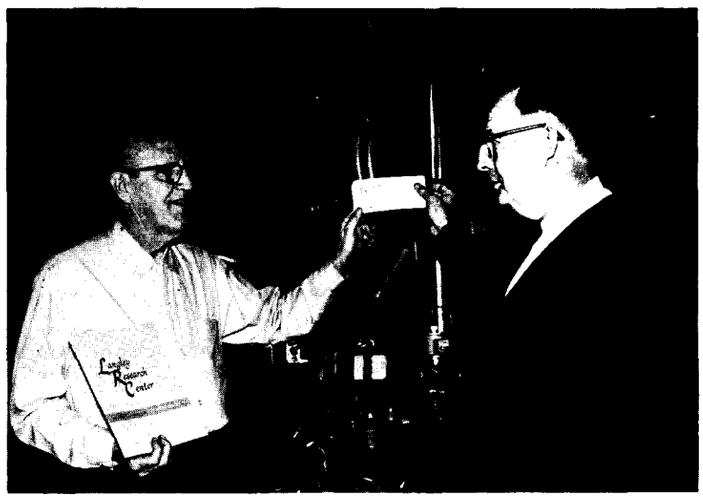
Total cost of the X-15 program, including development of the three aircraft, was about $300 million.

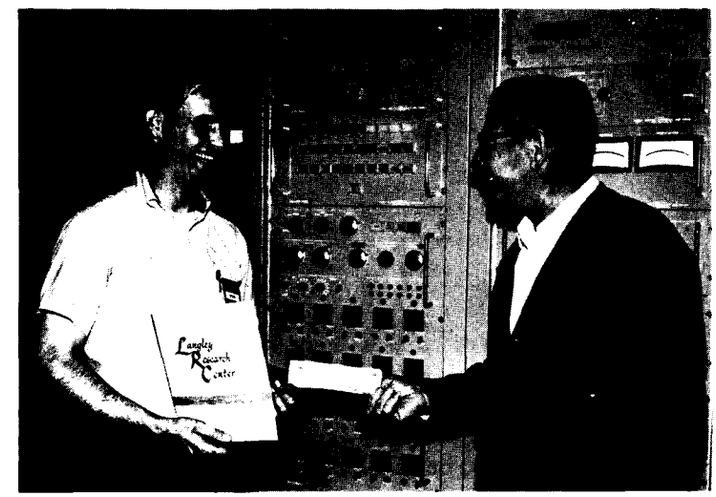
The No. 2 aircraft will be displayed at the Air Force Museum at Wright-Patterson Air Force Base, Ohio. The No. 3 aircraft was destroyed in an accident in November 1967.

FOR SALE: Extra long antique pine double bed with springs and foam mattress - $100. Braxton, 596-2785.

TEACHERS NEEDED: Qualified teachers for the 1969-70 year are needed at Hampton Roads Academy in the follow; ing subject areas: 7th and 8th grades - arithmetic, history, English; 9th and 10th grades - English, speech, drama; 9th, 10th, 11th and 12th grades - algebra, geometry, trigonometry and calculus. Persons interested may call James V. Miracle, 596-7611, extension 46, any day before 3 p.m.







FOUR members of the Research Support Division have received cash awards for suggestions under the Incentive Awards Program. Top left - Walter C. Whitt (left) receives a check for $275 from George R. Oden for his suggestion relative to an improved method of transferring high pressure helium between bottle fields so as to insure desired working pressures, prevent excessive equipment wear, and expedite research tests in the 22-Inch Helium Tunnel. Top right - Lawrence Perry (left) presents $15 to Howard E. Price for a suggestion relative to modifying an inadequate reflecting mirror for schlieren television viewing with a large mirror which, when mounted on top and parellel to the existing mirror, enables engineers to view the schlieren by simply moving back the driving mechanism thus preventing costly expense of purchasing a new mirror and designing a new driving mechanism. Lower left - Benjamin W. Lankford (left) was awarded $35 for the design and assembly of a remotely controlled micrometer gas sampling valve which eliminates stability problems which occur in a pneumatic system. Making the presentation is Gordon D. Almond. Lower right - Joseph M. Benjamin (left) receives congratulations and a check for $15 from A. O. Gay for fabricating a special tool that protects the socket of indicator lamps and prevents bulb breakage.

KNOW YOUR CREDIT UNION

It gives us a nice, warm feeling when members who have shopped around come back to their Credit Union to sign on the dotted line. This has been happening with rapidly increasing frequency in connection with real estate and construction loans. Economic pressures have forced outside interest rates to unprecedented heights and Credit Union members have been quick to evaluate the situation. Maybe these terms add up to the best deal for you also.

Real estate loans, based on 75% of the Credit Union's appraisal, may run for 10 years at an interest rate of 1% on the unpaid balance for the first 2 months and 3/4% for the last 118. The larger rate offsets title search expenses, the cost of which is borne by the Credit Union. Add in loan insurance to $10,000, at no out-of-pocket cost, and the deal becomes even better.

Construction loans are, by nature, short term. A clear deed to the property is required. The Credit Union will then lend 100% of the mortgage committment for the duration of the committment, if desired, normally 9 months. Interest rates are the same as for real estate loans and for the same reasons. Once again, the loan is insured to $10,000 at no out-of-pocket cost. Whether investing in real estate or building your own home, one of these services may be the answer to any financial problem. Stop by today!

FOR SALE: New 670-13 tire mounted on rim from 1961 Falcon - $15 or will trade for good 800-14 tire. Fiorella, CH5-6833.

FOR SALE: 1967 Harley Davidson Sprint Enduro 250 cc - best offer. Shaughnessy, 595-2024.

VIKING MANAGEMENT TEAM NAMED

A management team relying extensively on experienced engineers who set the Lunar Orbiter record of five successful flights in five attempts has been selected by Edgar M. Cortright, Director of Langley Research Center's Viking Project.

Viking is a NASA program to send two instrumented spacecraft -- each consisting of a lander and an orbiter - to the planet Mars in 1973. Mission objectives place particular emphasis on the detection of life on Mars.

Langley is charged with overall project management and responsibility for the lander portion of the Viking spacecraft. The NASA Jet Propulsion Laboratory will manage the orbiter portion of the Viking Project and is responsible for tracking and data acquisition.

James S. Martin, Jr., is Langley's Project Manager for the entire Viking operation. He served as Assistant Manager during the Lunar Orbiter program. Deputy Project Manager is Israel Taback, another veteran of the Lunar Orbiter.

Other experienced Orbiter engineers who have key Viking Project assignments are:

Edmund A. Brummer, Spacecraft Manager; William J. Boyer, Operations Manager; Robert L. Girouard, Space Vehicle Manager; William I. Watson, Test Manager; A. Thomas Young, Science Integration Manager; Norman L. Crabill, Mission Analysis Manager; L. P. Daspit, Jr., Planetary Quarantine Officer.

Assistant Spacecraft Managers are Royce H. Sproull, formerly of the Lunar Orbiter team, and Frank E. Mershon.

Project Scientist assigned to the Viking program is Dr. G. A. Soffen, formerly of NASA's Jet Propulsion Laboratory.

Angelo Guastaferro, who was previously assigned to Langley's Scout Project Office, has been named Executive Engineer for the Viking Project.

Engineering staff members for the Viking effort are being drawn from various research and engineering elements of the Langley staff. Essentially all of the Lunar Orbiter team have been assigned to the Viking Project.

SCHUMANN DIES AT AGE 61

William J. (Duke) Schumann, Aircraft Mechanic in the Research Aircraft Support Section, Flight Mechanics and Technology Division, died April 23 in a local hospital.

Schumann was born August 13, 1907 in Philadelphia, Pennsylvania. He served in the U.S. Army Air Force from April 2, 1942 to September 24, 1945 and joined the Center staff on October 11, 1945.

He is survived by his wife, Mrs. Patsy C. Schumann, and three daughters; Mrs. Delores Foley of Philadelphia, and Mrs. Sandra Lindsey and Margaret Schumann of Grafton.

FOUND: Man's all-weather coat with zip-in lining, size 42. Security Office, 2571.

FOUND: Man's wedding band near Bldg. 1247-D. Pembroke Const. Co., 722-2591.

WANTED: Ride from Briarfield Rd. to W.A. on 7:30 shift. Hurt, 3601.

WANTED: Ride from Christopher Newport Apts. to W.A. on 8 shift. Walker, 3571.

WANTED: Alternate driver from Williamsburg to W.A. on 8 shift. Morris, 3036.

WANTED: Driving combination from Elizabeth Lakes to W.A. on 8 shift. Poslik, 3461.

LANGLEY Research Center was host for a Youth Science Congress held last month on the Peninsula. The congress included 32 high school students from Virginia, North Carolina, South Carolina, and Kentucky as participants. During the visit the students toured a number of research facilities. In the top photograph, Leroy Spearman talks to the group at the Unitary Plan Wind Tunnel. In the lower photo, David C. Grana explains the Integrated Life Support System to the students.

BOOKS FOR SALE

The following books may be purchased from the NASA Exchange, extension 2517:

Elements of Statistical Inference by Huntsberger
Mathematical Analysis for Business Decisions by Howell and Teichroew
Continuum Mechanics by Frederick and Chang
Physical Metallurgy by Chalmers
Conduction Heat Transfer by Schneider
Methods of Applied Mathematics by Hildebrand
Organization Theory and Policy by Learned and Sproat
Men, Management, and Morality by Golembiewski
Programming Systems and Languages by Rosen
Numerical Methods and Computers by Kuo

REVISED MERIT PROMOTION PLAN

(This is the fifth of a series of articles on the Revised Federal Merit Promotion Policy.)

Employers and employee organizations have a legitimate interest in any program that affects careers in the agency. Thus, their views must be obtained in the development of agency promotion guidelines and merit promotion plans and in significant revisions to them. The revised promotion policy contains better guidance on obtaining these views, particularly on the scope of consultation or negotiation with employee organizations.

The policy points out that there still remain many areas of the promotion program that should be worked out with employees and employee organizations. Thus, matters appropriate for consultation or negotiation include, for example, what jobs should be covered by a promotion plan, what the minimum area of consideration should be, whether vacancy announcements should be used, and how employees should be kept informed about the operations of the promotion program.

Experience has shown that employee acceptance and support of an agency promotion program depends to large extent on how well they understand its purpose and operation and are aware of its effect on them individually. Many employees have not had confidence in their agency's program simply because they have not been properly informed about what is going on. The revised promotion policy therefore requires that an agency inform its employees of the basic principles of the policy, the procedures of the agency program, the promotion opportunities available to employees, and the means by which employees can be considered for higher-level positions. An agency must provide this information to new employees as part of their orientation and to all employees at periodic intervals.

In addition to general information about the agency promotion program, an employee is entitled to know certain specific information about individual promotion actions in which he was involved. An agency must inform an employee upon his request whether he was found basically eligible; whether he was in the group from which the selection was made; who was selected; and in what ways he should improve himself to increase his chances for future promotion.

The more employees understand how their agency's promotion program works, the less likely they are to feel that they are not given fair and appropriate consideration for a higher level job. Still there will be times when an employee thinks that he was treated unfairly or that the agency violated some requirement. In these cases, the employee is encouraged to discuss his complaint informally with his supervisor or personnel office. These sources are in the best position to help the employee and often can quickly clear up the matter.

If a complaint cannot be dealt with satisfactorily on an informal basis, however, an employee can file a formal complaint under the appropriate grievance procedure in his agency. In the past, an agency could have administrative machinery other than the grievance procedure for considering employee promotion complaints; but the revised promotion policy requires that all formal complaints be processed under grievance procedures, many of which have been negotiated with employee organizations. This new requirement will provide more uniform treatment of complaints and will help assure that they get proper handling.

There is one type of complaint that is not subject to grievance procedures. It is nonselection from a group of properly certified and considered candidates. Employees naturally have confidence in their own abilities and often feel that they are better qualified than the person chosen for promotion. Final selection, however, is the right of the selecting official; and therefore a formal complaint may not be based solely on failure to be selected.

BASKETBALL CHAMPIONS: Misfits (top) won the 1969 A League championship for the third straight year with a 10-2 record. Members of the team are (from left): Jerry Creedon, Bill Keeter, Wayne Goff, Ron Webber, Hugh MacHanes, Bill Woods, Bill Debnam, and Lane Kelly. Not pictured are Ted Bright, Steven Wills, and Dennis Bartlett. Net Nuts (bottom) won the B League championship with a 9-3 record. The title was won by winning a playoff game with the Short Circuits who also had a 9-3 regular season record. Members of the team are: Bill Sanders, Joe Powers, George Palko, Lew Wilkinson, Ray Midden, Charlie Marushi, Bill Drummond, Kenneth Test, and Gary Gibson. Missing was Charlie Sykes.

WANTED: Fifth driver for combination from Norfolk on 7:30 shift. Sussman, 3535.

FOR SALE: 1962 Ford Econoline 1/2-ton pick-up truck. Miller, 851-3081.

A NUMBER of staff members have received cash awards from the NASA Inventions and Contributions Board. Top left - Sharing a $200 award for an ablation compound molding are (from left): Martin J. Menges, Research Support; Robert T. Swann, Structures Research; and Charles B. King, Research Support. Top right - Paul R. Yeager (left), Instrument Research, receives a $500 award from Sheldon T. Peterson for a thermopile vacuum gage tube simulator. Lower left - Lisle E. Taylor (left), Analysis and Computation, presents a $200 award to Sheldon Kopelson for a rate augmented digital-to-analog converter. Center - Gale A. Harvey (left), Applied Materials and Physics, receives a $500 check from Andrew R. Wineman for a maksutov spectrograph. Lower right - James W. Mayo (right), Flight Vehicles and Systems, presents a $200 award to Donald E. Barthlome for an equipotential space suit.

OLD RECRUIT SUCCESSFULLY FIRED

NASA's "Recruit" rocket engine is really not a recruit.

As a matter of fact it is a veteran among rocket engines, having first been fired more than nine years ago, and refired recently to see how age affects rocket performance.

Tested recently at Langley Research Center, results showed little difference when compared with test results made of the same recruit engine in 1959.

The "Recruit" is considered a work-horse motor and is widely used in small launch vehicles for both primary and strap-on assist propulsion. On the Saturn V that launches Apollo spacecraft, it is used to separate the first stage from the second stage.

The nine-inch diameter, 105-inch long motor has a normal thrust of 56,000 pounds for 1-1/2 seconds, and that's long enough to do the job.

EX-LANGLEY SCIENTIST AIAA OFFICIAL

Dr. John C. Houbolt, former scientist at the Langley Research Center, has been elected Vice President-Technical in a special vote by the Board of Directors of the American Institute of Aeronautics and Astronautics.

He replaces Dr. Ronald Smelt of Lockheed Aircraft Company. Smelt had been Vice President-Technical but was elected President of the 32,000-member Institute when Dr. Robert C. Seamans Jr. resigned following his appointment as Secretary of the Air Force.

Houbolt is Senior Vice President of Aeronautical Research Associates of Princeton in Princeton, N.J.

A 1940 graduate of the University of Illinois with a B.S. degree in Civil Engineering, Houbolt received the Doctor of Technical Sciences from the Swiss Federal Institute of Technology in Zurich, Switzerland in 1958. He was with Langley from 1942 to 1963, his last position being Chief of the Theoretical Mechanics Division. Since that time he has been with Aeronautical Research Associates.

FOR SALE: Hampton One design sailboat No. 589 - fully equipped with trailer. Witherspoon, 851-0552.

FOR SALE: 21-inch reel-type lawn mower - $20. Carmines, 826-2894.

FOR SALE: 1959 Plymouth, 4-door; also 15-foot Glaspar boat with 40 hp Evinrude engine and trailer. Miller, 722-8993.

FOR SALE: 1961 Ford Econoline camper with accessories, sleeps 3 - $995. Fuller, 596-7548.

FOR SALE: Harley-Davidson M65 cc sport cycle. Zernes, 898-5753.

FOR SALE: 1966 17-foot Wellcraft boat with 1968 100hp Mercury motor and 1968 Cox trailer. Cordle, 851-0340.

FOR SALE: 1964 Comet V-8 289, 4-door sedan, air conditioning, power steering - $800. Woolard, 595-0484.

SPITZER HEADS IEEE CONGRESS

Carl R. Spitzer

The Institute of Electrical and Electronics Engineers has announced the appointment of Cary R. Spitzer, Viking Project Office, to serve as general chairman of the 1969 IEEE (3rd) International Congress on Instrumentation in Aerospace Simulation Facilities.

The congress, which is an international forum for the exchange of information among scientists and engineers in instrumentation research, will be held at the Polytechnic Institute of Brooklyn Graduate Center, Farmingdale, New York, May 5-8. Forty-one papers from five nations will be presented in nine technical sessions.

Spritzer is a 1958 graduate of Virginia Polytechnic Institute and he has been associated with Langley Research Center since 1962. His past work involved research on sensors and techniques for measuring transient heat transfer and other thermal phenomena. He is currently responsible for molecular analysis instrumentation for the Viking Project, a NASA mission to soft land an instrument package on Mars in 1974.

GOLF TOURNAMENT MAY 9

The NASA Golf Association will hold its first tournament on Friday, May 9, at the Langley Golf Course. Green fee will be $2.50 and the blind bogey entrance fee will be 50 cents. Players are requested to sign the sheet in the Pro Shop.

The Callaway system will be used and players are requested to play in threesomes or foursomes. Plaques will be given to low gross and low net winners and blind bogey prizes will also be awarded.

Players may play anytime during the day on A and B courses. Score cards must be signed by all players in the group and turned in to the Pro Shop. Winners will be notified by the tournament committee.

Players must be members of the NASA Golf Association. For further information call Frank Lawrence, 3989, or Herb Boulter, 3492.

NASA TENNIS CLUB NEWS

Staff members are invited to participate in the NASA Tennis Club activities. Dues are one dollar per year.

The tennis instructional program for ladies will begin on Thursday, May 8. The program will continue on successive Thursdays at 4:30 p.m. at the Activities Association's courts.

Current officers of the club are: Arnold Mueller, president; Tom Foughner, vice president; Bryce Kepley, treasurer and membership; Francis Taylor, secretary; Bob Murray and Bob Lee, tournament committee; and Betty Baker and Carl Horne, ladder committee.

Information on club activities may be obtained by contacting Bryce Kepley, 3811, or Francis Taylor, 3544.

FOR SALE: Two York 1hp "snorkel" air conditioners, 220 volts, 9.5 amps. Duberg, 596-9283.

CENTER'S BOND CAMPAIGN

(Continued from page 1)

cost, plus accumulated interest. The rate of return is assured to maturity and has an automatic 10-year extension privilege.

As to the tax advantages, interest on bonds and shares is exempt from state and local income tax, and Federal tax may be deferred until time of redemption. Meantime the value of your savings has steadily grown, undiminished by tax until redemption. There is another way of buying bonds for education which has a special tax advantage. This is the plan by which bonds are purchased in the child's name, either alone or with a parent named as beneficiary. These become an outright gift from parent to child. The income tax liability can usually be shifted to the child by filing a Federal return in his name at the end of the first year of bond purchases, listing the increase in bond value as income to him.

This initial return established the intent, and no further returns need be filed as long as the child's total annual income is less than $600; and no tax will be due if the bond interest, plus other income, comes to less than $900 ($600 personal exemption plus $300 standard deduction). Assuming that the child never exceeds this $900 income figure in any year, the total interest accruals on his bonds will be tax free when he cashes them for his education. As protection for the taxpayer, a copy of the initial return, establishing the intent, should be retained for possible proof in later years that the interest has been reported.

As to liquidity, Savings Bonds do their best earning job when held to maturity, but they are easily convertible to cash when an emergency arises -- E Bonds after two months and Freedom Shares after one year.

Application cards may be obtained from Time and Attendance clerks or from the Payroll Office and should be forwarded to the Payroll Office, Mail Stop 323.

CALENDAR OF COMING EVENTS

PAR 3 GOLF - As an introduction to golf as a family sport, the par 3 golf course located at 71 Pine Chapel Road will be open to NASA personnel and members of their families for half price through the month of May on Mondays and Wednesdays between the hours of 8:30 a.m. until dark. Clubs will be supplied for each player. This offer is good only when this article is presented to the management.

FAMILY DAY - The Activities Association is making plans to hold a family day on June 1 on the grounds of the Activities Building. Details will be announced in the next Researcher.

PROFESSORS TO VISIT CENTER

Professor Brian L. Clarkson, Director of the Institute of Sound and Vibration Research, University of Southampton, England, will present a lecture on "Various Aspects of Noise Induced Structural Response Research" on May 5 at 10:30 a.m. in Room 236, Building 1229. All interested persons are invited to attend.

Professor Dan H. Pletta, Head of the Department of Engineering Mechanics, Virginia Polytechnic Institute, will visit the Center on May 9 to discuss the graduate program at VPI with interested staff members. Persons desiring to talk with Professor Pletta are requested to call Training Branch, extension 2517, for an appintment.

Langley Researcher

VOLUME 8, NUMBER 10 LANGLEY RESEARCH CENTER MAY 16, 1969

LANGLEY TO HOST TECHNOLOGY UTILIZATION CONFERENCE MAY 22

A conference for industrial executives and managers on Aerospace Related Technology for Industry will be held at Langley Research Center May 22.

More than 300 businessmen from Pennsylvania, Maryland, Virginia, Delaware, West Virginia, and North Carolina will attend a special one-day program to discuss how to obtain new technology originated by NASA activities.

The conference will be sponsored jointly by the Langley Research Center, the Small Business Administration, the Office of State Technical Services, and Old Dominion College. It is one of a series of regional meetings by which NASA has for several years been encouraging industrial applications of new techniques and methods derived from space and aeronautical research.

Melvin S. Day, Deputy Assistant Administrator for Technology Utilization from NASA Headquarters will explain the purposes and methods of the agency's efforts to encourage widespread use of new discoveries.

Following a description by Federal and State officials of the sources of new information and services available to business and industry, selected examples of technology transfer will be described.

Three technical sessions are planned to discuss Special Tools, Equipment and Shop Techniques; Electronics; and Materials and Processes.

A series of special display presentations highlighting many of the new items to be explained will be placed in the Activities Building during the conference.

FLETCHER TO PRESENT SPECIAL PROGRAM JUNE 5 ON DRUG ABUSE

Donald K. Fletcher

Donald K. Fletcher, Manager of Distribution Protection for Smith, Kline and French Laboratories, pharmaceutical manufacturers, will present a program on Drug Abuse at 8 p.m. on June 5 at the Activities Building.

Fletcher has been engaged in this field for eight years and has lectured on the subject many times all over the country.

Employees and spouses are invited to attend this timely and informative program which will present a

(Continued on page 3)

APOLLO 10 TO ORBIT MOON; LAUNCH SET FOR SUNDAY

Apollo 10, scheduled for launch Sunday, will be a lunar orbit mission in which two astronauts will descend to within 50,000 feet of the Moon's surface.

The eight-day Apollo 10 flight is scheduled for launch from Kennedy Space Center with Astronauts Thomas P. Stafford as Spacecraft Commander; John W. Young as Command Module Pilot; and Eugene A. Cernan as Lunar Module Pilot.

The purpose of the flight is to provide additional experience in combined system operation during the three-day trip to the vicinity of the Moon and in lunar orbit.

With the exception of the actual landing of the Lunar Module on the lunar surface, the mission plan is the same as the lunar landing mission.

While the spacecraft circles the Moon at an altitude of about 69 miles, Stafford and Cernan in the lunar module will separate from the command and service modules, approach twice to within about 10 miles of one of the preselected Apollo landing sites, then rejoin Young in the command module in maneuvers similar to those performed in Earth orbit by Apollo 9.

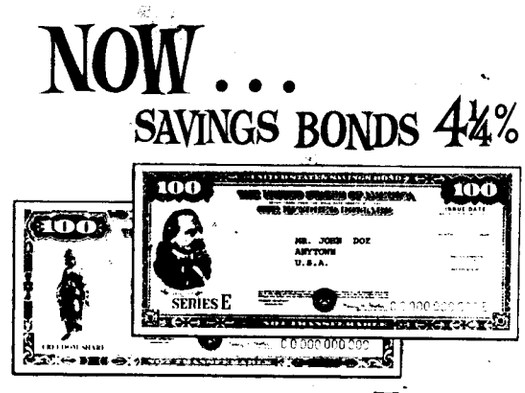
During 11 more revolutions of the Moon, the crew will make landmark sightings, take photographs, and transmit live color TV views of the lunar surface, the Earth from lunar distance, and their own activities inside the command module.

APOLLO 10 mission flight crew Thomas A. Stafford, John W. Young, and Eugene Cernan stand before the Saturn V launch vehicle at Complex 39-A, Kennedy Space Center. Launch has been scheduled for Sunday.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.



ANNOUNCEMENTS

RETIREE DIES. . .W. Calvert Roberts, who at the time of his retirement in March 1966 was a member of the Cost Engineering staff, died May 4 in Durham, N.C. A native of Lynchburg, Virginia, the 73-year-old Roberts was a graduate of the University of South Carolina and served as an officer in the Army for two years during World War I. He entered on duty at Langley in 1943.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, May 28 at 7:30 p.m. at the Central Labor Union Hall.

SKYWATCHERS. . .The Langley Skywatchers Club will begin weekly informal viewing sessions starting next Thursday evening in the club quarters located directly behind the Activities Building.

NEW HEIR...Celebrating the birth of a six pound, eight ounce son, James I. Richardson, Jr., on May 6 is James I. Richardson, Fatigue Branch.

SHIPYARD ALUMNI...The Apprentice Alumni Association of the Newport News Shipbuilding and Dry Dock Company will hold its annual crab feast at 5 p.m. on June 6 at the Original Club in Newport News. Contact Ray Goodman, 3231, for details. Dues of $3 for 1969 must be paid.

ASSUMES NEW DUTIES...Harold B. Finger has assumed his new duties with the Department of Housing and Urban Development. In accordance with the lines of succession, Bernard Moritz, Assistant Administrator for Special Contracts Negotiation and Review, will serve as Acting Associate Administrator for Organization and Management.

FOR SALE: 1959 Pontiac Catalina, 4-door sedan with power accessories - $190. Call Davis, 838-1789.

FOR SALE: Power lawn mower, Sears 3 H.P., 21-inch reel type - $45. Call Davis, 838-1789.

FOR SALE: Sears 20-inch rotary power lawn mower, 2-1/2 H.P., 4 cycle Craftsman engine - good condition - $25. Call Mathis, 723-8887.

FOR SALE: Four bedroom, two bath, brick rancher. Centrally air conditioned, built-in dishwasher, panelled family room, screened patio, carport, garage. Many extras. Langley-Ft. Monroe area. FHA appraised at $26,000. Owner asking $24,500. Hanson, 851-1669.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of May 19:

Monday - Consomme julienne, breaded veal cutlet, broiled Canadian bacon, stuffed pepper, grilled cheese sandwich. Snack bar - Soup, hot dog, chili dog, veal cutlet, French fries.

Tuesday - Puree of bean soup, pepper steak, chicken cacciatore with spaghetti, broiled fish, Spanish omelette. Snack bar - Soup, hamburger, cheeseburger, steak sandwich, French fries.

Wednesday - Chicken-noodle soup, Spanish pot roast, broiled smoked ham, sauteed chicken livers, tamale pie. Snack bar - Soup, ham and egg sandwich, hot roast beef, French fries.

Thursday - Vegetable-beef soup, hot turkey sandwich, beef pan pie, pork chopette, franks and beans. Snack bar - Soup, barbecued pork, hot pastrami, French fries.

Friday - Cream of mushroom soup, fried oysters, Hungarian goulash, Salisbury steak, fish cakes. Snack bar - Soup, sea dog, flying saucer, French fries.

The menu for the week of May 26 is as follows:

Monday - Cream of tomato soup, roast beef, grilled pork chops, chicken chow mein, Austrian ravioli. Snack bar - Soup, fish sandwich, hot roast beef, French fries.

Tuesday - French onion soup, country fried steak, baked ham, Polish sausage, chili con carne. Snack bar - Soup, hot dog, chili dog, baked ham, corn fritters.

Wednesday - Chicken rice soup, beef stroganoff, liver and onions, fried chicken, macaroni and wieners. Snack bar - Soup, barbecued pork, hot corned beef, French fries.

Thursday - Vegetable-beef soup, grilled steak, roast loin of pork, fried fish, baked hash. Snack bar - Soup, hamburger, cheeseburger, steak sandwich.

Friday - H O L I D A Y

FOR SALE: Two 110 volt room air conditioners: Philco 6,000 BTU "Quick-Mount" - $75; Sears 11,000 BTU - $100. Youngblood, 877-1224.

FOR SALE: Formica dinette table with 4 chairs. $20. Peterson, 838-1485.

FOR SALE: 1967 Datsun SL-311 Sports convertible, 4-speed, radio, heater. Perez, 826-6762, after 5 p.m.

FOR SALE: USCG equipped 15 foot Halsey ski boat with 35 H.P. Evinrude motor and trailer - $395. Young, 851-5362.

ISA CHAPTER PLANS MEETING

Mayor Ann H. Kilgore

Ann H. Kilgore, Mayor of the City of Hampton, will address the Tidewater section of the Instrument Society of America on Tuesday, May 27 at 8 p.m. in the Ponderosa Room of the Langhorn Steak House located on Mercury Boulevard. Her subject will be "The Hampton Roads Coliseum as a Community Asset."

Mrs. Kilgore, a native of Portsmouth, is a graduate of Woodrow Wilson High School and the College of William and Mary where she earned a B.A. degree in Sociology. She has experienced life-long involvement in family, church and community affairs and, in addition to her dutues as Mayor, holds positions of responsibility on numerous educational, charity, and governmental organizations.

The meeting will start with a social period at 6:30 p.m., followed by a steak dinner at 7:15 and the Mayor's talk at 8. Reservations may be made with Warren Thomas, 3492.

KNOW YOUR CREDIT UNION

Business is booming as more and more members decide to make the move that is so obviously to their advantage; the establishment of a Reddy Reserve Account. It commits the member to nothing, but it does make available to him a predetermined amount for a two-year period on a revolving basis. A phone call brings a full explanation plus all necessary documentation. Credit ceiling requested may run from $500 to $2500 depending upon individual needs and circumstances.

After action by the Credit Committee, the figure approved may be immediately withdrawn in whole or in part. Or it may just sit -- ready to carry out some future plan or to meet some unexpected emergency. The implementing Reddy Fox loan is, simply, an advance against the credit ceiling. The only paperwork involved is a very short, uncomplicated form which -- believe it or not -- may be completed by phone with check mailed the same day to address of record. In fact, from start to finish, the member never even has to come near the office. A big gain in assurance of financial backing, processing speed, and member convenience.

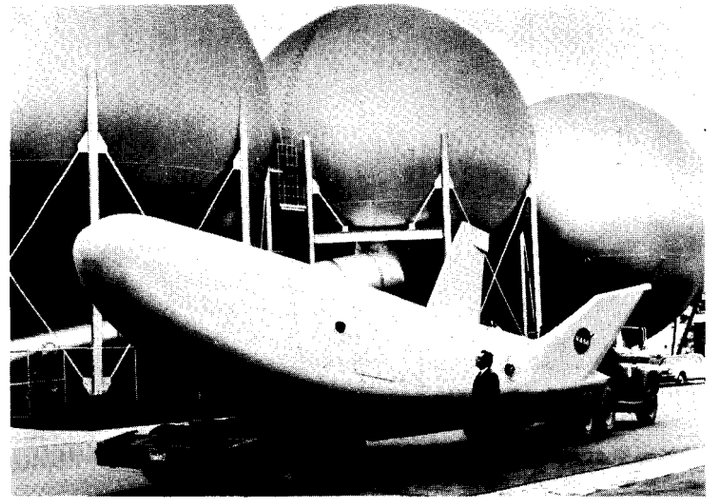
To date, some 130 members have had credit ceilings of $310,000 approved. Of this amount, $130,000 has been disbursed. This leaves a very comforting $180,000 to cushion the shock of any future demand for immediate funds.

FOR SALE: Fedders air conditioner. Also, baby bed with matching chest. Nye, 596-8845.

FOR SALE: 1960 Ford Fairlane, 4-door, automatic transmission, good running condition. An excellent second car. Hoggard, 838-2932.

FOR SALE: 18 acres on Highway 501 - 18 miles west of Lynchburg - $2,000. Call L. S. Powell, 723-1250.

FOR SALE: Two female puppies, 7 weeks old, part wirehair, part mixed terrier. Have had temporary shots. Call Hallinger, 826-6669.



PAUL C. MINGEE, Assistant Director of Public Works for the City of Hampton, stands beside a 28-foot model of the HL-10 lifting-body reentry vehicle which is on loan to the City of Hampton for five years. The model will be on display at the Aerospace Park on Mercury Boulevard. Although it has no wings, sufficient lift is generated by the body itself to provide some conventional unpowered flight capability similar to that of the X-15. The vehicle will not need recovery devices such as parachutes or paragliders, since it can land like a conventional airplane.

DEBUS RECEIVES HIGH AWARD

Dr. Kurt H. Debus

Dr. Kurt H. Debus, Director of the NASA John F. Kennedy Space Center, has been selected to receive the 1969 Career Service Award of the National Civil Service League as one of the ten outstanding career employees in the federal service.

The NCSL, which presents the awards each year to promote excellence in the government service and to recognize exceptional achievement, will honor Dr. Debus and the other awardees at an awards banquet and dance June 13 in Washington.

The League citation notes:

"The development of Complex 39 -- the installation from which the Apollo Program launches take place -- is the crowning achievement of Dr. Kurt H. Debus' career. His leadership was pivotal in both the design and construction of the famed Apollo launch complex.

"Further, he has been responsible for many of the technical advances in launch technology, and for the formation of the Government/industry launch team which has carried out more than 150 successful launches, including several notable firsts."

FOR SALE: Room-size Whirlpool air conditioner - 7000 BTU - 110 amps. Call Johnson, 722-1421.

FOR SALE: 49 cc Motorbike with 1100 miles - fire engine red. Press, 826-0038.

FOR SALE: Three pairs of new Fiberglas drapes. Brown tones. Each panel 51 by 51. $30. Call Verell - CH4-8528.

REVISED MERIT PROMOTION PLAN

(This is the last of a series of articles on the revised Federal Merit Promotion Policy.)

The revised Federal Merit Promotion Policy requires that agencies maintain complete promotion records. These records serve as evidence that promotions are being made on a sound, fair basis and provide answers to questions that managers or employees may raise about the promotion program in general or about some specific promotion action. A temporary record of each promotion must be kept for two years.

The Commission periodically inspects agency promotion programs for effectiveness and for compliance with merit promotion principles, legal and regulatory requirements, and the provisions of the agency's own promotion guidelines and plans. In addition to its procedural review, the Commission also looks at how well the agency's program is meeting the objectives of the Merit Promotion Policy. Thus, it considers such matters as how well the program is providing highly qualified employees for promotion consideration and is providing attractive career opportunities for employees.

Agency promotion programs require constant adjustment and appraisal, however, and necessary changes cannot await the Commission's periodic inspections. Therefore, agencies are responsible for reviewing their own promotion programs at least once a year to assure that they continue to be responsive to management and employee needs and that they are fully understood by employees, supervisors, and managers.

When a promotion violation is found, it must be corrected promptly. The revised promotion policy provides increased guidance on the type of corrective action that should be taken. It points out that this action may involve the employee who was erroneously promoted, the employee or employees who were not promoted or considered because of the violation, and the agency officials who were responsible for the violation. Action also may involve correction of program deficiencies.

The revised policy emphasizes that the nature and extent of the corrective action in a particular case must be determined on the basis of all the facts in the case and that due regard must be given to the circumstances surrounding the violation, to the equitable and legal rights of the parties concerned, and to the interests of the Government itself.

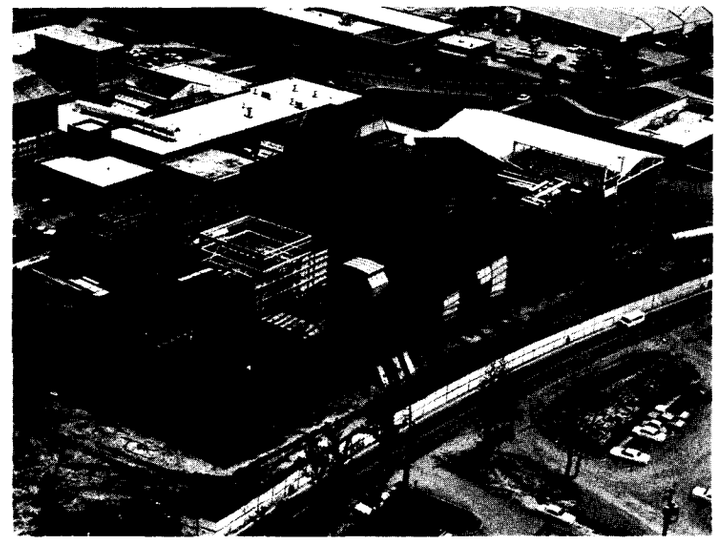
One of the new features of the revised policy is to provide an employee who did not receive proper consideration because of a promotion violation a chance to make up for his lost opportunity. Thus, he must be given priority consideration for the next appropriate vacancy, and he may be selected on this basis as an exception to competitive promotion procedures.

In conclusion, it is important to keep in mind that an agency promotion program will be a success only through the cooperative efforts of everyone concerned. The head of the agency and other management officials must make known their interest in the program and give it their full support. The personnel office must provide general supervision and coordination, give prompt and effective service to operating officials, and keep employees informed about program operations.

Supervisors play a key role in the promotion program, too. They must observe the procedures developed for the operation of the program, participate when necessary in developing realistic job requirements and evaluation methods, encourage the career development of their own employees and make objective appraisals of them, and give fair consideration to all employees who are among the best qualified for promotion to vacancies in their offices.

For their part, employees should keep informed of the provisions of the promotion program and of promotion opportunities, be willing to acquire the skills and training needed for advancement, and keep the personnel office informed of qualifications acquired by them, such as additional education, that are not already a matter of record.

Finally, employees must understand that the intent of the Federal Merit Promotion Policy is to provide each employee an opportunity for fair and appropriate consideration and not to guarantee a right to promotion.



A MODERN FACILITY designed to simulate most of the factors which vary in vertical-short take-off and landing flight, including speed and airplane altitude, is embodied in the V/STOL Transition Research Tunnel under construction at the Langley Research Center. The test section, heart of the research facility, is 15 by 21.5 feet. Langley scientists will use large V/STOL models in the tunnel for investigation of an aircraft's characteristics in transition from vertical to forward flight and in take-off and landing. A test section support system will make it possible for a model to be supported in the air stream at various angles and at varying heights over an endless belt moving-ground-board installation. The $5 million V/STOL Transition Research Tunnel, which is expected to be put into operation in early 1970, is located in Langley's West Area-- adjacent to the 7 by 10-foot wind tunnel and situated alongside Route 134. Langley has pioneered in V/STOL research in the laboratory and in flight since the late Forties.

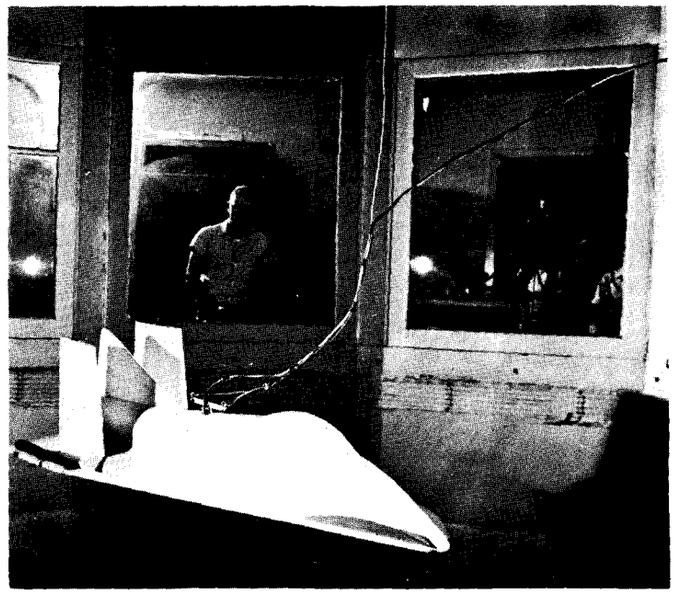
--Photograph by Alton T. Moore

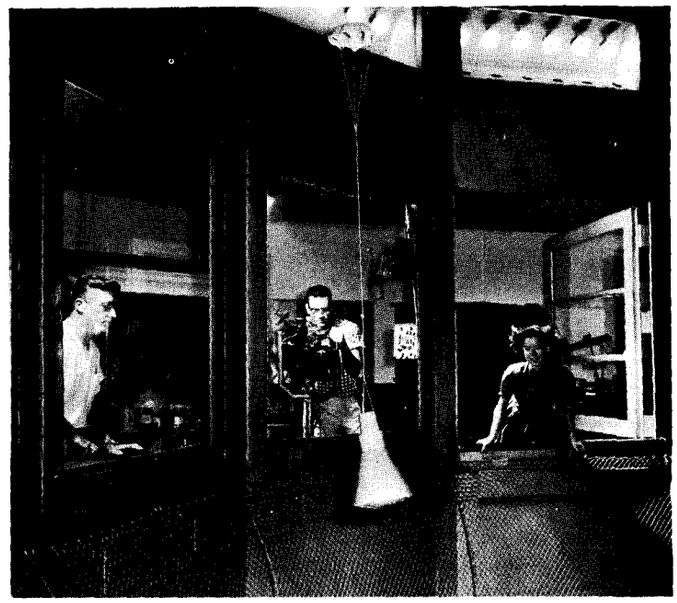
FOR SALE: 6,000 BTU Air Conditioner - $100. Call 595-6262, after 5:00 p.m.

WANTED: Ride from West Area on 4:30 shift to 26th Street and Chestnut Avenue. Call Alberta Reid, 3784.

FOR SALE: 1966 Volvo 122-S - $1250. Kyle, 595-3923.

WANTED: Driver from Hidenwood area to East Area on 8 shift. Burk, 2586, or Pratt, 2661.





THE SPIN TUNNEL, after nearly three decades of service, is one of many venerable Langley facilities which are still making useful contributions to the flight sciences. Pioneering spin research initiated at Langley in the Twenties included balance and rotation tests in a laboratory, flight investigations, and drop tests of models from a high building. A 15-foot-diameter spin tunnel was established at Langley in 1935 and was operated until 1946. The present 20-foot spin tunnel, the only facility in this country for testing free spinning models under controlled conditions, has been in operation since 1941. An early view (above) shows an airplane model which has been launched by an operator into the 20-foot tunnel, located in the East Area. The spinning model is supported by the vertically rising air current and the character of the spin is recorded by means of motion pictures as a technician controls the air speed. The model falls into a protective net upon completion of a test and is recovered for further use. The variety of vehicles studied in the tunnel over the years is illustrated by the large model (top right) of a possible space reentry craft tested to determine dynamic stability and control characteristics, and a small model of a Project Mercury spacecraft (lower right) which was released into the airstream to investigate the ability of the drogue chute to stabilize the vehicle after reentry.

SPACE WORK HELPS INFANTS

Equipment developed to support astronauts in space is helping doctors investigate some causes of infant mortality, Lockheed and the University of Minnesota have announced.

Working in a closed respiratory system with a baby's incubator, an oxygen concentrator developed from spacecraft components will provide newborn babies with pure oxygen and precisely measure how much oxygen the infants consume.

The concentrator automatically controls the temperature, pressure, humidity and volume of oxygen in the incubator system.

Major parts of the concentrator were originally developed by Lockheed's Biotechnology department for an astronaut's spacecraft life support system. The critical control of an astronaut's atmosphere is equal to that required for research on the energy metabolism of newborn infants.

Dr. Rolf R. Engel of the University of Minnesota Hospital, where the concentrator is located, explained: "We need an accurate measurement of oxygen consumption to confirm our observations that newborns consume more oxygen than we could predict from their carbon dioxide production and heat production."

If the greater oxygen consumption can be verified by the concentrator, Dr. Engel wishes to examine how this relates to a baby's growth rate. Lower oxygen consumption might some day be the first reliable warning of an abnormality in a newborn baby's growth -- an abnormality that might be fatal.

Much of Lockheed's work with the concentrator units in spacecraft life support systems has been under contract to the Langley Research Center. The original design and testing of the units, however, was an independent development of the aerospace firm.

FOR RENT: Large bedroom in private home - Harpersville Road. Call 596-7026.
WANTED: Will take care of small children in my home. Call Mrs. Copeland, 596-7026.

MARINERS TO SEEK COLD FACTS

How cold is Mars? Is it only half as warm as Earth? Are its poles capped with frozen water or frozen carbon dioxide?

The infrared radiometers aboard both of the NASA's Mariner 69 spacecraft should produce important answers. The small, delicate instruments, coordinating with the TV cameras, will measure the thermal radiation, i.e.: heat of the Martian surface from South Pole to well north of the Equator, and on the night side as well as the sunlit side of the planet.

The Infrared Radiometer (IRR) is designed to measure temperatures from 270 degrees below zero to 80 degrees above zero, F.

A principal goal of the IRR is to determine whether the Martian south polar cap is frozen carbon dioxide or frozen water. If, as seems indicated by some previous studies, it is carbon dioxide, the mass would be dry ice, about -200 degrees F., or colder.

However, polar temperatures of -170 degrees or warmer would imply water ice is present.

Earth studies and Mariner IV fly-by experiments in 1965 indicate carbon dioxide is the main element in Mars atmosphere, with little oxygen or hydrogen present.

The two 69 spacecraft are scheduled to fly by Mars on July 31 and August 5 at a nearest approach altitude of 2,000 miles. In 1964, the closest distance was 6,100 miles. The Mariner spacecraft were built by the Jet Propulsion Laboratory, Pasadena, California.

The sensitive radiometer is bore-sighted with the TV camera to synchronize surface temperature readings with areas shown in each picture as the spacecraft sweep past Mars. The IRR will operate in "real time", taking temperatures and transmitting them to Earth immediately.

The radiometer weighs only 7.5 pounds, measures 3 X 6 X 9 inches overall, and requires but three watts of power.

There is a possibility that the IRR may reveal what temperature variations exist in the "wave of darkening" that moves across the face of Mars every six Martian months.

Some scientists theorize that this darkening from pole to Equator, which appears to be maximum at the summer solstice, is the best evidence there may be of life on Mars.

The 1969 mission planners do not anticipate finding any direct evidence of life. The general goal is to take a more comprehensive look at the Martian environment and so establish a basis for future experiments which may concentrate on the search for life on that planet in the next decade.

The Langley-managed Project Viking, a NASA program to send two instrumented spacecraft -- each consisting of a lander and an orbiter -- to Mars in 1973, will place particular emphasis in its mission objectives on the detection of life on the planet.

✱✱✱✱

FOR SALE: Girl's youth bed - good condition - Boulter, 838-4773.

FOR SALE: Cruiser, Inc., boat, Tee Nee trailer and 75 hp Mercury motor. $650. Call Phillips, 851-4044 after 5 p.m.

WANTED: Would like to rent camper-truck or camper-wagon for a few days during the summer. Call Stein at 877-6087 after 5 p.m.

FOR SALE: 1965 MGB - red with radio and wire wheels. Call Staylor at 2308.

NASA LAUNCHED two 900-pound Mariner spacecraft, F and G, from Pads 36A and 36B at Cape Kennedy on fly-by missions to Mars. Arrival dates at Mars are July 31 for F, and August 5 for G, each arriving at about 1 a.m. EST on these dates.

NO ROOM FOR PASSENGERS

Today's cars and trucks boast of power steering, power brakes, power windows, automatic and synchromesh shifts, soft seats, soft music and soft springs -- all the comforts of home -- and judging from the National Safety Council statistics, that's where a lot of drivers think they are instead of in a vehicle.

One-quarter of the traffic accidents in 1965 were rear-end collisions and almost three-quarters of them took place in clear weather during daylight hours. In addition, 51 percent took place at an intersection and 37 percent of the intersections were controlled by traffic lights.

The numbers are astounding and their meaning is simple. Apparently driving is becoming so automated and routine that drivers do not keep alert. They are not keeping in full command of their vehicle even in an area where trouble should be anticipated.

The trick is to stay a driver, and not a passenger, in both attitude and action. Sit erect and keep both hands on the wheel. Allow at least one car in front for each 10 mph of speed. In heavy traffic, where this is not possble, you must be even more alert.

Keep thinking and keep looking ahead. Anticipate the problems that cause the driver in front of you to step on the brake. Watch the tailights of cars well ahead of you so that you can forecast when the driver directly in front will slow down. When you approach an intersection drop back slightly and keep your foot ready for the brake, and always stay on the alert for sudden turns.

You are, of course, responsible for being aware of the problems in front of you. But, you have an additional responsibility to avoid trapping a vehicle to your rear. Alert the driver of the carbehind you by tapping your brake before slowing down, turning, or coming to a stop. It just might keep you from being the victim of a rear-end collision yourself.

If you're just "going along for the ride" -- don't drive!

SPACE STATION DESIGN STUDY

NASA has requested proposals from the aerospace industry for design and planning studies of a space station program for the mid-1970's.

Major effort of the studies will be preliminary design and planning of a 12-man Earth-orbital space station which could be developed by 1975. It would be designed to have an operational life of 10 years, subject to resupply of expendables and rotation of crews with logistics vehicles. The space station is envisioned as the initial element of a large space base.

The work will include a conceptual design of a 50-man space base made up of specialized modules assembled in low Earth orbit in the late 1970's and early 1980's. The space base would be a centralized facility in orbit comparable to a scientific and technical research, development and operations center on Earth.

Scientists and engineers of many disciplines could utilize its unique features, such as weightlessness, vacuum, Earth viewing and unobstructed celestial viewing for a large variety of research and applications activities.

Proposals are to be submitted to the Office of Manned Space Flight, Washington, D. C. on June 9. From the proposals two firms will be selected to perform 11-month studies under cost-plus-fixed-fee contracts. One contract will be managed by NASA's Marshall Space Flight Center, Huntsville, Alabama, and the other by NASA's Manned Spacecraft Center, Houston.

Logistic systems to resupply expendables and rotate crews of both the space station and the space base will be included in the studies. Modified Apollo and Gemini spacecraft will be considered as initial logistic systems for the space station design in the event an advanced space shuttle would not become available for the early phase of space station operations. Various concepts of advanced space shuttles will be evaluated to identify the most economical means of supplying a large space base. Each of the shuttle concepts would be capable of land landing at precise locations.

Data developed from these and other studies will be available for final design of a future space station if such a program is approved for development.

TECHNOLOGY UTILIZATION NEWS

The Technology Utilization Office attempts to discover as rapidly as possible new technology wherever it may be found or reported. One excellent source of bits and pieces of new technology is in material for new articles, papers to be presented at various symposia, talks, abstracts, or rough drafts of technical reports.

In preparing this material, keep Form 86 in mind; it has a space to cite any new technology which has been developed. Such technology may be in the form of new techniques, processes, tools, or materials which could result in new or improved products from industry to improve our standard of living and our gross national product.

Be alert for Tech Brief items; each will automatically bring you a $25 award when published, and are eligible for much higher awards. Prompt reporting of new technology is important in achieving one of the main goals of the Technology Utilization Program, which is to get new ideas from the innovator to the market in the shortest possible time.

FOR SALE: Hotpoint dryer - $25. Malley, 877-2994.

SPACE TV CAMERA -- This television camera will be used by United States astronauts when they land on the surface of the Moon. Its first flight was aboard Apollo 9. The camera is capable of operating in the vacuum of space or in the controlled atmosphere of the Lunar Module. It weighs 7-1/4 pounds.

LIFE SUPPORT TEST SCHEDULED

NASA will sponsor a three-month test of a four-man regenerative life support system next year under a $586,885 contract awarded to the McDonnell-Douglas Corp.

The experiment, which will take place in a McDonnell-Douglas facility at Santa Monica, California, has the research objective of demonstrating a capability to operate a four-man life support system with continuous regeneration of water and oxygen for 90 days without resupply. An advanced waste management subsystem will be used.

A significant aspect of the experiment is to demonstrate the ability of the crew to function during a long period of uninterrupted confinement.

The contract will be managed by Langley Research Center, which has been active in life support systems research for several years. The NASA studies are to develop the technology needed to support future long duration manned space missions in which astronauts and their life support systems can function safely and effectively together.

During the experiment, the system must provide a personal accommodations suited to human needs for personal hygiene, waste management, comfort and health.

Crew members will be selected by the contractor and will be trained to maintain the equipment in the chamber, monitor its performance and provide repair if required.

The crew will take bacterial culture samples inside the chamber for micro-biological analysis throughout the experiment, and the water supply will be checked frequently for both biological and chemical acceptability.

The experiment, scheduled to begin about March 1970, is one of the programs of the Biotechnology and Human Research division of NASA's Office of Advanced Research and Technology.

FOR SALE: Harley-Davidson M65cc sport cycle. Call Zernes, 3376.

CALENDAR OF EVENTS

FAMILY DAY - On the Activities grounds Sunday, June 1 at 2:30 p.m. the 564th Air Force Band will present a concert for the personnel of NASA and their families and friends. This is another affair that offers staff members an opportunity to join their families on a picnic and relax to fine music. Come early so the youngsters may enjoy the playground facilities.

ARCHERY CLUB - Efforts are being made to form a NASA Bowman's Club. All archery enthusiasts are requested to contact Dave Smith, 3483, M.S. 238.

SKEET SHOOTING - Persons interested in skeet shooting or in learning the art of sheet shooting call Joe Seifring, 3483, M.S. 238.

DRUG ABUSE PROGRAM

(Continued from page 1)

factual and non-sensational insight into the presently highly publicized problem.

A native of Vernon, Texas, Fletcher attended Trinidad College, Midwestern University, and Texas University. He joined Smith, Kline and French Laboratories in 1960 and is presently in charge of the company's anti-counterfeiting and anti-substitution programs and the law enforcement liaison program as it relates to drug abuse and illegal drug traffic.

The size of the audience will be limited to approximately 400. Admission will be by free tickets which may be obtained from district representatives or the Activities Association Office, extension 2183.

LUNAR MASCONS DISCOVERED

Six new Mascons -- mass concentrations of dense material -- have been discovered beneath the surface of the Moon by researchers at NASA's Jet Propulsion Laboratory.

The recently-discovered Mascons, which cause changes in the velocity of Moon-circling spacecraft, bring to 12 the total now mapped on the near face of the Moon and on its leading and trailing edges as seen from Earth.

Mascons are expected to shed new light on questions of the Moon's origin and evolution. Refinement of the lunar gravity model, or makeup, based on the Mascon discoveries, is of interest to Apollo Navigation.

The new information was recently reported by William L. Sjogren, Paul M. Muller and Dr. Peter Gottlieb, JPL, at the 50th annual meeting of the American Geophysical Union in Washington. Their presentations were given at a special session on lunar gravity.

The first six Mascons, discovered last year by Sjogren and Muller, are centered beneath the large ringed maria (seas) -- Imbrium, Serenitatis, Crisium, Nectaris, Humorum and Aestatum.

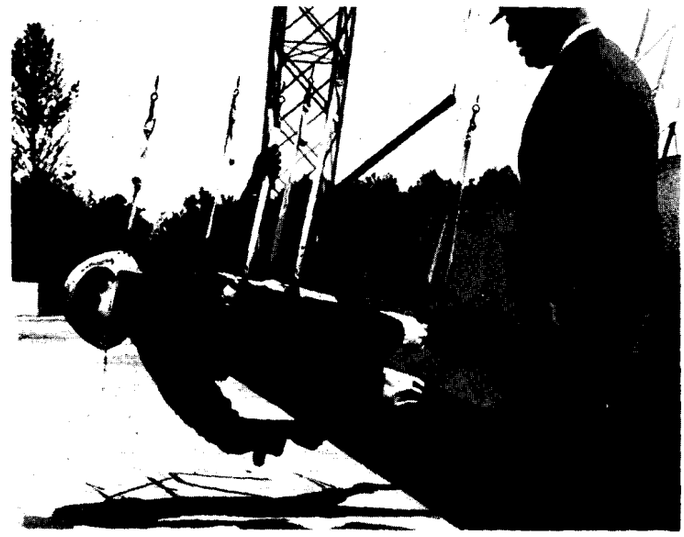
Using radio tracking data from NASA's Lunar Orbiter V in 1967-68, they plotted the spacecraft accelerations on a Moon map and found that the speed increased over each of the circular seas.

Sjogren and Dr. Gottlieb reported on the continuing analysis of the Lunar Orbiter V data as well as the corroborating results from Lunar Orbiters III and IV.

The Lunar Orbiter series of five successful missions was managed by Langley Research Center.

A map of the Moon's gravity field now includes Mascon locations, also on the side facing Earth, at Grimaldi, Mare Humboldtianum, and at two unnamed mare areas at 27 degrees E. longitude, 5 degrees S. latitude and 70 degrees E. longitude, 15 degrees S. latitude. Large concentrations of mass are associated also with the partially visible, multi-ringed Mare Orientale on the western limb of the Moon and Mare Smythii on the eastern limb.

Again, each Mascon was found to be centered below a ringed sea or an ancient, now obliterated, circular sea.



JULES BERGMAN, Science Editor of the American Broadcasting Company, tries out Langley's Lunar Gravity Simulator to obtain background material in preparation for the network's coverage of the forthcoming manned lunar landing and other Apollo activities. Bergman, who gets tips on how to "walk on the moon" from Amos A. Spady Jr., scientist in the Aeronautical and Space Mechanics Division, is one of several United States and foreign writers and broadcasters who have recently inspected Langley's advanced research facilities used extensively in support of manned space flight. Apollo 10 is planned for May 18, to be followed on July 16 by Apollo 11 -- first U. S. space mission designed to land two astronauts on the moon and return them safely to earth.

FOUR CITED FOR TECHNICAL PAPERS

Four Langley staff members have been cited as the co-authors of technical documents selected to receive the AP Special Recognition Award of the Institute of Electrical and Electronics Engineers.

Two papers by Langley authors were among 12 selected for the award from among those which appeared during 1968 in AP Transactions, IEEE journal on antennas and propagations.

Special recognition certificates will be presented to Calvin T. Swift, Aero-Physics Division; and William F. Croswell, J. Earl Jones, and C. R. Cockrell, Flight Instrumentation Division.

Titles of the papers were "The Admittance of a Parallel-Plate Waveguide Aperture Illuminating a Metal Sheet," by Swift, Jones, and three Ohio State University scientists; and "The Input Admittance of a Rectangular Waveguide-Fed Aperture Under an Inhomogeneous Plasma: Theory and Experiment," by Swift, Cockrell, Croswell, and a representative of the Stanford Research Institute.

Langley Researcher

VOLUME 8, NUMBER 11 LANGLEY RESEARCH CENTER MAY 29, 1969

SUMMER FELLOWSHIP PROGRAMS TO BEGIN AT LANGLEY JUNE 9

Sixty professors and 19 graduate students from 47 colleges and universities in the United States will participate in special summer fellowship programs in the fields of science and engineering at the Langley Research Center.

The visitors will work with the Langley staff in wind tunnels and specialized laboratories in three spearate NASA programs -- two conducted in cooperation with the American Society for Engineering Education, and one with West Virginia University.

The summer fellows will begin their respective programs at an orientation meeting at 8:15 a.m. June 9 at the Activities Building.

E. M. Cortright, Langley Director, will welcome the group to the Center.

Dr. John E. Duberg, Langley Associate Director, will outline the three programs, and Charles H. Carter, Chief of the Special Training Branch in NASA's Office of University Affairs in Washington will discuss the agency's cooperation with universities.

Dr. Duberg is the Langley director of the three programs. Dr. Gene L. Goglia, Head of the Thermal Engineering Department of Old Dominion College, is serving as co-director of the two NASA-ASEE programs.

There follows a brief description of the three programs, which are being coordinated at Langley by the Training and Educational Services Branch, headed by S. Walter Hixon Jr. Assisting in the programs are Dick J. Cole and Malcolm P. Clark of the Training and Educational Services Branch:

Engineering Systems Design -- Twenty professors from 15 schools will be at Langley through Aug. 22 in an NASA-ASEE program to study problems relating to the preliminary design and development of an advanced operational satellite system for possible use in future surveys of the earth's resources.

Dr. Franklin D. Hart, Associate Professor of Mechanical Engineering at North Carolina State University, will coordinate the program, which will give the professors experience in the engineering systems concept -- the principle of approaching a design problem in its entirety.

Technical advisor will be Robert N. Parker, staff scientist in Langley's Flight Instrumentation Division.

Aerospace Research -- Forty professors representing 25 schools will work at Langley through Aug. 15 in a broad NASA-ASEE advanced aeronautical and space research program related to manned and unmanned space exploration and the improvement in performance, safety, and utility of airborne flight.

Each fellow will work with an assigned Langley staff member and will be associated directly with the Center's

(Continued on page 6)

SCIENTIST CITED FOR OUTSTANDING RESEARCH IN AEROSPACE MEDICINE

Dr. Randall M. Chambers

Dr. Randall M. Chambers, Physiological Psychologist in the Dynamic Loads Division, has been presented the annual Arnold D. Tuttle Award for his outstanding research achievements in aerospace medicine.

The award, established in 1952 by the Aerospace Medical Association and the United Airlines, is in recognition of Dr. Chambers' outstanding basic research that has contributed significantly to the solution of challenging problems in aerospace medicine.

Brig. Gen. J. M. Talbot, USAF, MC, president of the Aerospace Medical Association, presented the 1969 award which includes a silver plaque and a $500 honorarium.

Dr. Chambers has conducted basic research in aerospace medicine for many years. He joined the Langley staff last September. Prior to that, he headed the Physiology Division of the Aerospace Medical Research Department of the Naval Air Development Center in Johnsville, Penna.

The pioneer in space flight simulation conducted original research at NADC on the effects of acceleration stress on human physiology and performance. He designed and developed acceleration training procedures for Project Mercury astronauts and other test pilots, using the human centrifuge as a dynamic flight simulator. He headed centrifuge acceleration training for Project Gemini and the early phase of Project Apollo.

He is a fellow of the British Interplanetary Society, the American Psychological Association, the American Sociological Association, and the American Institute of Aeronautics and Astronautics. He is a member of the Advisory Group for Aerospace Research and Development of the North Atlantic Treaty Organization (NATO), and a member of the Committee on Hearing, Bioacoustics and Biomechanics of the National Academy of Sciences, National Research Council. He has served on committees of the Aerospace Medical Association and the Human Factors Society, and as president of the Delaware Valley Chapter of the Human Factors Society.

Dr. Chambers was born February 26, 1927, in Vincennes, Ind. He received an A.B. degree from Indiana University in 1948, an M.A. degree from University of Missouri in 1951, and a Ph.D. degree from Case Western Reserve University in 1954.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

DRUG ABUSE. . .Staff members are reminded that Donald K. Fletcher, Manager of Distribution Protection for Smith, Kline and French Laboratories, will present a program on Drug Abuse at 8 p.m. on June 5 at the Activities Building. Free tickets may be obtained from district representatives or from the Activities Association Office, extension 2183.

WINS AWARD. . ."The Life-Saving Rocket: Case-Study of 19th Century Spinoff," by Mitchell Sharpe of the NASA Marshall Space Center, was selected as the 1968 Robert H. Goddard Historical Prize Essay.

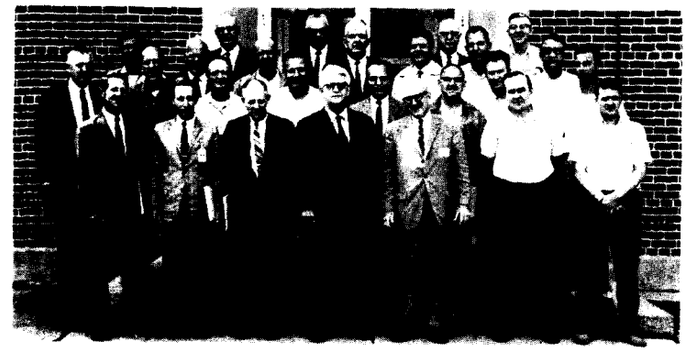
BASEBALL GAME. . .The Activities Association is sponsoring an NASA night at Peninsula Stadium on June 7 when the Astros face Salem. Game time is 7:45 p.m. and all NASA personnel, their families and friends will be admitted for 75 cents each. Tickets may be obtained from district representatives.

FAMILY DAY. . .A Concert and Family Day at NASA will be held Sunday, June 1 at 2:30 p.m. on the Activities grounds. The 564th Air Force Band will present an hour concert for NASA staff members, their families, and friends.

HONORED BY NASA. . .Jesse L. Mitchell, former Langley staff member, has received NASA's highest award, the NASA Distinguished Service Medal, for his contributions to the Orbiting Astronomical Observatory 2. Mitchell, who is Director of Physics and Astronomy for the Office of Space Science and Applications, joined the Langley staff April 14, 1947. He transferred to Headquarters February 1959.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on June 3 at 7 p.m. at the Central Labor Union Hall.

MOTELS AND HOTELS...A limited number of copies of a "Federal Traveler's Official Motel and Hotel Directory", published by the U. S. Transport, Inc., has been received by the Center and distributed to each division office and project office. The directory lists motels and hotels throughout the country which offer special rates to Federal employees, and it may be of interest to personnel who travel. A few copies are also available at the Langley Travel Office, Building 1195A, for consultation.



A GROUP of Center employees recently completed a course in Supervisory Safety Training which was taught by Francis C. Wright, Safety Engineer, U.S. Department of Labor. Completing the course were front row (from left): William A. King, Victor L. Vaughan, Theodore W. Schindler, Duane McSmith, Langley Safety Officer, Francis C. Wright, Instructor, Ralph E. Maston, and William J. Debnam, Second row - Frank Penland, Ralph L. Wingrove, George B. McGehee, Lloyd E. Smith, Ralph E. Moscater, James S. Collins, William M. Rollins, and Leonard S. Mayo. Third row-Jackie W. Holloway, Rupert R. Monohan, Melvin D. Kuhns, Joseph E. Purgold, Hampton P. Stump, Troy G. Brooks, and J. Keith Wray. Back row - James P. O'Briant, Thomas G. Meador, Charles R. Hogan, and William N. Willoughby.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of June 2:

Monday - Cream of potato soup, simmered corned beef and cabbage, chuckwagon steak, stuffed pepper, Spanish franks. Snack bar - Soup, hot dog, chuckwagon steak, German potato cakes.

Tuesday - Minestrone soup, pot roast, stuffed shrimp, spaghetti and meat sauce, cheese omelette. Snack bar - Soup, hamburger, cheeseburger, hot roast beef.

Wednesday - Cream of celery soup, country style steak, baked ham, fried chicken, beef ravioli. Snack bar - Soup, ham and egg sandwich, hot corned beef, French fries.

Thursday - Chicken-vegetable soup, roast beef, barbecued pork chunks, chicken croquettes, western omelette. Snack bar - Soup, barbecued pork, hot roast beef.

Friday - Clam chowder, beef stroganoff, grilled pork chops, fried fish, franks and beans. Snack bar - Soup, hot dog, cheese dog, chili-cheese dog, baked ham.

The menu for the week of June 9 is as follows:

Monday - Vegetable-beef soup, hot roast beef sandwich, grilled smoked ham, sauteed chicken livers, chili con carne. Snack bar - Soup, hamburger, cheeseburger, hot roast beef, French fries.

Tuesday - Cream of tomato soup, pepper steak, roast fresh ham, chicken chow mein, grilled cheese sandwich. Snack bar - Soup, grilled cheese, steak sandwich.

Wednesday - Puree of bean soup, chicken and dumplings, stuffed flounder, liver and onions, baked hash. Snack bar - Soup, fish sandwich, hot pastrami, French fries.

Thursday - Chicken-noodle soup, grilled steak, chicken pie, broiled fish, Spanish omelette. Snack bar - Soup, hot dog, chili dog, flying saucer.

Friday - Clam chowder, pot roast, grilled pork steak, salmon cakes, Austrian ravioli. Snack bar - Soup, barbecued pork, hot corned beef, French fries.

LANGLEY PRODUCT RETURNS FROM SPACE

Echo II, familiar to millions as a fast moving star in the night sky, soon will be seen no more.

The 135-foot-diameter inflatable "balloon", launched by NASA January 25, 1964, as a passive communications satellite, is being forced down at a rapid rate by atmospheric drag and gravitational pull.

Scientists at NASA's Goddard Space Flight Center, which managed the Echo project, have studied the aluminum-coated satellite's behavior since it was launched. Current calculations indicate the Echo could reach its end this month or in early June.

The Echo II spacecraft and its canister assembly were designed and developed at the Langley Research Center, which also developed the inflatable Echo I satellite -- launched August 12, 1960. Echo I reentered the Earth's atmosphere last May after nearly eight years in orbit.

While appearing like a star to sky gazers, Echo II, like its sister satellite, Echo I, was launched for research and development in communications satellites.

The prime task was to serve as a reflector in space for "bouncing" radio frequency transmissions from one ground point to another up to intercontinental distances.

Along with the NASA, other government agencies and universities conducted communications experiments with Echo II for more than a year after it was launched. The big radio "mirror" circling the Earth in near-polar orbit (81.4 degrees inclination) was free to be used by any experimenter anywhere in the world.

How many experiments have been performed with both Echoes probably will never be known. While designed as a communications satellite, however, the Echoes have proven to be even a greater contributor in other areas.

For example, Echo II has been used extensively by geodetic teams in the United States and numerous other countries.

Echo II made possible accurate optical triangulation between reference points in the United States, over vast ocean areas, remote land masses, and in Europe and Africa.

This not only improved the accuracy with which reference points are plotted within the geodetic reference areas, but also increased the accuracy of locating the geodetic datums in relation to each other.

As a result, maps and navigation charts can be made more accurate, expecially in plotting locations in relation to other points on the map.

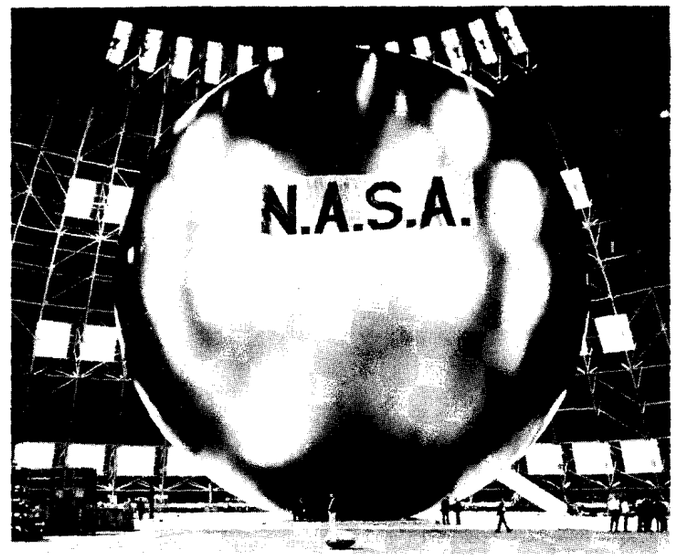
International simultaneous observations from 1964 to 1966 using Echoes I and II took place among many nations, partly in order to obtain geodetic information for an international geodetic reference system. Echo II was still being used for geodetic purposes even in its final unpredictable days.

Echo I was a plastic sphere 100 feet in diameter and coated on the outside with vapor deposited aluminum.

Echo II, a rigidized sphere, included aluminum foil on both the inside and outside surfaces of the plastic film which "hardened" the satellite under the pressure of inflation to hold the spherical shape.

FOR SALE: 1965 Dodge, 4-door sedan, automatic transmission, radio, heater, good tires, good condition. $795. Kallick, 838-4160 or 764-4484.

FOR SALE: Wards 110 volt 11,000 BTU air conditioner - $95. Goble, 595-2066.



INFLATION TEST: Langley Research Center completed the first inflation test of the Echo II satellite in 1961 in a dirigible hangar at Weeksville, North Carolina. The 40-inch egg-shaped metal canister into which the 135-foot-diameter inflatable space vehicle was packed for launch is shown in the foreground. Echo I, which reentered the Earth's atmosphere last May after nearly eight years in orbit, and Echo II -- which is ending its more than five-year mission - were pioneering products of Langley's inflatable space vehicle concept. Both spacecraft and their canister assemblies were developed at Langley.

PLAN EARTH RESOURCES SATELLITE

The NASA has requested industry to submit proposals for definition and design of an Earth Resources Technology Satellite (ERTS) System.

As a part of this request, industry has been requested to submit proposals for the study of a ground data processing system needed to handle the projected ERTS data. ERTS-A, the first of two planned spacecraft, is expected to be ready for launch in late 1971 or early 1972.

Twelve United States companies have received the requests for proposals. They have until June 18 to submit their responses to NASA's Goddard Space Flight Center, Greenbelt, Maryland, which has project management responsibility for ERTS.

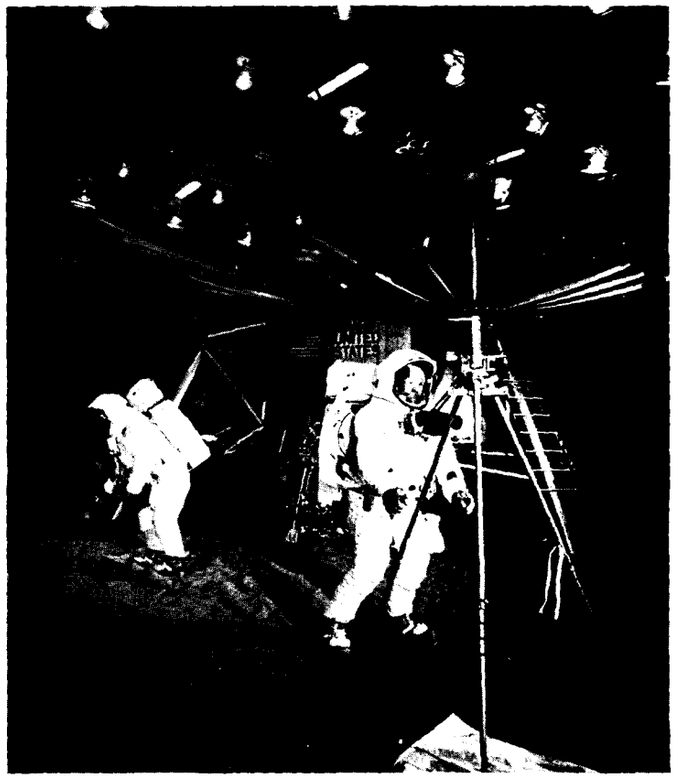
The ERTS-A satellite will be a research and development satellite designed to test new technology intended to verify the effectiveness of surveying Earth's resources from space. A key aspect of this program relates to development of data handling and utilization techniques.

ATS EXPERIMENT OPPORTUNITIES

Commercial and educational broadcast organizations which have expressed an interest in experimental use of the NASA's series of Applications Technology Satellites (ATS) have been invited to send representatives to a briefing June 13 at NASA Headquarters in Washington.

Potential participants in the experimental use of the ATS satellites will be told about their capabilities and about possibilities for working with the spacecraft.

NASA has ATS-1 and ATS-3 in orbit, launched in December 1966 and November 1967, respectively. A third ATS is scheduled for launch in August.



APOLLO 11 SPACECRAFT Commander, Neil Armstrong (front) and Lunar Module Pilot Edwin E. Aldrin (rear) are shown in a practice session of their lunar surface activities. Armstrong is adjusting an S-Band antenna which he has just deployed and Aldrin is collecting samples of lunar material in a scoop. Deployment of the antenna presently is an alternate plan in the event problems develop in transmitting signals to Earth through the Lunar Module antenna systems. The Lunar Module is in the background. Apollo 11, scheduled for launch July 16, is the first U.S. space mission designed to land two astronauts on the Moon and return them safely to Earth.

GARDNER WINS GOLF TOURNEY

The first tournament of the NASA Golf Association was held May 9 at the Langley Golf Course. Of its 86 members, 70 signed up to play in the tournament and 57 completed rounds.

Low gross prize of a dozen golf balls was won by O. D. Gardner with 39-38-77.

Flight winners were as follows:

First Flight - Benson Dexter won first place with 71 and won 12 balls; Jim Howell and Bill Jones tied for second with 72 and won 5 balls each.

Second Flight - First, Walter Olstad with 72 - 12 balls; Second, tie between Oscar Jennings and Ted Bright with 73 - 5 balls each.

Third Flight - First, tie between B. G. Whitehurst and Charles Downing with 74 - 9 balls each. Third place was a three-way tie between Billy Randolph, Joe Rigo, and Carson Rector with 75 - Randolph received 2 balls and the other two received 1 ball each.

The next tournament will be held in July. NASA employees who have not joined the NASA Golf Association and are interested may call Frank Lawrence, 3989, or Herb Boulter, 3492.

EMPLOYEES RECEIVE AWARDS

Eight staff members (pictures at right with their supervisors) recently received cash awards for suggestions under the Incentive Awards Program.

The recipients and their suggestions are as follows:

Frances M. Arnn, Structures Research Division, $40 for a suggestion relative to modifying the Time Zone and Area Codes map in the LRC telephone directory to include the Mississippi River for the benefit of personnel preparing air mail correspondence.

Joseph T. Guy, Fabrication Division, $40 for suggesting the use of indicator alinement pine for cylindrical grinder.

James R. Tyeryar, Research Support Division, $40 for developing a method of irradiating samples for torsional braid analysis which enables improved test results to be obtained.

David C. Duxbury, Research Support Division, received two awards - $35 for developing a new method which enables precise positioning of a boundary-layer probe and eliminates time-consuming positioning by sight; $35 for suggesting the installation of a parallel connection from the force test strip chart recorders to an existing switch on the tunnel control panel which enables the chart drive to be operated from the control panel and also enables the tunnel operator, rather than the engineer, to monitor the chart.

Vincent W. Foretich, Research Support, $15 for the development of an effective procedure within the Building Equipment Service Section for correcting reported problems on the Center's heating, refrigeration, and air conditioning systems.

Tucker A. Clark Jr., Research Support, $30 for the design and development of a universal sample holder mounted on a cryostat for temperature control by which conductivity measurements can be made in a wide range of temperature, thus making data more meaningful.

George W. Adkins Jr., Research Support, $40 for changing the electrical insulator material from SiO_2 to flame sprayed aluminia (aluminum oxide) of the cesium seeder tube in the 1-Inch-Square Plasma Accelerator Facility thus doubling the number of runs obtainable before the tube tip has to be repaired.

Thomas J. Gear, Fabrication Division, $15 for suggesting the development of a new procedure for handling work orders which will allow supervisory personnel to more efficiently and effectively utilize manpower.

FOR SALE: Dachshund puppies, AKC registered, temporary shot. Barfoot, 826-8139.

WANTED: Alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3571.

FOR SALE: 1967 BSA 650 cc - $850. Lambiotte, LY5-6959 after 5 p.m.

NOTICE: Will the person who borrowed an optical flat (Inv. No. 43479) from J. M. Jerke, please call 3372.

FOR SALE: 1966 Triumph TR4A. Fontana, Gloucester 693-2869.

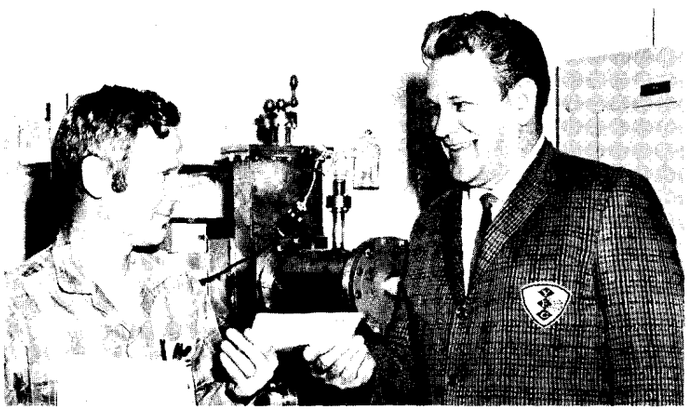
FOR SALE: 1959 Renault Dauphine - $125. Williams, 838-3451.

WANTED: Ride from Buckroe area to E.A. on 8 shift. Trivett, 2542.

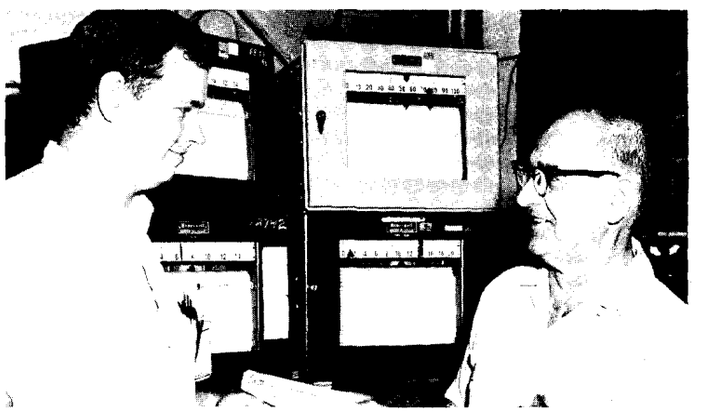
WANTED: Home for male and female kittens - 6 weeks old. Laney, 868-9995.

Frances Arnn receives check from Roger Anderson

Joseph Guy (left) congratulated by George Chuverius



James Tyeryar (left) receives award from Dwight McSmith



David Duxbury (left) receives 2 checks from James Collins

Vincent Foretich (left) congratulated by Simeon Hunnicutt

Tucker A. Clark, Jr.

George Adkins (right) receives check from Ogie Hayes

Thomas Gear (right) congratulated by Charles B. King

REORGANIZE SPACE APPLICATIONS

The NASA's Associate Administrator for Space Science and Applications has announced a reorganization of the headquarters Space Applications Programs Office.

The move was designed to recognize the increasing importance of applications satellite programs in the space effort, Dr. John E. Naugle, Associate Administrator for Space Science and Applications, said.

Leonard Jaffe, formerly Director of Space Applications Programs, has been named Deputy Associate Administrator for Applications, assuming the leadership in planning both near-term and long-range space applications programs. Matters of interagency policy coordination will also come under his purview.

The Space Applications Programs Office is being divided into two new program offices: the Communications Programs Office and the Earth Observations Programs Office.

Dr. Richard Marsten, Manager of Advanced Programs Technology for RCA Astro-Electronics Division, Princeton, New Jersey, has been appointed as Director of the Communications Programs Office, effective June 23. Dr. Marsten will be concerned with research and development for communications and navigation and traffic control satellites, geodetic satellites, the Applications Technology Satellites (ATS) program, and activities in support of the COMSAT operational satellite program.

Jaffe will be acting Director of the Earth Observations Programs Office. Principal responsibilities of this office include research and development efforts in meteorology and Earth resources survey, including TIROS, Nimbus, Synchronous Meteorological Satellite, Earth Resources Technology Satellite and sounding rocket programs in support of meteorology. Dr. Morris Tepper will continue to direct the scientific activities of the Earth Observations Programs Office.

SCIENCE ATTACHES SOUGHT

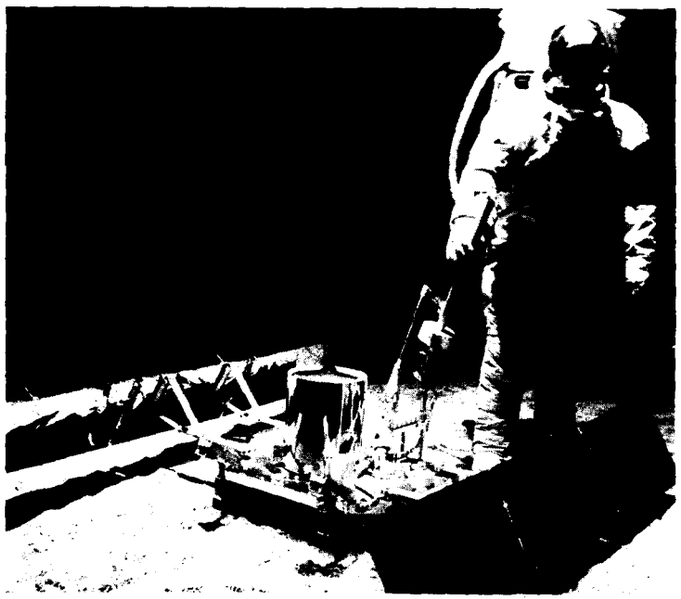
The Department of State is recruiting Scientific Attaches for U.S. Embassy posts in Moscow, Warsaw, Rome, and possibly elsewhere in Europe. The posts are expected to be opening up this summer. The positions are administered by the Office of International Scientific and Technological Affairs, Department of State.

Scientists or engineers with reasonable fluency in the language of the country of assignment are desired. A wide knowledge of U.S. interests in science and technology would be helpful as well as a background of policy and administrative participation in scientific programs, governmental and academic. Individuals selected should have a high sensitivity to policy issues. Selections must be made in the very near future since most assignments will begin in September.

Duties and responsibilities are briefly described as follows:

1. Participate in the development of mission policy.
2. Recommend scientific and technical activities to assist the Embassy in its conduct of U.S. relations in the country, especially to broaden the area of associations of the Embassy which can contribute to international understanding and the interpretation of local developments in the area of concern.
3. Coordinate technical representatives of U.S. agencies at the post.
4. Serve as liaison with U.S. scientific missions to the country and arrange briefings and visits.
5. Prepare studies and report on technical and administrative developments in the field.
6. Represent the Ambassador to the scientific community and arrange his participation where appropriate.
7. May cover neighboring countries.

Persons interested should contact E. Townsend Johnson, Personnel Division, extension 2581.



MOONQUAKE DETECTOR - The Passive Seismic Experiment package (PSEP) is a self-contained 100-pound seismic station with its own transmitter, powered by solar cells. It will detect very slight motions of the lunar crust and interior to help clarify the origin and structure of the Moon. It will be carried board Apollo 11.

NASA FELLOWSHIP PROGRAMS

(Continued from page 1)

regular aerospace research activities.

NASA-WVU Program -- Nineteen pre-doctoral students from 15 different institutions will be participating at Langley through Aug. 22 in an NASA-West Virginia University summer fellowship program in engineering systems design. They will undertake a preliminary design of a long-distance air transportation system for the 1980's, investigating all technical aspects of the system and its uses.

Dr. Emil Steinhardt, of the WVU Mechanical Engineering Department, will be co-director of the NASA-WVU program.

John P. Campbell, Associate Chief of Langley's Flight Mechanics and Technology Division, will be technical advisor for the student design group.

Virginia schools represented in the three programs are University of Virginia, Old Dominion College, Hollins College, College of William and Mary, Virginia Polytechnic Institute, Virginia Commonwealth University, University of Richmond, and Hampton Institute.

FOR SALE: 1969 505 Taft ski boat with 1964 40 hp Johnson electric start - $700. Hamilton, 898-5585.

FOR SALE: Unpainted wooden screen door - 32 x 80-1/2 inches. Monteith, 877-0493.

DR. JOHN E. DUBERG (left), Associate Director, recently presented cash awards to eight employees for Tech Briefs. The recipients shown with Dr. Duberg and John Samos (right), Langley Technology Utilization Officer, are (from left): Dwight G. McSmith, Robert H. Tolson, David G. Stephens, Walter F. Lindsey, Jack D. Leatherwood, Wilbur C. Heier, and Dr. Manuel Stein. Absent when the picture was taken was Grayson V. Dixon.

TECHNOLOGY AWARDS PRESENTED

In ceremonies held recently Dr. John E. Duberg, Associate Director, presented cash awards to eight staff members for Tech Briefs.

Tech Briefs summarize new inventions, innovations, discoveries, or improvements having potential industrial applications and are published through NASA's Technology Utilization Program for nation-wide distribution. At least 10,000 private companies subscribe to this service which provides a rapid means of incorporating new materials, techniques, manufacturing processes or products generated through space research.

An award of $25 was presented to the recipients; however, all items may be considered for higher awards, ranging from $250 to several thousand dollars. If the item is processed to the point of application for U.S. Patent, it is also eligible for a $50 (minimum) award.

The Langley Tech Briefs for which the awards were presented are as follows:

68-10123 - Improved Active Vibration Isolator by Jack D. Leatherwood and David G. Stephens, Dynamic Loads, and Grayson V. Dixon, Research Models and Facilities.

68-10132 - Improved Molding Process Ensures Plastic Parts of Higher Tensile Strength by Wilbur C. Heier, Fabrication Division.

68-10136 - The X^2 Statistic and Goodness of Fit Test by Robert H. Tolson, Aerospace Mechanics Division; Robert A. Morris, University of Maryland; and Peter D. Argentiero, Goddard Space Flight Center.

68-10141 - Stereo Photo-Macrography System by Walter F. Lindsey, Full-Scale Research Division.

68-10226 - Computer Program Analyzes Bosor-Buckling of Shells of Revolution with Various Wall Constructions by Dr. Manuel Stein, Structures Research Division.

68-10235 - Tube Swaging Device Uses Explosive Force by Dwight G. McSmith, Research Support Division.

SUMMER YOUTH PROGRAMS

This summer the Center will again conduct two employment training programs for disadvantaged youth.

A total of 60 Neighborhood Youth Corps enrollees will arrive on Monday, June 16, for a 10-week period. They will work Mondays, Tuesdays, and Wednesdays and will be paid by their sponsoring agencies, the Newport News Office of Economic Opportunity and the Hampton Community Action Agency. Work assignments will be in Fabrication, Research Support, and Administrative Divisions.

Fifty-seven Summer Aids (formerly designated Youth Opportunity Campaign) will arrive on June 17, 18, and 19 to work regular shifts and fill temporary positions authorized under the President's 1969 Federal Summer Employment Program for Youth. These Summer Aids will be assigned to divisions within Research, Engineering and Technical Services, and Administration.

An orientation session for all supervisors of Summer Aids and Neighborhood Youth Corps enrollees will be held at 1 p.m. on Friday, June 13, in Building 1212, Room 200. Supervisors will be notified individually by their divisions prior to the meeting.

FOR SALE: Lullaby baby bed with mattress and matching chest. Nye, 596-8845.

NASA TENNIS CLUB NEWS

In recently completed men's singles ladder action at the Activities Building courts Ed Riddle defeated Dick Pincus (6-1, 8-10, 6-2). Thirty-four players competed in the four-day tournament.

Fourth round - D. Pincus defeated R. Smith (6-0, 6-2); R. Murray over R. Boswinkle (6-4, 6-4); G. Haigler over W. Block (6-2, 6-1); C. Ruhlin defeated H. Roberts (6-3, 8-6); E. Riddle over L. Barker (6-2, 6-2); E. Goyette defeated B. McKissick (6-2, 6-3); G. Hansen over C. Horne (6-0, 6-2); and R. Summerlin over B. Weaver (6-3, 6-4).

Quarter finals - Pincus over Murray (6-2, 6-4); Ruhlin defeated Haigler (6-1, 6-2); Riddle over Goyette (6-0, 6-1); and Hansen over Summerlin (6-0 6-1).

Semi-finals - Pincus defeated Ruhlin (6-2, 3-6, 6-2) and Riddle won over Hansen (4-6, 6-3, 7-5).

KNOW YOUR CREDIT UNION

The response to the introduction of Reddy Reserve Accounts -- the new and revolutionary idea for loan service -- has been so gratifying that the Credit Union has decided to present those qualifying before July 4 with a token of appreciation.

However, fair is fair. To have begun now would leave without recognition those most deserving - the one who were quick to recognize the merit in the idea, had confidence, and jumped in without waiting for someone else to test the water. This posed a problem; but, frankly, we like the solution. Not only do all members get an equal chance but the Credit Union gets the benefit of the very best of promotion media: word-of-mouth advertising. So, the receipt of a precision, brushed aluminum, Chromatic "twist-action" ball pen that automatically writes two colors has been made dependent not on the member's signing-up but on his, later, getting someone else to do so.

Effective June 2, every member submitting an application for a Reddy Reserve Account will be given the Reddy Reserve package -- a full explanation of the service plus the forms necessary to apply therefor. In the margin of the application form will be entered the account number of the member then applying. He passes the package on; then when another member turns it in, the new member gets a fresh package and the old member is sent a silver or gold, suitably inscribed pen.

A member who currently has a Reddy Reserve Account has an equal chance to participate. A package complete with his account number will be included with his copy of the Reporter to be mailed the first week in June. Then all he has to do is call some friend's attention to the advantages of opening a similar account. Not just for borrowing but for establishing a reserve immediately available to meet any emergency. When the friend turns in the application, the original member is sent his pen. Remember, no more pens after July 3 so act promptly; do both yourself and that friend a favor.

BOND DRIVE OVER HALFWAY MARK

Abner M. Askew, Chairman of the Center's 1969 Savings Bond Campaign, announced that the drive has crossed the half-way mark. The campaign is being conducted at all NASA installations during the seven-week period of May 5 through June 20.

Askew pointed out that staff members are participating in payroll bond deductions at the rate of 84.1 percent as of May 21. He also stated that an article in the U.S. News and World Report of May 19 quoted that "according to Secretary of the Treasury, David M. Kennedy, the Treasury would send to Congress at an early date a request to raise the interest yield on savings bonds."

WHY BONDS? LOOK...

Increased Interest. The interest rate on Series E Bonds is 4.25 percent, compounded semi-annually. Series E Bonds mature in seven years.

Freedom Shares average 5 percent interest per year when held to a full 4-1/2 years to maturity. They are redeemable after being held for one year.

Income Tax or Interest may be Deferred. Federal tax on E Bond Freedom Shares interest may be deferred until bonds or shares are redeemed.

Not subject to State or Local Taxes. Savings bonds and Freedom Shares are not subject to state or local income or personal property taxes.

Bonds for Children have Tax Advantages. Bonds purchased with a child specified as the owner can be construed to be an outright gift to the child. The income tax liability can be shifted to the child by filing a Federal return in his name at the end of the first year of bond purchase, listing the increase in bond value as income to the child.

Bi-weekly Deductible Amounts. Any amount may be specified for deduction if it is an equal, divisible amount of the purchase price.

Replacement of bonds. The U.S. Treasury will replace a Savings Bond or Freedom Share that is lost, stolen, or destroyed at no cost.

No Market Risk. Buying a Savings Bond does not entail any market risk. Any time after two months from issue date, the Government will redeem the bond according to a fixed table of values.

The feature of joining the savings program by initiating a bond or Bond/Freedom Share combination, or by increasing your present allotment, is to give yourself a savings program.

FOR SALE: Wire Fox Terrier pups; AKC registered, champion sire and dam, excellent show prospects. Schy, 826-0288.

FOR SALE: Office desk with center typewriter well and 6 drawers. Hart, 722-8172.

Langley Researcher

VOLUME 9, NUMBER 12 LANGLEY RESEARCH CENTER JUNE 13, 1969

MARTIN MARIETTA SELECTED VIKING LANDER CONTRACTOR

NASA selected the Martin Marietta Corporation, Denver, Colorado, for award of a contract for the Viking Lander System and for the technical integration of the project. Three firms had submitted proposals. NASA plans to award a cost-plus-incentive-fee/award fee contract for approximately $280,000,000.

Martin Marietta was selected after detailed technical and management reviews of the industry proposals for meeting the agency's requirements for the Viking mission and the lander portion of the spacecraft.

Project management for Viking is assigned to Langley Research Center under the overall direction of the Office of Space Science and Applications in NASA Headquarters. The NASA Jet Propulsion Laboratory is responsible for the orbiter portion of the Viking spacecraft system and for tracking and data acquisition during the missions.

Viking's principal goal is to send two instrumented spacecraft-- each consisting of a lander and an orbiter-- to the planet Mars during the launch opportunity which occurs during the summer of 1973.

On arrival at Mars early in 1974, the lander portion of each of the two Viking spacecraft will descend to the sur-

(Continued on page 3)

WELCOME ABOARD: Astronauts (from left) Gene Cernan, John Young, and Tom Stafford attend a welcome aboard ceremony on the flight deck of the prime recovery ship USS Princeton, following Apollo 10's successful splashdown in the South Pacific. With them is Captain Carl M. Cruse, skipper of the Princeton. This was the second U.S. manned orbital flight to the moon, paving the way for a lunar landing mission next month. Additional photographs of the Apollo 10 mission are shown on Page 5.

Neil A. Armstrong

Michael Collins

Edwin E. Aldrin

APOLLO 11 LUNAR LANDING MISSION SCHEDULED FOR LAUNCH JULY 16

The preliminary flight plan for the Apollo 11 lunar landing mission, scheduled for launch no earlier than July 16 calls for touchdown on the Moon at 2:22 p.m. EDT July 20.

Nine hours and 50 minutes later- at 12:12 a.m. July 21-- Apollo 11 Commander Neil A. Armstrong is to step onto the Moon's surface.

Subject to change before launch, the tentative time line for Apollo 11 has been announced by NASA. While the Command Module Pilot, Michael Collins, orbits the Moon, Armstrong and Edwin E. Aldrin Jr., Lunar Module Pilot, will gather up to 50 pounds of samples of lunar surface materials for return to Earth.

They are also scheduled to make photographs and leave an experiments package on the Moon which will include a laser reflector and instruments for measuring seismic activity.

Armstrong and Aldrin are to leave the Moon at 12 noon EDT July 21, rejoin the Command Module and complete the eight-day mission with splashdown in the Pacific Ocean at 12:52 p.m. July 24, for a total ground elapsed time of 195 hours, 20 minutes and 42.2 seconds.

Apollo 11 will be the fifth manned flight in the series. Launch will be at Kennedy Space Center Launch Complex 39A aboard a three-stage Saturn V booster.

All of the Apollo 11 crew members are veterans of the two-man Gemini space flight series flown during 1965-66. Backup crew members are James A. Lovell, William A. Anders and Fred W. Haise. Lovell and Anders, both Gemini veterans, were Command Module and Lunar Module pilots, respectively, on the Moon-circling Apollo 8 mission last December. Haise has not flown in space.

Probable touchdown point for the Apollo 11 LM is Landing Site 2, located in the southwest corner of the Moon's Sea of Tranquillity, which was photographed by the Apollo 10 crew from an altitude of about 50,000 feet.

Apollo 11's sequence of events follows closely the flight plan of Apollo 10 during which the astronauts tested all components which will be used in the lunar landing.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 31i6.

Editor..... .....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

WEDDING BELLS. . .Mary Lou Staton, Aero-Physics Division, took her final vows with Garland Stancil Hudson, Newport News, on Saturday, May 31 at First Baptist Church, Newport News. Bridesmaids were Jean M. Laneave, Applied Materials and Physics Division, and Jeannette Saunders Mullenix, formerly of Aero-Physics.

INSURANCE REPRESENTATIVE. . .Anne Shepherd, representative of the Government-wide Service Plan, will not visit the Center this month. She will be here on July 23 from 1 p.m. to 2 p.m. and resume her regular visits on the third Wednesday of each month in August. Employees wish- an appointment with Mrs. Shepherd may call Lois Taylor, 2605.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, June 25 at 7:30 p.m. at the Central Labor Union Hall.

NEW HEIRESS. . .Celebrating the birth of a seven pound, seven ounce daughter, Emily Hope, on May 15 is Joseph H. Goad, Instrument Research Division.

SAFE BOATING WEEK. . .President Nixon has proclaimed the week beginning June 29 as National Safe Boating Week. His proclamation urges us to take advantage of educational courses in boating safety, and all those who use our waterways for boating to exercise courtesy and apply safe boating practices. U.S. Coast Guard boating statistics reveal that the year 1967 produced accidents involving 5,274 small boats, resulting in 1,312 fatalities and 1,365 injuries. Over fifty percent of these accidents were judged to be the fault of the operator. Expert testimony on Small Boat Safety before the House Committee on Merchant Marine and Fisheries revealed carelessness and lack of knowledge as major contributors to boating accidents.

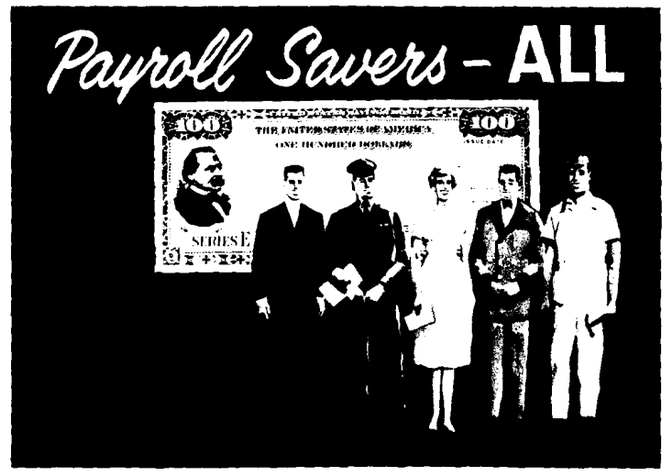
PICNIC AREA OPENS MONDAY

The Activities playground and picnic area will be open in the afternoon for employees and members of their families starting Monday, June 16. The hours will be as follows: Monday through Friday - 4:30 p.m. to 8:30 p.m.; Saturday and Sunday - 1 p.m. to 8 p.m.

This plan will be maintained for one month. Further operations will be determined by the response received durthis trial period.

Equipment may be checked out for use in the following sports: croquet, horseshoes, badminton, volleyball, table tennis, softballs and bats, and football.

Refreshments will be available for purchase.



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of June 16:

Monday - Tomato-barley soup, roast veal, broiled Canadian bacon, Salisbury steak, wieners and sauerkraut. Snack bar - Soup, hot dog, hot pastrami, French fries.

Tuesday - Chicken-noodle soup, chicken pie, chuckwagon steak, Polish sausage, western omelette. Snack bar - Soup, hamburger, cheeseburger, chuckwagon steak, baked beans.

Wednesday - Cream of celery soup, country style steak, baked ham, fried chicken, Austrian ravioli. Snack bar - Soup, fish sandwich, steak sandwich, French fries.

Thursday - Vegetable-beef soup, roast beef, veal cutlet, spaghetti and meat sauce, tamale pie. Snack bar - Soup, ham and egg sandwich, veal cutlet, French fries.

Friday - Puree of bean soup, hot turkey sandwich, meat loaf, fried flounder, Spanish omelette. Snack bar - Soup, barbecued pork, hot corned beef, French fries.

The menu for the week June 23 is as follows:

Monday - French onion soup, Swiss steak, meat loaf, fried flounder, tamale pie. Snack bar - Soup, ham and egg sandwich, steak sandwich, French fries.

Tuesday - Egg drop soup, roast beef, pork chopette, chicken chop suey, chili mac. Snack bar - Soup, hamburger, cheeseburger, pork chopette, fried egg plant.

Wednesday - Cream of tomato soup, half-pound chopped steak, roast fresh ham, deep fried beef liver, Spanish franks. Snack bar - Soup, hot dog, Lou's satellite special, French fries.

Thursday - Vegetable-beef soup, pot roast of beef, baked hash, chicken cacciatore with spaghetti, smoked pork sausage. Snack bar - Soup, sea dog, hot roast beef, German potato cakes.

Friday - Manhattan clam chowder, corned beef and cabbage, broiled fish, creamed dried beef on toast, deviled crab, grilled cheese sandwich. Snack bar - Soup, grilled cheese, deviled crab, hot corned beef, French fries.

WANTED: Driving combination from Tide Mill Farms to W.A. on 8 shift. Powell, 3055.

WANTED: Driving combination or alternate driver from Meadowbrook Park, York County, to W.A. on 7:30 shift. Dawson, 3544.

COST REDUCTIONS CITED

Seven cost reduction items submitted by Langley staff members were nominated by NASA Headquarters for inclusion in either NASA's Semiannual Report to the President or NASA BITS, a compilation of individual cost reduction actions which is circulated throughout NASA and to other Government agencies. These items were selected during the review of the Center's Third Quarter Fiscal Year 1969 Cost Reduction Report, held in Washington on May 12.

Following are the items selected by the NASA Headquarters review team as well as the names of the individuals from Langley who made the submissions to the Langley Cost Reduction Office:

Ramon P. Barr, Hidyne Transducer; Rodney C. Brogden, Dump Valve Adaptor and Alterations of LRC Hypersonic Nitrogen Facility; A. O. Gay, Replacement of Soldered Fittings with a Sleeve Type Manifold; Gale A. Harvey, Meteor Spectrograph Lenses; James L. Hudgins, Hyperbaric Facility; Andronicos Kantsios, Infrared Scanner to Detect Temperature Profiles in Aerodynamic Facilities; Robert Lenning, Quick Soldering Technique for Tubing Joints; Richard W. Storey, Semi-Automatic Filling of Liquid Nitrogen Dewars; and H. B. Tolefson and H. T. Baber, Meteorological Rocket.

The latest cost reduction review by NASA Headquarters also revealed that Langley has been credited with savings for fiscal year 1969 at $1,367,000 which is far below the Center's fiscal year goal of $5,720,000.

"Although the number of submissions was good, it was not really representative of the potential from this Center," said Edward T. Maher, Langley Cost Reduction Officer. "I know there are many individual cost reduction actions taking place each day at Langley, but some staff members are not taking the time to record them as called for under this program," Maher noted.

Only a few weeks remain in this fiscal year for Center personnel to document their efforts over the past year to reduce or avoid unnecessary costs. Many of these efforts merit publication and the Langley Research Center would like to present them to NASA Headquarters, to other agencies and industry, and to the President. Help the Center accomplish its obligation by writing down your efforts and submitting them to the Cost Reduction Office, Mail Stop 111, on NASA Form 1105A.

VIKING CONTRACTOR NAMED

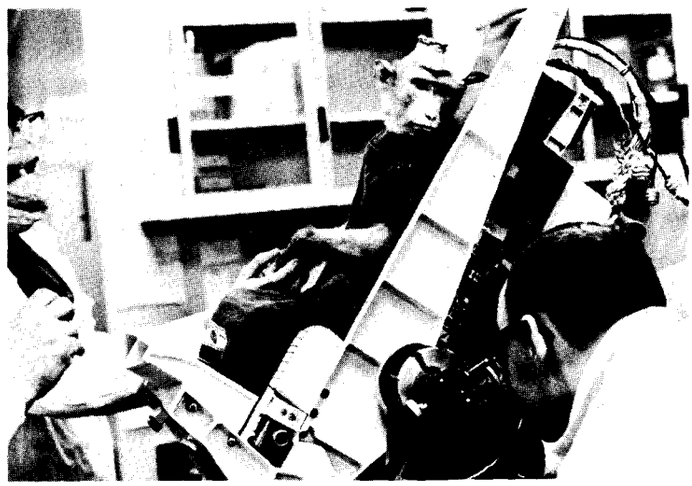
(Continued from page 1)

face. Detection of life on the planet is a particularly important objective of the lander.

The orbiter portion of the Viking spacecraft will circle Mars during the mission to provide reconnaissance, communications support for the lander, and to gather scientific information from orbit.

Viking is NASA's most advanced project in a series of scientific spacecraft for exploring Mars, and will make the first soft landing on the planet. Viking will benefit extensively from information obtained by the Mariner 1969 spacecraft scheduled to fly by Mars this summer, and from the Mariner 1971 orbiter flights currently being developed. The Mariners are managed by Jet Propulsion Laboratory.

The Titan III Centaur launch vehicle to be used for Viking will be managed by Lewis Research Center.



MONKEY SPACE BOUND: A 14-pound, adolescent Pigtail monkey Macaca Nemestrina, similar to the one that will spend from 15 to 30 days in orbit on the Biosatellite primate mission, sits in his flight couch. Purpose of the mission, which is scheduled for launch June 18, is to determine effects of weightlessness on a man-like mammal in order to obtain new physiological knowledge, and to determine effects of long-term weightlessness.

NASA TENNIS CLUB NEWS

TEAM NEWS: The NASA team travelled to the Warwick Yacht Club on June 8 for the first match of the season. Warwick won 6-3. In club competition one point is awarded each team for winning an individual match. The results were as follows:

Singles - Atkinson (WYC) defeated Ruhlin (LRC) 6-0, 6-3; Summerlin (LRC) defeated Edge (WYC) 6-3, 6-1; Murray (LRC) over Silsby (WYC) 6-4, 6-3; White (WYC) beat Boswinkle (LRC) 6-1, 6-3; Roberts (LRC) defeated Knemeyer (WYC) 6-2, 1-6, 6-4; Kelly (WYC) over Horne (LRC) 6-3, 6-4.

Doubles - Atkinson and White (WYC) defeated Ruhlin and Summerlin (LRC) 7-5, 5-7, 7-5; Knemeyer and Silsby (WYC) over Murray and Boswinkle (LRC) 6-4, 6-4; Edge and Goad (WYC) defeated Roberts and Horne (LRC) 6-3, 4-6, 7-5.

LADDER NEWS: A women's ladder tournament will be held tomorrow at the Activities courts. Employees interested in participating in the men's or women's tennis ladder play may call Bryce Kepley, 3811, or Frances Taylor, 3544.

CLUB PICNIC: On Sunday, June 22, starting at 4 p.m. a picnic will be held at the Activities picnic area. Cost will be one dollar for adults and fifty cents for children 12 and under. Reservations must be made prior to June 17 with Bryce Kepley, 3811, or Frances Taylor, 3544. All Center and contractor employees are invited to attend.

FOR SALE: 1965 1/2-ton Chevrolet pick-up truck with 8-foot bed; 1958 1-1/2-ton Ford large dump body. Osborn, 898-2851.

FOR SALE: 17-foot aluminum canoe and accessories - $150 Gough, LY6-5680.

WANTED: Teachers for sixth and seventh grade in private school, small classes, hours 12:15 to 3:30. Schy, 826-0288.

WANTED: Ride from LaSalle Ave. and Kecoughtan Rd. to W.A. on 7:30 shift. Judy Jones, 3901.

MOON-EARTH YARDSTICK - The Laser Ranging Retro-Reflector is an array of precision optical reflectors that will serve as a target for Earth-based laser systems. The reflector will allow precise measurement of the Earth-Moon distance, wobble of the Earth's rotation, measurements of gravity influences, and measurements of mass distribution in the Moon. It will also provide an opportunity to study whether continents drift on the surface of the Earth. It will be carried aboard Apollo 11.

NIXON EMPHASIZES STRONG EEO POLICY IN GOVERNMENT

President Richard Nixon has emphasized his official and personal endorsement of a strong policy of equal employment opportunity within the Federal Government.

"I am determined that the Executive Branch of the Government lead the way as an equal opportunity employer," the President stated in a memorandum to heads of Federal departments and agencies.

He directed the Chairman of the U. S. Civil Service Commission to make a thorough review of all present efforts to achieve equal employment opportunity within the Federal Government and to report back to him with recommendations for desirable policy and program changes in regard to those efforts.

"Meantime," President Nixon told department and agency heads, "I want every reasonable effort made to insure that the Federal Government is an equal opportunity employer. I further urge you, if you have not already done so, to communicate your personal support for this program to all officials and employees of your agency."

The President pointed out that the concept of nondiscrimination is inherent in the Civil Service Act of 1883, which calls for a Federal service based on merit and fitness alone. "Nondiscrimination" was broadened by President Eisenhower to "equal employment opportunity" with his issuance of Executive Order 10590 in 1955, the President stated.

"In the years that followed, other Executive Orders designed to insure equal opportunity in the employment, development, advancement and treatment of employees of the Federal Government have been issued. This series of Presidential directives reflects continuing support for this program at the highest levels of Government."

NEW YARDSTICK IS SLATED FOR MOON-EARTH DISTANCES

Using a device essentially like a bicycle reflector and a laser beam, we shall soon be able to measure the distance to the Moon within an accuracy of about 6 inches in 250,000 miles.

Called the Laser Ranging Retro-Reflector Experiment, the device is wholly passive and has no electronics. It is essentially nothing but a reflecting target for ground-based laser beams. The mirrors, like those on bicycles and road markers are constructed in such a way that a beam of light hitting them will always return back to the sender. A reflector such as this will insure that a laser beam from Hawaii will be reflected back to Hawaii or one from Washington, D.C. to Washington.

From such a simple device many interesting results can flow. It will allow point-to-point measurements from the Earth to the Moon. Since we know the speed of light and can measure it to the billionth of a second, we can make highly accurate determinations of distance. Using two transmitting stations, we can also determine with great accuracy the distance between points on Earth.

Scientists will be able to measure variations in the orbit and rotation of the Earth and the Moon. These variations will allow a greater understanding of the nature of gravity, and solve many heretofore mysteries of this force.

Using the moon as a reference point the wobbling of the Earth on its axis may be studied and greater understanding gained to allow scientists to predict earthquakes.

A theory that Africa, South America, and Antarctica may once have been a single continent that drifted apart may also be studied.

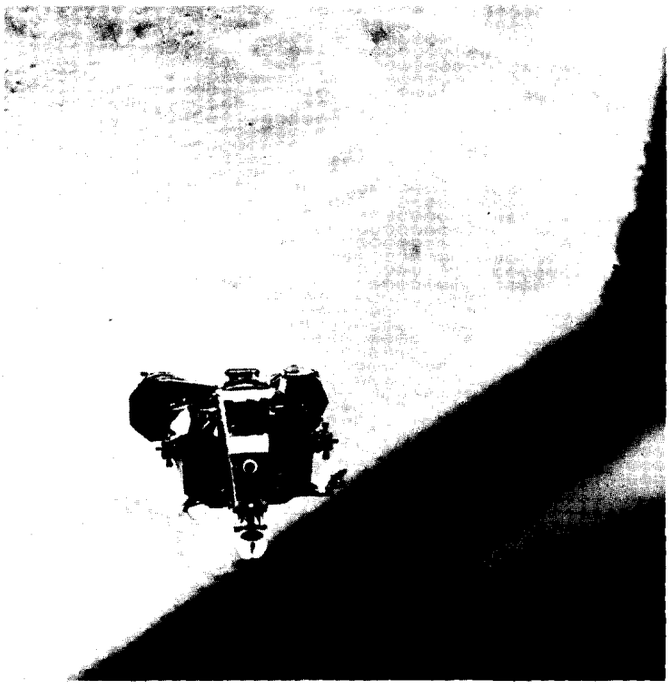
And studies of the wobble of the Moon on its axis may cast new light on the origin of our planet's only natural satellite.

LRRR is one of two experiments aboard the Early Apollo Scientific Experiments Payload. The other is the Passive Seismic Experiment, (PSE), which will study changes in the Moon's structure. They will be left on the Moon during Apollo 11, the United States' first lunar landing. EASEP is intended as a precursor of the Apollo Lunar Surface Experiments Package (ALSEP), a more complex undertaking, which will be flown on later Apollo missions. EASEP has an advantage in that one astronaut can set up its experiments in 10 minutes.

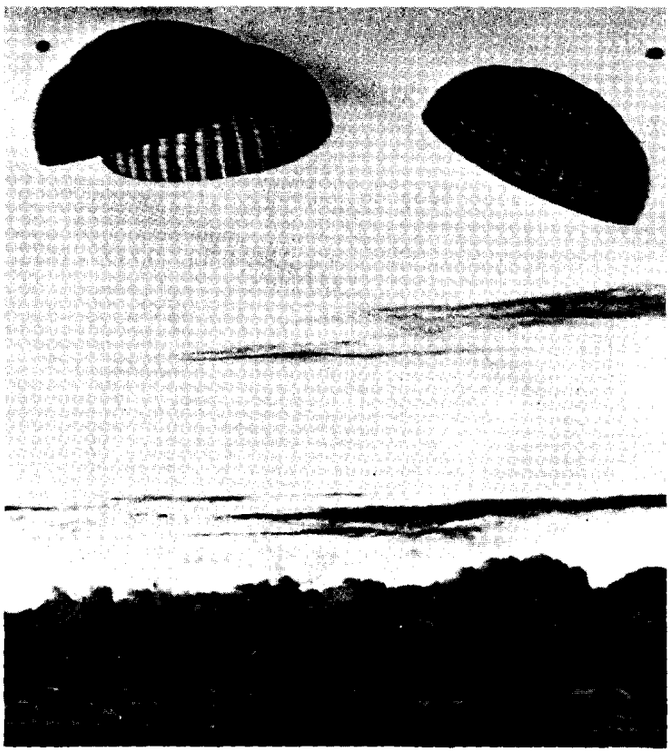
WANTED: Ride from Riverdale Apts. to W.A. on 8 shift. Loar, 3113.

FOR SALE: Wooded lot in Colington Harbor - high ground overlooking Kitty Hawk Bay - cash or assume loan. D. E. Phillips, Portsmouth 393-1556.

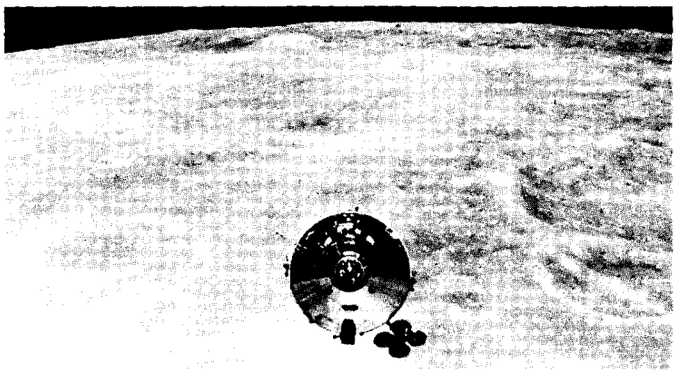
APOLLO 10 COMPLETES SUCCESSFUL MOON ORBITAL MISSION



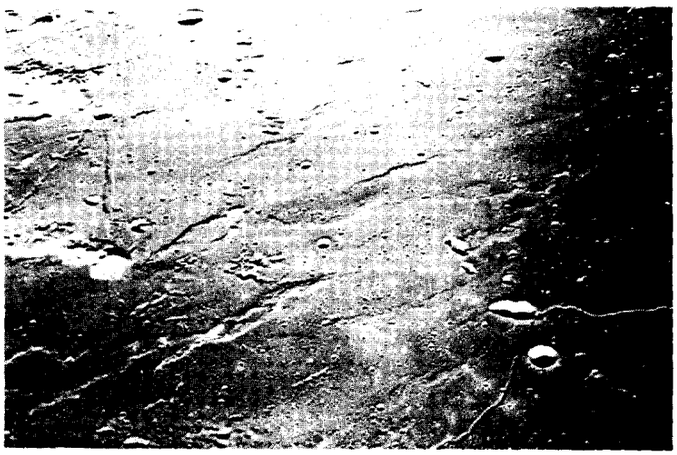
THE LUNAR MODULE carrying Astronauts Tom Stafford and John Young ascends from the Moon to meet with the Apollo command module. Astronaut John Young was alone in command module orbiting the moon when LM was 50,000 feet above the lunar surface.



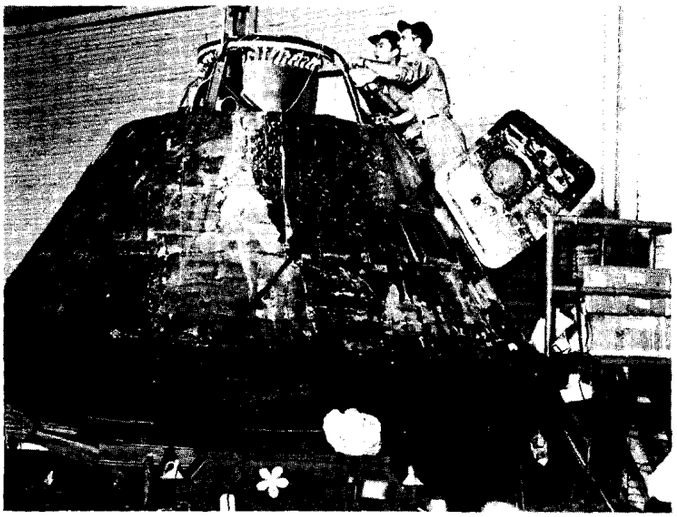
SUSPENDED on its three main chutes, Apollo 10 splashed down four miles from the prime recovery ship USS Princeton.



THE APOLLO 10 Command and Service Modules are photographed from the Lunar Module after CSM-LM separation in lunar orbit.



THIS PHOTOGRAPH, taken from the Command Module, is an oblique view of the western portion of the Sea of Tranquillity. Landing Site 2 is located at the center of the top edge of this photograph. A line drawn from the center top to the center bottom delineates the approach path planned for the Lunar Module in July.



ASTRONAUTS Gene Cernan and John Young inspect the Apollo 10 spacecraft aboard the recovery ship.

GRAND TOUR OF PLANETS

After Mars and Venus come Jupiter, Saturn, Uranus, Neptune and Pluto in the most far-reaching space missions yet conceived by man.

Plans for two three-planet Grand Tours in the late 1970's are being developed by NASA's Jet Propulsion Laboratory. One such mission would fly by Jupiter, Saturn and Pluto, the other would go to Jupiter, Uranus and Neptune.

The eight-to-eleven-year missions to the outer planets are detailed by James E. Long, JPL's Advanced Studies Office, in the June issue of Astronautics and Aeronautics Magazine, the official journal of the American Institute of Aeronautics and Astronautics.

Rapidly maturing technology will make it possible for space scientists to unlock the mysteries of the outer solar system, Long predicts.

"The best outer planet alignment in 179 years, occurring in the 1976 to 1980 time period, opens the outer planets to exploration in an effective and timely manner," Long says in his article. The infrequency of such favorable alignment is due to the slow movement of the outer planets about the Sun.

Long proposes the use of either conventional or solar-electric propelled spacecraft, with a nuclear isotope power source to operate spacecraft equipment. From Jupiter on, a Grand Tour spacecraft would employ the gravitational attraction of each planet to spin on to the next.

Television cameras and other scientific instruments aboard the unmanned spacecraft could study the planets, their atmosphere, magnetic fields and satellites, he suggests. Of special interest are Jupiter's red spot and radiation belts and Saturn's rings.

Long pointed out that savings in energy and flight time are so great that a Titan-Centaur launch vehicle (a new combination of presently existing boosters) could be used. Normally, this tandem would not be capable of launching a spacecraft beyond Saturn.

The basic Grand Tour spacecraft would weigh about 1,200 pounds and continue past Neptune or Pluto, escaping the solar system. The trajectories projected from these missions extend into intergalactic space.

Two three-planet missions could be accomplished by two spacecraft with virtually the same power requirements needed to reach Jupiter. After 1980, missions using Jupiter for spin-off energy will be limited to two planets, starting with a Jupiter-Pluto launch opening in 1989.

The JPL planner pointed out that the planetary carom effect would enable a spacecraft to reach Pluto in 7 to 8 years. A direct flight to Pluto (at closest 2,670 million miles from Earth) would take 41 years.

Neptune, next farthest out, might be reached in 8.9 years, instead of the 18-plus years via direct flight. To reach Jupiter, primary goal, will require a minimum of one and a half years.

The Grand Tour, however, may have to forego a swoop inside Saturn's rings. "A close approach to Saturn in the ecliptic plane," Long warned, "must avoid the rings due to the expected high-mass concentration." But both Jupiter and Saturn may be studied via other spacecraft, perhaps orbiters, by 1976.

The technological challenges of a nine-year plus spaceflight are formidable but not insurmountable, Long said. The spacecraft's power will be generated by electrical conversion of heat produced by nuclear source (plutonium). Work on a radioisotope thermoelectric generator is proceeding at JPL.

A Grand Tour spacecraft also would have to be capable of automatically replacing failed equipment because it will take hours for telemetry signals to reach Earth and to return a corrective command to the spacecraft. Such self-repairing computer and data storage systems also are under development for spacecraft use.

The great distance from which signals must be received at Earth stations would require a Grand Tour spacecraft to have a large, precisely parabolic antenna, resembling a huge sunflower. It will take four hours for a radio signal transmission from Neptune to Earth.

WILLIAM CHARD DIES AT AGE 60

William Chard

William Chard, Scientific Photographer in the Photographic Branch, Technical Information and Utilization Division, died May 31 in the Veteran's Administration Hospital

Chard was born March 16, 1909 in Albany, New York. He served in the U.S. Marine Corps from September 1, 1942 to November 25, 1945. Following his discharge he went to work for the U.S. Department of Agriculture in East Orange, New Jersey. He transferred to the Langley staff on December 13, 1948 as a Photographer.

He is survived by his wife, Mrs. Muriel Chard of Hampton; two sons, William D. Chard and Roger A. Chard of Hampton; and two daughters, Mrs. Wilson Pearce of Tabb and Linda G. Chard of Hampton.

TECHNOLOGY UTILIZATION NEWS

The Conference on Aerospace Related Technology for Industry held at Langley on May 22 has been acclaimed a success by the more than 200 in attendance. Numerous transfers of technology from NASA to industry were in evidence throughout the day.

The Technology Utilization Office extends thanks to all participants of this spring T.U. Conference. The talks and displays were well received by industry and it is hoped they will stimulate the manufacture of new or improved products.

Such conferences provide closer contacts between innovators and the ultimate users of new technology, thus shortening the time gap from invention to market place.

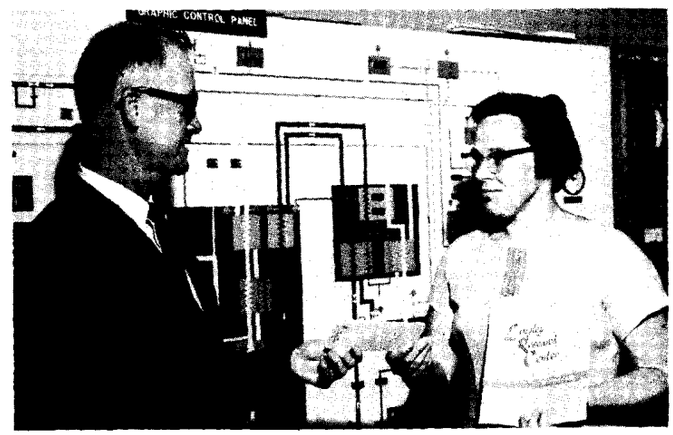
Keep in mind items of new technology which you would consider appropriate for presentation at future conferences and notify the T.U. Office.

WANTED: Ride from Hidenwood to E.A. on 8 shift. Sheila Wood, 2555.

WANTED: Driving combination from Elizabeth Lakes area to W.A. on 8 shift. Poslik, 851-0496.

WANTED: Driving combination from Whealton Rd. to W.A. on 8 shift. Drischler, 3691.

FOR SALE: Hide-a-bed. Nye, 596-8845.



SEVEN staff members have received cash awards for suggestions under the Incentive Awards Program. Top left - Robert T. Magee (left) and William E. Stoops (right), both of Fabrication, shared a $50 award for suggesting the development of a simple checkoff sheet which will provide both research and technician personnel with appropriate fabrication data for research purposes. Making the award is Charles B. King. Top right - Walter H. Lee (right) Technical Information and Utilization, receives a $355 check from Fred N. Rector for an improved method of binding and packaging NASA Technical briefs. Center left - Edward L. Clark (left), Flight Instrumentation, receives a $150 check from J. D. Setzer for devising a new and better method of attaching radio frequency absorber material in the Center's anechoic chamber. Center right - John P. Mugler, Applied Materials and Physics, presents a $145 award to Shirley S. Floyd for the development of a new method for fabricating radiometer sensors which will allow the sensor temperature response time to be increased. Lower left - James R. Maley (left), Research Support, was awarded $100 for redesigning shorting bars for carrying a required current while simultaneously preventing overheating of resistor strips used on the plasma accelerator in the Magnetohydrodynamics Facility. Martin J. Menges makes the presentation. Lower right - Clyde D. Hall (right), Fabrication, presents a $100 check to Charles A. Holt for the development of an improved process for fabricating gore window attachments in the 12-Foot Air Density Injun Explorer spheres which will provide a higher quality sphere while reducing fabrication time.

FROM SEA TO STARS: Huge spheres typical of space age research structures form an interesting backdrop for the City of Hampton's latest addition to the Hampton Tour. Mrs. Laura W. Holley, manager, Hampton Tour Information, Department of Commerce, and W. A. Joyner, driver, paused long enough on a recent tour of the Langley Research Center for a photograph of the new British double-decker bus. The vehicle is used on the Hampton Tour of the Center and Langley Air Force Base, leaving from Hampton Aerospace Park. Hampton also sponsors a boat tour.

TOUCH OF LONDON ADDED TO HAMPTON TOUR

The City of Hampton has added a touch of London to its bus tour of Langley Research Center and Langley Air Force Base this summer.

Visitors who take the Hampton Tour of Langley now ride a British double-decker bus which gives passengers a glimpse of NASA's aeronautical and Space research facilities.

The bus-- a vivid red-- was recently christened by Hampton Mayor Ann H. Kilgore, who used a symbolic blend of waters from the Chesapeake Bay and the Thames River.

Starting point for the bus tour to Langley is the Hampton Aerospace Park-- in the heart of the city-- where full scale aircraft and space vehicles are on display to thousands of visitors.

The Hampton Tour officially got under way May 24. Bus tours to Langley are now made at 1 p.m. and 3 p.m. daily through June 14. The schedule will be 11 a.m., 1 p.m. and 3 p.m. daily beginning June 15 through September 1, and at 1 p.m. and 3 p.m. Wednesday, Saturday, and Sunday from September 2 to October 5.

Other attractions on the Hampton Tour are visited on a drive-it-yourself basis, with a distinctive highway sign system pointing the way to motorists.

These include Bluebird Gap Farm, Fort Monroe, Hampton Institute, St. John's Church, the War Memorial Museum of Virginia, Mariners Museum, Syms-Eaton Museum, Kecotan Indian Village, and the U.S. Coast Guard Lightship (Ret.), latest addition to the "Hampton Navy" fleet.

The City of Hampton, which sponsors the Hampton Tour, has produced a new motion picture entitled "Out of the Past-- the Future." The film traces the history of the area as portrayed by the various tour attractions, including the Langley Research Center which is observing its 52nd anniversary this year.

A brochure published by Hampton calls attention to other points of interest in the City. These include Buckroe Beach, a family amusement and recreation center on Chesapeake Bay; Gosnold's Hope Park, 90 acres of woodlands with camp sites and boat launching ramps; Hampton Monument, marking the vicinity of the first English settlement landing on April 30, 1607; and Big Bethel Battlefield, site of the first major Civil War land engagement on June 10, 1861.

Newport News and Norfolk have self-guided tours, it is pointed out in the Hampton brochure, and drivers receive directions from well-placed signs along the thoroughfares of the two cities.

The Hampton brochure lists other points of interest, such as Jamestown, Colonial Williamsburg, Yorktown, and Virginia Beach.

Langley Researcher

VOLUME 9, NUMBER 13 LANGLEY RESEARCH CENTER JUNE 27, 1969

TWO REVOLUTIONS OF MOON ADDED TO APOLLO II MISSION

Two revolutions of the Moon have been added to the flight plan for the Apollo 11 lunar landing mission to improve communications during critical maneuvers and to allow more time for decontamination of equipment exposed to the lunar environment.

Crew for the Moon landing mission is Neil A. Armstrong, spacecraft commander; Michael Collins, command module pilot; and Edwin E. Aldrin Jr., lunar module pilot.

Adding a revolution just before the Lunar Module (LM) undocks from the Command/Service Module (CSM) will bring the LM within radio sight of the largest tracking antenna, the 210-inch dish at Goldstone, Calif., during its descent to the lunar surface.

A second added revolution after redocking and before the LM is cast off will give astronauts Armstrong and Aldrin an additional two hours to brush and vacuum Moon dust from the lunar sample boxes and other items before transferring them to the CSM for return to Earth.

This revision of the flight plan increases the planned revolutions of the Moon to 30 for a total time in lunar orbit of 59 hours, 30 minutes. It is expected that the added four hours will be made up by a faster return journey.

The mission plan calls for Armstrong and Aldrin to land on the Moon July 20 and for Armstrong to be the first man to set foot on the Moon as he leaves the lunar module in

(Continued on page 8)

COST REDUCTION: Edgar M. Cortright, Director, met with division monitors this week to discuss the Center's cost reduction program. He pointed out that the fiscal year ends July 1 and that the Center has been credited with savings for fiscal year 1969 of $1,367,000 which is only 41 percent of the $5,720,000 goal. He urged division monitors to return to their groups and to canvass their staff members for savings that might have been overlooked.

ACTIVITIES ASSOCIATION PLANS CARNIVAL ON AUGUST 22 AND 23

The Activities Association is making plans to sponsor another Carnival on August 22 and 23 on the Activities ground.

Tickets will go on sale Monday and they may be purchased for one dollar each from District Representatives or at the Activities Building. The tickets will entitle the holder to be eligible for an array of prizes plus two grand prizes.

The little grand prize which will be awarded on August 22 will be a stero-home-entertainment center.

The grand prize, which will be given away on Saturday, will be an all-expense paid trip abroad for two. The winner may choose Hawaii, the West Indies, or Europe. The trips are as follows:

Hawaii - Three days in Las Vegas, three days in San Francisco, and seven days in Honolulu.

The Bahamas - Two weeks (14 days and 13 nights) at the Paradise Island Hotel in Nassau.

Miami, Puerto Rico and the Virgin Islands - One week (7 days and 6 nights) at the Fontainbleau Hotel in Miami plus a seven-day cruise from Miami to San Juan and St. Thomas.

Jamaica - Two weeks (14 days and 13 nights) at the Plantation Inn Hotel in Jamaica.

Europe - Fifteen days by jet and motorcoach on an escorted tour of England, Holland, Germany, Austria, Italy, Switzerland, and France.

STUDY CONTRACTOR SELECTED

NASA has selected McDonnell Douglas Astronautics Company, Huntington Beach, California, for award of a contract for a 14-month Earth orbital experiment requirements study. The cost plus fixed fee contract to be negotiated is valued at about $1.25 million. Two other firms submitted proposals for this requirement.

The contract to be awarded will be managed by Langley Research Center.

McDonnell Douglas will perform a detailed study in six areas of scientific interest to complement internal NASA studies on the measurement and engineering requirements for achieving the NASA Earth orbital experiment objectives. The product of the contract will serve the agency as a basic reference useful in program planning and supporting development.

Particular attention will be given to singling out experiments which can be performed best, or perhaps only, by manned spacecraft. Relative economies and advantages of particular groupings of experiments will also be defined.

The experiment programs and systems included in the study do not represent currently approved agency flight projects and the study will not necessarily lead to hard-

(Continued on page 8)

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer... .....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

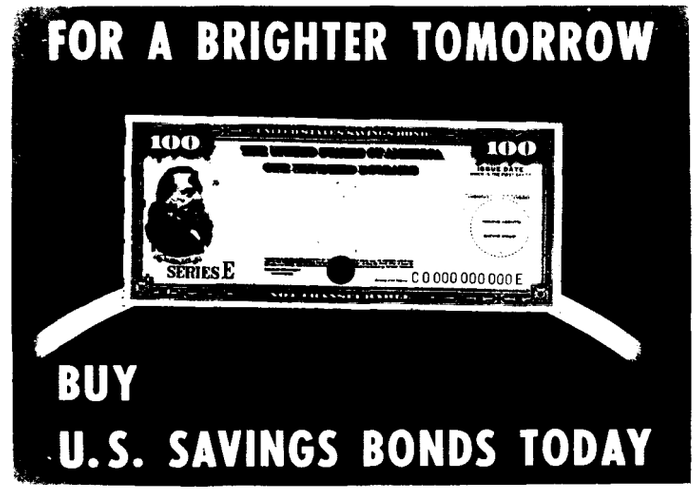
CONGRATULATIONS. . .Congratulations to Dr. George W. Brooks, Assistant Director, and Dr. Samuel R. Bland, Aeroelastic Analysis Section, Dynamic Loads Division, on being named Associate Fellows of the American Institute of Aeronautics and Astronautics.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on July 1 at 7 p.m. at the Central Labor Union Hall.

FACILITY RENAMED. . .The name of the Free Body Dynamics Facility (Building 1293A), Applied Materials and Physics Division, has been changed to the Attitude Control Simulation Facility. The name Free Body Dynamics Facility was coined in 1960 when the facility was first conceived to permit investigation of the rigid-body dynamics of small, earth-orbital satellites. Such research is of little or no value to present or projected technology needs and the facility has been modified to permit evaluation of attitude control components and systems. The name has been changto Attitude Control Simulation Facility to better describe the improved facility capabilities.

FORMER EMPLOYEE DIES. . .Word has been received at the Center that Janice White Garrison, formerly of Tank II, died June 18 in Washington, D.C.

BIG BROTHERS. . .Marvin Waller, Guidance and Control Branch, Aeronautical and Space Mechanics Division, has been named chairman of the 15-member board of directors of the newly organized Big Brothers of Hampton. The organization is expected to be chartered and a professional staff hired. It will be the job of the executive director and members of his staff to screen men who will donate at least one hour a week with a boy who does not have an older brother or father in the home. The purpose of the organization is to organize under professional direction a body of mature and responsible men to interest themselves individually in the welfare of boys who have become or are about to become confused by the circumstances of their lives and as a consequence need encouragement and companionship of men outside their homes for their moral, mental and physical development. Although BBH will operate under the guidelines of the national organization of Big Brothers, Inc., the Hampton unit will be completely independent and self-supporting.



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of June 30:

Monday - Cream of tomato soup, roast fresh ham, stuffed shrimp, sauteed chicken livers, macaroni and wieners. Snack bar - Soup, hot dogs, flying saucer, French fries.

Tuesday - Minestrone soup, pot roast of beef, baked lasagna, pork chopette, baked hash. Snack bar - Soup, ham and egg sandwich, sliced barbecue, French fries.

Wednesday - Chicken-vegetable soup, chicken and dumplings, grilled smoked ham, stuffed cabagge in nest of sauerkraut, chili-mac. Snack bar - Soup, hamburger, cheeseburger, hot pastrami, German potato cakes.

Thursday - Vegetable-beef soup, grilled steak, barbecued pork chunks, stuffed pepper, franks with beans. Snack bar-Soup, barbecued pork, steak sandwich, French fries.

Friday - H O L I D A Y

The menu for the week of July 7 is as follows:

Monday - Puree of bean soup, corned beef and cabbage, chuckwagon steak, chicken chow mein, Austrian ravioli. Snack bar - Soup, fish sandwich, chuckwagon steak, French fries.

Tuesday - Consomme julienne, roast beef, deep-fried beef liver, shrimp Newberg, Spanish franks. Snack bar - Soup, hot dogs, hot corned beef, French fries.

Wednesday - Chicken-noodle soup, chopped steak, smoked pigs-in-a-pone, fried chicken, chili con carne. Snack bar-Soup, ham and egg sandwich, Lou's satellite special, French fries.

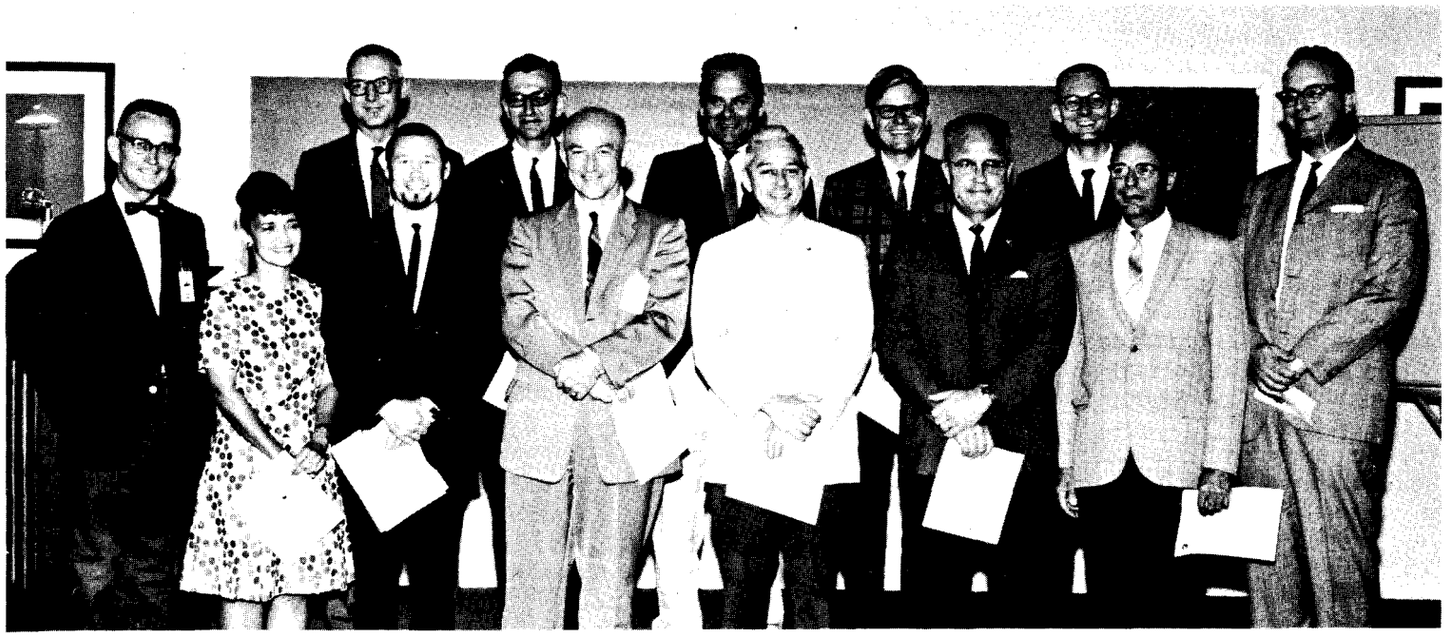
Thursday - Cream of tomato soup, Swiss steak, stuffed flounder, spaghetti and meat sauce, broiled spiced luncheon meat. Snack bar - Soup, hamburger, cheeseburger, steak sandwich, French fries.

Friday - Manhattan clam chowder, broiled ham, broiled halibut steak, stuffed pepper, knockwurst and beans, fish cakes. Snack bar - Soup, sea dog, flying saucer, French fries.

FOR SALE: 1965 Buick Grand Sport 401, V-8, 4-speed - $1300. Rawls, 722-8324.

FOR SALE: 100 x 110-foot lot at Arrowhead Beach and Boat Club, located on Chowan River near Edenton, N.C. Johnson, 851-2641.

FOR SALE: 1966 Westernfield camper, sleeps four, also trailer hitch; bicycle built-for-two. Fink, 722-4112.



RECEIVE AWARDS - T. Melvin Butler (left) Assistant Director for Administration, recently presented cash awards to a number of staff members for Tech Briefs. The recipients shown with Butler and Paul G. Kurbjun (right) Technology Utilization Office, are (from left): Kathryn H. Peddrew, Charles H. Wood, Clarence D. Cone, George C. Salley, John S. Dennard, Harry H. Becker, William M. Haraway, Charles B. King, Wilbur C. Heier, John Lamar, and Ralph E. Moscater. Each Tech Brief published brings a $25 award with eligibility for higher awards.

TECHNOLOGY AWARDS PRESENTED

In ceremonies held recently T. Melvin Butler, Assistant Director for Administration, presented cash awards to thirteen staff members for Tech Briefs.

Tech Briefs are abstracts employed to disseminate NASA-generated technology to private industry. Nation-wide distribution is provided to over 5000 interested parties on a subscription basis. Tech Briefs are also often reprinted in trade journals and magazines, sometimes triggering a flood of inquiries directed to the Technology Utilization Office.

Each Tech Brief published automatically brings a $25 award with eligibility for much higher awards. Tech Briefs get new ideas from innovator to the market in the shortest possible time.

The Langley Tech Briefs for which the awards were presented are as follows:

67-10490 - Computer Program Uses Characteristics Method for Free-Jet Investigation by John S. Dennard, Aero-Physics Division

68-10055 - Thread Cutting with 3-Axis N/C Milling Machine by George C. Salley, Analysis and Computation Division, and Charles H. Wood, Fabrication Division

68-10092 - Molding a High-Density Laminate by Charles B. King, William M. Haraway and Wilbur C. Heier, Fabrication Division

68-10341 - Superconductive Thin Film Makes Convenient Liquid Helium Level Sensor by Harry H. Becker, Flight Instrumentation Division

68-10352 - Machining Technique Prevents Undercutting in Tensile Specimens by Ralph E. Moscater, Fabrication Division, and Dick M. Royster, Structures Research

68-10446 - Modified Multhopp Mean Comber Computer Program by John E. Lamar, Full-Scale Research Division

68-10452 - Modified Multhopp Subsonic Lifting Surface Loading Program by Lamar

68-10542 - High Dielectric Thick Films for Screened Circuit Capacitors by Donald R. Ulrich, General Electric

68-10554 - A Microlagoon Technique for the Culture of Mammalian Cells by Clarence D. Cone and Kathryn H. Peddrew, Instrument Research Division

TECHNOLOGY UTILIZATION NEWS

Two new Special Publications are available from the Technology Utilization Office. SP-5071, Induction Heating Advances: Applications to 5800 degrees F. describes the latest in induction furnace designs. This 40-page text also covers the basic principles of this important method of heating electrically conducting materials for industrial processing. Induction heating is clean, fast and predictable, thus lending itself to high production of quality products. Most of the new technology featured in SP-5071 was developed by the Lewis Research Center.

SP-5072, Air-Pollution-Monitoring Instrumentation, is a 74-page survey of up-to-the-minute technology in the increasingly important area of air pollution. Langley Research Center developments are cited on several pages of this publication which also includes an extensive bibliography, glossary, and references.

Call extension 3281 for copies of these 5000-series Special Publications designed to speed the transfer of new aerospace research technology to industry but having excellent in-house value as well.

FOUND: Man's ring in Bldg. 1268. Montgomery, 2079.
LOST: Pair prescription sunglasses and case in vicinity of Bldg. 584. Joseph Dixon, 2511.
NOTICE: Will the person who borrowed the library book on "New Linear Polymers" by Lee, Stoffey and Neville please return it to N. J. Johnston, M.S. 226.

WINGLESS AIRCRAFT BEING DEVELOPED WITH EYE TO USE AS SPACE SHUTTLE

Three single-seater wingless craft are being test flown over California in a research program aimed at enabling future astronauts to return from space in vehicles that can land like conventional aircraft.

The cooperative Air Force-NASA lifting body program is being conducted at Edwards Air Force Base, Calif., where the two agencies share facilities and resources for research in space and aeronautics, including the recently completed joint X-15 program.

The Air Force lifting body model, X-24A, made its first flight April 17. Two NASA versions, the HL-10 and M2-F2, began flying in 1966.

The three research vehicles are slightly different in design but all three attain lift from the rapid flow of air over and around their basic shape, without depending on wings.

Research on lifting bodies for space use began in the mid-1950's and several different concepts were studied before the present three versions were built for evaluation and experience purposes.

The lifting body of the future is envisioned as a reusable ferry craft that could be sent into space, dock with orbiting space stations for supply and service duties, return through the atmosphere, and then be piloted to a ground landing. The Air Force and NASA recently entered into an agreement to determine how a space shuttle system could best serve the two groups. Such a system might evolve from the joint lifting body flight program.

The new Air Force version, X-24A, has a rounded delta shape with a flat bottom, round nose and three vertical fins at the rear. The aluminum vehicle is 24 feet long, 13 feet wide, and stands 10 feet high. It weighs 11,000 pounds when fully fueled with liquid oxygen and ethyl alcohol to fire the 8,000-pound-thrust rocket engine.

Like the X-15, and the other two lifting bodies, the X-24A is carried aloft by a B-52 to an altitude of 45,000 feet where it is released. Its powerful rocket engine is capable of sending the craft to an altitude of 20 miles and speeds above 1,000 miles per hour. After ten minutes of powered flight, the pilot maneuvers the lifting body back for a landing, using rudders and horizontal flaps.

The HL-10, a Langley Research Center concept, is the work horse of the three, with 18 flights (through May 20). The M-2 will return to flight status late this year with modifications required as a result of a 1967 landing accident.

FOR SALE: 3-bedroom, 1-1/2-bath, brick rancher with fireplace, eat-in kitchen, separate dining room, attached garage, screened porch, fenced back yard - located in Bruton Park - $5000 and assume 5-1/4% loan with $122 monthly payments. LeBel, 596-5520.

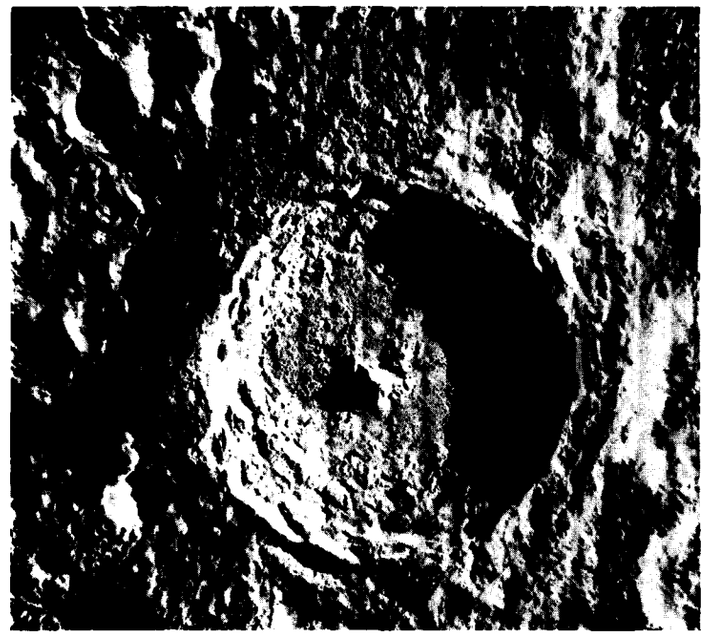
WANTED: Home for kittens. Shaughnessy, 595-2024.

FOR SALE: Air conditioned tri-level home in Tuckahoe - home 1,950 sq. ft, lot 75 x 150 ft. - $29,500 - 15% down will finance balance. Gillis, 595-0009 after 5 p.m.

FOR SALE: 6-foot two-man crosscut saw - $5. Clark, 838-0438.

FOR SALE: Boy's 24-inch Schwinn bicycle - $13, girl's 24-inch Columbia bicycle - $11. Abbott, 596-0630.

FOR SALE: Sears double sideroom tent with outside aluminum frame (9 x 18 ft.). Rodgers, 877-9083.



MOON GLASS - NASA scientists speculate that these large glass objects (top photo), called tektites, that are found widely scattered over the Earth originated from a meteor impact on the Moon at the site of the crater Tycho (bottom photo). Tycho is located in the Moon's southern hemisphere. This photo of Tycho was taken by Lunar Orbiter V at an altitude of 134.9 miles.

* * * *

WANTED: Ride from Denbigh (Lucas Creek Rd.) to W.A. on 7:30 shift. Rita Grimstead, 3046.

WANTED: Driving combination from Harpersville Rd. to W.A. on 8 shift. Donna Copeland, 2717.

WANTED: Ride from downtown area of Newport News to W.A. on 7:30 shift. Pat Edmondson, 3234 or 3492.

WANTED: Driving combination from Runneymede-Nicewood area to W.A. on 7:30 shift. Lambiotte, 3544.

FOR SALE: 8000 btu, 115 volt air conditioner - $100. Poslik, 851-0496.

SUMMER YOUTH PROGRAM BEGINS AT LANGLEY CENTER

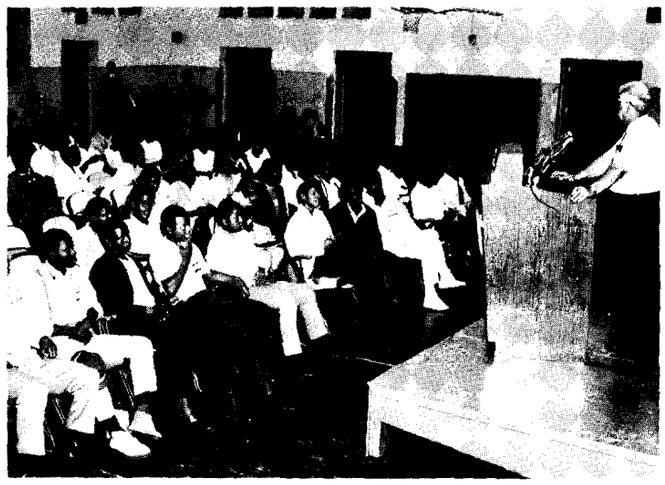
NEIGHBORHOOD YOUTH CORPS (NYC) enrollees who arrived June 16 are front row (from left): Steve Shelton, Larry Cooke, Kenneth Clark, William Riddick, Issac Brown, Robert Young, Raymond Rouse, and James Delk. Back row - Victor McKoy, Charles Barbour, Larry Johnson, Ronnie Barnes, Roger Hill, Kelvin Grey, and Larry Battle.

NYC ENROLLES are front row - Preston Walker, Edward Knowland, Larry Davis, Dwight Herbin, James Lyons, Clarence Gatling, James Logan, and Milton Ebron. Back row - Herburt Hodges, Joseph Gurley, Paul Johnson, Jerry Williams, David Malloy, William White, Charles Shine, and Edward Scott.

NYC ENROLLEES with counselors are front row: Raymond Washington, NYC Director from Hampton Community Action Agency, Brenda Slade, Eva Jones, Carolyn Sumpter, Rosalind Wright, Carol Thompson, and Barbara Weinstock, NYC Counselor from Newport News Office of Economic Opportunity. Back row - Stanley Ham, Michael Newsome, Larry Moore, and Dillard Royster.

SUMMER AIDS who arrived June 17 are front row - Lilpena Cofield, Patricia Moore, Dorenda Hudgins, Gayle Mansfield, Rose White, Arnita Woodard, Marcella C. Threatt, Laura A. Catling, Sarita Newby, and Gwendolyn A. Hopson. Second row - Robert W. Wyatt, Russell Lee Oakley, Thomas F. Holloway, Audrey Lee Edler, Faye Regina Melton, Valerie Ann Miles, Arlinda Youngblood, and Alda Underwood. Back row - Cephuse W. Ross, Larry D. Crewe, Vivian Jefferson, Yvonne Jones, Margo Billups, Jerome Merritt, and Bruce L. Bashaw.

SUMMER AIDS with LRC Counselors are front row - Juanita E. Price, Linda Johnson, Vickie Kiser, Thelma Lovett, Janice Wells, Pat Edmondson, Marcia Banks, Henrietta Newby, Thomasena Brown, Beverly A. Seay, Florence M. Thompson, Dot Duffy, and Judy Jones. Back row - Jerry Woodhouse of the Training and Educational Services Branch of Personnel; Sharon Y. Donavant, Rita Hopson, Regina B. Henry, Denise D. Martin, Patricia Lowery, Diane Procter, Geraldine Smalls, Sandra Kee, Helen Jackson, Lenora Fauntleroy, Ralph Edlow, Gwendolyn Williams, and John Witherspoon of Training and Educational Services Branch.



DURING THE ORIENTATION session for NYC enrollees Duane McSmith, Safety Office, discusses points to be observed in their various job assignments.

REGULATIONS ISSUED TO AGENCIES ON DISCRIMINATION COMPLAINTS

Following extensive consultation with Federal agencies and interested organizations, the U.S. Civil Service Commission has issued regulations to place into force by July 1 a new plan for resolving Federal employee discrimination complaints.

The regulations require extensive training of a number of Federal employees as Counselors and Appeals Examiners. Also, agencies will need time to make organizational changes to carry out the new plan. Therefore, July 1 was set as the effective date for agencies to bring their plans into conformity with the new policy.

Complaints now in process and those which arise between now and July 1 will be handled under existing procedures.

Announcing publication of the regulations, Commission Chairman Robert E. Hampton said, "Fair, prompt, and impartial handling of discrimination complaints is a vital aspect of an effective program for equal employment opportunity."

The new procedures for processing complaints of discrimination on grounds of race, color, religion, sex, or national origin have four basic objectives:

-To provide maximum opportunity for informal resolution of problems which might result in complaints.

-To provide an independent investigation of the facts when a formal complaint is lodged.

-To guarantee a fair and impartial hearing by a trained appeals examiner when a hearing is required.

-To speed up the entire complaint process.

Salient features of the new system are as follows:

An employee who feels that he or she has been subjected to discrimination will, as a first step, discuss the problem informally with a trained Equal Employment Opportunity Counselor. The Counselor will be free from any restraint, interference, or coercion in the performance of his duties. He must keep a record of his counseling activities and brief the installation's Equal Employment Opportunity Officer (EEOO) periodically on his activities.

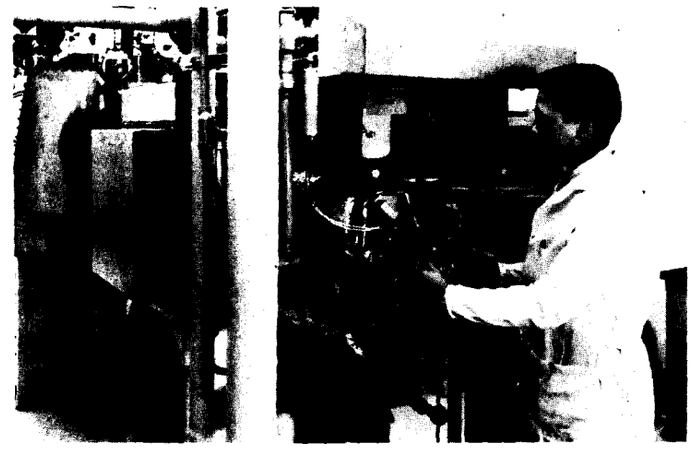
In trying to resolve an employee's complaint informally, the Counselor will discuss the employee's problems with supervisors or associates as necessary in seeking a solution. When appropriate, the Counselor will make a report to the installation EEOO and recommend a course of action.

If informal resolution is not possible, the employee may file a formal complaint. When a formal complaint is filed, the Counselor makes a report to the EEOO and sends a copy to the aggrieved employee. At this point the Counselor drops out of the picture.

The agency Director of Equal Employment Opportunity will be informed when a formal complaint is filed with the installation EEOO. He will order an investigation which must be conducted by personnel of his agency who are in an echelon or installation which is not subordinate to the head of the installation in which the complaint arose.

Statements of witnesses obtained during the investigation will be under oath or affirmation, and without a pledge of confidence, so they may be made available to the complainant.

On completion of the investigation the entire investigative file must be made available to the employee or his representative for review. Once the complainant has reviewed the investigative file, the agency must provide another opportunity for informal adjustment of the complaint. If no adjustment is reached, the complainant will be notified in writing of the proposed disposition of the case and will be advised of his right to a hearing before an independent Appeals Examiner from another agency who has been trained and certified by the Civil Service Commission. The entire investigative file must be given to the Appeals Examiner, and he may require a further investigation if he is not satisfied with the extent or quality of the investigation.



LUNAR SAMPLE FACILITY: Preliminary analysis of samples brought back from the moon will be carried out in this Physical-Chemical Test Lab at Manned Spacecraft Center in Houston.

The Appeals Examiner may request the agency to make available as witnesses an employee or employees requested by the complainant when he determines that their presence is necessary. He may also request the appearance of other employees whose testimony he deems necessary to supplement the information in the investigative file.

After the hearing, the Appeals Examiner will transmit the entire complaint file including the verbatim record of the hearing, together with his findings and analysis, and his recommended decision, to the head of the agency or his designee. He will inform the complainant of the date on which this is done. The head of the agency or his designee will make a final decision in the case, which must be in writing, and which may adopt, reject, or modify the decision recommended by the Appeals Examiner. When the decision is to reject or modify, the reasons must be set forth. When the agency informs the complainant of its decision it must transmit to him at the same time the recommended decision of the Appeals Examiner.

If the complainant is not satisfied with the final agency decision, he may appeal to the Commission's Board of Appeals and Review.

Employees will be entitled to representation at each stage of the proceedings. Present requirements concerning the conduct of the hearing and the appearance of witnesses will be retained.

Names as EEO Counselors at Langley Research Center are the following: William B. Jones, extension 3234; Rita J. Southall, extension 3526; Katherine G. Johnson, extension 3006; Horace E. C. Bellamy, extension 3609; and John J. Cox, extension 2233.

Edward T. Maher, extension 2741, is the Center's Equal Employment Opportunity Officer.

EXECUTIVE BOARD - Members of the 1968-69 Executive Board of the Activities Association are (seated from left): Herbert Boulter, social chairman; Larry Brumfield, treasurer; Joe Siefring, activities chairman; Sybil Coleman, arts and crafts chairman; Ernest Greene, president; Winifred Bragg, secretary; Elizabeth Buchan, children's committee chairman; Fred Hines, vice president; and Billy Beasley, building and grounds chairman. Retiring board members are (standing): Arnold Mueller, treasurer; Rossalyn Hampton, children's committee chairman; and Jim Gardner, vice president. The newly elected board members assume their duties July 1.

FUBINI APPOINTED CONSULTANT

Dr. Eugene G. Fubini, former Assistant Secretary of Defense, has been sworn in as a consultant to the NASA Administrator. He was sworn in by Dr. Homer E. Newell, Acting Administrator.

Dr. Fubini will advise senior officials of NASA on scientific and engineering aspects of the agency's program. His initial tasks are to review and advise in connection with the President's Space Task Group and on the work to be carried out under the joint agreement with the Department of Defense on the Space Shuttle.

Dr. Fubini has been engaged as a private consultant since last April when he resigned as Vice President and Group Executive of IBM. Before joining IBM in June 1965, he was Assistant Secretary of Defense and Deputy Director of Defense Research and Engineering. He was appointed to that position by President Kennedy in 1963.

Dr. Fubini was born in Turin, Italy, April 19, 1913. He received his education in Italy, attended the Technical Institute in Turin in 1929-31, and received his doctorate in physics from the University of Rome in 1933.

From 1933 to 1938, Dr. Fubini was employed at the National Institute of Electrotechnics in Rome, then moved to New York City to become an engineer with the Columbia Broadcasting System. During World War II he was a research associate at Harvard University, scientific consultant and technical observer for the U.S. Army and Navy in the European Theatre of Operations, later working with the Eighth Air Force in England and for the Air Communications Office of the War Department.

He received U.S. citizenship in 1945, and joined the Airborne Instruments Laboratory, Melville, N.Y. In 1960, he was promoted to Vice President of the Research and Systems Engineering Division of the company when it became a division of the Cutler-Hammer Corp. He joined the Defense Department in 1961.

WANTED: Someone to teach Portuguese language. Pereira, 244-7081 after 6 p.m.

AIAA MEETING TO CHART FUTURE

The men who lead the advance of American aerospace technology will review its progress and carefully chart its future in a major technical meeting this fall.

The event is the Annual Meeting and Technical Display of the American Institute of Aeronautics and Astronautics, which take place October 20-24 in Anaheim, California.

When the final results are unveiled in October, these will be among the highlights:

--Nearly 135 technical papers will be presented covering advances in the state-of-the-art of aeronautics, astronautics and hydronautics.

--About 50 members of panels in these and other areas will assess the political and social implications of the march of technology.

--Exhibits of new hardware, techniques and processes from the nation's leading aerospace firms as well as governmental agencies will be on display in the 100,000-square-foot Anaheim exhibit hall.

The man in charge of organizing the technical content of the meeting, Dr. Robert Bromberg, Vice President and General Manager of the Science and Technology Division of TRW Systems Group, commented:

"We have divided the program into five themes to provide a comprehensive overview of aerospace - where it is and where it's going. The 34 sessions will cover topics ranging from the Apollo program to manned space stations, and will include Soviet and American exploration of Mars, applications satellites, air transportation, military aircraft development, under-the-sea exploration and how aerospace technology can benefit society."

The preliminary technical program lists Donald D. Baals, Assistant Chief of the Full-Scale Research Division, as chairman of a session on "Aircraft Design and Technology."

FOR SALE: 1962 Dodge pick-up truck with 8-foot bed, six cylinders - $685; also Chevrolet Monza coupe with 4 forward in floor - $295. Verser, 868-4731.

WANTED: Home for kittens. Druen, 826-1371.

NASA TENNIS CLUB NEWS

In recently completed women's singles ladder action at the Activities Building courts Anne Buckingham defeated Edith Gregory 6-3, 6-4. Results of other matches were as follows:

Fourth round - Dorothy Tremaine over Mary Lee Mattingly by default; Barbara Hixon defeated Dianne Adams 6-1, 6-4; Chris Mueller won over Cheryl Nuttall 6-0, 6-0; Ann Buckingham over Joan D-Amato by default.

Quarter finals - Edith Gregory defeated Frances Taylor 6-2, 6-2; Rossie Hampton over Tremaine 6-2, 6-1; Hixon over Mueller 6-0, 7-5.

Semi-finals - Gregory defeated Hampton 6-3, 6-2; and Buckingham defeated Hixon 6-1, 6-4.

NASA SOFTBALL LEAGUE

With one-half the season now complete, ACD is successfully defending its title as league champion with a 7-0 record. Structures and the Raiders are close behind with 3-1 and 4-2 records, respectively. Complete standings as of June 20 are as follows:

Team	W	L	Pct.
ACD	7	0	1.000
Structures	3	1	.750
Raiders	4	2	.667
Misfits	3	4	.429
Swingers	2	3	.400
KNADS	2	4	.333
Marauders	2	5	.286
Vikings	1	5	.167

APOLLO LUNAR MISSION

(Continued from page 1)

the early morning hours of July 21. Aldrin will follow Armstrong out on the surface about 30 minutes later.

The present flight plan, subject to further revisions before launch schedules principal events of the mission (Eastern Daylight Time) as follows:

Wednesday, July 16 - 9:32 a.m. Liftoff, 12:16 p.m. Translunar injection

Saturday, July 19 - 1:26 p.m. Lunar orbit insertion, 5:41 p.m. Lunar orbit circularized

Sunday, July 20 - 1:50 p.m. LM undocks from CMS, 3:14 p.m. Descent Orbit Insertion, 4:23 p.m. Touchdown on Moon.

Monday, July 21 - 2:17 a.m. Armstrong emerges onto lunar surface, 4:47 a.m. Lunar EVA ends, 1:50 p.m. LM lifts off from Moon, 5:32 p.m. Redocking, 9:25 p.m. LM jettisoned

Tuesday, July 22 - 12:56 a.m. Transearth injection,

Thursday, July 24 - 12:49 p.m. Splashdown.

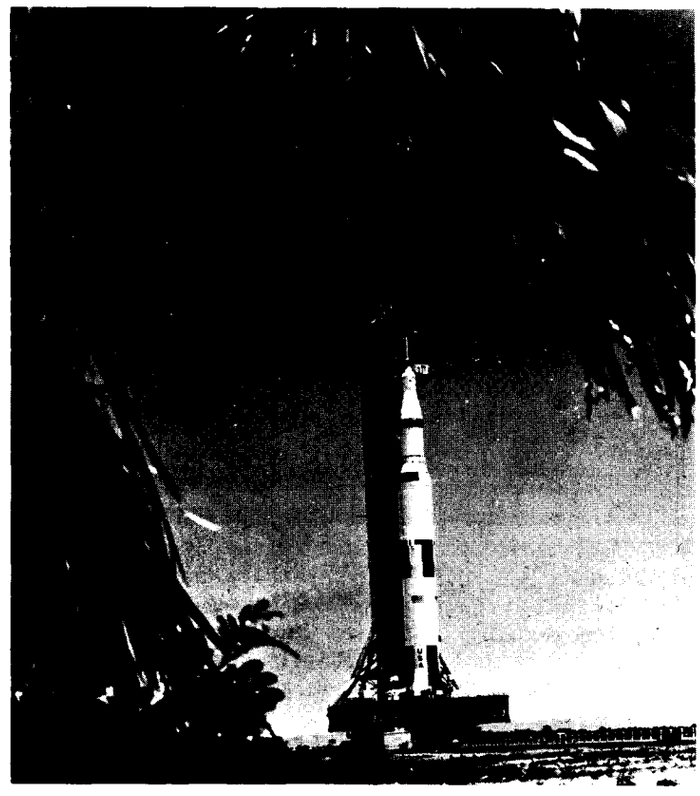
STUDY CONTRACTOR SELECTED

(Continued from page 1)

ware development or construction.

Specified categories of experiments of interest are: Manned space flight capability, space medicine and biology, space astronomy, space physics, communications and navigation, and Earth surveys.

NASA stated the class of experiments to be studied under the general headings listed might be included in flight operations during the 1970's. Emphasis will be given to defining the mission and spacecraft requirements for the most promising experiments rather than on adapting the experiments to existing spacecraft.



FRAMED BY PALMS - This unique photograph shows the Apollo 11 space vehicle on the crawlerway on its way to Launch Complex 39A in preparation for the lunar landing mission scheduled for July 16.

CALENDAR OF EVENTS

PENINSULA ASTROS - The Activities Association is sponsoring another NASA Night at the Peninsula Memorial Park on July 19 when the Astros face Raleigh-Durham. Game time is 7:45 p.m. Tickets may be obtained from District Representatives and admission will be 75 cents for adults and children under 12 will be admitted free. One ticket can be used for the entire family. The Activities Association has books of tickets available for five dollars per book. There are ten tickets in each book and they may be used for any of the remaining home games of the Astros. Any number of tickets may be used from the same book for a game.

MOVIE NIGHT - Family Movie Night will be held July 7 at the Activities Building. Featured will be the Apollo 10 film. Bring the entire family for a free evening of entertainment.

APPRENTICE HONOR ROLL

Ten apprentices completed the spring semester with an average of 95 or better. Members of the honor roll are as follows:

Robert W. Bourgeois, Plant Electrical; John W. Cox, Spacecraft Structures; George C. Firth and George B. Whitehurst, Research Equipment; Hugh C. Gentry, Free-Body Dynamics; Alton C. Hall, Simulator Development; David Hamilton, Vehicle Instrumentation; Barry D. Meredith, Instrument Physics Research; James J. Thompson, Dynamic Model Shop; and J. Russell McHatton, Arc Tunnel.

FOR SALE: Large corner wooded lot in James Landing, Newport News, Berryman, 596-3899.

Langley Researcher

VOLUME 9, NUMBER 14 LANGLEY RESEARCH CENTER JULY 11, 1969

CARNIVAL TICKETS AVAILABLE FROM CENTER REPRESENTATIVES

Tickets are now available from District Representatives for the Activities Association's two-day Carnival which will be held August 22 and 23 on the Activities grounds. The tickets are one dollar each. By purchasing a ticket the buyer will be eligible for an array of ground prizes.

Ground prizes will be given away every 20 minutes. The big prize on Friday night will be a stereo-home-entertainment center.

The grand prize, which will be given away on Saturday, will be an all-expense paid trip abroad for two. The winner may choose Hawaii, the Bahamas, Jamaica, Europe, or a combination trip to Miami, Puerto Rico and the Virgin Islands.

The midway will open immediately after work on Friday and the activities will start on Saturday at 2 p.m. There will be plenty of games and fun for the entire family.

HISTORICAL MOON MISSION SET FOR LAUNCH WEDNESDAY

The United States will launch a three-man spacecraft toward the moon on July 16 with the goal of landing two astronaut-explorers on the lunar surface four days later.

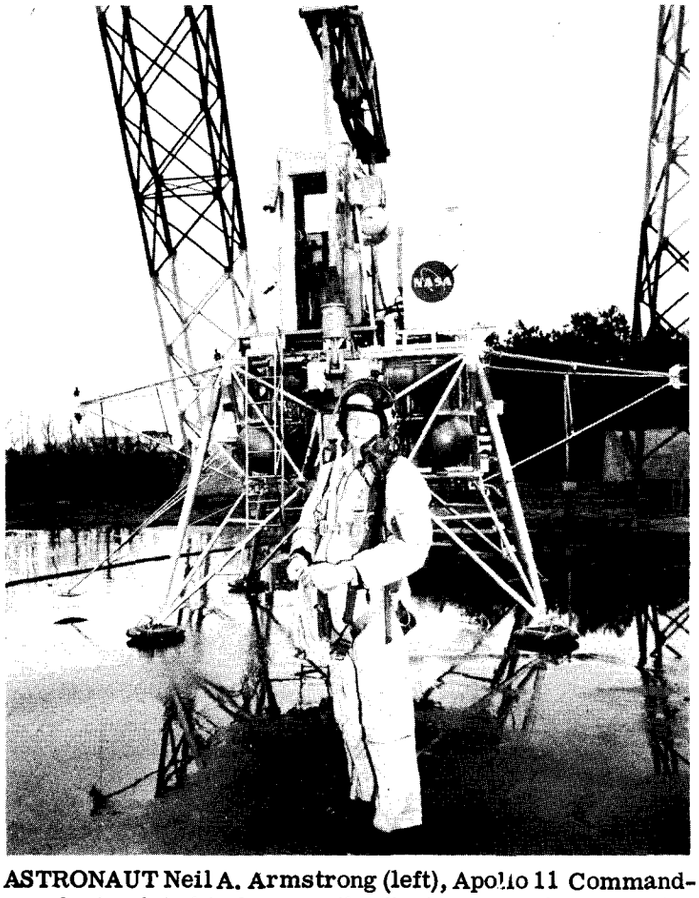
If the Apollo 11 mission is successful, man will accomplish his long-time dream of walking on another celestial body.

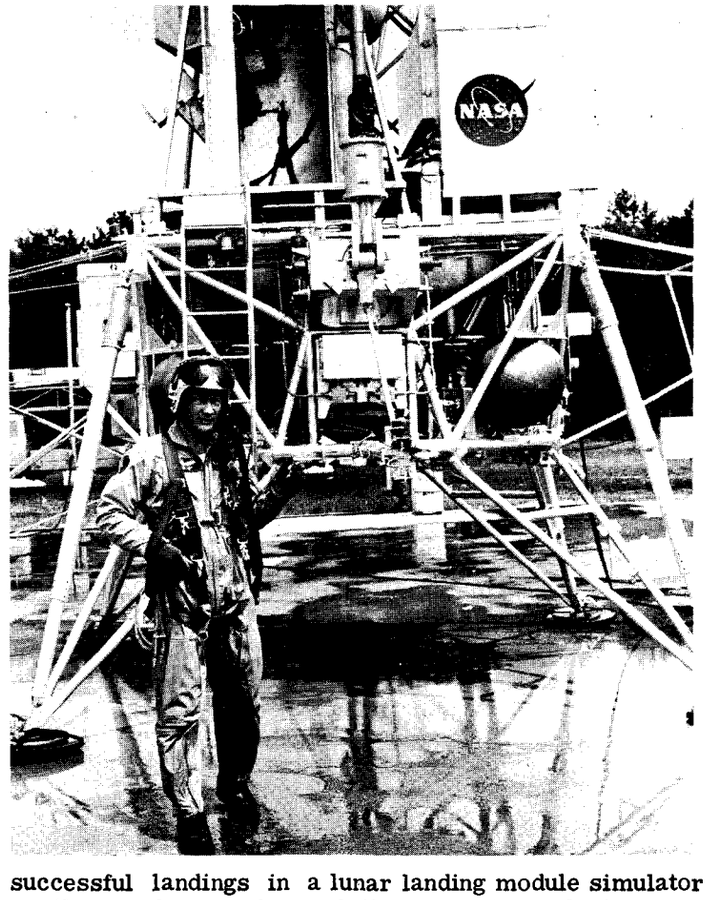
The first astronaut on the moon's surface will be 38-year-old Neil A. Armstrong of Wapakoneta, Ohio, and his initial act will be to unveil a plaque whose message symbolizes the nature of the journey.

Affixed to the leg of the lunar landing vehicle, the plaque is signed by President Nixon, Armstrong and his Apollo 11 companions, Michael Collins and Edwin E. Aldrin, Jr.

It bears a map of the Earth and this inscription: "HERE MEN FROM THE PLANET EARTH FIRST SET FOOT UPON

(Continued on page 3)





ASTRONAUT Neil A. Armstrong (left), Apollo 11 Commander who is slated to become the first man on the moon this month, and Astronaut Edwin E. Aldrin, Lunar Module Pilot, visited the Center recently and made a series of successful landings in a lunar landing module simulator on the mockup surface of the moon at Langley's Lunar Landing Research Facility. Apollo 11 is scheduled for launch from Cape Kennedy on Wednesday, July 16.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer... .....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

THE AMERICAN DREAM. . .The Young Americans Drum and Bugle Corps of Newport News will be host for The American Dream show which will be held at Todd Stadium at 8 p.m. on Saturday, July 26. The show will be a Drum and Bugle Corps Contest and six groups in the Eastern States Drum and Bugle Corps Association will compete. Each corps will exhibit a 12-minute spectacular of precision marching and musical excellence. Ten judges provided by the National Judges Association will grade each corps on its ability to show professional aptitude. While the judges total their scores the host corps will perform. Representing Center families in the Young Americans Drum and Bugle Corps are Tony, Martin, Mark, and Danny, children of James J. Adams, Aeronautical and Space Mechanics Division; Mark, son of Thomas E. Link, Research Models and Facilities Division; Jenny, daughter of Daniel S. Wentz II, Public Affairs Office; and Janet and J.C., children of Edwin E. O'Dell, Instrument Research Division. Rodney C. Wyatt, Research Support Division, is assistant business manager and drum instructor. Visiting groups will include the Sacred Heart Crusaders from Mannville, N.J.; VIP's from Washington, D.C.; FVW Lancers from Washington, D.C.: White Knights from Baltimore; Crusaders from Brookhaven, Pa.; Royaleers from Haddon field, N.J.; and Spartans from Nashera, N.H. Admission will be $1.50 for adults and 50 cents for children. For tickets call Rodney Wyatt, 3836.

FAMILY NIGHT. . .In view of the forthcoming manned landing on the moon (launch planned for next Wednesday) the Langley Skywatchers Club will have family night tonight. The feature will be a talk on "Destination Moon" by William H. Forrest, Viking Project Office, at 7:30 p.m. in the Activities Building. Prior to his present assignment, Forrest was a member of the Lunar Orbiter Project Office. During his talk he will show some of the reconnaissance pictures taken by Lunar Orbiter which were used to aid in the final selection of the Apollo landing site. Following the talk a color movie film of the recent Apollo 10 low-level reconnaissance mission around the moon will be shown. After the meeting, interested guests will have an opportunity to see the Langley Skywatchers' telescope located behind the Activities Building.

WANTED: Ride from Bldg. 1268 to Todds Lane and Farmington Blvd. at 4:30 p.m. Wyatt, 826-2074.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 14:

Monday - French onion soup, pot roast of beef, broiled smoked ham, fried fillet of flounder, Spanish omelette. Snack bar - Soup, fish sandwich, sliced barbecue, French fries.

Tuesday - Cream of celery soup, veal cutlet, Polish sausage, pepper steak, deviled crab, grilled cheese sandwich. Snack bar - Soup, grilled cheese sandwich, steak sandwich, baked beans, French fries.

Wednesday - Chicken-noodle soup, chicken and dumplings, baked ham, liver and onions, tamale pie. Snack bar - Soup, ham and egg sandwich, veal cutlet, German potato cakes.

Thursday - Vegetable-beef soup, roast beef, grilled pork steak, stuffed pepper, franks and beans. Snack bar - hot dogs, hot roast beef, French fries.

Friday - Manhattan clam chowder, chicken pie, Salisbury steak, broiled fish, baked hash. Snack bar - Soup, grilled pork loaf, flying saucer, French fries.

The menu for the week of July 21 is as follows:

Monday - Cream of tomato soup, Spanish pot roast, stuffed shrimp, sauteed chicken livers, western omelette. Snack bar - Soup, barbecued pork, hot roast beef, French fries.

Tuesday - Puree of bean soup, meat loaf, country style steak, chicken chow mein, fish cakes. Snack bar - Soup, sea dog, steak sandwich, French fries.

Wednesday - Chicken-rice soup, chopped steak, stuffed flounder, spaghetti and meat sauce, Spanish franks. Snack bar - Soup, hot dogs, Lou's satellite special, French fries.

Thursday - Vegetable-beef soup, grilled steak, roast fresh ham, fried chicken, Austrian ravioli. Snack bar - Soup, hamburger, cheeseburger, hot pastrami, French fries.

Friday - Consomme julienne, corned beef and cabbage, chuckwagon steak, fried flounder, baked hash. Snack bar - Soup, fish sandwich, corned beef, German potato cakes.

★★★★

WANTED: Alternate driver from Riverdale to W.A. on 7:30 shift. Everhart, 3984.

WANTED: Driving combination from Ocean View, Norfolk, to W.A. on 7:30 shift. Wilhite, 2146 or 588-4905.

WANTED: Driving combination from Whealton Rd. to W.A. on 8 shift. Drischler, 3691.

HISTORICAL MOON MISSION

(Continued from page 1)

THE MOON JULY 1969 A.D. WE CAME IN PEACE FOR ALL MANKIND''

The plaque is fastened to the descent stage of the lunar module and thus becomes a permanent artifact on the lunar surface.

Later Armstrong and Aldrin will emplant an American flag on the surface of the moon.

The Apollo 11 crew will also carry to the moon and return two large American flags, flags of the 50 states, District of Columbia and U.S. territories, flags of other nations and that of the United Nations Organization.

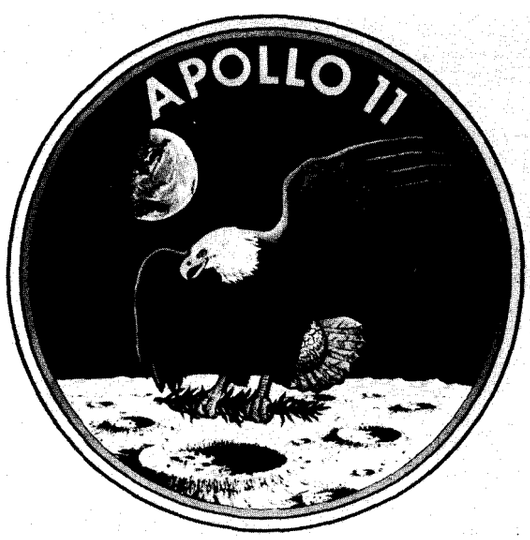
During their 22-hour stay on the lunar surface, Armstrong and Aldrin will spend up to 2 hours and 40 minutes outside the lunar module, also gathering samples of lunar surface material and deploying scientific experiments which will transmit back to Earth valuable data on the lunar environment.

Apollo 11 is scheduled for launch at 9:32 a.m. EDT July 16 from the Kennedy Space Center Launch Complex 39A. The mission will be the fifth manned Apollo flight and the third to the moon.

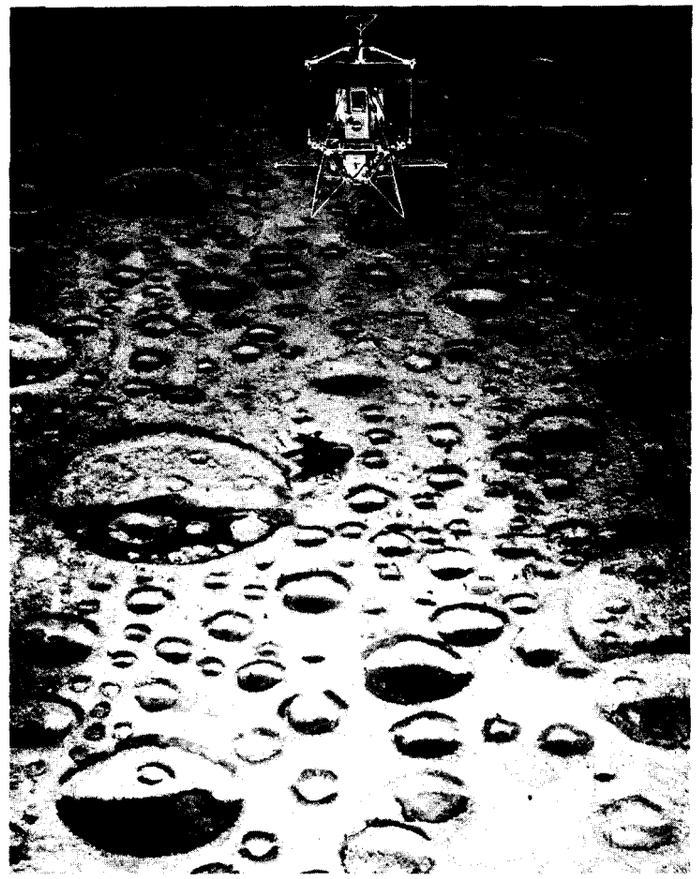
The prime mission objective of Apollo is stated simply: ''Perform a manned lunar landing and return.'' Successful fulfillment of this objective will meet a national goal of this decade, as set by President Kennedy May 25, 1961.

Each member of the Apollo 11 crew will be making his second space flight. Armstrong was Gemini 8 commander and backup Apollo 8 commander; Collins was Gemini 10 pilot and was command module pilot on the Apollo 8 crew until spinal surgery forced him to leave the crew for recuperation; and Aldrin was Gemini 12 pilot and Apollo 8 backup lunar module pilot.

Apollo 11 backup crewmen are Commander James A. Lovell, Command Module Pilot William A. Anders, both of whom were on the Apollo 8 first lunar orbit mission crew, and Lunar Module Pilot Fred W. Haise.



APOLLO 11 INSIGNIA: This is the insignia which the Apollo 11 astronauts will wear when they lift off of Pad 39A at Kennedy Space Center and embark on the first lunar landing mission. The spacecraft has been named Eagle and launch has been scheduled for July 16.



APOLLO 11 astronauts visited the Center recently and made a series of successful landings on the mockup surface of the moon at the Lunar Landing Research Facility. In this photo the Lunar Landing Module Simulator makes a nightime pass on the mockup surface of the moon.

DID YOU KNOW....

Surveys show that workers who skip breakfast are more likely to have accidents?

Accidents are the fourth leading cause of death? Heart disease is the leading killer, followed by cancer and vascular lesions.

Statistics show that, while small cars apparently are not involved in accidents any oftener than larger cars, the traffic fatality rate for small car occupants is about twice the rate for large car occupants?

Many hair sprays are highly flammable while being sprayed? A cigarette, match, or even a hot light bulb could turn a hair spray can into a blow torch.

Only about one-third of drowning victims are in the water when they get into trouble? Most of them fall in, or are pushed.

Seat belts not only guard against injury, but also help stave off the strain and fatigue often caused by poor posture behind the wheel?

★★★★

FOUND: Wrist watch near Activities Building. Holt, 3445.

FOR RENT: 3-bedroom, 2-bath house located in Beechwood, no pets, lease required, available Sept. 1 - $185 per month. Maddrea, 877-4231.

FOR SALE: Hotpoint electric range - $60. Forrest, 826-1483.

FIFTEEN QUESTIONS PROPOSED FOR EXPLORATION OF MOON

For ages man has aspired to reach the moon, but until three summers ago few gave much attention to what man would do once he got there.

In recent years the United States has concentrated its effort on developing the capability to get to the moon and return, and this has been the primary mission in the NASA Apollo program.

But a collection of distinguished scientists from the National Academy of Sciences met in Woods Hole. Mass., in the summer of 1965 and determined that once there the astronauts will gather as much scientific information as humanly possible within the limitation of time and mobility.

This group proposed 15 major questions as the guidelines for lunar exploration, and some of these are expected to be answered on man's first walk on the lunar surface:

. . .What is the moon's internal structure?

. . .What is its shape?

. . .What is the internal energy regime of the moon?

. . .What is the composition of the lunar surface?

. . .What principal processes are responsible for the present structure of the lunar surface?

. . .What is the present pattern of distribution of tectonic activity on the moon?

. . .What are the dominant forces of erosion, transport and deposition of material on the lunar surface?

. . .What volatile substances are present on or near the lunar surface?

. . .Are there organic or proto-organic molecules on the moon?

. . .What is the age of the moon and age range of the stratigraphic units on the lunar surface?

. . .What is the history of dynamical interaction between the Earth and the moon?

. . .What is the thermal, the tectonic, and possible volcanic history of the moon?

. . .What has been the rate of solid objects striking the moon and how has that flux varied with time?

. . .What is the history of cosmic and solar radiation flux acting on the moon?

. . .What magnetic fields are retained in rocks on the lunar surface?

Of course, all this is going to take more than one trip to the moon and back, but when man finds the answers to all these questions, he'll probably turn his attention to Mars.

FOR SALE: Homeko self-propelled mower. Ackerly, 595-1414.

WANTED: Home for kittens. Jurscaga, 596-6251.

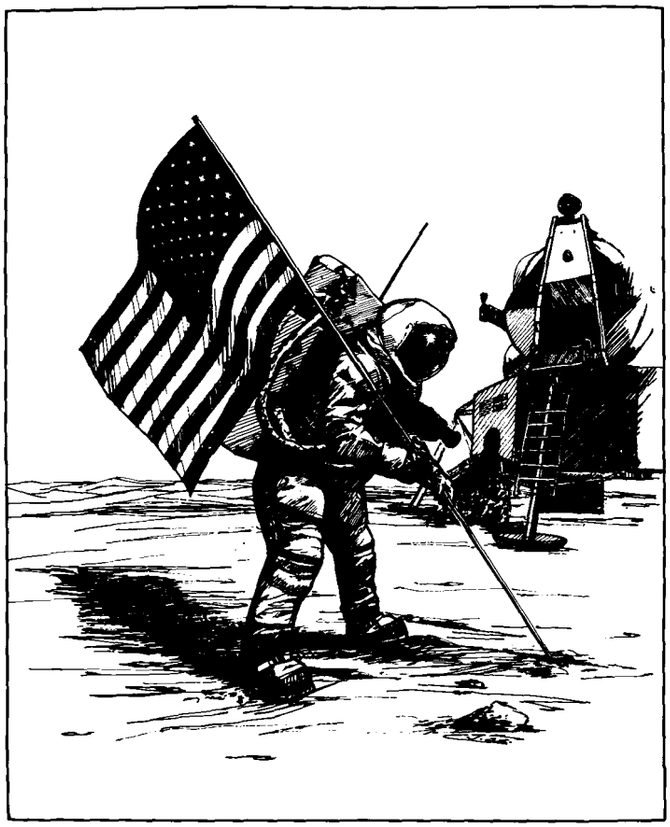
FOR SALE: 6.85 x 15 white wall Good Year tire for Rambler or some foreign cars. Nolan, 877-1851.

FOR SALE: Pony - $35. Price, 826-1447.

FOR SALE: 3-bedroom brick rancher with attached garage in Hampton Terrace - assume 5-1/4% VA loan. Peterson, 838-1485.

FOR SALE: 4-bedroom, air-conditioned brick rancher with garage, carport, 2 full baths and many extras - $2100 below FHA appraised value. Hanson, 851-1669.

FOR SALE: Large corner wooded lot in James Landing, Newport News. Berryman, 596-3988.



U.S. FLAG ON MOON: This is an artist's concept of Neil Armstrong planting the United States flag on the lunar surface. The flag will be made of nylon, size 3 by 5 feet on a staff eight feet long. During flight it will be stowed in two four-foot sections strapped to the Lunar Module ladder. Armstrong's first assignment after stepping off the ladder is to pull a "D" ring to start a television camera. The second assignment is to erect the U.S. flag. The flag will appear to be flying in a breeze. This is done with a spring-loaded wire in the nylon cloth. Everything working normally, this will be observed on live television.

MCDIVITT IN NEW POSITION

Astronaut James A. McDivitt has been named Manager for Lunar Landing Operations in the Apollo Spacecraft Program Office.

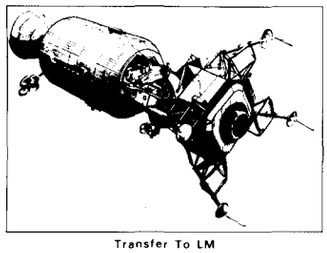
McDivitt, 40, will be responsible for planning lunar landing missions subsequent to the first landing. Emphasis will be on landing site selection, mission planning and requirements for spacecraft modifications to achieve mission objectives.

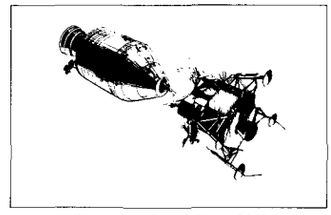
He will report to George M. Low, Apollo Spacecraft Program Manager.

McDivitt, a colonel, will remain in the Air Force; however, the new position removes him from consideration for space flight crew assignments.

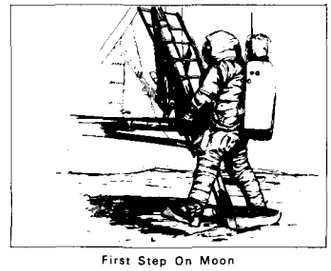
A member of the second group of astronauts selected in September, 1962, McDivitt commanded the four-day Gemini 4 mission in June, 1965, and the 10-day Apollo 9 flight in March, 1969. Apollo 9 was the first manned flight of the Lunar Module and included the first rendezvous of a Lunar Module with a Command and Service Module.

FOR SALE: Simmons Hide-a-bed. Richardson, 723-5509.


Transfer To LM


Separation Of LM From CSM

Landing On Moon


First Step On Moon

DESCENT TO LUNAR SURFACE: The Commander and Lunar Module pilot transfer to the LM, separate from the Command and Service Module and fire the LM descent engine to land on the Moon. After checking out the spacecraft and eating and resting, the Commander climbs down the ladder and places his left foot on the Moon while his right foot is inside the Lunar Module landing pad.

APOLLO II TELEVISION SCHEDULE

Two hours and 40 minutes of live television from the surface of the Moon will be transmitted to Earth by Apollo 11 in an early, early show beginning at 2:12 a.m., EDT, July 21.

Black-and-white pictures will show astronaut Neil A. Armstrong stepping onto the Moon from the ladder of the Lunar Module and erecting a U.S. flag and Armstrong and Edwin E. Aldrin Jr., gathering lunar rocks and soil samples and setting out scientific experiments.

The lunar surface transmission is one of eight tentatively planned for the Apollo 11 flight, scheduled for launch from Kennedy Space Center on July 16. All the others are in color from the Command Module.

Television signals from the Moon will be transmitted direct from the LM, or from an umbrella-like high-gain antenna set up on the lunar surface, to a 210-foot diameter radio telescope at the National Radio Astronomy Observatory, Parkes, Australia.

From Parkes the signals, converted to a standard U.S. television picture, will be transmitted to Sydney, Australia, by microwave and then via the Intelsat III Pacific satellite to NASA's Mission Control Center at Houston for release to the U.S. and overseas television networks.

The tentative schedule of TV transmissions is as follows:

July 17 - 7:32 - 7:47 p.m. - Translunar coast, about 150,000 miles from Earth

July 18 - 7:32 - 7:47 p.m. - Translunar coast, nearing Moon

July 19 - 4:02 - 4:17 p.m. - Surface views of Moon from lunar orbit

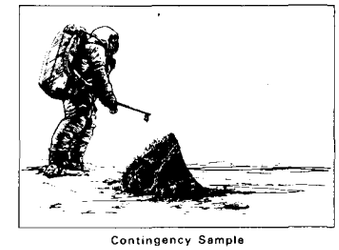
July 20 - 1:52 - 2:22 p.m. - CSM and LM flying formation after separation

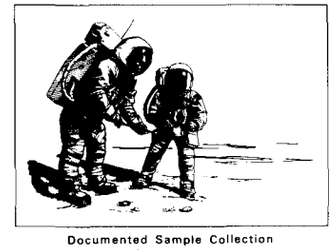
July 21 - 1:57 - 2:07 a.m. - Landing site tracking
2:12 - 4:52 a.m. - Lunar surface

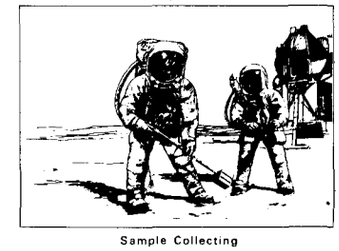
July 22 - 9:02 - 9:17 p.m. - Transearth coast

July 23 - 7:02 - 7:17 p.m. - Transearth coast

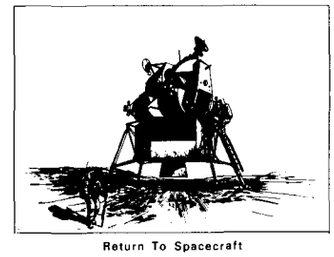
Commander On Moon

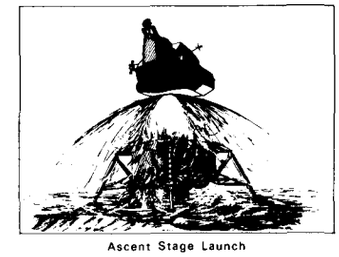

Contingency Sample

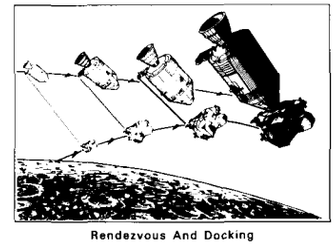

Documented Sample Collection

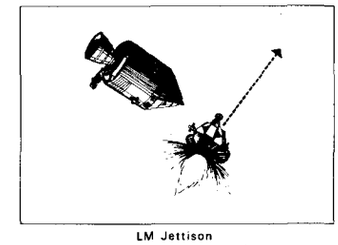

Sample Collecting

LUNAR SURFACE ACTIVITIES: The Commander photographs the surface and collects a contingency sample which is sealed in a bag and stowed in his pocket. Later up to 70 pounds of samples are collected and packed in two containers.


Return To Spacecraft


Ascent Stage Launch


Rendezvous And Docking


LM Jettison

LUNAR ASCENT AND RENDEZVOUS: After the astronauts return to the spacecraft and rest for several hours they fire the ascent engine to leave the Moon and rejoin the Command Module. The descent stage remains on the Moon and the ascent stage is ejected after docking and transfer back to the Command Module.

FOR SALE: 1963 T-Bird Landau - $895. Kyle, 595-3923.

FOR SALE: Formica dinette table and chairs. Peterson, 838-1485.

WANTED: Home for kittens. Eggers, 595-1586.

FOR SALE: 1960 Lincoln Premier 4-door hardtop - all power accessories - $550. Thornton, 596-4117.

FOR SALE: Coffee table, table lamp, desk, refrigerator. Saunders, 595-6431.

FOR SALE: Kiln for ceramics, 115 volts, 2000 degree F oven - $25. Stephens, 838-3633.

FOR SALE: Magnavox home entertainment unit with AM-FM Radio, 4-speed record player, 23-inch black and white TV screen - walnut cabinet - $150. Harrison, 723-8629.

FOR SALE: 1968 Sazuki X-6 Scrambler - $500 or best offer. Spangler, 826-4635.

COUNTDOWN

BASEBALL - The Activities Association is sponsoring three more NASA Nights at the Peninsula Stadium. The first one will be July 19 when Raleigh-Durham meets the Astros. Game time is 7:45 p.m. and all NASA staff members, their families, and friends will be admitted for 75 cents each. Children under 12 will be admitted free. Tickets may be obtained from district representatives. The two remaining nights will be July 25 when Salem visits the Astros and August 16 when the local team meets Lynchburg. Both games are single games but watch the bulletin boards for additional information concerning special events preceding the games.

BOOKS OF TICKETS - The Association has books of ten tickets each for the Astros home games for five dollars per book. The tickets may be used for any of the remaining home games and any number of tickets may be used from the same book for a game.

FAMILY NIGHT - Family movie night will be held July 17 at 7:30 p.m. in the Activities Building. Featured will be the color film of the Apollo 10 Mission. A second film in black and white will be shown on "Archery Fundamentals." David Smith will discuss this film and answer questions as well as discuss the possibility of organizing a NASA Bowman's Club.

SKEET SHOOTING - All staff members interested in Skeet Shooting, beginners or otherwise, are requested to contact Joe Siefring, 3483, M.S. 238. A clinic will be started for adults on July 12. Classes will be divided up into groups of 12 students each. Children under 12 will be taught separately. The first class will start at 12 noon. Plans are being made to hold competitive shooting between the Air Force and NASA personnel. Persons not interested in attending the clinic but who would like to shoot during evening sessions are also requested to call Siefring. Costs will be held to $2.25 per round of skeet; this includes ammo and birds. Guns are not normally supplied, so bring your own firearm if you have one.

STUDENT LOANS UNDER CONSIDERATION

The Langley Federal Credit Union is considering making available to its membership student loans under the Federal Higher Education Act and the National Vocational Student Loan Act.

To assist in arriving at a sound decision and in formulating policy in the event the program is instituted, information is required of interested members.

Questionnaires are available in the Credit Union Office for members whose children may desire student loans. It is necessary that the completed questionnaires be returned to the Credit Union by August 8.

CREDIT UNION CAR AUCTION: At 1 p.m. on Wednesday, July 16, a 4-door 1965 Ford Galaxie 500 will be sold to the highest bidder. Sale will be held on the Credit Union parking lot. Car may be inspected there anytime between 8:30 a.m. and 3:30 p.m.

WANTED: Driving combination from Beechwood, Denbigh, to E.A. on 8 shift. Moore, 2235.

WANTED: Church organist. Interested persons contact First Presbyterian Church, Hampton, 722-0006.

TINGLE CITED FOR SERVICE IN LANGLEY BLOOD PROGRAM

The Hampton Roads Chapter of the American Red Cross has presented to James C. Tingle, Head of the Employee Services Branch of the Personnel Division, a certificate "in grateful appreciation" of his service in the blood donor program at the Langley Research Center.

The certificate, which cites Tingle for his dedicated service rendered to the cause of the Red Cross blood program since its inception in 1949, states:

"Almost single-handedly, he developed an outstanding, successful blood donor program at NASA to the point where the Bloodmobile has become a five times a year event.

"His perseverance and devotion have been responsible for the collection of 14,167 life saving units of blood.

"His unrelenting determination to assure the success of this vital program demonstrates his desire to serve humanity."

Tingle, in accepting the award, had high praise for all concerned with the Langley program.

He commented that Center management has always encouraged and supported the operation of the blood program, many devoted individuals have contributed to the effectiveness of the operation of the program, and-- most of all-- the continued cooperation of the blood donors, themselves, has assured the success of this community endeavor.

FOR SALE: Homart 20-inch exhaust-type window fan with timer, 1/6 hp, 2 speeds, 110 volts - fits windows from 27 to 36 inches wide - $25. Constance, 826-1962.

FOR SALE: 1968 Triumph TR-250. Feather, 245-1716.

FOR SALE: One 6.85 x 15 w/w tire. Nolan, 877-1851.

NASA SELECTS BECKMAN AS VIKING QUARANTINE PROGRAM CONTRACTOR

NASA has selected Beckman Instruments Incorporated, Fullerton, California, for award of a Viking Planetary Quarantine Program contract. The cost plus fixed fee contract to be negotiated is estimated at approximately $1 million. Three other firms submitted proposals.

The work envisioned under this contract will provide the services, testing requirements, exploratory analysis, reports, and a microbiological laboratory necessary to the research and development work associated with the Viking Planetary Quarantine Program. The contractor will provide all services required in the operation of the mobile microbiological assay laboratory. In accomplishing this, careful consideration must be given to the national policy on planetary quarantine. This policy has been established to prevent the deposit of microbes on a planet thus precluding any future chance of determining if life forms have originated there.

Project management for Viking is assigned to Langley Research Center under the overall direction of the Office of Space Science and Applications in NASA Headquarters.

Viking's principal goal is to send two instrumented spacecraft-- each consisting of a lander and an orbiter-- to the planet Mars during the launch opportunity which occurs during the summer of 1973. On arrival at Mars early in 1974, the lander portion of each of the two Viking spacecraft will descend to the surface. Detection of life on the planet is a particularly important objective of the lander. The orbiter portion of the Viking spacecraft will circle Mars during the mission to provide reconnaissance, communications support for the lander, and to gather scientific information from orbit.

VARC ENGINEERING PROGRAM

Beginning in September the Old Dominion University will offer a graduate program in engineering at the VARC site, as well as on the Norfolk campus.

Full plans for this program will be discussed at a meeting in the Activities Building on July 18 at 10 a.m. All Langley personnel interested in this program are invited to attend. Opportunities will be given to ask individual questions as well as those of a more general nature.

Dr. Ralph M. Rotty, Dean of Engineering at Old Dominion University, will be present to lead the discussion and he will be assisted by selected members of the faculty responsible for the specific graduate engineering programs.

Currently, Old Dominion University is authorized by the State Council to grant degrees through the master's level, but it is planned and expected that this program at VARC will soon be operating to include Ph.D. level work.

The School of Engineering currently offers the Master of Engineering degree in Civil, Electrical and Thermal Engineering. Courses are offered and full programs are being developed in Engineering Mechanics and in Administrative Engineering, and it is anticipated that these programs will be approved at an early date.

FOR SALE: Century two-cushion love seat in gold, beige, and rust; also mahogany coffee table with gold inlaid leather and magazine shelf. Hansbrough, 851-5369 after 5 p.m.

FOR SALE: 1963 Ford Country station wagon, V-8. Ruhlin, 826-1574.

ORIENTATION PROGRAM: Participating in the Center's orientation program last week for summer personnel are (from left): Henry A. Fedziuk, Chief of Technical Information and Utilization Division; T. Melvin Butler, Assistant Director for Administration; Irving L. Fuller, Executive Director of the Peninsula Chamber of Commerce; Dr. John E. Duberg, Associate Director; and S. Walter Hixon Jr., head of Training and Educational Services Branch.

ORIENTATION PROGRAM HELD FOR 120 SUMMER EMPLOYEES

Approximately 120 summer employees attended an orientation program at the Center last week. The group was welcomed by Dr. John E. Duberg.

Now in its twelfth year, the purpose of the orientation program is to acquaint the men and women with a broad scope of what takes place in each of the division of the Langley Research Center, Dr. Duberg said.

The group included 39 American Society for Engineering Education professors from colleges and universities east of the Mississippi River; 19 summer faculty fellowships in the NASA Space Design Program who, on the doctorate level, are studying the satellite system in relationship to earth resources; 19 doctoral students from the University of West Virginia who are participating in a design study of long distance transportation systems for the 1980's; nine vocational and industrial arts instructors involved in a work study program at Old Dominion University; 25 new employees; and eight co-op employees.

Also speaking to the group were Irving L. Fuller, Executive Director of the Peninsula Chamber of Commerce; Henry A. Fedziuk, Chief of Technical Information and Utilization Division; and S. Walter Hixon Jr., head of Training and Educational Services Branch, Personnel Division.

WANTED: Ride from Lakeshore Apartments to W.A. on 7:30 shift. Cassels, 827-3636.

FOR SALE: 12-foot Dory with 5-1/2 hp engine with gear shift and remote fuel tank - $150. Albert, 898-5965.

FOR SALE: 1959 Ford Fairlane, 8 cylinders, good condition - $100. Gaetano, 244-5946.

FOR SALE: 7-1/2 hp Elgin outboard motor - $65. Harris, 826-2081.

FOR SALE: 1957 Chevrolet, 4-door. Diggs, 868-6315.

FOR SALE: Kenmore gas range with grill and glass oven door - $75. Fedors, 642-2018.

SPANISH TRACKING STATION

The government of Spain and the United States exchanged notes last month in Madrid confirming a ten year extension of the agreement under which the United States' NASA's space tracking and acquisition complex near Madrid was established. The notes were signed by Spanish Foreign Minister Fernando Maria Castiella and U.S. Ambassador Robert C. Hill.

The Madrid tracking station agreement, originally signed January 29, 1964, for a term of ten years, is extended to January 29, 1984.

Three major facilities are in use at the complex. A fourth, a 210-foot diameter parabolic antenna for tracking and communication in interplanetary space, is to be built during the next three years. The other facilities at the station, three 85-foot antennas and associated equipment, are important units of NASA's Manned Space Flight and Deep Space Networks.

The cooperating agencies representing the two governments are the Instituto Nacional de Technica Aerospacial (INTA) on behalf of the National Committee on Space Research of Spain, and NASA. NASA and INTA also cooperate in the operation of a smaller tracking station for manned space flight located in the Canary Islands.

Madrid is one of four major stations, three of which are located about equidistant around the Earth so that space vehicles in flight may be in view of at least one station while the Earth turns on its axis.

Since the Madrid station was built on a remote site some 40 miles west of the Spanish capital city, it has supported all of NASA's manned space flights as well as unmanned missions to the moon, the planets and other parts of the solar system. Spanish personnel are trained in maintenance and operation of the highly complex communications equipment, and have assumed operational responsibility for one of the deep space facilities. The station employs about 120 Spanish citizens.

The projects with which the Madrid Station is concerned involve the most advanced electronic equipment and devices for transmitting, receiving, recording, data handling and communications with spacecraft on flights beyond 10,000 miles from the Earth.

Cost of operation is about $5 million a year. NASA has spent about $32 million on construction at the Madrid station.

The agreement provides that the Spanish government may use the station for independent scientific activities.

Since the first Madrid facility went into operation in June 1965, the station has supported all of the Surveyor and Lunar Orbiter flights to the moon, four Mariner flights to Mars and Venus, four Pioneer interplanetary probes and all of the manned Apollo flights. Madrid was the scene of the initial release of pictures of the moon's surface received from Lunar Orbiters 3, 4, and 5.

The Madrid Station is now preparing for two major events in space this summer. The Apollo 11 lunar landing will be followed by the passage of Mariners 6 and 7 near the planet Mars. Television and still photography will be provided for both events by the Madrid station as well as by others in the United States and Australia.

FOR SALE: 10-room, 2-bath duplex with 2 sheds and garage on 90 x 105-foot lot in Hampton. Lowe, 722-0179.

M. LEROY Spearman (right), Head of Large Supersonic Tunnels Branch, Full-Scale Research Division, receives congratulations from Edgar M. Cortright, Director, on receiving a Special Service Award for Exceptional Scientific Achievement. Spearman was cited "for distinguished service to the Nation's aerospace program in conceiving and conducting scientific research programs in the fields of supersonic aerodynamics and fluid flow phenomena as they relate to aircraft, missiles, and spacecraft, and for development of new and unique research methods which have resulted in outstanding contributions to the design and analysis of advanced aircraft and missiles."

VEATCH DIES AT AGE 42

William F. Veatch, Engineering Technician in the Applied Rocket Research Section, Applied Materials and Physics Division, died last Friday in a local hospital.

Veatch was born November 12, 1926 at Fort Eustis. He attended local schools and joined the Center staff in August 1943. He served in the U.S. Navy from November 1944 to April 1946 and returned to the Center following his discharge.

Survivors include his widow, Mrs. Elinor D. Veatch; three daughters, Sandra Veatch and Dana Louise Veatch of Newport News and Belinda Veatch of Kennebunk, Maine; a stepson, Dwyer McClung of Newport News; and his mother, Mrs. Mary O. Veatch of Portsmouth.

FOR SALE: 8-sided poker table, wooden with felt pocket and folding legs - $50. Moore, 838-2940.

FOR SALE: 5,000 btu air conditioner. Hennessy, 596-7535.

FOR SALE: Complete setup for 5 and 10-gallon aquariums, includes fish and plants. Bradshaw, 838-1917.

FOR RENT: 3-bedroom rancher, available Sept. 1969 to Sept. 1970 - $200 per month. Kyle, 595-3823.

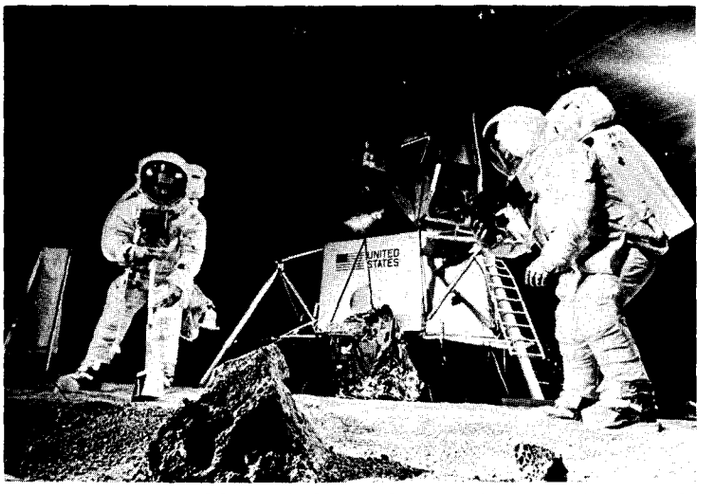
TV PROGRAM PLANNED SUNDAY

Frank Donaldson, WVEC-TV, will present a special 30-minute program on Langley's contributions to the manned lunar missions at 1 p.m., Sunday, on Channel 13.

Appearing on the program will be Donald E. Hewes, head of Spacecraft Research Branch, Aeronautical and Space Mechanics Division, and A. Thomas Young, formerly of Lunar Orbiter Project Office now assigned to the Viking Project.

Langley Researcher

VOLUME 9, NUMBER 15 LANGLEY RESEARCH CENTER JULY 25, 1969



ASTRONAUTS Aldrin (left) and Armstrong gather rock samples in simulation of moon activities during training.

CARNIVAL TICKETS AVAILABLE; PRIZE DRAWINGS ANNOUNCED

Tickets are available from District Representatives for the Carnival which will be held Friday and Saturday, August 22 and 23 on the grounds of the Activities Building. The tickets are one dollar each. By purchasing a ticket, the buyer will be eligible for the ground prizes.

Ground prizes will be given away every 20 minutes. The big prize on Friday night will be a Home Entertainment system which includes an AM/FM stereo receiver with a reverse track stereo tape recorder. The grand prize which will be given away on Saturday night will be an all-expense paid vacation abroad for two. Winners of the prizes must be present for all drawings except the two grand prizes.

Drawing times and the prizes to be given away are as follows:

Friday: 5 p.m. - $100 Savings Bond, 5:20 - Proctor 4-slice toaster, 5:40 - his or her Timex watch, 6 - portable television set, 6:20 - Coleman camp stove, 6:40 - portable tape recorder, 7 - outdoor cooking center, 7:20 - 45-piece Melmac dinnerware set, 7:40 - G. E. decorative wall clock, 8 - 3-piece luggage set, 8:20 - Proctor steam and spray iron, 8:40 - Oster hair dryer, 9 - Super 8 mm Kodak camera, projector, and screen, 9:20 - 30-cup percolator, 9:40 - Motorola portable AM/FM radio, 10 - Home entertainment system.

Saturday: 2 p.m. - $100 Savings Bond, 2:20 - Dremel electric shoe polisher, 2:40 - rod and reel, 3 - outdoor cooking center, 3:20 - his and hers watches, 3:40 - 41-piece barware set, 4 - portable television, 4:20 - Toastmaster oven-broiler, 4:40 - G. E. can opener and knife sharpener, 5 - automatic Polaroid color camera, 5:20 -

(Continued on page 8)

APOLLO 11 SUCCESSFUL; MAN WALKS ON MOON

Apollo 11 was due to splashdown in the Pacific Ocean at 12:51 p.m. yesterday after successfully completing man's greatest mission of putting two Americans on the moon and returning them safely to Earth.

Astronauts Neil A. Armstrong, Edwin E. Aldrin Jr., and Michael Collins aboard Apollo 11 left the launch pad at Cape Kennedy at 9:32 a.m. Wednesday, July 16 on their eight-day trip to the moon and back.

With Armstrong and Aldrin, the Lunar Module, designated Eagle, landed on the moon at 4:18 p.m. Sunday. The mother ship which brought them, designated Columbia and commanded by Collins, continued to orbit the moon awaiting their reunion 22 hours later.

"Houston," Armstrong called out in the first human communication from the moon, "Tranquillity Base here. The Eagle has landed."

As Armstrong planted his left boot on the powdery surface of the moon at 10:56 p.m. Sunday, he spoke words that will be remembered for all time: "That's one small step for man, a giant leap for mankind."

As Aldrin stepped on the surface 20 minutes later he ex-

(Continued on page 7)

MOONMEN: Astronauts Edwin E. Aldrin Jr. (left), Michael Collins (center), and Neil A. Armstrong, were due to splashdown yesterday after an 8-day trip to the moon and back.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer... .....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

ADDRESS CHANGE. . .Post Office officials have advised Center officials that the words Langley Station may be dropped from the Center's address. The correct address is: NASA, Langley Research Center, Hampton, Virginia 23365.

NEW HEIR. . .Word has been received at the Center that Gayle West, Administrative Services Division, became the mother of an eight pound, twelve ounce son, William Jerry Jr., on July 8.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, July 30 at 7:30 p.m. at the Central Labor Union Hall.

THE AMERICAN DREAM. . .Staff members are reminded that the Young Americans Drum and Bugle Corps of Newport News, which includes children of several employees, will be host for The American Dream show which will be held at Todd Stadium at 8 p.m. on Saturday, July 26. The show will be a Drum and Bugle Corps Contest and six groups in the Eastern State Drum and Bugle Corps Association will compete. Each corps will exhibit a 12-minute spectacular of precision marching and musical excellence. Ten judges will grade each corps on its ability to show professional aptitude. While the judges total their scores the host corps will perform. Admission will be $1.50 for adults and children under 12 years of age will be admitted free.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on August 5 at 7 p.m. at the Central Labor Union Hall.

DUCKPIN LEAGUE. . .An organizational meeting of the NASA Duckpin Bowling League will be held Thursday, July 31 at 4:30 p.m. in the Activities Building. All teams planning to enter the league are requested to have a representative present. Persons unable to attend but interested in joining the league should call Al Shearin, 2383.

PROFESSOR AT CENTER. . .Dr. James H. Steele Jr., Assistant Professor of Metallurgical Engineering at Virginia Polytechnic Institute, who is at the Center for the ASEE-NASA Summer Institute, would be happy to discuss current research and graduate programs in the Metallurgical and Ceramic Engineering Department and the Interdisciplinary Program in Materials Engineering Science at VPI. Persons interested are requested to call Dr. Steele, 2684, before August 15.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 28:

Monday - Cream of celery soup, stuffed shrimp, sauteed chicken livers, Spanish pot roast, western omelette. Snack bar - Soup, barbecued pork, steak sandwich, French fries.

Tuesday - Tomato-rice soup, hot turkey sandwich, beef stew, liver and onions, chili con carne. Snack bar - Soup, sliced turkey, lettuce and tomato, German potato cakes.

Wednesday - Chicken-noodle soup, fried shrimp, chicken cacciatore with spaghetti, stuffed pepper, franks and beans, Snack bar - Soup, ham and egg sandwich, flying saucer, baked beans, French fries.

Thursday - Vegetable-beef soup, roast beef, grilled pork steak, chicken chop suey, fish cakes. Snack bar - Soup, hamburger, hot roast beef, French fries.

Friday - Chicken-vegetable soup, boiled ham, beef pie, fried fish, deviled crab, Spanish omelette. Snack bar - Soup, fish sandwich, hot pastrami, French fries.

The menu for the week of August 4 is as follows:

Monday - Cream of tomato soup, Swiss steak, broiled smoked ham, Polish sausage, grilled cheese sandwich. Snack bar - Soup, grilled cheese, hot corned beef, baked beans, French fries.

Tuesday - French onion soup, shrimp Newburg, veal cutlet, baked lasagna, tamale pie. Snack bar - Soup, barbecued pork, veal cutlet, French fries.

Wednesday - Puree of bean soup, chopped steak, stuffed flounder, spaghetti and meat sauce, Spanish franks. Snack bar - Soup, hot dogs, Lou's satellite special, German potato cakes.

Thursday - Vegetable-beef soup, grilled steak, barbecued pork chunks, fried chicken, baked hash. Snack bar - Soup, barbecued pork, steak sandwich, French fries.

Friday - Clam chowder, roast beef, sauteed chicken livers, fried fish, chili con carne. Snack bar - Soup, hamburger, hot roast beef, French fries.

FOR SALE: 1958 Porsche Cabriolet. Owens, 838-0320.
FOR SALE: 1961 Ford Falcon, 2-door - $125. Breckinridge, 595-0816.

FAMILY NIGHT SPACEMOBILE PROGRAM SCHEDULED AUG. 6

A special Spacemobile Science Demonstration will be held for all staff members and their families on Wednesday, August 6 at 7:30 p.m. in the Activities Building (Bldg. No. 1222). The program is being sponsored jointly by the Langley Research Center and the Activities Association and will be about one hour in length.

S. Walter Hixon Jr., the Center's Training and Educational Services Officer, Personnel Division, stated that the special family night program is being offered as a result of the numerous inquiries his office has received concerning the availability of the program in the local area.

While it has been offered in many of the local schools, Hixon said, "We are pleased to go along with the requests from the staff and encourage their continued interest in the work of NASA by sponsoring this special program, and we are pleased that the Activities Association is making the facility available for this demonstration and joining the Center as a co-sponsor." Hixon added that he hopes the hall will be filled to capacity because the program is one which will be of interest to adults and children. "Even though some persons might have seen the program several times, there are always new areas of interest as the program is being continually updated to reflect NASA's Programs," Hixon stated.

Doors of the Activities Building will be opened at 7 p.m. Sufficient parking is available adjacent to the building. Tickets are not required.

MARINERS AIMING FOR MARS

The United States Mariner 6 and 7 spacecraft are nearing their destination, the planet Mars.

The two unmanned planetary vehicles are designed to conduct a comprehensive scientific investigation of Mars. Experiments include television pictures of nearly the entire planet during the approach, as well as high resolution pictures of selected surface areas.

Pressure and chemical composition of the atmosphere will be measured and surface and atmospheric temperature readings will be taken.

Mariner 6 was launched by NASA on February 24, 1969, and will complete its 156 day Earth-to-Mars journey at 1:18 a.m. EDT July 31, when it reaches a point in space only 2,000 miles from the planet.

Mariner 7, launched March 27, 1969, will fly by Mars at an altitude of 2,000 miles at 1:05 a.m. EDT on August 5.

Command center for the Mariner mission is in the Space Flight Operations Facility (SFOF) at NASA's Jet Propulsion Laboratory. JPL manages the Mariner 1969 project for NASA.

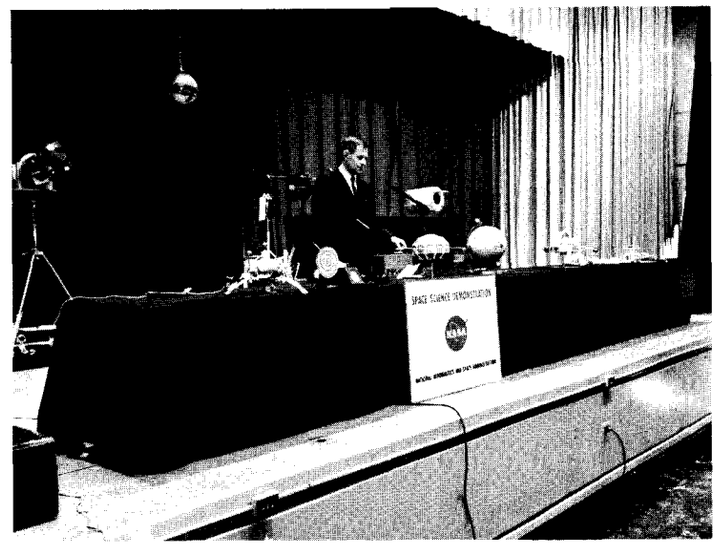
The two spacecraft are being tracked and their performance monitored by stations of the NASA Deep Space Network (DSN) in California, Spain, Australia and South Africa.

FOR SALE: 7-foot Sport-Yak with sail - $90. McNulty, 898-5877.

FOR SALE: 4 shotguns. Christenbury, 851-6774 after 5.

FOR RENT: 3-bedroom rancher, available Sept. 1969 to Sept. 1970 - $200 per month. Kyle, 595-3923.

WANTED: Driving combination from Birchwood area, Williamsburg, to W.A. on 8 shift. Manning, 3313.



A free Spacemobile Science Demonstration will be held for all staff members and their families on Wednesday, August 6 at 7:30 p.m. in the Activities Building. The program is sponsored jointly by the Langley Research Center and the Activities Association.

CONSTRUCTION SITE VISITS

It has been observed that NASA personnel with no apparent business to transact, are visiting Langley Research Center construction sites. The frequency and numbers of such visits increase as construction nears completion.

Complaints have been received from contractors alleging interference and increased costs due to such visits. Aside from the obvious distractions caused by visitors, there are definite safety hazards created by the presence of unauthorized personnel in unexpected places. Recently, such a visitor narrowly escaped severe injury when a load of steel slipped free from a hoisting sling.

All personnel are reminded that facilities under construction are the property of the contractor until the contract is accepted by the Government. Only NASA personnel with assigned contract responsibilities are authorized to visit construction sites; all others are trespassers who may be asked to explain their presence.

Those individuals not assigned contract responsibilities, but having a legitimate reason to visit a construction site, should first contact the NASA inspector at the site prior to proceeding into work areas to prevent causing interference and to avoid personal risk.

AIAA NAMES ASSOCIATE FELLOWS

Fifty-eight engineers and scientists have been elevated to the rank of Associate Fellow of the American Institute of Aeronautics and Astronautics. Among them is H. Wayne Leonard, Structural Vibration Section, Dynamic Loads Division.

Associate Fellows are persons who have accomplished or have been in charge of important engineering or scientific work, or who have done original work of outstanding merit, or who have otherwise made outstanding contributions to the arts, sciences or technology of aeronautics or astronautics.

The AIAA is a technical society whose 32,000 professional members work on the nation's space, aviation, marine and defense programs.

APOLLO II GOODWILL MESSAGES

A small disc carrying statements by Presidents Eisenhower, Kennedy, Johnson and Nixon and messages of goodwill from leaders of 73 countries around the world were left on the moon by the Apollo 11 astronauts.

The disc also carries a listing of the leadership of the Congress and a listing of members of the four committees of the House and Senate responsible for the National Aeronautics and Space Administration legislation. Additionally, the names of NASA's top management, including past Administrators and Deputy Administrators, and the present NASA management are carried on the disc.

These include NASA's first Administrator, Dr. T. Keith Glennan; its long-time Deputy Administrator, the late Dr. Hugh L. Dryden; former Administrator James E. Webb; and former Deputy Administrator, Dr. Robert C. Seamans Jr., present Secretary of the Air Force.

Dr. Thomas O. Paine is the present NASA Administrator.

The disc, about the size of a 50-cent piece, is made of silicon-- a non-metallic chemical element found abundantly in nature and used widely in modern electronics.

Through a process used to make microminiature electronic circuits, the statements, the messages, and names were etched on the grey-colored disc. Each message was reduced 200 times to a size much smaller than the head of a pin (0.0425 x 0.055 inches) and appears on the disc as a barely visible dot.

NASA's Electronics Research Center was assisted by the Sprague Electric Company's Semi-Conductor Division, Worcester, Mass., in preparing the historic disc.

At the top of the disc is the inscription: "Goodwill messages from around the world brought to the moon by the astronauts of Apollo 11." Around the rim is the statement: "From Planet Earth -- July 1969."

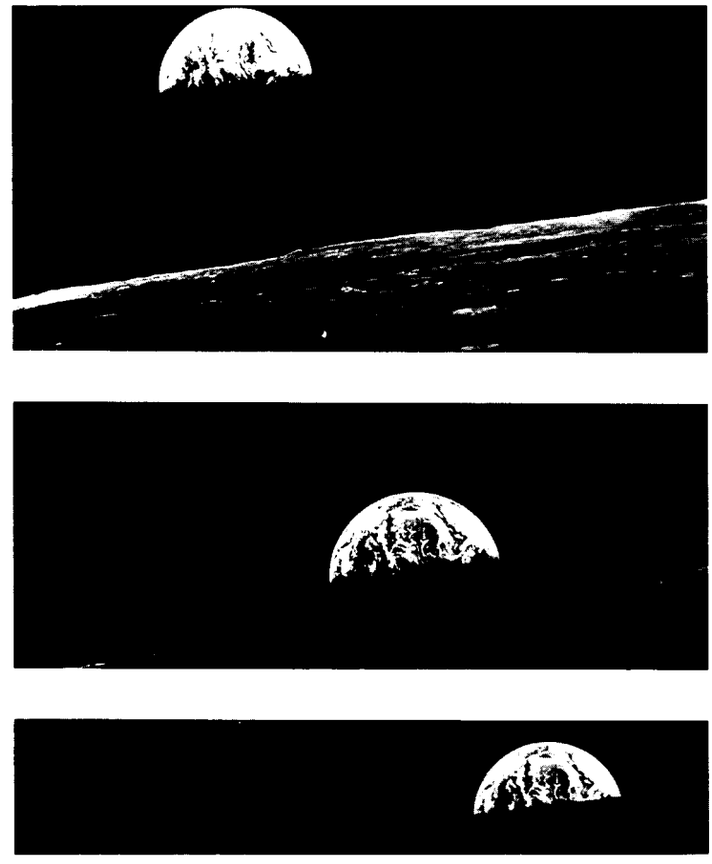
The messages from foreign leaders congratulate the United States and its astronauts and also express hope for peace to all nations of the world. Some are handwritten, others typed and many are in native language. A highly decorative message from the Vatican is signed by Pope Paul.

Silicon, which first came into general use during World War II in the production of diodes, was chosen to bear the miniaturized messages for its ability to withstand the extreme temperatures of the moon which range from 250 degrees to minus 280 Fahrenheit.

NASA FAMILY NIGHTS

Langley Speedway will open its gates to NASA employees, their families, and friends on August 2 at 7 p.m. There will be two 8-lap heats of motorcycle races and one 16-lap feature race. A 45-automobile Demolition Derby will be held at 9 p.m. Admission price will be one dollar and tickets may be obtained from District Representatives. One ticket will admit the entire family. Children under 12 will be admitted free. Sunday, August 17, has also been set aside as NASA night.

Tonight will be NASA night at the Peninsula Stadium when the Astros meet Salem. Game time is 7:45 p.m. Preceding the regular game, the ladies of NASA will play the wives of the Astros. The ladies will take to the field at 6:30 p.m. and play a three inning game. Tickets are available from District Representatives. Admission is 75 cents and children under 12 will be admitted free.



EARTH RISE SEQUENCE: This three-frame sequence of the Earth rise over the moon's horizon was taken from the Apollo 10 Lunar Module, with Astronauts Tom Stafford and Eugene Cernan aboard. The spacecraft at the time of exposure was located above the lunar farside highlands at approximately 105 degrees east longitude.

TECHNOLOGY UTILIZATION NEWS

Two new surveys are now in progress to gather the most up-to-date technology in the fields of nondestructive testing and powder metallurgy. The results of these efforts will enrich the libraries of science and industry with two new special publications in the 5000 series.

The Technology Utilization Division has contracted the information gathering jobs to two well recognized research institutes with authorities in each field. An itinerary will be made to contact NASA centers and their contractors.

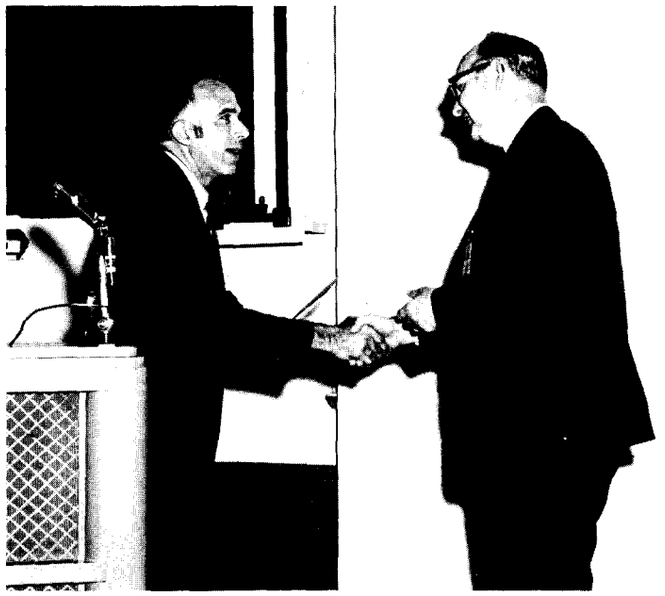
A roundup of Langley experts in these fields is presently being conducted for contributions to these publications. A two-way flow of information generally results from interviews between these survey teams and members of our staff.

Please call the T.U. Office (3281) if you have not been contacted but feel that you can contribute to either of these publications with new processes, materials, tools or techniques which have been developed here.

Your participation in this important phase of the Technology Utilization Program will be greatly appreciated and acknowledgment of your contributions will be made in these valuable textbook type publications.

FOR SALE: AKC registered white Toy Poodle puppy, also 14-foot Teepee camping trailer, self-contained, sleeps six. Sagaser, 826-3565.

Edgar M. Cortright and Harry L. Smith, Jr.



Edgar M. Cortright and Kenneth S. Bush

SPECIAL SERVICE AWARDS

Edgar M. Cortright, Center Director, recently awarded Special Service Awards for Exceptional Service to Harry L. Smith Jr., Reliability Staff Group, Flight Vehicles and Systems Division; Kenneth S. Bush, head of Spacecraft Branch, Flight Vehicles and Systems; and Charles B. Rumsey, head of Fluid Mechanics Section, Applied Materials and Physics Division. The award consisted of a citation and a cash award. The citations read as follows:

Smith - "For exceptional service in conceiving and implementing reliability plans, review procedures, and test programs which were significant in the production of the spacecraft for the successful Reentry F, Lunar Orbiter, and Supersonic Transport Radiation Measurement Projects."

Bush - "For exceptional service through his pioneering efforts which have resulted in significant engineering contributions to the definition, planning, design, and development of the Scout Reentry Program, culminating in the successful flights of R-4, R-4B, R-5, and Reentry F, which all produced significant contributions to reentry science."

Rumsey - "For outstanding leadership in the development of rocket flight experiment technique and analysis methods which have contributed significantly to the engineering understanding of heat transfer phenomena."

★★★★

DID YOU KNOW there is still no agreement among scientists on the origin of the moon? There are three theories: (1) the moon once was part of Earth and split off into its own orbit, (2) it evolved as a separate body at the same time as Earth, and (3) it formed elsewhere in space and wandered until it was captured by Earth's gravitational field.

Edgar M. Cortright and Charles B. Rumsey

FRANKED ENVELOPES FOR OFFICIAL USE

Personnel of the Center are requested to refrain from using official, franked envelopes for the distribution of material within the Center. The franked envelopes are specifically available for the transmission of official matter outside the Center, and their use for any other purpose is unlawful.

Regular messenger envelopes, suitable for multiple use, are available in every organization and are the preferred method of transmitting intracenter material.

WANTED: Home for 3-month old black and white, female kitten. Hogge, 723-4480.

FOR SALE: 1966 Opel Kadett sport coupe. Copeland, 595-5094 after 5 p.m.

FOR SALE: 10-room, 2-bath duplex with 2 sheds and garage on 90 x 105-foot lot in Hampton. Lowe, 722-0179.

WANTED: Home for kittens. Eggers, 595-1686.

FOR SALE: 18-foot fiberglas Slickcraft with deep V hull, 100 hp Mercury engine and Cox tilt trailer - $1600. Daniels, 851-0857.

FOR SALE: Mobjack class fiberglas sloop - 17-foot daysailer/racer completely equipped with trailer - $1250. Owens, 838-0320.

QUIET ENGINE CONTRACT

An $18.7 million contract to build two experimental quiet jet aircraft engines and to conduct an extensive test program with them has been negotiated with the General Electric Company's Aircraft Engine Group, Evendale, Ohio, by NASA.

It is a fixed price contract with provision for a performance reward.

The work is part of the Quiet Engine Research Program conducted by NASA's Office of Advanced Research and Technology to assist in developing quieter jet engines for future commercial subsonic aircraft. The goal is a turbofan engine which will operate at a noise level 15 to 20 decibels below present engines.

Management responsibility is assigned to Lewis Research Center. Specifications for the experimental engines were developed at Lewis during the past two years and through contracts with engine manufacturers.

The experimental engines will produce about 4,900 pounds thrust at cruise and 2,000 pounds thrust for takeoff. This is similar to engines on the present DC-8 and 707 aircraft.

The contract provides that GE will use its CF-6 and TF-39 engines developed for the DC-10 and C5A as the core of the new quieter engine. The use of existing engine hardware represents a major cost saving to the government.

Two main approaches to reducing noise produced by the engine fan are being tried. One is to reduce the tip speed, or rotational speed of the fan, and increase blade loading. The other is to increase blade tip speed and use blades which are more lightly loaded. Both fans will provide the same compression to air entering the engine.

Results of the completed project will be presented to industry for use in designing new engines. Significant results will be reported as the work progresses. The project is coordinated with the Federal Aviation Administration.

NASA TENNIS CLUB NEWS

The Hidenwood Tennis Club defeated the Langley Research Center Tennis club 7-2. Hidenwood won every match with the exception of the No. 1 and No. 6 singles. In the first match Dick Pincus, Langley, defeated Jentry Lowe 6-3, 6-3. The other NASA victory came when Bob Smith beat John Gregory 6-2, 7-5.

Other scores were as follows:

Singles - Bill Heath (H) defeated Bob Roberts (LRC) 6-4, 8-6; Richard Lawson (H) over Elmore Goyette (LRC) 6-2, 6-3; Chet Long (H) beat Burnell McKissick (LRC) 6-0, 6-3; and Bruce Barnett (H) defeated Billy Weaver (LRC) 6-2, 6-3.

Doubles - Lowe and Lawson (H) defeated Pincus and Roberts (LRC) 9-7, 6-2; Messick and Heath (H) over Goyette and McKissick (LRC) 6-1, 6-3; and Long and Barnett (H) defeated Weaver and Smith (LRC) 6-4, 6-1.

DID YOU KNOW the dark or hidden side of the moon no longer is a complete mystery? It was first photographed by a Russian craft and since then has been photographed many times, particularly by NASA's Lunar Orbiter spacecraft and Apollo 8.

FOR RENT: 3-bedroom brick rancher with fireplace - located on Big Bethel Rd. - available Sept. 14 to June 1, 1970. Sawyer, 826-5162.

SPACE AGE RECORDS...

....IT'S NOT HOW MUCH SPACE YOU HAVE....IT'S HOW WELL YOU USE IT!

Not now needed?
Assemble in boxes.....
Ship to LRC Records Center...
Allow SPACE for new programs!

LUNAR ROVER PROPOSED

NASA's Marshall Space Flight Center has been authorized to release a request for proposal for the development of a small, manned lunar roving vehicle. The RFP to be released to industry will include the design, development, test and delivery of four flight models.

The new lunar rover is to be ready for flight to the moon in 1971. It is to be delivered to the lunar surface by a manned Apollo lunar module.

The lunar rover vehicle-- much smaller than an automobile-- will have four wheels and will weigh about 400 pounds. It will provide lunar surface transportation for two astronauts and their hand tools, collected lunar samples and other equipment and experiments.

The 1971 delivery date is compatible with planned improvements to the Apollo lunar module, command module and astronaut life support equipment. The vehicle will increase the scope of lunar exploration by conserving time of the astronauts, thus providing a greater scientific return for each mission.

MSFC has been conducting research and planning toward a lunar roving vehicle since 1964.

✶✶✶✶

FOR SALE: 3-bedroom brick rancher with attached garage - eat-in kitchen with counter, stools, refrigerator and stove included - FHA appraised at $19,500 will sell for $18,500, FHA minimum down payment $400. Hanson, 851-1669.

FOUND: Pair of bifocal glasses in 16-foot Tunnel parking lot. West Dispensary, 3976,

FOR SALE: 1967 Volkswagon, 2-door sedan - $1550. Erickson, 838-0309.

MAN WALKS ON MOON

(Continued from page 1)

claimed: "Beautiful! Beautiful! Magnificent desolation."

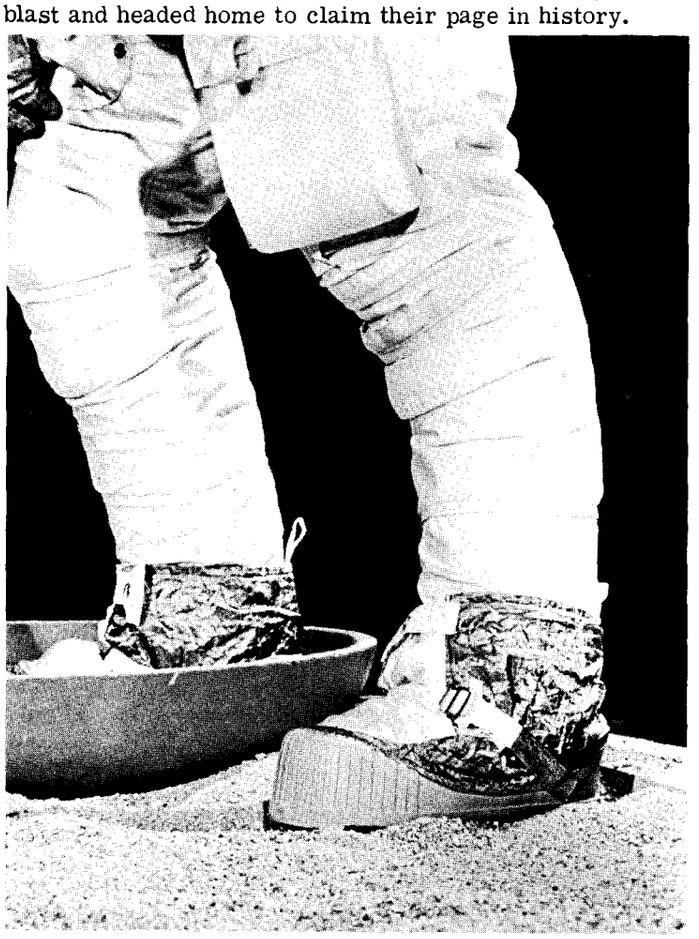
Soon after stepping on the lunar surface, the astronauts planted an American flag and unveiled a stainless steel plaque bearing these words: "Here men from planet earth first set foot upon the moon, July, 1969, A.D. We came in peace for all mankind."

They left on the moon a disc on which messages from the leaders of 73 nations had been recorded and also left behind mementos for three Americans and two Russians who died for the cause of space exploration.

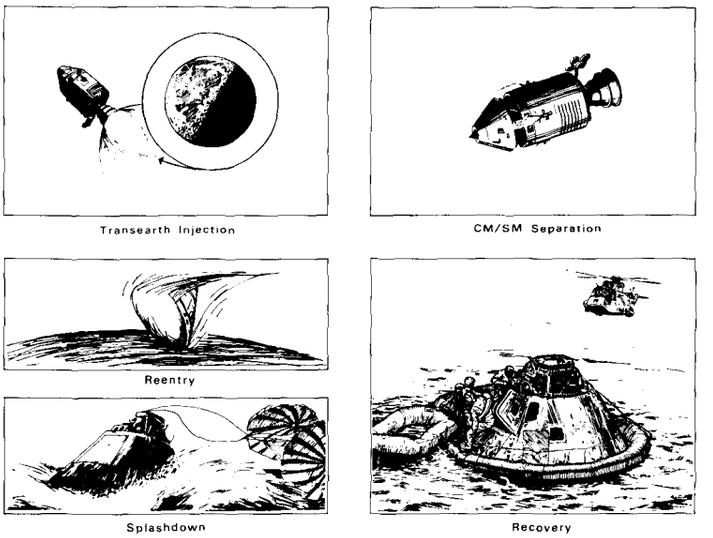
The moonmen collected two boxes of rock and soil samples which will be analyzed by scientists and also deployed two scientific instruments on the moon to relay data long after they have left. They were a seismometer to measure moonquakes and other disturbances and a small mirror to reflect earth laser beams fired from earth and back.

Armstrong spent two hours, 14 minutes on the moon's surface and Aldrin was credited with one hour, 44 minutes.

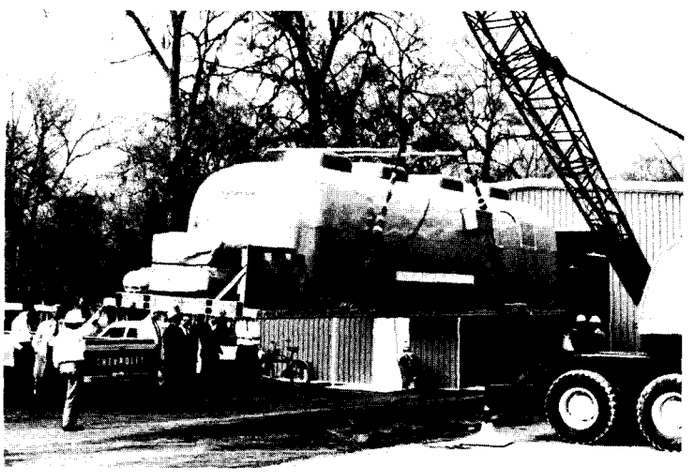
The astronauts returned to Eagle and at 1:54 p.m. Monday they blasted off from the moon and for a rendezvous with Collins and the mothership at 5:35 p.m. At 12.57 a.m. Tuesday, the moon explorers fired their final big rocket blast and headed home to claim their page in history.



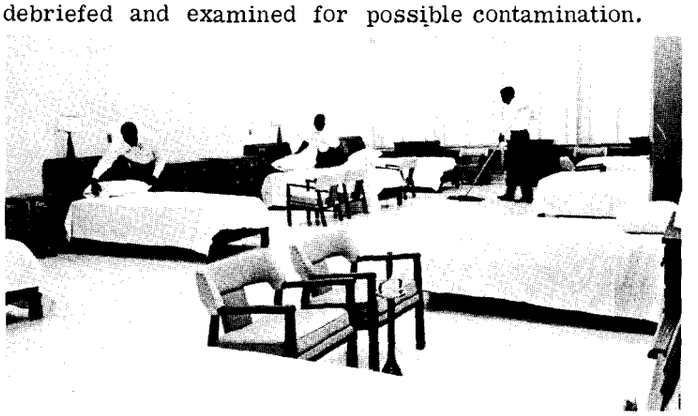
STEPPING INTO HISTORY: Astronaut Neil A. Armstrong demonstrates during simulated training how the first man would set foot on the moon. His right foot is in the lunar module footpad. Armstrong made this historical feat a reality at 10:56 p.m. on Sunday, July 20.



END OF FLIGHT: The Apollo 11 moon mission was due to end yesterday with transearth injection and recovery at 12:51 p.m. in the Pacific Ocean.



TEMPORARY HOME: This mobile Quarantine Facility will be a temporary home for the Apollo 11 astronauts for 21 days. The quarantine facility will be flown from the recovery ship back to Houston where the astronauts will be debriefed and examined for possible contamination.



DORMITORY: This is the interior of the dormitory for support personnel who will remain in 21-day quarantine with the Apollo astronauts. Approximately 15 people, lab technicians, engineers, custodial personnel, and physicians, will be in quarantine with the astronauts in the Lunar Receiving Laboratory's crew reception area at Houston.

CARNIVAL TICKETS AVAILABLE

(Continued from page 1)

4-quart ice cream freezer, 5:40 - 55-piece stainless steel service for 8, 6 - 4-man raft, 6:20 - Panasonic portable radio, 6:40 - G.E. automatic percolator, 7 - Smith-Corona portable typewriter, 7:20 - Motorola clock radio, 7:40 - Oster 4-speed blender, 8 - his and her bicycles, 8:20 - Oster ice crusher, 8:40 - home exerciser, 9 - Cosco folding table with 4 chairs and service cart, 9:20 - decorator wall clock, 9:40 - G.E. hand mixer, 10 - trip for two (choice of the Hawaiian Carnival which includes three days in Las Vegas, three days in San Francisco and seven days in Honolulu; Paradise in the Bahamas with two weeks at the Paradise Island Hotel in Nassau; one week in Miami with a one week cruise to Puerto Rico and the Virgin Islands; two weeks of fun in the sun at the Plantation Inn Hotel in Jamaica; or 15 days by jet and motorcoach on an escorted tour of England, Holland, Germany, Austria, Italy, Switzerland, and France.

The activities will close on Friday with a rock and roll dance at 9:30 to the music of the 5 O'clock Shadows and the carnival will end on Saturday with a dance at 9:30 to the music of Jett Rollo.

KNOW YOUR CREDIT UNION

For the last several months, the Credit Union has been proclaiming the advantages of Reddy Reserve Accounts and Reddy Fox Loans at every opportunity, And, it is beginning to pay off- both for the Credit Union and for its members. Already some 250 of them have received lines-of-credit totaling $600,000 while 200 have made Reddy Fox loans of almost $350,000 against this ceiling.

These figures confirm the dual possibilities of the program. Truly it is worth investigation by any member interested either (1) in establishing a line-of-credit for use in an emergency or, (2) in a revolving-type loan where varied needs can be met as they come up without fuss or more ado. An approved credit-ceiling may run from $500 to $2500 depending upon the wishes and the financial responsibility of the member. Once obtained, a telephone call will put a quick Reddy Fox loan-check in the mail the same day. Obviously, it works for the members mentioned earlier-- it will for you, too! Just call NASA 3606 and ask for a Reddy Reserve package.

PROPOSED SCIENTIFIC INVESTIGATIONS SOUGHT FOR VIKING MARS MISSION

NASA has announced the opportunity to propose scientific investigations which may be performed on the 1973 Viking missions to Mars. Potential proposers are required to notify NASA Headquarters of an intent to propose on August 15.

There will be a proposal briefing at NASA Headquarters on September 11-12 and proposals are required on or before October 20. Selection will be made on December 15.

Interested Langley Research Center personnel may obtain copies of the AFO by contracting Anna Plott, Viking Project Office, extension 3265.

* * * *

FOR SALE: Modern walnut dinette set - round table with three leaves. Boyden, 898-5833.

WINIFRED B. Bragg, Secretary of the Activities Association, sells the first carnival tickets to Edgar M. Cortright, Center Director. The carnival will be held on Friday and Saturday, August 22 and 23 on the Activities grounds.

COUNTDOWN

KIWANIS BOWL. . .Tickets are now available from Linda Tribeck, Activities Building, for the annual Kiwanis Bowl Game on August 16 at Foreman Field in Norfolk. Featured in the bowl will be the St. Louis Cardinals versus the Pittsburgh Steelers. Tickets are $7.50 each and will include transportation to and from the game. The bus will leave the Activities Building (Bldg. No. 1222) promptly at 6:45 p.m. All tickets must be sold to pay the bus charter fee. As an added attraction, Charley Johnson, who recently completed his military assignment in the Chemistry and Physics Branch of Applied Materials and Physics Division, is once again a quarterback with the Cardinals.

ACTIVITIES BUILDING OPEN. . .The Activities Building will continue to be open on week days from 4:30 p.m. to 8:30 p.m. and on Saturdays and Sundays from 1 p.m. until 8 p.m. Sandwiches and refreshments are available for purchase.

CARNIVAL VOLUNTEERS. . .Volunteer workers are needed to run the booths and assist in the various operations needed to make the two-day Carnival on August 22 and 23 a success. Persons interested in working during the Carnival are requested to call Linda Tribeck, 2058.

FOR SALE: Stereo components; Harmon-Karden AM/FM receiver, Garrard type A changer in tambour table model cabinet, two University 3-way speaker systems. Mathis, 723-8887.

FOR SALE: Zenith black and white console TV - $75. Slemp, 596-5518.

FOR RENT: 3-bedroom, 2-bath house in Dare, has large family room with fireplace, utility room, work room, and garage. Partially furnished with stove, refrigerator, and freezer. Available Aug. 20 for one year lease - $230 per month. Wilson, 877-4801.

Langley Researcher

VOLUME 9, NUMBER 16 LANGLEY RESEARCH CENTER AUGUST 8, 1969

TWO-DAY CARNIVAL CELEBRATION PLANNED FOR AUGUST 22 AND 23

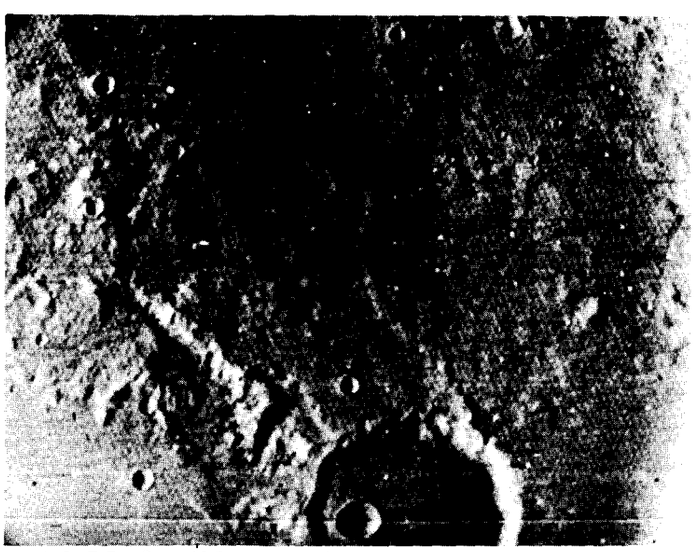
The Activities Association's annual two-day Carnival is scheduled to get underway two weeks from today on the grounds of the Activities Building.

Carnival tickets are one dollar each and they may be purchased from District Representatives. By purchasing a ticket, the buyer will be eligible for an array of ground prizes.

The events on Friday, August 22 will open at 5 p.m. with the first ground prize drawing for a $100 U.S. Savings Bond. Ground prizes will be given away every twenty minutes. Complete listings of the prizes were published in the last Langley Researcher.

Winners must be on the grounds to win all prizes except the two grand prizes. The grand prize for Friday will be a Home Entertainment System. The activities will close with a rock and roll dance at 9:30 p.m. to the music of the 5 O'clock Shadows.

(Continued on page 5)



MARINER 6 SENDS PHOTOGRAPHS: This narrow-angle view of Mars spans 52 miles E-W by 45 miles N-S. The large crater at the south edge of this photograph with a prominent smaller crater on its floor is about 15 miles across. The highly irregular terrain to the northwest of this crater is debris constituting the rim of a much larger crater over 150 miles in diameter. Part of the smooth floor of this large crater appears in the southwest corner of the photo. Extending north from the first crater, toward the center of the photo, is an irregular sinuous ridge rather analogous to some ridges seen on the moon. The distance is 2150 miles. Mariner 6 was launched February 24 and this photograph was taken July 30.

Charles Conrad

Richard F. Gordon

Alan L. Bean

APOLLO 12 CREW ANNOUNCED; MISSION SCHEDULED FOR FALL

Astronauts Charles Conrad Jr., 38; Richard F. Gordon Jr., 39; and Alan L. Bean, 37, have been named as prime crewmen for NASA's Apollo 12 mission.

Apollo 12 is a lunar landing mission similar to Apollo 11. It will be flown this fall.

Preliminary plans call for Apollo 12 to land at a site other than No. 2, where Apollo 11 landed. Two periods of extravehicular activity on the lunar surface are tentatively scheduled for Apollo 12 totaling more than five hours. It is expected that the scientific package to be left on the moon will contain more experiments than were included in the Apollo 11 package.

Backup crewmen for Apollo 12 are Astronauts David R. Scott, 36; Alfred M. Worden, 37; and James B. Irwin, 39. A support team has not yet been named.

The Apollo 12 spacecraft -- command and service modules 108 and lunar module 6 -- are already at the Kennedy Space Center.

Conrad, a Navy commander, heads the all-Navy prime crew. Gordon, also a commander, is Command Module Pilot; and Bean, a lieutenant commander, is Lunar Module Pilot. Conrad and Bean will explore the lunar surface while Gordon remains in lunar orbit in the Command Module.

The all-Air Force backup crew is commanded by Scott, a colonel. Command Module Pilot Worden is a major, and Lunar Module Pilot Irwin is a lieutenant colonel.

The prime crew served as backup for Apollo 9. Conrad and Gordon are veterans of the Gemini Program, in which Conrad flew twice -- Geminis 5 and 11. Gordon flew with Conrad in Gemini 11. Apollo 12 will be Bean's first space flight.

Scott flew the Apollo 9 and Gemini 8 missions. Worden and Irwin have not yet flown in space but both have been members of support teams for Apollo flight crews. Irwin commanded the test crew for the extensive thermal-vacuum testing of the lunar module prior to committing it to manned flight.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

NEW HEIRESS. . .Celebrating the birth of an eight-pound, eleven-ounce daughter, Lori Ann, on June 24 are Sally, formerly of Administrative Services Division, and James L. Puffenberger, Research Models and Facilities Division.

TELEPHONE CHANGE. . .A recent notice was distributed to staff members with the latest Langley Telephone Directory stating that the use of the Interdepartmental Dialing System (IDS) would be terminated on July 31, and it was indicated that all telephone calls to NASA Headquarters and the Washington, D.C. area should be made on the Federal Telecommunications System (FTS) after that date. The Center has been advised that GSA will continue to provide access to the IDS system until August 31.

GRADUATE COURSES. . .Old Dominion University graduate courses at the VARC site have been rescheduled as follows: Applied Analysis in Engineering I - additional section (591) - 11 a.m. on Tuesdays and Thursdays; Celestial Mechanics I (581) - 11 a.m. Mondays and Wednesdays; Theory of Elastic Stability (505) - 3:30 p.m. Mondays and Wednesdays; Advanced Network Theory (531) - 2 p.m. Tuesdays and Thursdays; and Analysis and Design of Digital Systems I (535) - 3:30 p.m. Tuesdays and Thursdays.

COURSE OFFERED. . .A course in National Security Management is being offered by the Industrial College of the Armed Forces. The course will be conducted at CONARC Auditorium, Building 133, Fort Monroe. Classes will start September 9 from 7 to 9 p.m. and will meet each Tuesday until June. It is possible to complete the course and receive a certificate in two academic years. Enrollment is open to commission and warrant officers of the Armed forces, GS-10's and above and other interested professionals. There is no cost for the course, text, or materials. Further information may be obtained from Col. Randall J. Foley, PA2-8911.

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FOR SALE: 17-foot Barbour deluxe with 60 hp Johnson electric motor - $1295. Kurtz, 868-9618.

FOR SALE: G.E. 24-inch black and white console TV set - $60; also Smith-Corona portable typewriter - $25. Howe, 838-0254.

FOR SALE: 3-bedroom brick rancher with attached garage, dining room, eat-in kitchen with stove and refrigerator - $1,000 less than FHA appraisal. Hanson, 851-1669.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of August 11:

Monday - Consomme julienne, braised beef tips, chicken pie, knockwurst with beans, fish cakes. Snack bar - Soup, hot dog, hot pastrami, French fries.

Tuesday - Cream of mushroom soup, pot roast of beef, grilled pork steak, stuffed pepper, Austrian ravioli. Snack bar - Soup, ham and egg sandwich, hot roast beef, French fries.

Wednesday - Chicken rice soup, chicken and dumplings, baked ham, broiled halibut steak, cheese-tomato rarebit. Snack bar - Soup, hot dog, sliced baked ham, German potato cakes.

Thursday - Split green pea soup, country style steak, stuffed shrimp, smoked pork sausage, grilled cheese sandwich. Snack bar - Soup, grilled cheese, steak sandwich.

Friday - Spiced tomato soup, hot roast beef sandwich, grilled smoked ham, fried fish, baked hash. Snack bar - Soup, hamburger, hot roast beef, French fries.

The menu for the week of August 18 is as follows:

Monday - Puree of bean soup, corned beef and cabbage, breaded veal steak, chicken chow mein, tamale pie. Snack bar - Soup, barbecued pork, hot corned beef, French fries.

Tuesday - Minestrone soup, pepper steak, liver and onions, fried fish, franks and beans. Snack bar - Soup, hot dog, steak sandwich, baked beans, French fries.

Wednesday - Cream of tomato soup, chopped steak, barbecued chicken, stuffed pepper, fish cakes. Snack bar - Soup, fish sandwich, Lou's satellite special, French fries.

Thursday - Vegetable-beef soup, Spanish pot roast, grilled pork steak, sauteed chicken livers, chili con carne. Snack bar - Soup, hamburger, hot roast beef, German potato cakes.

Friday - Clam chowder, baked ham, stuffed flounder, Polish sausage, deviled crab, cheese omelette. Snack bar-soup, sea dog, baked ham, French fries.

WANTED: Ride or driving combination from Williamsburg to W.A. on 8 shift. Manning, 3313.

FOR SALE: 3-bedroom, 2-bath brick rancher in Seaford - fireplace in living room and den, garage, patio, air conditioned, located on canal with dock. Upshaw, 596-4046.

FOR SALE; 46-foot Log canoe, documented, 5 tons net, ideal for sport fishing boat or could be converted for cruising, full USCGA equipment. Pendergraft, 596-0538.

UNDERGRADUATE COURSES OFFERED

Plans are being formulated to offer courses sponsored by the College of William and Mary and Old Dominion University for the fall semester. The Old Dominion University course will start sometime in September and William and Mary courses will begin September 15.

The following William and Mary courses are offered:

Math 103 - Algebra and Trigonometry - 48 hours. An integrated study of the real number system, sets, functions, graphs, equations and inequalities, systems of equations, matrices and determinants. This is followed by a study of the trigonometric functions and their properties. This class will meet on Mondays from 4:30 to 7:30 p.m. in Room 201, Building 1149. William C. Turner will be the instructor.

Math 202 - Calculus with Analytic Geometry - 48 hours. The definite integral and the Fundamental Theorem of Integral Calculus and their applications to areas, volumes, work, first moments and centroids including improper integrals and solids of revolution. Techniques of integration, papametric equations, polar coordinates and vectors. This class will meet on Tuesdays from 4:30 to 7:30 p.m. in Room 201, Building 1149. Harold R. Compton will be the instructor.

Math 302 - Differential Equations - 48 hours. Ordinary differential equations. Laplace Transform. Series solutions of legendre and Bessel equations. Solution of partial differential equations by separation of variable. Applications in geometry, physics, and engineering. Class will meet on Wednesdays from 4:30 to 7:30 p.m. in Room 201, Building 1149. John Shearin will be the instructor.

The following course is offered by Old Dominion:

Mechanics 205 (Statics) - 48 hours. A vector and scalar approach to the analysis of vector systems and their application to equilibrium of bodies. Friction, centroids, and moments of inertia are included The course will be taught by a professor from the Engineering Department and the class will meet one afternoon each week from 4:30 to 7:30 p.m. Complete details will be announced later.

Application forms for enrolling are available in the Training Office, telephone 2611. Approval of the supervisor and division chief is required before an applicant may enroll. Applications must be returned to the Training Office on or before August 22.

BRAINBUSTERS SPONSOR MEET

The Brainbusters Model Airplane Club is hosting the 1969 east coast F.A.I. semi-final eliminations. The contestants, who will be competing in three events, will be finalists in the selection of a six-man team to represent the United States in international competition.

Flyers will be competing in a Wakefield rubber powered event, an event for soaring gliders, and a power model event.

The competition will be flown at Curles Neck Dairy Farm near Richmond on August 30, 31, and September 1.

The model club is interested in obtaining assistance in running these events. Anyone wishing to serve as a timer or interested in assisting in other duties is requested to call Joe Boyle, 723-3400.

FOR SALE: 1969 Chevrolet 3/4-ton 10-1/2-foot Eldorado pick-up camper - sleeps 6, self-contained - $4800. Newton, 595-5207.

SKYDIVER: Hugh P. Bergeron (insert), Guidance and Control Branch, Aeronautical and Space Mechanics Division, demonstrates his skydiving ability which won him a place on the eight-man U.S. Skydiving Team which will represent the United States in international competition in the Adriatic Cup Meet to be held in Portoroz, Yugoslavia.

HUGH BERGERON WINS BERTH ON U.S. SKYDIVING TEAM

Hugh P. Bergeron, an engineer in the Guidance and Control Branch, Aeronautical and Space Mechanics Division, has been selected a member of the United States Skydiving Team which will compete in international competition in the Adriatic Cup Meet to be held in Portoroz, Yugoslavia, during September.

Each year the United States Parachuting Association (USPA) enters contestants in international skydiving competition. The U.S. contestants are chosen by a process of elimination. There are 11 conferences in the U.S. with each conference holding a competition meet once a year. The winning contestants in these 11 conferences are eligible to compete in the annual U.S. National Parachuting Championship Meet which was held last month in Tucson, Arizona, with 186 contestants representing the best sport parachutists from all 50 states.

Through intensive competition and by process of elimination, eight winners were chosen as members of the U.S. team for competition in the Adriatic Cup Meet.

Bergeron leaves with the team this week for four weeks of intensive training in Germany, followed by two weeks of exacting competition in Yugoslavia against many other teams from both the western countries and communist bloc nations.

Although this select group of skydivers represented the United States in world competition, they are not subsidized by the United States Government. All of the team members are undertaking this great challenge at their own expense, with assistance from the USPA team fund which is supported by contributions.

BALLOON RESEARCH FLIGHTS SCHEDULED

A series of four 175-foot diameter research balloons carrying scientific experiments will be launched from Wallops Station Between July 29 and August 15. Specific flight dates depend on weather and cloud conditions.

Two of the large helium-filled balloons will carry experiments managed by Langley Research Center. The prime experiment is a parachute recovery system applicable to payloads returning from space. It is designed for aerial retrieval by airplane or helicopter. The secondary NASA experiment is an Earth Resources photography package consisting of four cameras with various films and filters. It will be recovered from the Atlantic Ocean by surface recovery forces.

Two other balloons will carry an experimental balloon tracking system developed by scientists of the Air Force Cambridge Research Laboratories (AFCRL), Bedford, Massachusetts. All four balloons will be launched by a team of AFCRL balloon technicians.

After an initial easterly ascent carrying the balloons out over the Atlantic Ocean, all four balloons will reach a maximum altitude of 90,000 feet. The AFCRL balloons will remain at that altitude and will be transported westward by prevailing winds at that level for recovery in New Mexico about three days after launch.

The prime experiment on each NASA balloon will be released at the 90,000-foot level and will fall free to 60,000 feet where a drogue parachute will open. The main payload parachute will follow, with full deployment at 50,000 feet. A smoke generator to aid aerial recovery will begin operating about 20,000 feet and aerial recovery is expected about 10,000 feet altitude some 20 minutes after the payload is released from the balloon.

After prime experiment recovery, helium will be released from the NASA balloons by ground command to lower them into a region where lower altitude winds will again carry the NASA balloons over the ocean where the secondary payload will be parachuted into the water for surface recovery.

Photographs from the Earth Resources camera experiment will be made as the balloons drift across the Delmarva peninsula and eastern Chesapeake. The pictures will be used to study sediment transport from the lagoons and along the coastline, and to observe the effects of tidal action on such transport. The balloons provide a stable platform from which to observe the slowly developing turbid patterns associated with coastal phenomena. High altitude photographs are expected to cover an area of some 400 square miles.

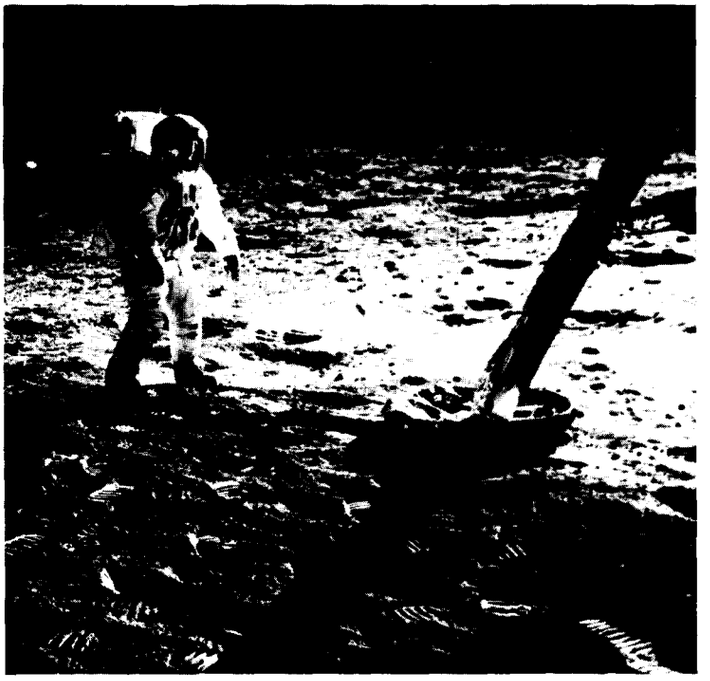
The AFCRL balloon packages are designed to test an experimental balloon location and tracking system using existing navigation aids provided in the nation's VHF omnidirectional range (VOR) system. VOR ground transmitters operated by the Federal Aviation Administration for aircraft navigation cover the entire United States, and the balloon flights will be conducted in accordance with FAA regulations.

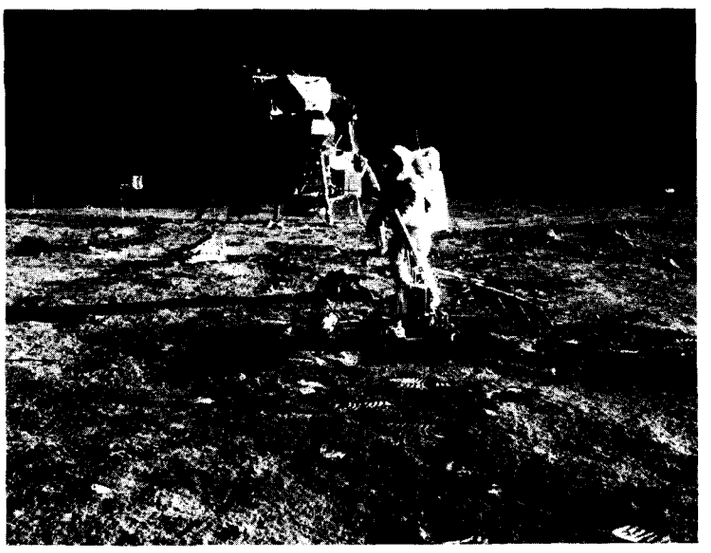
The AFCRL system consists of a conventional VOR receiver, a decoder, and a balloon-borne transmitter to send the VOR data on the balloon's location to ground receiving stations.

All four balloons will have a capacity of 2,000,000 cubic feet. They will be tracked and controlled by NASA and AFCRL personnel.

Aerial retrieval of the Langley experimental recovery system package will be done by a team from the Air Force Recovery and Rescue Service, Hamilton AFB, California. Water recovery of the Earth Resources cameras and instruments will be by the Wallops Station Recovery Team.

TWO STAFF members have received Special Service Awards for Exceptional Scientific Achievement. Dr. Frank Hohl (top right), Aero-Physics Division, is congratulated by Edgar M. Cortright, Director. Dr. Hohl received his award for "outstanding theoretical contributions to the field of galactic astronomy through the conception and development of numerical computer experiment methods and techniques." Clarence D. Cone Jr. (bottom right), Instrument Research Division, receives his award from Dr. John E. Duberg, Associate Director. Cone was cited for "initiation at Langley of a research program on the effects of space radiation on mammalian cells at the molecular level and for his discovery of communicating bridges between cancer cells which have been recognized as a possible mechanism for cancerous growth."





PHOTOS FROM THE MOON: Astronaut Edwin E. Aldrin Jr. (top left) walks on the surface of the moon near a leg of the Lunar Module. Aldrin (upper right) poses beside the deployed flag of the United States for Astronaut-photographer Neil A. Armstrong. Aldrin (lower left) is photographed while deploying the Passive Seismic Experiments Package. In the center background is the Lunar Module. The U.S. flag is deployed near the LM. Though separated by a window of the Mobile Quarantine facility (lower right), President Richard M. Nixon and Astronauts Armstrong, Michael Collins and Aldrin, share a laugh following splashdown and recovery in the Pacific Ocean. The President greeted the space pilots aboard the USS Hornet, the prime recovery ship, shortly after splashdown July 24.

ANNUAL CARNIVAL PLANNED

(Continued from page 1)

The midway will open on Saturday, August 23 at 2 p.m. The first ground prize will again be a U.S. Savings Bond.

At 10 p.m. the grand prize will be awarded. The big prize will be an all-expense paid trip for two to one of the following: Hawaii, the Bahamas, Jamaica, Europe, or a combination trip to Miami, Puerto Rico and the Virgin Islands.

The Carnival will end on Saturday night with a dance at 9:30 to the music of Jett Rollo.

FOR SALE: 1963 Oldsmobile 88 - $700. Ashe, 826-1014.

TECHNOLOGY UTILIZATION NEWS

The Technical Utilization Office, extension 3281, has the following new publications:

SP-5071 - Induction Heating Advances; SP-5072 - Air Pollution Monitoring; SP-5080 - Weather Satellite Picture Receiving Stations: Inexpensive Construction of Automatic Picture Transmission to Ground; and SP-5924(01) - Compilation of Tools, Fixtures, and Test Equipment for Flat Conductor Cables.

FOR SALE: 9 x 6-foot surfboard and rack. Rogallo, 596-1916.

COUNTDOWN

DUCKPIN LEAGUE. . .Teams are requested to submit rosters to Al Shearin, M.S. 237, by August 15. Persons not on a team but interested in bowling should contact Shearin, extension 2383.

TENPIN LEAGUE. . .An organizational meeting of the NASA Tenpin Bowling League will be held Wednesday, August 13, at 4:30 p.m. in the Activities Building. All teams planning to enter the league are requested to have a representative present. Persons unable to attend but interested in joining the league should call Sandi Satterthwaite, 851-6717, before August 13.

FAMILY NIGHT. . .Saturday, August 16 will be NASA night at the Peninsula Stadium when the Astros meet Lynchburg. Game time is 7:45 p.m. Tickets are available from District Representatives and admission is 75 cents and children under 12 will be admitted free. The game will be preceded at 6:30 p.m. by a five-inning slow-pitch softball game between the Astro's and the NASA All Stars. Members of the NASA All Star team are as follows: Barry Lisagor and Harry Bloxom, Structures; Jay Lambiotte, Bob Ward, and Jim Harris, ACD; Leo Daspit, Viking; Dave McDougal and Ron Duncan, KNADS: George Insely, Marauders; Charlie Miller, Raiders; Ted Bright, Misfits; and Lee Avis, Swingers.

LANGLEY SPEEDWAY. . .Motorcycle races originally scheduled at the Langley Speedway on August 2 has been rescheduled for Saturday, August 16. Starting time will be 7 p.m. Featured will be two 8-lap heats and one 16-lap heat. The Demolition Derby will start at 9 p.m. Tickets may be obtained from District Representatives and admission is one dollar for adults and children under 12 will be admitted free. Sunday, August 17 has also been set aside as NASA night and admission is $1.50 for adults. Featured will be a 50-lap for modified cars and a 50-lap for late model sportsmans.

NASA SOFTBALL LEAGUE

ACD, in an effort to defend their 1968 title, won the 1969 regular season title with a 12-2 record. Misfits finished second with a 10-4 record, winning their last eight games.

The championship is still up in the air. An eight-team tournament is now in progress and if the tournament winner is not ACD, a 2 out of 3-game playoff with ACD and the tournament winner will be held for the championship.

Finals standings for the regular season are:

Team	W	L	Pct.	G.B.
ACD	12	2	.857	--
Misfits	10	4	.716	2
Structures	9	5	.643	3
KNADS	8	6	.571	4
Raiders	6	8	.429	6
Swingers	6	8	.429	6
Viking	3	11	.214	9
Marauders	2	12	.143	10

REMINDER: Today, August 8, is the deadline for submission of the questionnaire on student loans under the Federal Higher Education Act. The Directors of the Credit Union need the information in arriving at a sound decision as to whether or not to institute the program.

OLD TIMERS: This picture of the old Propeller Research Tunnel staff was taken in 1939. Shown in the group are front row (from left): Blake W. Corson, Charles H. McLellan, David E. Biermann, Marvin Forrest, Edwin P. Hartman, E. Floyd Valentine, James G. McHugh, and John L. Crigler. Back row - Hubert N. Harmon, Donald H. Wood, E. Barton Bell, Eldridge H. Derring, and Ralph L. Westphal.

KNOW YOUR CREDIT UNION

As part of the annual audit of the Langley Federal Credit Union, the Supervisory Committee has mailed statements of share and loan accounts to all members. Those who have not received statements by this time are requested to notify the Chairman, Supervisory Committee, Box 607, Langley AFB, Virginia 23365.

Members are requested to examine and compare these statements with their records and report any differences promptly to the Supervisory Committee at the above address. Please note that the date of the statement is June 30. Transactions after June 30 do not appear on the statement. They will be reflected on the next semi-annual statement which will be issued as of December 31.

COIN CLUB MEETS AUG. 20

The Langley Research Center Coin Club will meet in the Activities Building on August 20. Doors will open at 7:30 p.m. and the meeting will start at 8 o'clock. There will be a program on early silver dollars in addition to the auction and the raffle of a Virginia half-penny.

The Virginia half-penny was issued by the State of Virginia immediately before the War for Independence in 1775 and was the only coin the English crown authorized the Virginia colony to issue. It was current money during the birth of our Nation.

The club plans to have programs this fall on collector interest topics including coin investment, insuring a coin collection, and special type coins and currency.

Guests are cordially invited.

FOR SALE: Waterfront lots at Hunts Point, First Colony, and Chickahominy Haven. Rogallo, 596-1916.

FOR SALE: 1962 Plymouth Valiant, 4-door sedan, 6 cylinder, automatic shift - $395. Barritt, 877-9429.

WANTED: Good homes for kittens. Stone, 826-2975.

Charles F. Burch

James D. Callis

Cornelius B. Apple

Gerald J. Mayfield

SPACE STATION DESIGN STUDY

NASA has announced the selection of two aerospace industry teams to conduct design and planning studies of a future manned space station which could reach flight status in the mid-1970's.

NASA is entering final contract negotiations with the two industrial teams, one headed by McDonnell Douglas Corp., Huntington Beach, Calif., and the other headed by North American Rockwell Corp., Space Division of Seal Beach, Calif., for two parallel 11-month Program Definition (Phase B) studies each valued at approximately $2.9 million.

The study contract with McDonnell Douglas will be directed by Marshall Space Flight Center, while the study contract with North American Rockwell will be under the direction of Manned Spacecraft Center.

Major effort of the studies will be preliminary design and planning of a 12-man Earth-orbital space station which could be developed by 1975. It would be designed to have an operational life of 10 years, subject to resupply of expendables and rotation of crews with logistics vehicles.

The space station is envisioned as the initial element of a large space base and as a means for investigating the problems associated with manned habitation of space for extended periods, such as would be encountered in future manned planetary missions.

The work will also include a conceptual design of a 50-man space base made up of specialized modules assembled in low Earth orbit in the late 1970's and early 1980's. The space base would be a centralized facility in orbit comparable to a scientific and technical research, development and operations center on Earth.

Scientists and engineers of many disciplines could utilize its unique features, such as weighlessness, vacuum, Earth viewing and unobstructed celestial viewing for a large variety of research and applications activities.

Logistic systems to resupply expendables and rotate crews of both the space station and the space base will be included in the studies. Modified existing spacecraft designs will be considered as initial logistic systems for the early phases of the space station program in the event an advanced space shuttle would not become available in time for these operations.

Various concepts of advanced space shuttles will be evaluated to identify the most economical means of supplying a large space base.

PERFORMANCE AWARDS PRESENTED

Charles F. Burch, Experimental Machine Shop Section, Fabrication Division; and James D. Callis, Cornelius B. Apple, and Gerald J. Mayfield, Research Operations Section C, Research Support Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Burch was honored for "his excellent and outstanding performance in the design, development, and construction of a Ball Nose Milling Cutter Grinding Attachment and for his performance in the construction of Force Measuring Instruments."

Callis received his award for "his sustained superior performance in improving operational procedures for the Helium Evacuation System and the Liquid Helium Manufacturing System thus providing greater efficiency and economy and for the elimination of potential safety hazards by the development of a transparent safety device for the Helium liquefier located in Building 1247-B."

Apple and Mayfield both were cited for "sustained superior performance as one of two principal shift technicians who provided outstanding support in conducting urgent tests during an investigation of a structural anomaly which occurred during the flight of the AS-502 Saturn V vehicle."

EMPLOYEES DONATE BLOOD

The Red Cross Bloodmobile visited the Center on July 23 and staff members donated a total of 147 pints of blood.

Top donors were Paul W. Culotta with six gallons, Joseph G. Daniels with five gallons, and Richard Dingeldein with four gallons.

Credited with three gallons were Archie Myers, Benjamin Caum, and Robert E. Hubbard. Reaching the two-gallon mark were William A. Tuck, Daniel DeCarlo, Davis B. Wright, and Marcella F. Hogge.

One gallon pins were presented to William G. Johnson, Robert E. Nye, Robert A. Babcock, Carl Hookstra, Joseph Stickle, Francis Parker, and Walter Olstad.

Assisting during the visit were Dr. Richard Clark and Dr. L. P. Bragg.

The next Bloodmobile visit will be on September 17. The maximum age limit for donors has been changed from 60 to 65 years of age. Persons interested in participating in the Center's blood program and who have not registered are requested to call East Dispensary, 2243.

APOLLO PICTURES AVAILABLE

Full-color pictures issued by the National Aeronautics and Space Administration showing the historic Apollo 11 mission, including the first man setting foot on the Moon, will be sold by the Superintendent of Documents, Government Printing Office, Washington, D.C.

The first pictures brought back from the Moon by the Apollo 11 astronauts were released to the press and television about five days after splashdown. This was a bit later than in earlier manned missions because the astronauts' film underwent a decontamination procedure, as part of the precautionary measures being taken. The Superintendent of Documents anticipates filling orders for these pictures around the end of August.

Pictures will be available in both a set of twelve 11 x 14-inch full-color lithographs, selling for $1.75 per set, and also a single full-color lithograph 16 x 20 inches overall, showing man on the Moon for the first time; it will cost one dollar. All pictures will be suitable for framing.

Two other sets of NASA color pictures are already available for purchase from the Superintendent of Documents. They are:

NASA Picture Set 1 - "Apollo - In the Beginning" - a set of seven 11 x 14-inch pictures covering various scenes of the Apollo missions, including the thrilling Earth-rise over the lunar horizon. The set sells for $1.25 postpaid.

NASA Picture Set 2 - "Men of Apollo" - a set of five 11 x 14-inch lithograph pictures of the crews of Apollo 7, 8, 9, 10 and 11. The set sells for $1 postpaid.

A third group available about the same time as the pictures of the first manned lunar landing is the initial group of a series of reproductions of paintings by well-known American artists, who make their talents available to record the space program.

Called "Eyewitness to Space," the set of twelve 16 x 20-inch (overall) color prints includes interpretations of space subjects as seen by painters Mitchell Jamieson, Peter Hurd, James Wyeth, Lamar Dodd, George Weymouth, Nicholas Solovioff, Hugh Laidman, Fred Freeman, Billy Morrow Jackson, Paul Calle, and Franklin McMahon. This NASA Picture Set 3 may be ordered for $2.75 per set.

Those interested in ordering Apollo Program pictures by mail may use the order blank of the Superintendent of Documents reproduced elsewhere on this page. Use of the order blanks will facilitate processing of orders, handling and delivery.

MAIL ORDER FORM To:

Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Enclosed find $ (check, money order, or Supt. of Documents coupons).

Please send me

____	NASA Picture Set 1 "Apollo - In the Beginning"	@ $1.25
____	NASA Picture Set 2 "Men of Apollo"	@ 1.00
____	NASA Picture Set 3 "Eyewitness to Space"	@ 2.75
____	NASA Picture Set 4 "First Manned Lunar Landing	@ 1.75
____	NASA Picture No.5 "Man on the Moon"	@ 1.00

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FOR SALE: Large 3/16 Parkway wet suit, gloves, boots, hood, 20-pound weight belt, CO_2 life vest - $55; B-flat tenor saxophone - $40; B-flat clarinet - $75. Seals, 898-3501.

COUNTRY PLAYBOYS will present a special program of country music at the Activities Association's annual Carnival on Friday, August 22 at 7 p.m. on the Activities grounds. Members of the group are (from left): Walter Pickrell, Bryce Kepley, Howard Nosey, and John Wainwright. Pickrell, Kepley, and Wainwright are members of Research Models and Facilities Division. The two-day Carnival will be held August 22 and 23.

ELOISE MCGEHEE ATTAINS CPS RATING

The Institute for Certifying Secretaries, a Department of the National Secretaries Association (Int.) in Kansas City, Missouri, has announced that M. Eloise McGehee, head of the Stenographic and Special Typing Section, Administrative Services Division, has attained the rating of Certified Professional Secretary. Miss McGehee joins 385 other secretaries throughout the nation who attained this coveted rating this year. A total of only 4,600 secretaries in the United States can claim this honor.

Miss McGehee received this rating as a result of her participation in a two-day, 12-hour examination given at Old Dominion College in Norfolk in May. The examination consisted of six individual tests covering personal adjustment and human relations, business law, business administration, secretarial accounting, secretarial skills, and secretarial procedures. Miss McGehee passed all six examinations at one time, making her one of the 7.5 percent in the nation of the 2,199 taking the examination this year who passed all six tests.

One other staff member, Gloria R. Alto of the Advanced Aerospace Projects Office, attained the Certified Professional Secretary rating in 1968.

GRADUATE PHYSICS PROGRAM EXPANDED

The School of Science at Old Dominion University is expanding its graduate program in Physics to include courses in atmospheric and space physics. These courses may be applied for credit for the M.S. degree.

During the fall semester courses will be offered in Thermal Physics, Introduction to Quantum Mechanics, Mathematical Methods of Physics, Classical Mechanics, Electromagnetic Theory I, Quantum Mechanics, Group Theory and Spectroscopy, Principles of Atmospheric Physics, Radar Meteorology, and Dynamic Meteorology.

Staff members interested in this program should contact the Training Office, telephone 2517.

Langley Researcher

VOLUME 9, NUMBER 17 LANGLEY RESEARCH CENTER AUGUST 22, 1969

CARNIVAL CELEBRATIONS START TODAY ON ACTIVITIES GROUNDS

The two-day carnival which will be held on the grounds of the Activities Building tonight and tomorrow promises to be another fun-filled week-end.

Carnival tickets are one dollar each and they may be purchased on the grounds. By purchasing a ticket, the buyer will be eligible for an array of ground prizes.

The events open today at 5 p.m. with the first ground prize drawing for a $100 U.S. Savings Bond. Ground prizes will be given away every twenty minutes. At 7 o'clock the Country Playboys will present a special program of country music.

Winners must be on the ground to win all prizes except the two grand prizes. The big prize tonight will be a Home Entertainment System- - drawing time will be 10 p.m.

Tonight's events will close with a rock and roll dance at 9:30 to the music of the 5 O'clock Shadows.

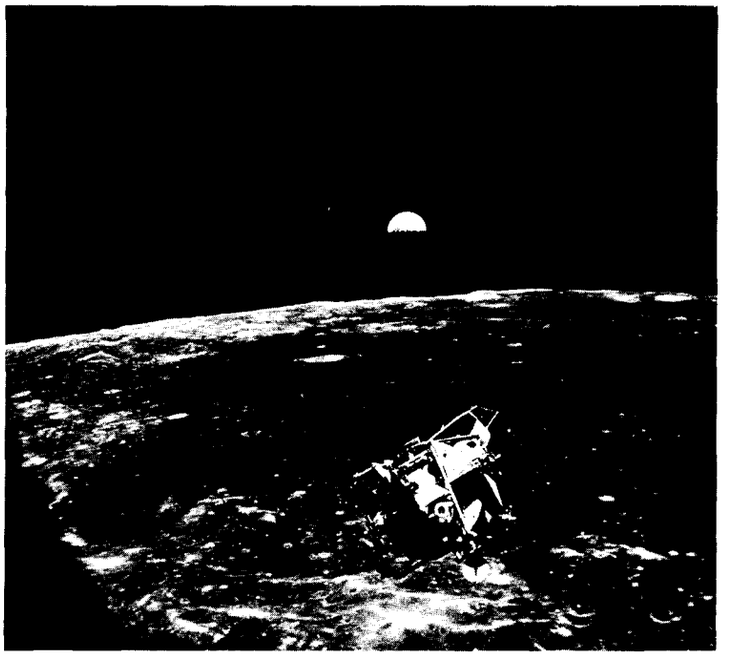
The midway opens tomorrow at 2 p.m. and the first ground prize will again be a U.S. Savings Bond

At 10 o'clock the grand prize will be awarded. The big prize will be an all-expense paid trip for two to one of the following: Hawaii, the Bahamas, Jamaica, Europe, or a combination trip to Miami, Puerto Rico and the Virgin Islands.

The Carnival will end on Saturday night with a dance at 9:30 to the music of Jett Rollo.

Plan to bring the entire family out for the two-day celebration. Hamburgers, hotdogs, pizzas, and beverages may be purchased at a number of food booths.

ON HAND to entertain the children and sell balloons during the two-day annual carnival will be the Jolly Jack's Clown Unit. The carnival will be held today and tomorrow.



THE APOLLO 11 lunar module ascent stage is photographed from the Command and Service Module during rendezvous in lunar orbit. The LM was making its docking approach to the CSM. The LM descent stage used as a launch platform was left on the lunar surface. The large dark colored area in the background is Smith's Sea centered at 85 degrees east longitude and 2 degrees south latitude on the lunar near side. The view is looking west. The Earth rises above the lunar horizon.

NASA ANNOUNCES CREW MEMBERS FOR APOLLO 13 AND 14 FLIGHTS

NASA has named flight crews for Apollo missions 13 and 14.

Prime crewmen for Apollo 13 are Astronauts James A. Lovell Jr., Commander; Thomas K. Mattingly II, Command Module Pilot; and Fred W. Haise Jr., Lunar Module Pilot.

Apollo 14 prime crewmen are Astronauts Alan B. Shepard Jr., Commander; Stuart A. Roosa, Command Module Pilot; and Edgar D. Mitchell, Lunar Module Pilot.

The backup crew for Apollo 13 is composed of Astronauts John W. Young, John L. Swigert Jr., and Charles M. Duke Jr.

Backup crewmen for Apollo 14 are Astronauts Eugene A. Cernan, Ronald E. Evans, and Joe H. Engle.

Members of the support team for the Apollo 13 crew are Astronauts Jack R. Lousma, William R. Pogue, and Vance D. Brand. A support team for Apollo 14 has not been named.

(Continued on page 3)

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

WEDDING BELLS. . .Charles J. Shoemaker, Technical Information and Utilization Division, deserted the bachelor ranks when he took his final vows with Ruth E. Pace, Uhrichsville, Ohio, on August 1 in Uhrichsville.

BADY DERBY. . .Announcing the birth of a seven-pound, ten-ounce son, Michael Brian, on July 10 is Gail Day, Aeronautical and Space Mechanics Division. . .Celebrating the birth of a daughter, Karen Elsie, on July 22 are Nancy and Richard M. Hueschen, both of Flight Instrumentation Division.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, August 27 at 7:30 p.m. at the Central Labor Union Hall.

ENGAGEMENT. . .Making plans for an October 4 wedding is Nancy A. Spraberry, Flight Mechanics and Technology Division. She is engaged to Lt. Clayburn Joseph Hanna, Elizabeth, West Virginia.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on September 2 at 7 p.m. at the Central Labor Union Hall.

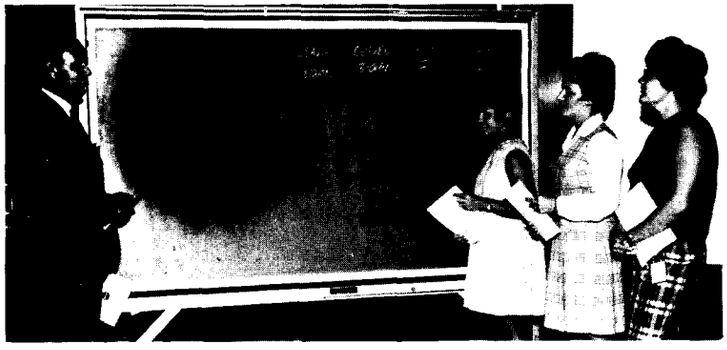
TOUCH FOOTBALL. . .The NASA Touch Football League is in action again. Anyone wishing to enter a team or to join a team is requested to call Charlie Woerner, extension 3089. Play starts September 6 at 9:30 a.m. at Kecoughtan High School.

PROFESSOR TO VISIT. . .Dr. Rolf G. Winter, Chairman of the Department of Physics, College of William and Mary, will visit the Langley Center on Thursday, September 4, to discuss the graduate program in physics at William and Mary and VARC. Employees interested in meeting with Dr. Winter should call the Training Office, extension 2517, and arrange for an appointment.

FOR SALE: Hampton One Design #589 (18-foot centerboard sloop for racing or day sailing), complete with trailer - $999. Witherspoon, 851-0552.

FOR SALE: 21-inch Zenith console black and white TV - $50. Vandeveer, 877-0718.

WANTED: Ride from Buckroe Ave. to E.A. on 8 shift. Scott, 2507.



ROBERT F. HARTMAN, Associate Professor of Business Administration, College of William and Mary, who was assigned to the Fiscal Division as a participant in the NASA-ASEE summer faculty fellowship program, is shown teaching secretaries and other interested personnel the procedure for preparing Travel Vouchers (SF 1012). Looking on are (from left): Jean LaNeave and Sandra S. Chaney, Applied Materials and Physics Division; and Carol Lockett, Structures Research Division. Preparation of Travel Vouchers became decentralized upon completion of these classes. Approximately 100 interested staff members participated in the classes and received copies of a Langley handbook entitled "Travel Guidance" (LHB 9700.1) which Hartman compiled during his summer session here. Copies of the handbook may be obtained from Fiscal Division, 3802.

CAFETERIA MENU

The following menu will be served in the cafeterias durthe week of August 25:

Monday - French onion soup, roast veal, barbecued pork chunks, Salisbury steak, Spanish franks. Snack bar - Soup, barbecued pork, flying saucer, French fries.

Tuesday - Cream of mushroom soup, roast ribs of beef, chuckwagon steak, beef stew, grilled cheese sandwich. Snack bar - Soup, grilled cheese sandwich, chuckwagon steak, French fries.

Wednesday - Chicken-noodle soup, chicken pie Apollo, grilled smoked ham, fried fish sticks, baked hash. Snack bar - Soup, ham and egg sandwich, hot pastrami, baked beans, French fries.

Thursday - Consomme julienne, grilled steak, roast fresh ham, spaghetti and meat sauce, Spanish omelette. Snack bar-Soup, hot dog, steak sandwich, French fries.

Friday - Spiced tomato soup, baked Smithfield ham, veal cutlet, broiled perch, deviled crab, broiled spiced luncheon meat. Snack bar - Soup, spiced luncheon meat, veal cutlet, French fries.

The menu for the week of September 1 is as follows:

Monday - H O L I D A Y

Tuesday - Puree of bean soup, simmered corned beef and cabbage, stuffed shrimp, smoked pork sausage, western omelette. Snack bar - Soup, fish sandwich, hot corned beef, French fries.

Wednesday - Cream of tomato soup, pepper steak, shrimp Newburg, fried chicken, chili con carne. Snack bar - Soup, hamburger, cheeseburger, steak sandwich, French fries.

Thursday - Vegetable-beef soup, pot roast of beef, beef pie, deep-fried beef liver, Austrian ravioli. Snack bar - Soup, hot dog, chili dog, hot roast beef, French fries.

Friday - Manhattan clam chowder, hot turkey sandwich, grilled pork steak, fried fish, cheese omelette. Snack bar - Soup, fish sandwich, sliced turkey, French fries.

NEBA INSURANCE CHANGES CITED

The NASA Employees Benefit Association has announced that effective October 1, the charge for dependent insurance will be reduced as follows:

Salary	Old Rate	New Rate
Less than $7,000	$3.15	$2.70
$7,000 but less than $12,000	3.70	3.15
$12,000 and over	6.45	5.50

Dependent insurance will also become available to residents of Texas for the first time on October 1.

A new schedule of salary classes and coverage for the regular life insurance will become effective on October 1 as follows:

Salary	Face Amount
Less than $7,000	$ 8,000
7 but less than $8,000	10,000
8 but less than $10,000	12,000
10 but less than $12,000	14,000
12 but less than $14,000	16,000
14 but less than $16,000	18,000
16 but less than $18,000	20,000
18 but less than $20,000	23,000
20 but less than $22,000	25,000
22 but less than $25,000	27,000
25 but less than $30,000	30,000
30,000 and over	35,000

There will be no change in the present rates charged for the regular insurance or the travel accident insurance.

The travel accident insurance will be renewable November 1, for a six-month period. Thereafter the travel accident insurance will be renewable annually on May 1.

The Association pointed out that this program, which was started more than 16 years ago, now has almost 17,000 employees enrolled as members in the regular life plan agency-wide. Dependent insurance units exceed 8,000 and it is expected that making such insurance available to residents of Texas will increase the total to nearly 10,000. Almost 7,000 employees have taken the travel accident insurance.

CREWS NAMED FOR APOLLO FLIGHTS

(Continued from page 1)

Lovell, 41, is a Navy captain. This will be his fourth space mission. Previous flights include Gemini 5 and 12 and Apollo 8. He was backup commander for Apollo 11.

Mattingly, 33, a Navy lieutenant commander, has not yet flown in space. He has served on support teams for Apollo missions.

Haise, 35, is a civilian. He was on the backup crews for Apollos 8 and 11. Apollo 13 will be his first space flight.

Shepard, 45, a Navy captain, was the United States' first man in space. He flew Freedom 7, a suborbital mission in Project Mercury on May 5, 1961. He recently returned to space-flight status after being grounded for several years because of an inner ear disorder. Shepard's duties as Chief of the Astronaut Office have been assumed by Thomas P. Stafford.

Roosa, 35, is an Air Force major who will be making his first space flight. He has served on Apollo support teams.

Mitchell, 38, is a Navy commander. This will be his first space flight. He was on the Apollo 10 backup crew.

Both missions include lunar landings and exploration. Landing sites for Apollos 13 and 14 are expected to be selected this fall. Prime consideration in site selection will be to meet scientific objectives within operation capabilities. Continued exploration of the moon's surface will lead to lunar sites in which it will be increasingly difficult to effect a landing.

Apollo Lunar Surface Experiment Packages (ALSEP) will be deployed on each mission, extending the network of scientific experiments on the moon's surface. In addition, objectives will include the study of dark, mantling material on the moon, volcanic processes and age determinations.

Total lunar surface stay time will not exceed 35 hours. The commander and lunar module pilot will conduct two periods of extravehicular activity (EVA) on each mission. Duration of each EVA period will be approximately three hours.

LANGLEY was visited by 105 elected officials and civic leaders from the New York City area on August 12. The purpose of the visit was to acquaint these representatives with the technical effort that is being made by Langley to study the problem of aircraft noise. This visit was sponsored by the Aviation Development Council. Shown with Dr. John E. Duberg (left), Associate Director, and Laurence K. Loftin Jr. (second from left), Assistant Director, are James T. Pyle, Director of the Aviation Development Council, and Congressman Joseph T. Addabbo (right), 7th District, New York State.

REFRESHER COURSE OFFERED

Plans are being made to offer an undergraduate refresher course, APS 114 - Engineering Analysis II, under the sponsorship of the George Washington University. Classes will start Sept. 15 and they will be held on Monday and Thursday afternoons from 4:30 to 6 o'clock. Fees for the course will be paid by the Government. The course is designed for prospective graduate students who lack the necessary background for graduate mathematics.

The course will include vector calculus, orthogonal functions and generalized Fourier series, Bessel functions, Legendre polynomials, and an introduction to partial differential equations and boundary value problems.

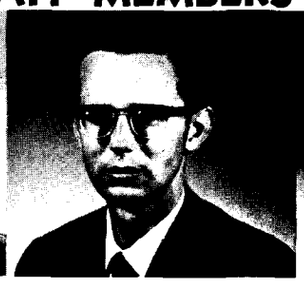
Employees interested in this course should call the Training Office, extension 2517.

FOR SALE: 14-foot molded plywood boat with 10 hp Evinrude motor and trailer - $300. Siviter, 723-1989.

WANTED: Upright freezer, 13-cubic-foot or larger, prefer without "no defrost" feature. Miller, 595-0731.

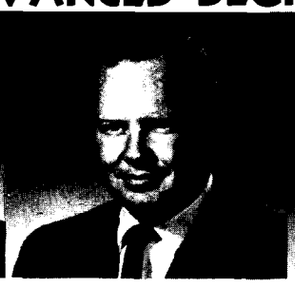
STAFF MEMBERS RECEIVE ADVANCED DEGREES

Constantine A. Balanis
Ph.D., Elect. Eng.
Ohio State University
Flight Instrumentation

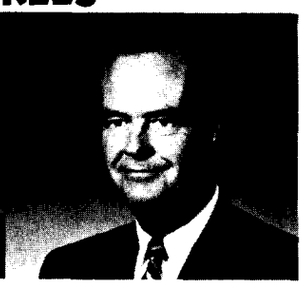


Thomas B. Ballard
Ph.D., Elect. Eng.
University of Maryland
Flight Instrumentation

John H. Crews, Jr.
Ph.D., Eng. Mechanics
VPI
Structures Research



William L. Grose
Ph.D., Aerospace Eng.
VPI
Aero-Physics



Richard A. Hord
D.Sc., Applied Math.
University of Virginia
Dynamic Loads

Herbert A. Leybold
Ph.D., Mech. Engineering
N.C. State University
Structures Research

Alton P. Mayo
Ph.D., Aerospace Eng.
VPI
AMPD

Raymond C. Montgomery
Ph.D., Aerospace Eng.
VPI
ASMD

G. Burton Northam
Ph.D., Mechanical Eng.
VPI
AMPD

Henry G. Reichle, Jr.
Ph.D., Aeronomy
University of Michigan
Flight Instrumentation

Robert D. Averill
Master of Mech. Eng.
University of Virginia
FSVD

David R. Brooks
M.S., Physics
William and Mary
Aero-Physics

J. David Dearing
Master of Eng. (Ther.)
Old Dominion
Aero-Physics

Marvin B. Dow
Master of App. Mechanics
University of Virginia
Structures Research

W. Brooks Drew
M.S., Mech. Engineering
University of S.C.
FVSD

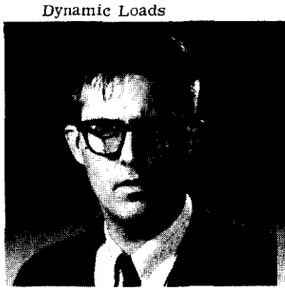
Rodney S. Duncan
M.S., Mech. Engineering
VPI
Dynamic Loads

Michael C. Fischer
M.S., Mech. Engineering
VPI
Aero-Physics

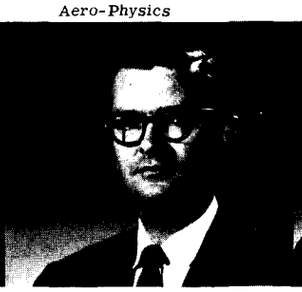
James E. Fowke
Master of Mech. Eng.
University of Virginia
Instrument Research

Charles H. Fox, Jr.
M.S., Aerospace Eng.
VPI
Full-Scale Research

Archibald L. Fripp
Master of Mat. Science
University of Virginia
Flight Instrumentation



Blair B. Gloss
M.S., Aerospace Eng.
VPI
Full-Scale Research



Randolph A. Graves
M.S., Mech. Engineering
VPI
AMPD

H. Harris Hamilton
M.S., Aerospace Eng.
VPI
Aero-Physics

Chase P. Hearn
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William E. Howell
M.S., Mathematics
VPI
Flight Instrumentation

James W. Johnson
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VPI
Flight Instrumentation

Robert G. Kyle
Master of Aerospace Eng.
University of Virginia
AMPD

Major C. Lee
Master of Elect. Eng.
University of Virginia
Flight Instrumentation

Roy L. Marshall, III
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VPI
AMPD

James A. Martin
Master of Engineering
M.I.T.
Full-Scale Research

Vincent R. Mascitti
Master of Aerospace Eng.
University of Virginia
Full-Scale Research

Lemuel E. Mauldin
M.S., Optics
University of Rochester
Instrument Research

Frederick L. Moore
M.S., Aerospace Eng.
VPI
FMTD

Ralph J. Muraca
Master of Aerospace Eng.
University of Virginia
FVSD

James C. Newman, Jr.
M.S., Eng. Mechanics
VPI
Structures Research

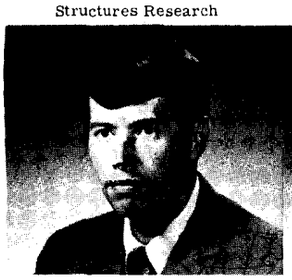
George C. Olsen
Master of Eng. (Ther.)
Old Dominion
Structures Research

Ronald A. Outlaw
M.S., Physics
VPI
Instrument Research

Henry G. Parker
M.S., Administration
George Washington University
FVSD

Russell V. Parrish
Master of Exp. Statistics
N.C. State University
Analysis and Computation

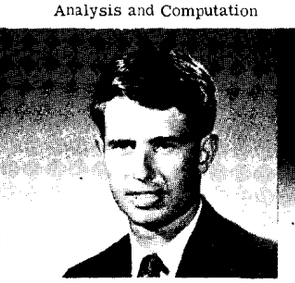
Clarence C. Poe, Jr.
M.S., Eng. Mechanics
VPI
Structures Research



Douglas B. Price
M.S., Mathematics
William and Mary
ASMD

James W. Sawyer
M.S., Eng. Mechanics
VPI
Structures Research

Walter L. Snow
M.S., Physics
William and Mary
Instrument Research



J. Larry Spencer
M.S., Elect. Eng.
VPI
Flight Instrumentation

Robert C. Ward
M.S., Mathematics
William and Mary
Analysis and Computation

John J. Warhol
Master of Eng. (Ther.)
Old Dominion
RMFD

Ralph D. Watson
Master of Aerospace Eng.
University of Virginia
Aero-Physics

George M. Wood, Jr.
M.S., Eng. Science
Rensselaer Polytechnic Inst.
Instrument Research

John W. Young
M.S., Physics
VPI
ASMD

DEGREE RECIPIENTS NOT PICTURED

Miles M. Bruce
D.Sc., Elect. Engineering
University of Virginia
Formerly of FID

Robert R. Peterson
Master of Aerospace Eng.
University of So. California
Formerly of Viking

Ronald K. Clark
Master of Aerospace Eng.
University of Virginia
Structures Research

Richard D. Samuels
Master of Aerospace Eng.
University of Virginia
Formerly of FSRD

Fred L. Coward
M.S., Administration
George Wash. University
Formerly of Procurement

John W. Wilson
M.S., Physics
William and Mary
Analysis and Computation

SPACE EXCITES IMAGINATION-- SOMETIMES A LITTLE TOO MUCH!

Perhaps one of the so-called "fallout" benefits of the space program in general, and the Apollo 11 mission in particular, is that the great voyage of exploration is exciting the imagination of students everywhere.

This is one of the indications in the several hundred letters received each month by Langley's Office of Public Affairs. The letters, from all 50 states and many foreign countries, request general and specific information on programs of the National Aeronautics and Space Administration and the Langley Research Center.

One of the more imaginative letters comes from Farmville, North Carolina, where the NASA apparently has a counterpart.

The Commander of the "Farmville Aeronautics and Space Administration" reveals in recent correspondence that one of its laboratories took some photographs of the Apollo 11 astronauts' walk on the moon.

The laboratory "just happened to be in the area," according to the letter, which points out that the FASA presently has a space station on Mars-- where "we have found underground plant life."

The Mars explorers expect to come down to earth in time for the new school term.

Here are a few brief excerpts from other letters from summer students interested in receiving information on NASA programs:

Middletown, Missouri: "Please send fast. I got a mean teacher."

Fairbanks, Alaska: "What kind of interments do you use to track spacecraft?"

Fort Bragg, N.C.: "My teacher says there is life on Mars. I don't know if I should believe her or not. People might think I'm crazy or smart."

Newport News, Virginia: "The boys in my neighborhood think you won't answer my letter because I am a girl."

Corona, California: "Can you send us a mixture of red fuming acid, oxygen, hydrogen, ammonia, and kerosene?"

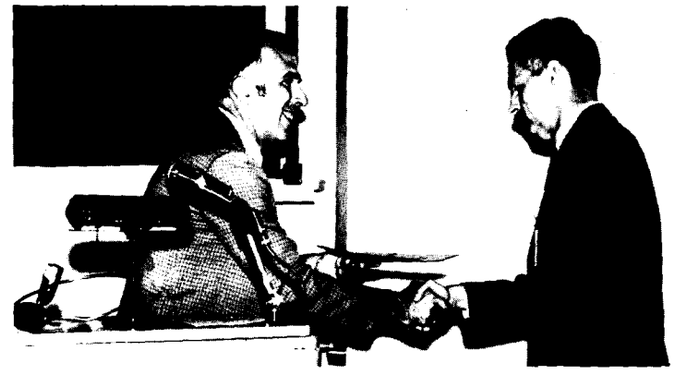
Raleigh, N.C.: "I made a science report with the booklets you sent. The teacher said I was 100 per cent perfect. I am sending 50 per cent for your kindness in helping me."

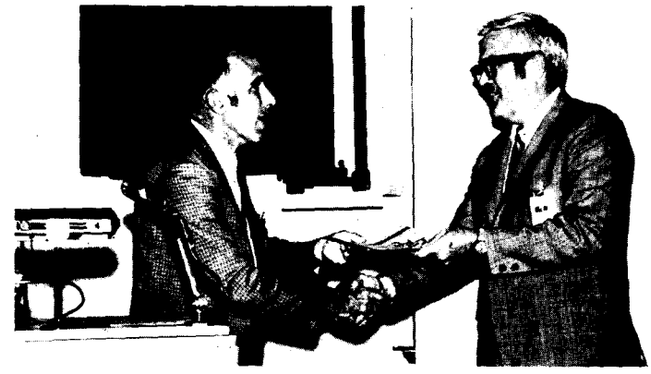
COPIES OF BOOK AVAILABLE

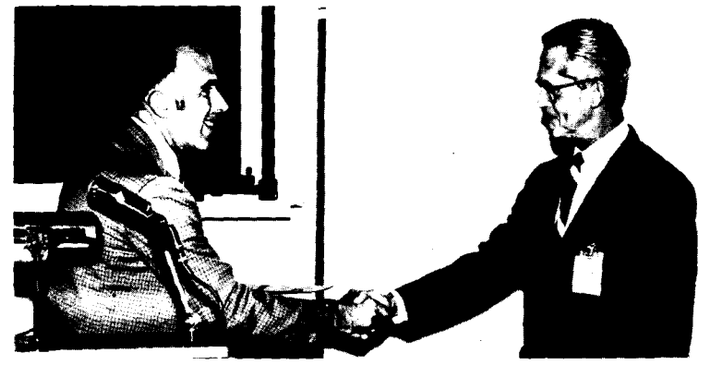
Because of the continued interest on the part of the Langley staff in the book "Exploring Space with a Camera," edited by Edgar M. Cortright, 100 additional copies of the book have been ordered from the Government Printing Office and will be made available to those who are interested at the special price of $3.20 per copy. The regular price of the book is $4.25 per copy.

The book has been especially popular for gift giving and particularly as a Christmas gift. Any member of the staff wishing to purchase a copy of the book may do so at the Training Office, Building 587.

SOUVENIR ISSUE COPIES: Extra copies of the Apollo 11 souvenir edition of Langley Researcher are available in the Researcher office, 3116. The publication includes several mission photographs and illustrations to show in a general way Langley's extensive support of the Apollo Program the past decade.







THREE STAFF MEMBERS recently received the NASA Exceptional Scientific Achievement Award. The awards were presented by Edgar M. Cortright, Langley Director, and each one was accompanied by a $1,000 check. Robert V. Hess (top right), Head of Plasma Physics Section, Aero-Physics Division, was cited for "outstanding research contributions in the field of magnetoplasmadynamics, with emphasis on plasma accelerator research results applicable to electric rockets for future interplanetary space vehicles." A. Gerald Rainey (center right), Head of Aeroelasticity Branch, Dynamic Loads Division, received his award for "distinguished service in conceiving and conducting research programs in the field of aeroelasticity in relation to aircraft and launch vehicles and for leadership in the development and application of unique research techniques which have resulted in substantial contributions to improved safety and utility of aircraft and launch vehicles. George P. Wood (lower right), Head of Magnetohydrodynamics Section, Aero-Physics Division, was honored for "outstanding research contributions in plasma physics calculation of electric forces on satellites and for his timely comprehensive re-evaluation of all the scientific observations of the atmospheres of Venus and Mars."

PRESIDENT ISSUES FEDERAL POLICY ON EQUAL EMPLOYMENT OPPORTUNITY

An important message from President Nixon on the subject of equal employment opportunity in the Federal Government was directed to the Heads of Departments and Agencies on August 8. Because of the significance of this message and the fact that it challenges every member of the staff to participate in its goals, it is quoted below:

"In my memorandum to you of March 28, 1969, I reaffirmed the Government's policy of providing equality of opportunity for all citizens in Federal employment. At the same time I directed the Chairman of the Civil Service Commission to review present efforts in the Government to achieve equal employment opportunity and give me recommendations for desirable policy and program changes.

"The Civil Service Commission has given me its report. ...I completely endorse the new program directions which it outlines, and I look for positive results from these new efforts.

"No more serious task challenges our nation domestically than the achievement of equality of opportunity for all our citizens in every aspect of their lives regardless of their race, color, religion, national origin or sex. This includes the opportunity for all persons with full recognition of their dignity as individuals, to seek and to achieve their highest potential and productivity in employment situations. Discrimination of any kind based on factors not relevant to job performance must be eradicated completely from Federal employment. In addition, we must, through positive action, make it possible for our citizens to compete on a truly equal and fair basis for employment and to qualify for advancement within the Federal service. We must search for new ways to provide the necessary encouragement, assistance and training opportunities, where appropriate, so that all employees may utilize their capabilities to the fullest extent in meeting the manpower needs of Federal agencies.

"There are several points in Chairman Hampton's report which I want to emphasize:

"--Assuring equal employment opportunity in a Federal department or agency is the responsibility of the organization's head. It must have his continuing high priority attention and that of all agency executives.

"--Equal employment opportunity must become an integral part of the day-to-day management of Federal agencies and interwoven with every action which has an effect on employees. This is the road to true equal employment opportunity.

"--While we must continue to search out qualified personnel from all segments of our population, we must now assure the best possible utilization of the skills and potential of the present work force. Employees should have the opportunity to the fullest extent practicable to improve their skills so they may qualify for advancement. Those who have potential to serve at the supervisory level and above should be identified and given the opportunity to develop to their fullest capability. Programs are underway and new efforts are being developed to achieve this end.

"--Special efforts must be made to assure that opportunities in the Federal Government at the professional levels are made known to men and women of all races, religions and ethnic backgrounds so that positions of leadership in the future can be assumed by persons from all segments of our population.

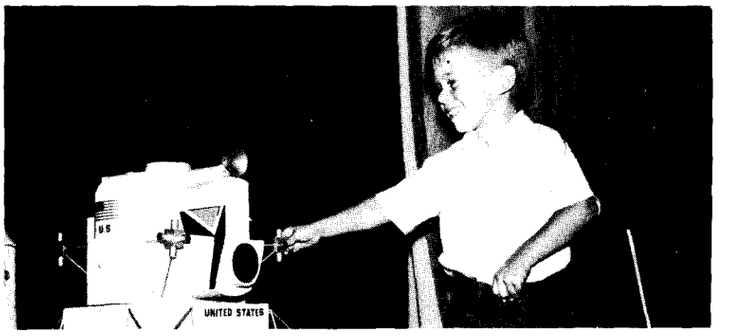
"--Every possible step must be taken by agency heads to make sure that each manager and supervisor in the Government understands and implements the objective of equal employment opportunity for all Americans. Our supervisors' performance must in every way support equality of opportunity for all employees.

"--In addition to assuring equal employment opportunity for all persons, the Government, as a responsible employer, must do its part along with other employers to provide special employment and training programs to those who are economically or educationally disadvantaged. We must hold out a helping hand and imaginatively use the facilities of the Government to prepare such persons for useful and productive employment.

"I have asked the Civil Service Commission to work closely with agencies and other interested organizations in the implementation of these program directions and to keep me informed of progress. Interagency consultation and coordination will hasten our progress and assure common understanding of our goals and the Commission will have the direct support of my staff in this effort. I request that you and your staffs cooperate fully in this urgent undertaking and move forward energetically in the direction outlined in the Civil Service Commission's report.

"At the same time, I have issued a new Executive Order on equal employment opportunity in the Federal Government. This Order clearly states the policy of this Administration in this critical area and demonstrates the continuing Federal committment to equal employment opportunity.

"I look forward to receiving the Commission's progress reports on a regular basis. They will have my personal attention."



STAFF MEMBERS and their families were treated to a Spacemobile Science Demonstration at the Activities Building earlier this month. Fred M. Bell (top), Head of the Spacemobile and lecturer for the demonstration, tries a pair of earphones on Kenneth R. Williams Jr., son of Kenneth R. Williams of Research Support Division. Robert Mark Nye (bottom photo), son of staff photographer Robert E. Nye, looks over a model of the Lunar Module.

NASA CHECKS ON PROGRESS OF SCIENCE FAIR WINNERS

The National Aeronautics and Space Administration has conducted a survey to obtain information on the accomplishments, current whereabouts, and future plans of winners of NASA awards in the annual International Science Fair.

Beginning in 1961 through 1968, the grand prize for winners in the NASA competition at the ISF was an expenses-paid trip to visit a NASA center of their choice, with the privilege of selecting a teacher to accompany them.

Langley has had eight winners as visitors during the eight-year period. These included Gary F. Barton of Des Moines, Iowa, and Elliott D. Ross of Staten Island, New York, 1961; David G. Taylor of Middletown, New Jersey, and Virginia Morris of Richland, Washington, 1964; John F. Rollins of Lawton, Oklahoma, 1965; Theodore Willer of Pine Village, Indiana, 1966; Gary S. Settles of Walland, Tennessee, 1967; and Dennis L. Marcella of Waialua, Hawaii, 1968.

At the time of his reply to the NASA survey earlier this year, Barton was a Lieutenant (Junior Grade) at the nearby Naval Air Station at Oceana, where he was serving as a ground officer instructing students in airborne radar interpretation and flight planning. He graduated from Iowa State University two years ago with a B.S. in engineering operations. His science fair project eight years ago was "Design Testing of Reentry Vehicles from Space in a Two-Dimensional Supersonic Wind Tunnel."

Ross, whose science project was entitled, "Can Algae be Used as an Efficient Means of Producing Oxygen and Food Nutrients in Space Travel," is in a six-year B.S.-M.D. program at the college of liberal arts and medical school at Boston University.

Virginia Morris, a student at the University of Washington, was a 1964 winner with a project concerned with a "Mouse in a Closed Ecological Environment."

"Plasma Jet Studies of Reentry Materials" was the 1966 project of Willer, who attends Rose Polytechnic Institute.

Settles, a student at the University of Tennessee, won with his project, "Investigation of Mach 1.95 Blunt-Body Drag Due to Central Injection."

NASA could not locate Taylor, Rollins, and Marcella.

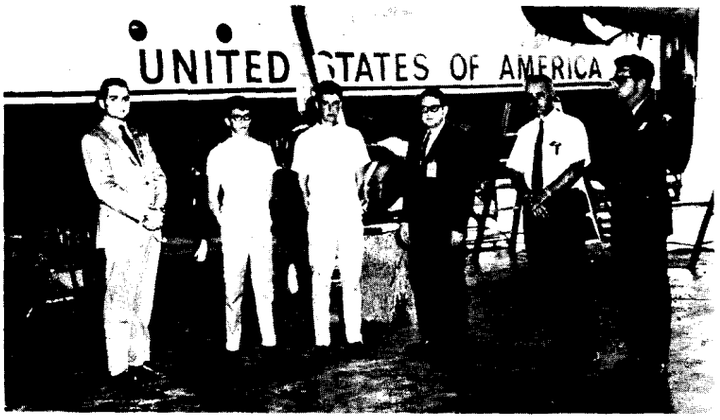
This year, the top award for NASA winners at the ISF was a copy of Exploring Space with a Camera, which was presented to each winner, his teacher, and his school library. The book was edited by Edgar M. Cortright, Langley Director.

ANNUAL RECORDS CLEANUP

WEED OUT OLD RECORDS
- STORE OR DESTROY -

August 29 is the last day of the records cleanup campaign announced June 25 by the Director. Each organization will be asked for a report of the cubic feet of records they have destroyed or transferred. To reach the goal of a 15 per cent reduction in records holding, a concentrated effort during this last week is necessary.

WANTED: Ride from Southampton to E.A. on 8 shift. Hobbs, 2232.



THE U.S. ARMY National Science Fair winner, Larry H. Hayward (third from left), visited the Langley Research Center last month. Robert J. Tapscott (third from right), Flight Mechanics and Technology Division, talked to the group during their stop at the NASA Hangar. Accompanying Hayward were (from left): William G. Johnson, Langley; Richard D. Cantwell, Ft. Eustis; John E. Yates, AVLABS, Ft. Eustis; and Lt. Timothy D. Evans, Ft. Eustis.

QUINN DIES AT AGE 56

Stephen D. Quinn, Engineering Technician in the Research Operations Section, Research Support Division, died August 11 in University of Virginia Hospital following a brief illness.

Quinn was born August 9, 1913 in Waltham, Mass. He attended school in Waltham and joined the Center staff on December 1, 1947 as an Aeronautical Laboratory Mechanic.

Survivors include his widow, Mrs. Virgie F. Quinn, a daughter, Cheryl Quinn at home; and a son, John Quinn at home.

GOLF WINNERS ANNOUNCED

The NASA Golf Association held its second tournament of the year at the Langley Golf Course on July 24. Winner of low gross prize of 12 golf balls for the second consecutive time was O. D. Gardner with a score of 70. Flight winners were as follows:

First Flight - Troy Brooks and Walt Olstad tied for first place with 72 and Bernie Garrett and Bill McMillan tied for second with 73.

Second Flight - Bob Babcock took first place with 73 and Kenneth Test, Tom Carpini, and James B. Whitten tied for second with 74.

Third Flight - Carson Rector, Bill Kivett, and C. B. Whitehurst came in for a three-way tie for first with 74.

Thirty-nine players competed in the tournament.

NASA TENNIS CLUB NEWS

Action in the Men's Annual Doubles Tournament begins tomorrow at 9 a.m. at the NASA courts with the finals scheduled for Sunday afternoon.

Current rankings in the men's ladder competition are: 1. Ed Riddle; 2. Dick Pincus, 3. Charles Ruhlin, 4. Bob Murray, 5. Bob Roberts, 6. Elmer Goyette, 7. Bill Haigler, 8. Burnell McKissick, 9. Bill Weaver, and 10. Robert Boswinkle.

●●●●●●

LOST: Einstein's Theory of Relativity by Max Born, and Optical Spectrometric Measurements of High Temperatures edited by Philip J. Dickerman. Return to Technical Library.

Langley Researcher

VOLUME 9, NUMBER 18 LANGLEY RESEARCH CENTER SEPTEMBER 5, 1969

EMERGENCY APPEAL FOR HURRICANE VICTIMS ANNOUNCED BY RED CROSS

A special message has been received at the Center from Dr. Thomas O. Paine, NASA Administrator, lending his support to an emergency appeal for $15,000,000 by the American Red Cross to permit that service agency to render assistance to the victims of hurricane Camille.

Because of the enormity of the disaster throughout the Gulf Coast area and in the states of Virginia, Alabama, Georgia, Tennessee, and West Virginia, the Red Cross disaster funds are not sufficient to do the job.

In the belief that this special fund raising effort of the American Red Cross would meet with the favor of the vast majority of the Center staff, the Activities Association has agreed to act as coordinator to receive whatever contributions employees may wish to make voluntarily.

For the purpose of receiving contributions with a minimum of inconvenience, receptacles will be placed near the cashier stands in both the East and West Cafeterias as well as in the lounge of the Activities Building during the month of September. Each district representative to the Activities Association will also have a container for the convenience of contributors in his district. Anyone wishing to make a contribution sufficient to include as an income tax exemption may do so at the Activities Building and receive a receipt.

The Civil Service Commission has urged each agency to encourage its employees to support the local campaigns of the American Red Cross chapters in this effort.

(Continued on page 7)

NASA ASSIGNS NEW ASTRONAUTS

NASA is assigning seven of the Air Force Manned Orbiting Laboratory aerospace research pilots to its astronaut program and an eighth to non-astronaut duty in its Flight Crew Operations Directorate.

Effective date of the new assignment has not been set.

The seven assigned to the NASA astronaut program are:

Major Karol J. Bobko, USAF, 32, an Air Force Academy graduate from Seaford, N.Y., the first USAF Academy graduate to join the astronaut ranks.

Lt. Cdr. Robert L. Crippen, U.S. Navy, 32, Porter, Texas.

Major Charles G. Fullerton, USAF, 31, Portland, Oregon.

Major Henry A. Hartsfield Jr., USAF, 35, Birmingham, Ala.

Major Robert F. Overmyer, Marine Corps, 33, Westlake, Ohio.

Major Donald H. Peterson, USAF, 35, U.S. Military Academy graduate from Winona, Mississippi.

Lt. Cdr. Richard H. Truly, U.S. Navy, 32, Meridian, Miss.

Lt. Col. Albert H. Crews, USAF, from Alexandria, La., has been assigned to the Flight Crew Operations Directorate at Manned Spacecraft Center.

The seven additions will bring the total number of active NASA astronauts to 54.

VERA HUCKEL HEADS CENTER'S COMBINED FEDERAL CAMPAIGN

Vera Huckel

Vera Huckel, head of the Dynamic Loads Computing Section, has been named Chairman of the Center's Combined Federal Campaign, it was announced by Edgar M. Cortright, Director.

This will be the second combined campaign conducted at the Center and it will include the Peninsula United Fund organizations, the national health agencies, and the international service agencies.

Last year staff members contributed a total of $109,600 to the effort.

A kick-off meeting will be held on September 19 at 10 a.m. in the Activities Building. The meeting will be attended by the director, division chiefs, and campaign workers. The one-day intensive drive will be held on Wednesday, September 24.

Assisting Miss Huckel in the drive are the following: William B. Mayo, vice chairman; Eleanor Cole and Helen Willey, financial chairmen; Elva Rollins, employees on travel; Dorothy Moore, location of personnel; Pat Clarke and John Witherspoon, coops and graduate students; Richard V. Braig, service contractors; Edward A. Howe, fiscal advisor; Edward T. Maher and Charles F. Barnett, general advisors; and Ruth Verell, publicity.

Dennis J. Martin, Dynamic Loads Division and chairman of the Center's campaign in 1967, has been named Federal Fund Raising Co-ordinator.

The campaign will be conducted similar to the one last year and the divisional leaders are as follows:

Peter F. Korycinski, Office of Director, Associate Director, and Assistant Directors for Research; Harper E. Van Ness, Viking Project Office; William N. Gardner, Advanced Aerospace Project Office; Roland D. English, Scout Project Office; Eugene D. Schult, Space Vehicle Design Criteria Office; Herbert A. Wilson Jr., Applied Materials and Physics Division; William H. Phillips, Aeronautical and Space Mechanics Division; Paul F. Fuhrmeister, Analysis and Computation Division; George B. Graves, Flight Instrumentation Division; Howard B. Edwards, Instrument Research Division; I. Edward Garrick, Dynamic Loads Division; Richard R. Heldenfels, Structures Research Division; John V. Becker, Aero-Physics Division; John P. Campbell, Flight Mechanics and Technology Division; Mark R. Nichols, Full-Scale Research.

(Continued on page 7)

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Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

NEW ARRIVALS. . .Announcing the birth of a daughter, Christine Elise, on August 10 are Martha, formerly of Structures Research Division, and Don M. Robinson, Instrument Research Division. . .Passing out cigars and candy is Robert W. Bourgeois, Research Support Division. He became the father of a seven-pound daughter, Andrea Marie, on August 27. . .Celebrating the birth of an eight-pound, seven-ounce daughter, Andrea Victoria, on July 24 is John J. Cox, Personnel Division.

NOTE OF THANKS. . .John F. McDonough, formerly of Instrument Research Division and presently a patient at Patrick Henry Hospital, wishes to extend his sincerest thanks to all of his friends in IRD, FID, and ICS for presenting him with a remote-controlled television set. He assures his many friends that he will derive many pleasurable hours from this much appreciated gift.

ENGAGEMENT. . .Making plans to desert the bachelor ranks is John D. Scholz, Research Support Division. He is engaged to Ann Carol Flansburg, Newport News, and plans call for a November wedding.

BLOODMOBILE. . .The Red Cross Bloodmobile will visit the Center on September 17. There is still a great demand for blood. Persons who have not registered for the blood donors program and who wish to do so should call East Dispensary, extension 2243.

TENPIN LEAGUE. . .The NASA Tenpin Bowling League will start bowling September 9 at 6:30 p.m. in Century Bowling Lanes. For further information cann Sandi Satterthwaite, 851-6717.

RADIO CONTROL GROUP. . .The South Eastern Virginia Radio Control Group will meet September 9 at 8 p.m. in the Activities Building. The main item on the agenda will be the election of officers for 1970.

ASTROFETE. . .Representing the Langley Research Center at President Nixon's state dinner held last month at the Century Plaza, Los Angeles, in honor of the Apollo 11 crew were Edgar M. Cortright, Langley Director; Dr. Floyd L. Thompson, retired Langley Director; and Dr. Richard T. Whitcomb, head of 8-Foot Tunnels Branch, Full-Scale Research Division.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of September 8:

Monday - Cream of mushroom soup, beef stroganoff, baked ham, Salisbury steak, franks and beans. Snack bar - Soup, hot dog, flying saucer, baked beans, French fries.

Tuesday - Cream of celery soup, roast beef, barbecued pork chunks over rice, broiled fish, grilled cheese sandwich. Snack bar - Soup, grilled cheese, hot roast beef, French fries.

Wednesday - Minestrone soup, chopped steak, chicken cacciatore with spaghetti, stuffed pepper, chili mac. Snack bar-Soup, barbecued pork, Lou's satellite special French fries.

Thursday - Vegetable-beef soup, country fried steak, stuffed flounder, knockwurst and beans, baked hash. Snack bar - Soup, hamburger, cheeseburger, steak sandwich, French fries.

Friday - Chicken-noodle soup, hot roast beef sandwich, chicken pie, fried fish, cheese-tomato rarebit. Snack bar - Soup, fish sandwich, hot roast beef, French fries.

The menu for the week of September 15 is as follows:

Monday - Puree of bean soup, pot roast, grilled pork steak, Polish sausage. fish cakes. Snack bar - Soup, ham and egg sandwich, hot pastrami, French fries.

Tuesday - Cream of potato soup, pepper steak, fried fantail shrimp, spaghetti and meat sauce, Spanish franks. Snack bar - Soup, hot dog, steak sandwich, French fries.

Wednesday - Tomato soup, roast veal, chuckwagon steak, beef stew, broiled luncheon meat. Snack bar - Soup, barbecued pork, chuckwagon steak, French fries.

Thursday - Chicken-noodle soup, chicken and dumplings, baked ham, broiled halibut steak, beef ravioli. Snack bar - Soup, hamburger, cheeseburger, sliced turkey, French fries.

Friday - Manhattan clam chowder, corned beef and cabbage, stuffed shrimp, liver and onions, baked ham. Snack bar - Soup, sea dog, corned beef, French fries.

FOR SALE: Canadian maple double poster bed and dresser - - $100; also antique double bed with chest and dresser with mirror - $185. Buchanan, 877-3130.

FOUND: Mason's ring in Bldg. 1244. Owner may call 2435 or identify in Room 135.

THANKS STAFF. . .On behalf of the Activities Association, Ernest Greene, President, wishes to express his thanks to all carnival workers and to those who supported the two-day festivities. The Association is planning a special workers appreciation night and Greene suggested that workers inform their representatives as to the type of celebration they would enjoy attending.

PETRONE NAMED APOLLO DIRECTOR

Rocco A. Petrone, Director of Launch Operations at the John F. Kennedy Space Center, has been appointed Director of the Apollo Program. He succeeds Lt. General Samuel C. Phillips, who assumes command of the Air Force Space and Missile System Organization.

Walter J. Kapryan, Deputy Director of Launch Operations and a former member of the Langley Research Center staff, succeeds Petrone. The appointments were effective September 1.

As Director of the Apollo Program Office in Washington, Petrone assumes overall responsibility for direction and management of the Apollo Manned Space Program.

Petrone, 43, went to the Kennedy Space Center in 1960, on loan from the U.S. Army, assigned as the Saturn Project Officer.

He later became the Apollo Program Manager, responsible for the planning, development and activation of all launch facilities for the Apollo Program. Following this, he was assigned as Launch Operations Director in 1966.

Petrone, a native of Amsterdam, N.Y., graduated from the U.S. Military Academy in 1946 and served in Germany from 1947 to 1950. He then resumed his studies at Massachusetts Institute of Technology where he received a Master's Degree in Mechanical Engineering in 1951. In 1952 he was awarded a Professional Degree in Mechanical Engineering. In 1969 he was awarded an honorary Doctorate of Science Degree by Rollins College.

Petrone's extensive career in rocket development began shortly after graduation from MIT when he was assigned to the Army's Redstone Arsenal. He participated in the development of the Redstone, the nation's first ballistic missile, and was in the blockhouse at Cape Canaveral as a member of the Missile Firing Laboratory when the first Redstone launching took place in August 1953.

Petrone has received many awards, including the NASA Exceptional Service Award in November 1968, for the direction of the successful checkout and launch of Apollo 7, the first three-man mission into space; and the NASA Distinguished Service Medal, the agency's highest award, in January 1969, for the direction of the checkout and launch of Apollo 8, the first manned mission to the moon.

Prior to assuming his duties as Deputy Director of Launch Operations, Kapryan, 49, was Assistant Apollo Spacecraft Program Manager at KSC.

During the early phases of the Gemini Program, Kapryan was responsible within the Gemini Program Office for test planning and determining requirements for spacecraft checkout equipment to be located at Kennedy Space Center. He participated in the preparation and countdown of all 10 manned Gemini flights as well as the Apollo Saturn IB and Saturn V missions.

Kapryan joined the Langley Research Center staff in September 1947. He joined the NASA Space Task Group at Langley in March 1959. Shortly thereafter he was appointed project engineer for the Mercury Redstone 1 spacecraft and moved to the Cape in 1960 with that spacecraft.

Kapryan was born in Flint, Michigan. He was reared in Detroit where he graduated from Denby High School in 1938. He attended Wayne University in Detroit prior to entering the Air Force in 1943 where he became a first lieutenant as a B-29 flight engineer.

He has received several NASA awards and honors, among them a superior achievement award in 1965 for his contributions to the success of the Gemini program, and in January 1966 he received the group achievement award for his part in the success of the Gemini 7/6 mission.

VISITS CENTER: Mrs. Alice E. Gibson, who at the age of 92 is probably the Center's oldest living retiree, visited the Center last week to renew acquaintances. Greeting her are Margery F. Hannah (left), Aeronautical and Space Mechanics Division, and Julia M. Goodwin, Instrument Research Division. Mrs. Gibson joined the Langley staff on December 1, 1944 as a computer in the East Computing Section and transferred to Stability Analysis as a mathematician in 1945. As the Center's oldest employee, she retired in November 1959 at the age of 82. Prior to starting her NASA career, she taught high school mathematics for 19 years.

BERNIER APPOINTED NASA EUROPEAN REPRESENTATIVE

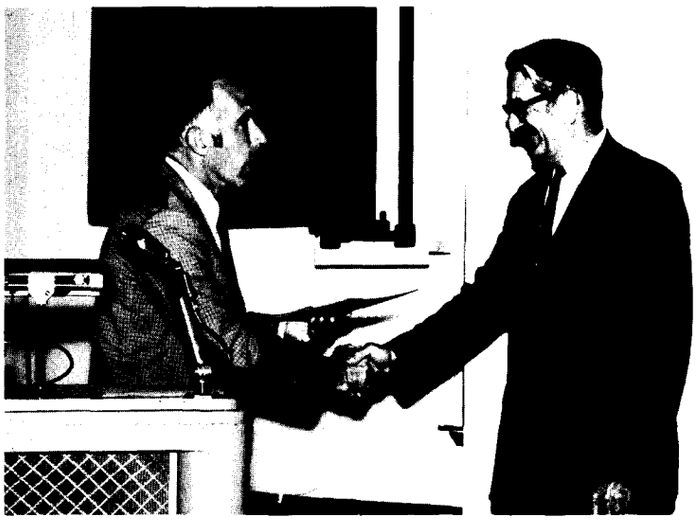
Robert E. Bernier has been appointed to the position of NASA European Representative in the Office of International Affairs. He replaces Clotaire Wood, former Langley staff member, who is returning to the Office of Advanced Research and Technology at the Washington Headquarters.

Bernier's office will be in the American Embassy, Paris, where he will take up his duties in early October. He will be concerned with NASA's cooperative relationships and programs with European regional and national space organizations.

Bernier is a native of Berlin, New Hampshire, and has a B.A.E. degree in aeronautical engineering from Rensselaer Polytechnic Institute. From 1957-63 he was associated with Convair Astronautics, The Martin Company and General Electric Company as a propulsion engineer and aerospace engineer.

In 1963 Bernier joined Goddard Space Flight Center where he served as test conductor for the British UK-2 satellite and was responsible for the pre-flight space-environmental testing of the Orbiting Geophysical Observatory (OGO-B) satellite.

From 1966 until his present NASA appointment he was associated with the Communications Satellite Corporation.



OUTSTANDING LEADERSHIP: Richard R. Heldenfels (right), Chief of Structures Research Division, is congratulated by Edgar M. Cortright, Director, on receiving the NASA Outstanding Leadership Award. Heldenfels received a $1,000 check and a citation which reads as follows: "In recognition of his outstanding leadership and foresight in the initiation and guidance of timely and effective development of high temperature facilities and research programs, which work has established a sound technical base for high temperature structures, and for his leadership in the creation and execution of highly effective research programs and facilities for studies of fundamental problems in aerospace structures.

APPRENTICE SCHOOL STARTS SEPT. 8

The fall semester of the Apprentice School will start on September 8 and classes will be held in Building 586. The Technical Physics III lecture and laboratory will be taught at Thomas Nelson Community College and will start September 29.

The courses and instructors are as follows:

Monday - Calculus, B. A. Conway; Strength of Materials, Gordon Owsley; Environmental Testing, T. A. Clark; and Handbook, J. B. Davenport.

Tuesday - Technical Physics III (lecture), Mrs. Lawrence; College Trigonometry, J. L. McCarty; Engineering Drawing, J. L. Puffenberger; and Technical Physics III (laboratory), Mrs. Lawrence.

Wednesday - Calculus, B. A. Conway; Strength of Materials, Godron Owsley; Environmental Testing, T. A. Clark; and Handbook, J. B. Davenport.

Thursday - Technical Physics III (laboratory), Mrs. Lawrence; College Trigonometry, J. L. McCarty; and Engineering Drawing, J. L. Puffenberger.

Friday - A.C. Circuit Analysis, A. L. Jones.

FOR SALE: Thoroughbred Chihauhau puppies - 2 males. Bunting, 868-9150.

WANTED: Driving combination or alternate driver from Riverside Dr. (near Harwood Heights) to W.A. on 7:30 shift. Dawson, 3544.

FOR SALE: 4 x 6-foot bar with formica top and paneling - $20. Carter, 898-7108 after 5:30 p.m.

FOR SALE: Super-8 amp movie camera with projector, screen, tripod and flood light. Thompson, 723-1430.

WANTED: Ride or driving combination from Brentwood to W.A. on 7:30 shift. Magee, 3081.

EMPLOYEES RECEIVE AWARDS

Eight staff members, some of whom are pictured at right with their supervisors, recently received cash awards for suggestions under the Incentive Awards Program.

The recipients and their suggestions are as follows:

George S. McConnell, Fabrication Division - $15 for a suggestion relative to eliminating a hazardous working condition in the Materials Processing and Development Section by removing from the floor area material which is awaiting processing and placing this material in a special bin for storage and accountability purposes.

C. Willis Cross Jr., Technical Information and Utilization Division - $250 for suggesting a new photographic technique for visually observing the combustion of laser ignited metal droplets which has led to the discovery of the "inner flame zone" in the zirconium-oxygen systems.

Robert T. Roth, Fabrication Division - $80 for an improved method for redesigning the valve seat assembly for the Lunar Landing Research Facility vehicle which has significantly reduced the failure frequency of the hydromatic valve and the replacement costs and delivery time for the seat assembly.

Roland W. Lee and James W. Delauder (joint award), Research Support Division - $60 for an improved mounting technique for the Mach 10 Tunnel model support which will result in increased accuracy and more reliable installation in positioning tunnel models.

Thomas E. Deans and William C. Phaup (joint award), Research Division - $30 for a suggestion relative to the design of a pressure vacuum pinch valve which will simplify the process of locating leaks in transducers, scanivalves, and other pressure measuring devices.

Howard E. Price, Research Support Division - $15 for the design and implementation of a TV camera mount in the 2-Foot Hypersonic Facility which reduces the need of continuous monitoring of data while research tests are in progress.

LEE NAMED APOLLO MISSION DIRECTOR

Chester M. Lee has been named by NASA as Apollo Mission Director for manned moon-landing flights, including the Apollo 12 mission scheduled for launch November 14.

He succeeds George H. Hage, who has been elected vice president for product development of the Boeing Company, Seattle, Wash. Hage, who has also been Deputy Director of the Apollo Program, was employed by Boeing as engineering manager of the Lunar Orbiter program before coming to NASA in 1967.

Lee, a retired U.S. Navy captain, has been Assistant Apollo Mission Director since August 1966.

He was born in Derry, Pa., in 1919 and graduated from the U.S. Naval Academy in 1941 with a bachelor of science degree in electrical engineering. In addition to sea assignments he served with the Directorate of Research and Engineering, Office of Secretary of Defense, and the Navy Polaris missile program. He joined NASA in 1965 as Chief of Plans, Mission Operations Directorate, Office of Manned Space Flight.

FOR RENT: 3-bedroom brick rancher with fireplace - located on Big Bethel Rd. - available Sept. 14 to June 1, 1970. Sawyer, 826-5162.

FOR SALE: 18-foot, 9-inch Pacific catamaran with 267 square feet of sail. Solomon, 826-6670.

William M. Haraway (left) congratulates George S. McConnell

C. Willis Cross (left) receives award from William H. Guy

William C. Holloway (left) presents award to Robert T. Roth

Roland W. Lee (left) and James W. Delauder receive joint award from J. R. Denton (right)

Thomas E. Deans

William C. Phaup

Howard E. Price (left) congratulated by Lawrence E. Perry

SCOUT CONTRACT AWARDED BY LANGLEY

NASA will increase the capability of the Scout launch vehicle system by developing a larger first-stage solid rocket motor to be known as the Algol III.

Design, development and flight qualification of the larger stage will be done by the prime vehicle contractor, LTV Aerospace Corporation, Dallas, Texas, under a $2.5 million contract awarded by Langley Research Center.

Engineering studies show the larger motor should enable the Scout to place a 400-pound payload into a 300-mile Earth orbit, or increase by almost a third the payload weight of a Scout-launched deep space probe. The present Scout can put a 300-pound payload into a 300-mile Earth orbit.

NASA expects the enlarged motor -- 44 or 45 inches in diameter versus the current 40-inch Algol IIB -- can be integrated into the launch vehicle system without major changes. The contract includes integration of the larger first-stage motor with existing launch stands, ground support equipment, and test hardware.

The Scout project was begun at Langley Research Center in 1958 to develop a reliable, economical solid-propellant launch vehicle for small satellites, space probes and similar experiments. Since the first Scout launch from Wallops Station in 1961, NASA has flown 65 Scouts carrying a wide variety of payloads including several for other nations. Launch sites exist on both coasts of the United States and the government of Italy has installed an ocean platform Scout launch complex off the east coast of Africa for equatorial launches in the San Marco program.

Langley Research Center manages the Scout project for NASA's Office of Space Science and Applications and will monitor the Algol III contract during its 18-month period of performance.

TECHNOLOGY UTILIZATION NEWS

The Technology Utilization Office is seeking Langley expertise to help solve a number of public sector problems. Langley Research Center harbors a large reserve of know-how in numerous areas, much of which is not directly mission-oriented because of the diverse interests most of the scientists, engineers, and technicians pursue.

In an attempt to painlessly extract some of this know-how and to prevent possible dilution of the mission-oriented aerospace efforts, the T. U. Office has a set of public sector problem abstracts similar to those established by the Biomedical Application Teams. This approach is both challenging and exciting and will surely bring a sense of pride and satisfaction to those who contribute to this worthy effort.

Reviewers of the public sector problem abstracts are not expected to spend much time on their solutions but only to indicate what existing knowledge can be employed to help solve the problems.

Contact your division T. U. monitor for a list of current abstracts or call the T. U. Office, extension 3281.

Sample public sector problems are titled as follows:

"Miniature Antennas for Personal Radios"

"Rapid Pictorial, Graphic and Alphanameric"

"Information to Mobile Law Enforcement Units"

FOR SALE: AKC registered miniature Poodle pups, had shots and physical. Stoops, 826-2273.

FOR SALE: Two-track Silvertone Hi-Fi tape recorder - $40; broadcast band plus three short wave bands - $25. Aven, 851-4564.

EDGAR M. Cortright (left), Center Director, presents a NASA Inventions Award for $600 to John P. Campbell, Associate Chief of Flight Mechanics and Technology Division, "for the scientific-technical contribution having significant value in the conduct of aeronautical and space activities entitled 'External Flow Jet Flap'."

NASA TENNIS CLUB NEWS

The NASA Tennis Club held its men's doubles championship tournament last month. In the championship match Edwin Kilgore and Jack Butler, first seeded team, defeated James Mueller and Jack Kaylor, second seeded team, 6-1, 6-2, to win the tournament. Tom Foughner, club vice president, and Frances Taylor, secretary, presented trophies to the winners.

Results of the tournament were as follows:

First Round - Kilgore and Butler - bye; A. Mueller and P. Gooderum - bye; B. McKissick and L. Barker - bye; R. B. Lee and J. Italiano defeated B. Compton and T. Parrott 6-1, 4-6, 6-4; Mueller and Kaylor - bye; W. Kelliher and T. Foughner defeated G. Egan and D. Duxbury 6-0, 6-2; C. Horner and B. Kepley - bye; and C. Carter and R. Smith defeated G. Young and R. Tolson 6-2, 6-4.

Quarter Finals - Kilgore and Butler over A. Mueller and Gooderum 6-0, 6-0; McKissick and Barker forfeited to Lee and Italiano; J. Muller and Kaylor defeated Kelliher and Foughner 6-2, 6-2; and Carter and Smith over Horne and Kepley 4-6, 6-2, 6-2.

Semi-finals - Kilgore and Butler defeated Lee and Italiano 6-0, 6-0; and J. Muller and Kaylor over Carter and Smith 6-3, 6-1.

The September tennis schedule is as follows: September 7 and 8 - women's singles champion; September 13, 14, and 15 - men's singles champion; and September 27 and 28 - mixed doubles champion. Persons wishing to participate in these tournaments should contact R. B. Lee, M.S. 231, extension 2840.

FOR SALE: 30-inch Hotpoint electric range - $60. Council, 877-6697.

WANTED: Male in early or middle twenties to share apartment. Perry, 2661.

WANTED: Driving combination from Williamsburg to W.A. on 8 shift. Sabol, 3772.

WANTED: Ride or driving combination from Powhatan Park area to E.A. on 8 shift. Davis, 2675.

NASA SELECTS GENERAL ELECTRIC CO. VIKING SUPPORT SERVICES CONTRACTOR

NASA has selected the General Electric Company, Philadelphia, Pa., for award of a contract to provide engineering and mission related support to the Langley Research Center for the Viking Project. Eight other firms submitted proposals.

A cost-plus-award-fee contract is to be negotiated in the estimated amount of $4 million for the first years of performance. The contract will contain an option for an additional two-year period.

Viking, scheduled for launch in 1973, is NASA's most advanced project in a series of unmanned scientific spacecraft for exploring Mars, and will make a soft landing on the planet. Its primary objective is to provide information relevant to life on Mars.

Upon arrival at Mars in 1974, the Viking spacecraft will be put into orbit and a search will be conducted to find the best landing area. After release of the Lander, the Orbiter portion of the spacecraft will continue to provide reconnaissance of the landing site and to gather scientific data from orbit.

The project will benefit extensively from Mariners 6 and 7 which recently flew by Mars and returned television photographs and scientific information, and from Mariner 1971 orbiter flights currently being developed. The Mariners are managed by Jet Propulsion Laboratory.

The Langley Research Center is assigned project management responsibility for Viking under the overall direction of NASA's Office of Space Science and Applications.

COMBINED FEDERAL CAMPAIGN

(Continued from page 1)

Eugene Britt, Office of Engineering and Technical Services; Marion B. Seyffert, Fabrication Division; E. Barton Geer, Flight Vehicles and Systems Division; Harold I. Maxwell, Research Models and Facilities Division; Earl F. Stahl, Research Support Division.

William L. Williams, Office of Assistant Director for Administration; Edward T. Maher, Administrative Services Division; Edward A. Howe, Fiscal Division; Charles F. Barnett, Personnel Division; Sherwood L. Butler, Procurement Division; and Henry A. Fedziuk, Technical Information and Utilization Division.

EMERGENCY APPEAL ISSUED

(Continued from page 1)

In urging staff members to support this effort, Edgar M. Cortright, Center Director, stated, "I want to add my endorsement of this worthy effort to that of the NASA Administrator, and express appreciation to...members of the Association's Board of Directors for their support of this appeal. It will provide another opportunity to let the community know that members of the Center's staff are concerned for their fellow man, and, hopefully inspire their support."

FOR SALE: Dinette table with extra leaf and six chairs, also unfinished kidney table suitable for vanity. Huffman, 722-8401 after 5 p.m.

FOR SALE: 1968 New Moon mobile home. Bradshaw, 838-1971.

FOR SALE: 1967 Seafare-Sunliner with 110 hp Mercury and many extras - $2800. Thompson, 247-3954.

A YOUTH Recognition Program was held at the Activities Building last month for Summer Aids and Neighborhood Youth corps enrollees working at the Center this summer. T. Melvin Butler, Assistant Director for Administration, presented certificates and $25 checks to eight young employees who were recognized for their outstanding performance. Receiving the awards were (from left): Beverly A. Seay, Marcella C. Threatt, Dorothy E. Duffy, Rose H. White, Butler, Herbert L. Hodges, M. Denise Mathis, Carol Thompson, and Warren Judge. Eight additional young people, who were runners-up for the cash awards, received copies of the book "Exploring Space with a Camera" which were autographed by the Center Director, Edgar M. Cortright.

TEAMWORK AIDS HURRICANE VICTIMS

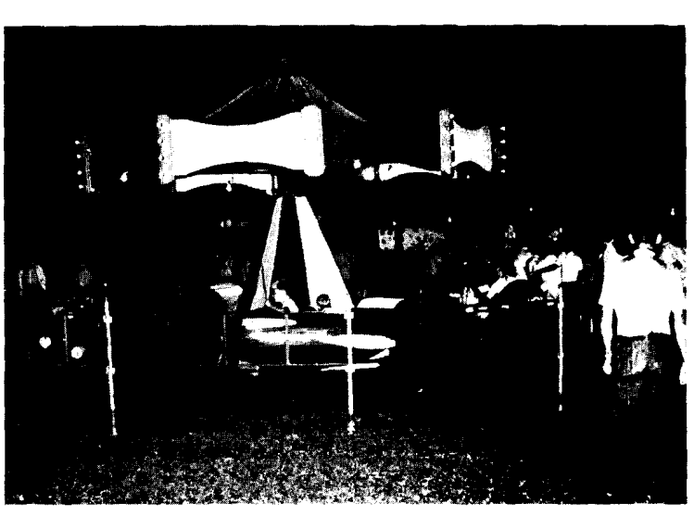
In a remarkable display of Center teamwork, a bacteria sensor for reprocessed water was loaned to General Electric Company to meet an urgent requirement due to the national emergency in the State of Louisiana resulting from damage by hurricane Camille.

On the afternoon of August 22, Dr. J. R. Wilkins, Applied Materials and Physics Division, received a call from R. B. Wiley, General Electric Co., asking for assistance in obtaining the loan of a bacteria sensor. The equipment was assembled, crated, and delivered to Patrick Henry Airport with all paperwork and arrangements completed within four hours of the initial contact.

A number of people had to closely coordinate their activities and respond quickly to meet the need for shipment by air on a 5 p.m. flight from Patrick Henry. C. S. Hudgins, AFSCLO, located the pertinent property records and volunteered to make the required contacts to clear handling the request and to determine the correct procedures to be followed. Northrop support personnel and the Center's transportation contractor cooperated and responded rapidly in handling the equipment for crating and shipment, and F. C. Bragg, Research Support Division, crated the equipment for shipment in a matter of minutes. Frank Lofurno, Claude Watts, and John Nettles, Procurement Division, coordinated and expedited actions which resulted in the crated equipment being on the way to the airport, with all arrangements complete, by 3:35 p.m.

Charles C. Shufflebarger, AMPD, and Dr. Wilkins, coordinators for the shipment of the equipment, pointed out that the Center's response to the G.E. request is a remarkable display of Center teamwork.

FOR SALE: 1967 Harley Davidson Sprint SS, 250 CC, extras. Shaughnessy, 595-2024.



THE TWO-DAY Carnival, sponsored by the Activities Association, proved to be a successful celebration especially for Mrs. Thomas J. Vogelwede (top left), wife of Thomas Vogelwede of Flight Mechanics and Technology Division. She elected to receive a savings certificate in lieu of the vacation trip and Ernest Greene, President of the Association, is shown making the presentation. In the right photo, Greene presents prizes to winners in the carnival ticket selling contest. Charles E. Edmiston (left) was winner and Meredith W. Ballard was first runner up. Second runner up, Carolyn H. Leduc (center left) receives her award from Edgar M. Cortright, Center Director. Manning the prize information booth are (from left) H. E. Rockey, Cecil Burtner, and Herbert Boulter. Special entertainment was provided for the younger set such as the rocket ride (lower left) and the miniature train (lower right). The Home Entertainment Set, which was the grand prize on Friday night, was won by James A. Coleman, Research Models and Facilities.

E-11

Langley Researcher

VOLUME 9, NUMBER 19 LANGLEY RESEARCH CENTER SEPTEMBER 19, 1969

COMBINED FEDERAL CAMPAIGN - COUNT US IN

The Langley Research Center stood ten feet tall in last year's Peninsula Combined Federal Campaign. In a one-day drive we increased our average contribution by about fifty percent and exceeded our official goal by over thirty percent. Our gift totaled nearly $110,000, and, coming at the start of the drive as it did, it was a needed shot in the arm for the entire Peninsula. I think we were all proud of Langley's response to critical community needs.

As the 1970 Combined Federal Campaign drive begins, we must again examine the situation and decide what to do. Here is the way I see it.

The need is still there. Until we find a better and more effective way of solving our social problems, we must continue to support those existing organizations attempting to cope with the situation today.

There is a great deal at stake here. The well being of thousands of disadvantaged, discouraged, and even desperate people is an immediate concern. In the longer view, the future of all of us, our society, our economic system and our government is at stake. The questions are: Can we, and will we attend to the many social problems that beset our country today?

The future is in the hands of the people. We can't blame the government for our problem. We are the government. More importantly, we can go a long way to solving our own community problems on a decentralized local level. That is what the Combined Federal Campaign is all about.

Are we carrying more than our share of the load? Our average individual gift is just below the NASA average of $29 per capita. Lewis, Goddard, and Headquarters are well ahead of us; others lag. In our community we are near the top of Federal installations in per capita giving, but our average salary is the highest. Compared with non-government sectors on the Peninsula, Langley giving is good. But more than our share? I don't think so. Over-extended? No.

What we give to the Peninsula Combined Federal Campaign is a matter which we each must decide in the reality of our personal circumstances and in the light of our own consciences. Last year I presumed to suggest a fifty percent increase in our gifts. We did better than that! Can I hope that if I continue to set worthwhile and achievable goals for us that we will try to meet them?

This year I suggest that we shoot for a twenty percent increase over our current level of giving. I realize that the rate of increase can't go on forever. We'll soon be up to a level that is all reasonable people can expect. But this is not the year to take a breather. We have all had salary increases since the last Combined Federal Campaign drive. Despite inflation, there was a sizable net gain. The people depending on our help also face inflation.

The suggested increase amounts to only twenty-five cents per pay period on the average -- not much to us but a great deal to some. This would increase Langley's total contribution by nearly $25,000!

Community leadership and good citizenship are among the many fine traditions of the Langley Research Center. Interest, responsibility, and compassion are evident in many ways. I feel confident that we will again stand up and be counted in this drive.

LAUNCHES CAMPAIGN: Edgar M. Cortright, Director, launches the Center's Combined Federal Campaign with his donation to Peter F. Korycinski. Looking on is Vera Huckel, Chairman of the Center's campaign effort.

INTENSIVE ONE-DAY CAMPAIGN SCHEDULED FOR SEPTEMBER 24

Vera Huckel, Chairman of the Center's Combined Federal Campaign, announced that Wednesday, September 24 has been selected as the date for an intensive one-day drive in an effort to establish two Center records - record giving in record time.

This will be the second combined campaign conducted at the Center and it will include the Peninsula United Fund, the Williamsburg-James City County United Fund, National Health Agencies, and International Service Agencies.

Last year staff members contributed nearly $110,000 to the effort and it is hoped that this year's total will show an increase of twenty percent.

All division leaders are requested to turn in their reports to Eleanor Cole and Helen Willey, financial chairmen, as soon as possible after the one-day drive. The two financial chairmen will be located in Room 205, Building 1229, but not before September 24.

(Continued on page 3)

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

DIAPER LINE. . .Weighing in at seven pounds, seven ounces on September 10 was Tina Lynn, new daughter of Sara, formerly of Fiscal Division, and Harry Fuller, Flight Instrumentation Division. . .Word has been received at the Center that Kay L. Brinkley, Structures Research Division, became the mother of a seven-pound, three-ounce son, Robert Gregg, on September 5. . .Announcing the birth of a seven-pound, one-ounce son, Michael Harris, on August 20 is Jerry M. Allen, Full-Scale Research Division.

ARCHERY CLUB. . .An organizational meeting of a NASA Archery Club will be held at 7:30 p.m. on September 30 at the Activities Building. All interested persons are urged to attend.

ENGAGEMENT. . .Making plans for an October 25 wedding is Sandra Clark, Fiscal Division. She is engaged to Lt. Col. Mike Dunagan, Fort Eustis.

WINS AWARD. . .Rear Adm. Frank B. Voris, Navy Medical Corps, has been named winner of the John Jeffries Award by the American Institute of Aeronautics and Astronautics. Admiral Voris, Assistant Chief for Research and Military Medical Specialities, will receive the award for contributions to medical research and development, both for the Navy and NASA, to whom he was assigned from 1961 to 1964 to help develop initial animal and human studies for establishing the criteria and standards for manned space flight. Jeffries was an American physician who made the earliest recorded scientific observations from the air and joined the French balloonist Blanchard in the first aerial crossing of the English Channel in 1785.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, September 24 at 7:30 p.m. at the Central Labor Union Hall.

ACTIVITIES BUILDING CLOSES. . .The Activities Building, which has been open after working hours for the benefit of staff members, will be closed after September 28. The outside entrances to the rest rooms will be open until dark.

TURKEY SHOOT. . .Officials of the Activities Association have announced that the annual Thanksgiving Turkey Shoot will be held November 1 at the Activities Building. Further details will be announced later.

RECEIVES AWARD: Robert W. Herr (right), Dynamic Loads Division, receives a Special Service Award for Achievement from Edgar M. Cortright, Langley Director, "for achievement in originating and developing a unique system for simulating static acceleration loads in a spacecraft during vibration tests as part of an Apollo Saturn 502 structural anomaly investigation.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of September 22:

Monday - Split green pea soup, Smithfield ham, shrimp Newburg, meat loaf, franks and beans. Snack bar - Soup, hot dog, baked ham, baked beans, French fries.

Tuesday - Cream of tomato soup, Swiss steak, grilled smoked ham, chicken croquettes, chili con carne. Snack bar - Soup, ham and egg sandwich, hot pastrami, French fries.

Wednesday - Chicken noodle soup, roast ribs of beef, breaded veal cutlet, chicken chow mein, western omelette. Snack bar - Soup, hamburger, veal cutlet, French fries.

Thursday - Vegetable-beef soup, grilled steak, baked lasagna, fried chicken, baked hash. Snack bar - Soup, barbecued meat sandwich, steak sandwich, French fries.

Friday - Manhattan clam chowder, grilled pork chops, beef pie, fried fish, wieners and sauerkraut. Snack bar - Soup, hot dogs, hot corned beef, French fries.

The menu for the week of September 29 is as follows:

Monday - Cream of mushroom soup, pot roast of beef, stuffed flounder, smoked pork sausage, Austrian ravioli. Snack bar - Soup, fish sandwich, hot roast beef, French fries.

Tuesday - French onion soup, pepper steak, fried oysters, liver and onions, grilled cheese sandwich. Snack bar - Soup, grilled cheese, hot corned beef, French fries.

Wednesday - Puree of bean soup, roast fresh ham, Hungarian goulash, fried chicken, Spanish omelette. Snack bar - Soup, hamburger, slices of baked ham, French fries.

Thursday - Chicken-vegetable soup, country-style steak, chicken pie, spaghetti with meat sauce, broiled luncheon meat. Snack bar - Soup, hot dogs, steak sandwich, French fries.

Friday - Beef broth with barley, roast beef, barbecued pork chunks over rice, halibut steak, Spanish franks. Snack bar - Soup, barbecued pork, roast beef, French fries.

NORTH AMERICAN-ROCKWELL AWARDED NASA'S SUPERCRITICAL WING CONTRACT

NASA has awarded a contract for the construction of a new aircraft wing that could substantially improve the performance and efficiency of future aircraft, particularly commercial jet transports.

The wing, called the NASA supercritical wing, was developed at Langley Research Center as a result of studies conducted by Dr. Richard T. Whitcomb, Head of 8-Foot Tunnels Branch, Full-Scale Research Division, during the past several years. The wing utilizes an airfoil shape with a flat top and a rear edge curved downward, as opposed to the curved top and sloped rear section of conventional wings.

The wing will be flight tested by Flight Research Center.

A $1.8 million fixed-price contract was awarded to North American-Rockwell Corp., Los Angeles Division, for construction of the wing. Upon completion, it will be delivered to Flight Research Center where it will be mounted on a modified Navy F-8 jet aircraft.

Langley wind tunnel tests indicate that the new airfoil shape could allow highly efficient cruise flight close to the speed of sound, or nearly 660 mph at an altitude of 45,000 feet. The primary purpose of the flight tests is to explore the operational potential of the supercritical wing.

By permitting substantial increases in cruise speeds without increases in power, the new wing might significantly reduce the operational costs of subsonic transport flights. The possible commercial advantages include faster travel, lower fuel consumption and costs, increased operational range or increased payloads.

The experimental wing will be shaped to simulate one applicable for a commercial jet transport.

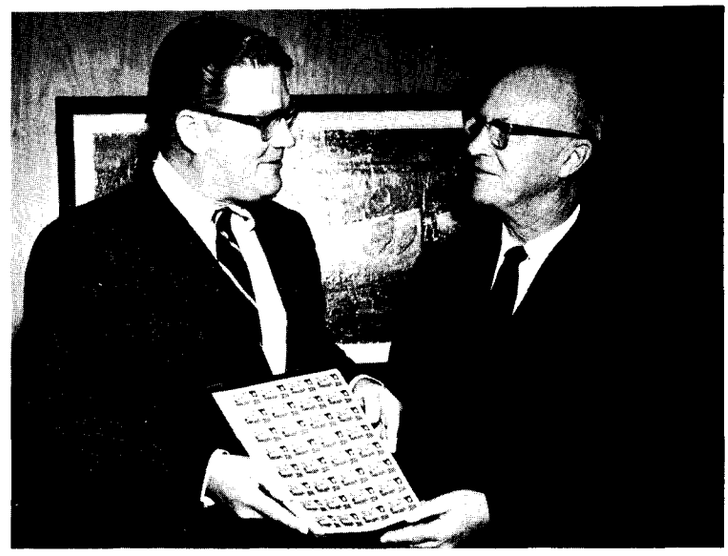
ACD WINS SOFTBALL TITLE

ACD successfully defended their 1968 softball championship by winning the post season tournament with 3 wins and no losses.

Vikings, ranked in seventh place during the regular season, put together a strong bid and reached the finals against ACD only to lose 8-5 in a well played match.

By winning the tournament, no additional games were necessary since ACD was also the regular season winner with a 12-2 record.

SOFTBALL CHAMPS: ACD won the 1969 Softball Championship for the second consecutive year. Members of the team are (from left): Bob Ward, Mickey Rowe, Jay Lambiotte, Billy Haigler, Joe Nolan, captain, Joe Drozdowski, Bob Reynolds, Terry Straeder, and John Bowen. Absent were Jim Harris, Ron Degrote, Titus Harrison, Jerry Creedon, Tom James, Greg Kent, and Jim Gardner.



MOON STAMPS: Frank Riggins (right), Hampton Postmaster, presents a sheet of the new 10¢ airmail moon stamps to Dr. John E. Duberg, Langley's Associate Director. The stamps, showing the first man on the moon, were printed from plates taken to the moon by the Apollo 11 astronauts.

COMBINED FEDERAL CAMPAIGN

(Continued from page 1)

Miss Huckel pointed out that an easy, painless way of giving to this one-drive campaign is through payroll deduction. Last year 44 percent of the staff elected to use the payroll payment plan. This figure is below the national average of 66 percent and Miss Huckel expressed hope that more employees will subscribe to this easy way of giving to the many worthy organizations.

The payroll payment plan is available to all civilian employees, except those with a temporary appointment of less than one year, and to all members of the Armed Forces who are assigned in this area. The Government has set the following ground rules to keep down payroll withholding costs:

1. Minimum allotment per payday is 50¢ if you are paid every two weeks or twice a month, or $1 if paid monthly. Above these minimums, allotments may be in any amount.
2. Withholding in the amount authorized will be for a full year beginning the first pay period in January 1970. You may discontinue the allotment at an earlier date upon written request to the payroll office, but you. cannot change the amount or begin payroll payment again in 1970.
3. Contributors have the privilege of designating their contributions. By using a sealed envelope you may make a confidential gift.
4. Undesignated funds will be divided among the organizations on a present ratio: 82.7% United Fund; 11.6% National Health; and 5.7% International Services.

WANTED: Woman to share 3-bedroom house and expenses with another woman. Sherwood, 3937 or 596-8933.

FOUND: Man's raincoat in West Cafeteria. Owner may claim from cashier, West Cafeteria.

WANTED: Ride from East Hampton to E.A. on 8 shift. Powell, 2553.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Gail Day, 3113.

FOR SALE: 1959 Jaguar. Braddy, 245-4647 after 5 p.m.

EMPLOYMENT OF THE HANDICAPPED

A special announcement has been received at the Center from the NASA Administrator, Dr. T. O. Paine, in support of the President's program to give consideration to the employment of the physically handicapped. National Employee the Physically Handicapped Week will be observed during the week of October 5.

Dr. Paine's message is quoted below for the information of staff members:

"In a statement on this subject earlier this year, President Nixon asked that we support the policy of this Administration in staffing the Federal service, to give full consideration to the employment and selective placement of the handicapped.

"It is clearly evident that we derive mutual benefits from hiring individuals who may be handicapped, yet are occupationally well-qualified. NASA is proud of the number of handicapped employees on our rolls and appreciative of the services they perform. All of us, especially supervisors, must help in providing still greater opportunities to brighten the hopes and lives of these individuals. Thus, I expect NASA to continue earnest support of this policy, and that all of us will contribute to efforts to employ

- the physically impaired who are not occupationally handicapped when assigned to the right job
- the mentally restored whose only handicap is that they once suffered an emotional illness.
- the mentally retarded who have demonstrated ability to perform the simple and routine tasks that need doing in all organizations, regardless of size."

SAE PLANS NATIONAL MEETING

Subjects for the more than 100 papers and 12 panel discussions at the Society of Automotive Engineers' 1969 National Aeronautic and Space Engineering and Manufacturing Meeting in Los Angeles Oct. 6-10 have been revealed.

Participation by Langley Research Center personnel include the chairmanship of one session and the presentation of papers by five staff members.

Dan C. Popma, Flight Instrumentation Division, will serve as chairman of the session on spacecraft environmental and life support systems.

Warren Hypes, Applied Materials and Physics, will present a paper on "Advanced Integrated Life Support System" and Charles G. Saunders, Flight Instrumentation, will give a paper on "A Hydrophobic-Hydrophilic Zero Gravity Liquid-Gas Phase Separator."

A paper on "VTOL Flight Investigation to Develop a Decelerating Instrument Approach Capability" by John F. Garren, James R. Kelly, and Robert W. Sommer, all of Flight Mechanics and Technology Division, will be presented by Garren.

Manufacturing sessions will discuss techniques and equipment, producibility and cost, materials and costs and management and plant operations and communications.

Engineering activities represented will be aeronautical aerospace propulsion, aerospace systems, fuels and lubricants and space technology.

FOR SALE: Trundel high-low bed with Simmons innerspring mattress - $69. Clevenson, LY6-8319.

FOR SALE: Argus C-3 camera with flash attachment and light meter. Wicker, 723-7016.

WANTED: Twin or youth bed. Owen, 826-7487 after 5 p.m.

ISA TO HEAR PAUL S. LEDERER

Paul S. Lederer

The Tidewater Section of the Instrument Society of America will meet on Tuesday, Sept. 23 to hear Paul S. Lederer, U.S. National Bureau of Standards, speak on the NBS InterAgency Transducer Project. He will describe the NBS program to develop standards and calibration procedures for transducers, such as accelerometers and pressure pickups, which are used in aircraft, missile, or spacecraft flight applications.

Lederer received his BSEE degree, cum laude, from City College of New York. He is a member of Tau Beta Pi and Eta Kappa Nu engineering fraternaties and of Instrument Society of America and American Society of Mechanical Engineering. His work in transducer calibration and evaluation includes five years at Langley Research Center (1949-54), and subsequently at NBS. He has published numerous articles and reports on transducer calibration, test equipment, and antique guns.

The meeting will be held at Sam's Seafood Restaurant in Hampton, starting at 6:30 p.m. For reservations call Jim Brown, Norfolk 583-2611, or Tom Carpini, 3234 or 826-4347. Guests are welcome.

POSITION VACANCIES IN OART

The Research Division of the Office of Advanced Research and Technology (OART), which is under the direction of Dr. Herman H. Kurzweg, has position vacancies in the Fluid Dynamics Branch, including Branch Chief. Langley and other OART centers are asked to survey their staffs for persons interested in and qualified for these positions.

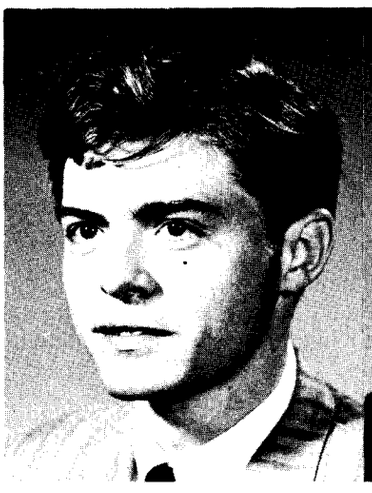
The Chief of the Fluid Dynamics Branch, a position formerly held by John T. Howe who is returning to the Ames Research Center, is responsible for the management of basic research in the areas of fluid properties, entry gas dynamics, and aerodynamics and propulsion fluid mechanics. He coordinates in-house and contract effort having a monetary value of about $5 million. The in-house effort involves about 210 scientific and engineering professional personnel. He reports to Assistant Division Director for Physics and Mathematics, Alfred Gessow. The grade level is GS-15.

The Fluid Dynamics Branch also has need for a qualified staff member. Such an assignment would require the management and coordination of several facets of the basic research program. For example, a position concerned with gas dynamics and heat-transfer problems of high velocity aircraft, propulsion, and space vehicle systems might include incompressible and compressible fluid flow, aerothermodynamics, low density and reentry gas dynamics, and physical properties of high temperature gases. The grade level is GS-13 to GS-15.

Persons interested in applying for these positions are asked to apply before September 26. Further information may be obtained from E. Townsend Johnson, extension 2581.

FOR SALE: Selmer Signet B-flat clarinet - $95. Dribble, 596-3684.

CO-OP STUDENTS RECEIVE BACHELOR DEGREES



Obie H. Bradley
Tennessee Tech. University
B.S., Mechanical Engineering
Flight Vehicles and Systems

Richard Deloach
Florida State University
B.S., Physics
Instrument Research

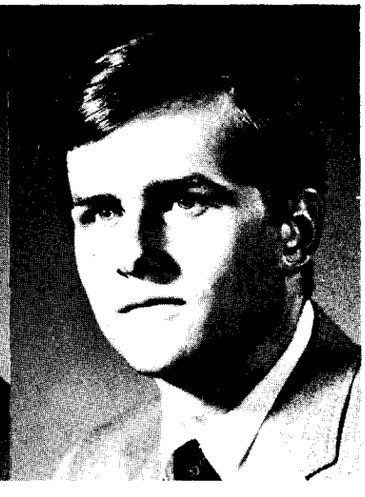
David E. Eberle
Georgia Institute of Technology
B.S., Physics
Applied Materials and Physics

Renaldo V. Jenkins
Norfolk State College
B.S., Physics
Aero-Physics

James Meyers
University of Louisville
B.S., Electrical Engineering
Instrument Research

William R. Motley, III
Virginia Polytechnic Institute
B.S., Electrical Engineering
Flight Instrumentation

Dennis R. Nord
Drexel Institute of Technology
B.S., Physics
Applied Materials and Physics



Lawrence F. Rowell
Virginia Polytechnic Institute
B.S., Engineering Mechanics
Analysis and Computation

Michael J. Schmidt
Drexel Institute of Technology
B.S., Electrical Engineering
Instrument Research

Ward E. Schoonover
Virginia Polytechnic Institute
B.S., Aerospace Engineering
Full-Scale Research

John G. Wells, Jr.
Virginia Polytechnic Institute
B.S., Electrical Engineering
Flight Instrumentation

Steven P. Willis
Virginia Polytechnic Institute
B.S., Engineering Mechanics
Applied Materials and Physics

Joseph E. Carter

Paul F. Holloway

G. F. Prillaman

PERFORMANCE AWARDS PRESENTED

Joseph E. Carter, Procurement Division; Paul F. Holloway, Aero-Physics Division; and Garland F. Prillaman, Fabrication Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Carter was cited for organizing, rewriting, editing, and indexing an accumulation of approximately ten years of written Langley Procurement Division instructions and for preparing new material to accommodate these instructions in a Langley Procurement Manual which permits cross-references to the NASA Procurement Regulation.

Holloway received his award for sustained superior performance as acting head of the Missions Section, and for continued highly productive analytical research in the operational problems of manned and unmanned spacecraft and logistics vehicle operations and concepts.

Prillaman was honored for his outstanding skill in analyzing and correcting malfunctions in miniaturized electronic packages.

AEROSPACE EXPERTS TO DISCUSS PROBLEMS OF AIRCRAFT NOISE

Aircraft design and technology will be explored by a panel of aerospace experts at the annual meeting and technical display of the American Institute of Aeronautics and Astronauts in Anaheim, Calif., next month.

The panel, which includes two Langley Research Center scientists, is one of seven scheduled under the theme of "Frontiers in Aerospace Research and Technology." The meeting is expected to attract more than 7000 aerospace scientists and engineers to the Anaheim Convention Center October 20 through 23.

Donald D. Baals, Assistant Chief of Full-Scale Research Division, will serve as chairman of the panel on aircraft design and technology. Edward C. Polhamus, head of the division's Stability and Performance Branch, will discuss "Predictions of Vortex-Lift Characteristics Based on a Leading-Edge Suction Analogy." Other panel participants include John A. Bennett and W. A. Stevens, Lockheed Aircraft Corp.; H. T. Bowling, C. H. Hurkamp and R. M. Thornton, Lockheed-Georgia Co.; Ellwood Bonner, North American Rockwell Corp.; and Rudolph C. Haefeli, Aeronautical Associates of Princeton, Inc.

At a session on man in space, Charles P. Llewellyn, Advanced Aerospace Project Office, will present a paper on "Optimization of Experiment Resources Utilization During Manned Space Station Missions." Charles R. Ellsworth, Marshall Space Flight Center, will serve as chairman of this panel.

Discussing aircraft noise problems and possible methods of noise reduction will be Newell D. Sanders of Lewis Research Center and three other panelists. Noise sources considered by the speakers will include engine, jet exhaust, fuselage boundary layer, and the shock wave system created by supersonic aircraft.

Another panel will examine the impact of aerospace science and engineering on biology and medicine.

John Billingham, Ames Research Center, will lead the panelists in describing devices and techniques developed through science and engineering and now being used in medical and biological research fields.

Means of speeding up the spin-off process will be discussed by a group of panelists.

As part of a session on unmanned spacecraft missions and systems, concepts for an automated space system capable of returning samples of the Martian surface to Earth beginning in the late 1970's will be described.

Other sessions scheduled under the "Frontiers in Aerospace" theme -- one of five major themes for the meeting-- will deal with results of recent scientific space missions, the barrier to application of new materials, and orbital astronomy with large telescopes.

EMPLOYEES RECEIVE AWARDS

Eight staff members, pictured at right with their supervisors, recently received cash awards for suggestions under the Incentive Awards Program.

The recipients and their suggestions are as follows:

William H. Wood, Fabrication Division - $25 for a suggestion relative to improving the diameter fit for balance model mating by using bevel gears which provide for the accommodation of models of various sizes and shapes.

McCreary G. Beasley and John R. Smith, Research Support Division, (joint award) - $30 for the design of a special drainage system for the liquid nitrogen traps in the vacuum chamber of the Space Vacuum Laboratory thus increasing safety and eliminating possible water damage to associated equipment.

Armond O. Gay, Research Support Division - $80 for suggesting improvements to the LRC Arc Facilities which result in significant cost savings.

Jack G. Barbour, Fabrication Division - $30 for a suggestion relative to fabricating an adapter from an aircraft bolt which allows the use of a pneumatic nut runner and thus reduces the time required to install and remove cleos.

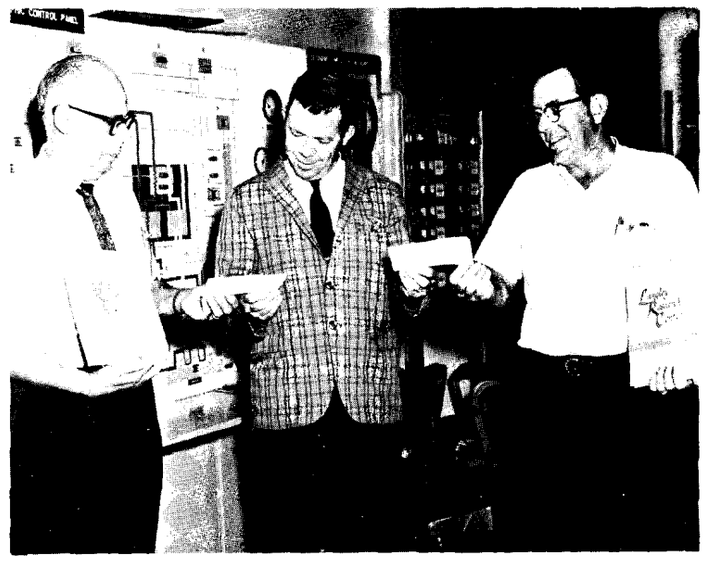
O. Earl Shortt, Research Support Division - $25 for the modification of tunnel strut and yaw plate bearing system which will save installation time and prevent damage to the machine surfaces.

Ira Q. Collier, Research Support Division - $30 for the design of an improved break detector and elapsed time counter in the Fatique Study Research Program for improving reliability and data accuracy.

Aubrey G. Price, Research Support Division - $305 for the design of a new mercury probe power adaptor which will result in increased output and significant improvement in the number and quality of research tests conducted on dynamic models of the Control Moment Gyro System.

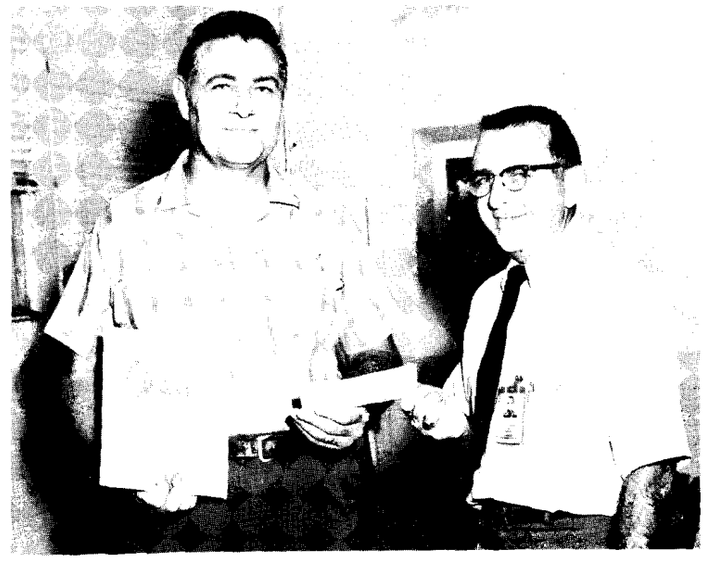
FOR SALE: Small Kimball piano - $350. Page, 723-2924.
FOR SALE: AKC registered miniature Dachshund pups. Gerringer, 851-0518.

William H. Wood (left) and Harold W. Ayers

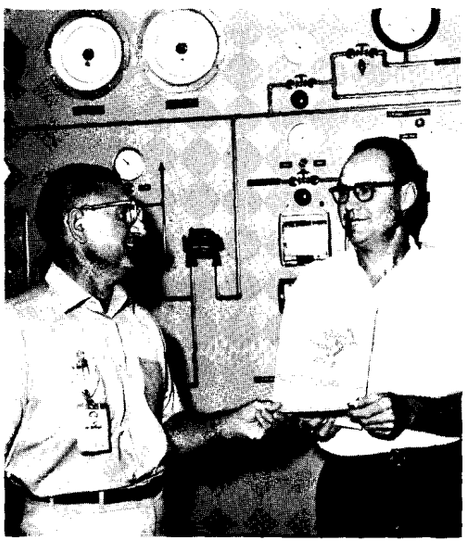


John R. Smith (left), Collis P. Moore, and McCreary Beasley

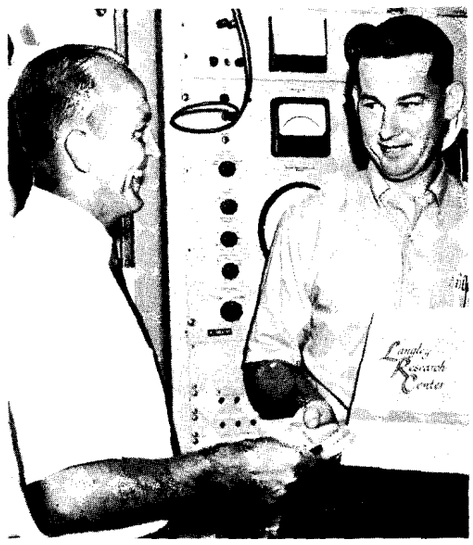
Armond O. Gay (right) and George R. Oden



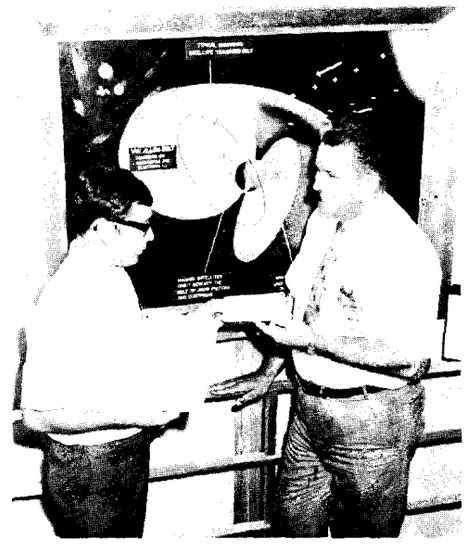
Jack G. Barbour (left) and Claude R. Panz



O. Earl Shortt (left) and James S. Collins



Ira Q. Collier (right) and Calvin C. Berry



A. G. Price (left) and Dwight McSmith

EXPLORER SCOUTS MEET SEPT. 22

The NASA Aerospace Explorer Post #36 will hold its 1969-70 organizational meeting at 7:30 p.m. on Monday, September 22 at the Activities Building (Bldg. 1222). The program will outline the plans and work projects that will be explored by the group during the year.

For the benefit of new members, the aims and objectives of Explorer Scouting will be reviewed. Post meetings will normally be held twice each month at the Langley Research Center. The dates and times of the meetings will be decided at a later date. Meetings will be scheduled so as to have a minimum of interference with school, church, athletic and other youth activities.

To be eligible for Exploring a participant (boy or girl) must be at least 14 years of age and in the ninth grade or 15 years of age regardless of grade. Previous scouting experience is not required. Students participating in the Langley Explorer Post should be interested in the specialities offered by the Center and demonstrate a high apptitude for science related subjects. Projects in aerodynamics, computer science, optics, life support, human factors, and space biology will be investigated throughout the year.

Students attending the organizational meeting are encouraged to bring their parents. For additional information call Pat Clark, 2611.

KNOW YOUR CREDIT UNION

Going to buy an automobile this fall? Well, prepare yourself for a shock unless you have a large supply of ready cash on hand. Car loans have always been expensive and this year financing costs will be even greater. What adds to the unpleasantness is the fact that now, for the first time, there is no way to overlook these costs or to delude yourself into thinking that they are not really as high as they appear to be. The total Finance Charge and the Annual Percentage Rate stand out clearly and distinctly in every sales agreement thanks to the Truth-in-Lending Act.

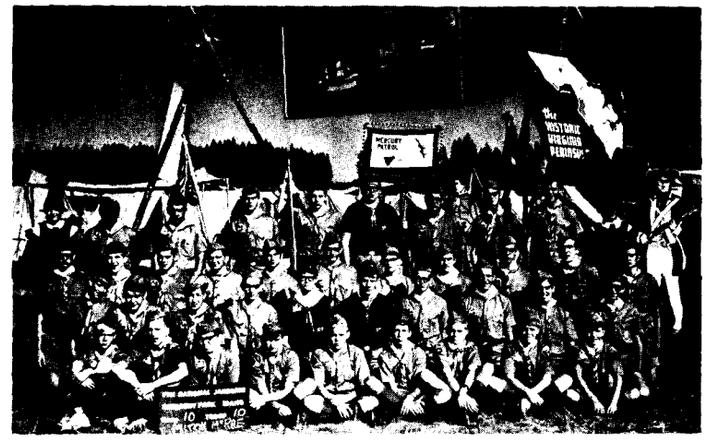
So, since you have to face and accept the figures, it is only common sense to pick the ones most palatable. Shop and compare. And ask questions like, "What is the penalty for payment in advance?" "May I take my car out-of-state with a balance still due?" "What does loan insurance cost?" The best answers are, of course, "None," "Yes," and "Nothing." You will get them at your Credit Union. Incidentally, the finance charges there aren't bad either. An annual percentage rate of 9% on new cars is hard to beat. Add the no-cost loan insurance and it is practically impossible!

PROFESSORS TO VISIT CENTER

Dr. Nicholas J. Rose, Head of the Department of Mathematics, North Carolina State University, will visit the Center on Friday, October 3. He will present a lecture on "A Discussion of the Concept of State in Dynamical Systems," (with illustrations) at 9 a.m. in Room 200, Building 1212.

At 10 a.m. Dr. Hans Sagan, also of North Carolina State University, and two of his graduate students will give talks on "Fields and Excess Functions for Optimal Control Problems with a Compact Control Region" and "Optimal Control Problems with Compact Control Regions as Meyer Problems."

Dr. Rose will be available to discuss the university's graduate mathematics program with staff members. Persons inerested in an appointment should call Training Office, 2517.



SEVEN SONS of staff members attended the 7th National Jamboree of the Boy Scouts of America held this year at Farragut Park, Idaho. Using as their theme "The Historic Virginia Peninsula," Troop 10 was composed of four patrols-Merrimac, Monitor, Mercury, and Apollo. Members of the troop are front row (from left): Chris Skiscim, David Newton, Doug Nolan, Walter Strode, Dick Johnson, Tony Shiver, Mark Croom, son of Delwin R. Croom of FSRD, Jay White, and Ricky Crow. Second row - Alan Spaulding, son of N. R. Spaulding of RMFD, Eddie Henderson, son of Herbert R. Henderson of DLD, Ricky Moore, Wayne Leiss, son of Abe Leiss of Scout, David Ellis, Hank Armstrong, Charlie Drubil, Fred Penfield, Millard Barger, and Scott Burhoe. Third row - Delwin R. Croom Jr., son of Delwin Croom, Mike Shareck, Ken Tuley, Garry Woodruff, George Alexander, Dan Griffin, Ned Armstrong, Andy Hess, Richard Wright, Pat Shareck, and Mark Allen. Back row - Martin Cross, son of C. Willis Cross of TIUD; Julius Brown, Carlon Lewis, Alan Updike, Steve Wiggington, Donald Buck, David Shutt, Rodney Burton, Earl Powell, and Fritz Horne.

AIAA PLANS SPECIAL MEETING

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will hold a special events night on September 24 from 5 to 7 p.m. in the Peninsula Room, Holiday Inn.

A special attraction will be the showing of the film "Fly the Friendly Skies" with United Airline stewardesses acting as hostesses for the evening. An AIAA orientation film will also be shown for old, new, and prospective members.

A refreshment bar will be open and no reservations or money is required. Wives, guests, and non-members are cordially invited to attend.

CALENDAR OF EVENTS

HURRICANE VICTIMS. . .Staff members are reminded that Activities Association representatives are collecting contributions in support of an emergency appeal by the American Red Cross to permit that service agency to render assistance to the victims of hurricane Camille. Containers have also been placed in the cafeterias and in the Activities Building.

WORKERS NIGHT. . .Carnival workers will be treated to a dinner and dance starting at 7 p.m. on Saturday, October 4 at the Activities Building. Persons who have not received an invitation are requested to call Linda Tribeck, 2058.

HALLOWEEN DANCE. . .The Activities Association will sponsor a Halloween costume ball on Saturday, November 1.

Langley Researcher

VOLUME 9, NUMBER 20 LANGLEY RESEARCH CENTER OCTOBER 3, 1969

EMPLOYEES CONTRIBUTE $1,280 TO ASSIST HURRICANE VICTIMS

A total of $1280.44 was raised at Langley Research Center during the special drive conducted by the Activities Association in behalf of the victims of Hurricane Camille, which wrecked havoc in much of the South during August.

Ernest Greene, President of the Activities Association, represented the members of the Board and the General Assembly, in presenting the check to Kenneth Hogge, Chairman of the Peninsula American Red Cross Chapter. In making the presentation, Greene noted that it was the pleasure of the Activities Association to coordinate the special fund raising effort because he was certain that the need would strike a responsive note among the Center staff. He expressed appreciation to all who helped to make the drive a success, either by placing a contribution in the containers which were stationed throughout the Center buildings or by acting as a facility coordinator.

Hogge expressed his personal appreciation and that of the local American Red Cross chapter for the substantial contribution of the Center employees. He indicated it would go a long way toward meeting the chapter's quota for the special national fund drive.

AID FLOOD RELIEF: Ernest L. Greene (left), President of the Activities Association, presents Kenneth Hogge, Chairman of the Hampton Roads Chapter of the American Red Cross, a check for $1280.44 as the Langley staff members' share of the Red Cross drive to aid victims of Hurricane Camille. Looking on at the presentation is Edward T. Maher, Chief of Administrative Services Division.

COMBINED FEDERAL CAMPAIGN OFF TO GOOD START AT CENTER

Vera Huckel, Chairman of the Center's Combined Federal Campaign, announced that staff members had contributed a total of $112,877 as of press time Wednesday. This represents an average contribution of $34.13 from 3307 employees. A number of staff members have yet to be contacted and Miss Huckel pointed out that the drive officially ends November 1.

This is the second year that the combined campaign has been conducted at the Center. Included in the drive are the Peninsula United Fund, the Williamsburg-James City County United Fund, National Health Agencies, and International Service Agencies.

Last year staff members contributed nearly $110,000 to the effort and it is hoped that this year's total will show an increase of twenty percent.

All division leaders are requested to turn in their reports to Eleanor Cole or Helen Willey, financial chairmen, as soon as possible. The two financial chairmen are located in Room 205, Building 1229 (Dynamic Loads).

TWO NASA APPOINTMENTS ANNOUNCED

NASA announced that Paul G. Dembling, General Counsel since 1967, has been named to the position of Deputy Associate Administrator. Spencer M. Beresford, former special counsel of the House Committee on Science and Astronautics, will succeed Dembling as General Counsel.

In his new position, Dembling will work closely with the Administrator, Associate Deputy Administrator, and the Associate Administrator for Organization and Management on assignments related to policy and management matters.

Prior to becoming General Counsel, he served as Deputy General Counsel, Director of Office of Legislative Affairs, and in a variety of other positions in NASA. Since 1964, he has served as a member of the U.S. delegation to the U.N. Legal Subcommittee in the drafting of the Outer Space and Astronaut Treaties.

He was a principal drafter of President Eisenhower's Administration bill which became the National Aeronautics and Space Act of 1958.

(Continued on page 8)

SPECIAL TV PROGRAM PLANNED

Frank Donaldson, WVEC-TV, will interview Edgar M. Cortright, Director of the Langley Research Center, on a special program entitled "Conversation." The program will be shown at 3:30 p.m. on Sunday, October 12, on Channel 13.

One of the main topics of the program will be a discussion of the book "Exploring Space with a Camera" which was compiled and edited by Cortright.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

NEW ARRIVALS. . .Weighing in at six pounds, eleven ounces on September 13 was Gregory Keith, new son of Johnny P. Arrington, Fabrication. . .Announcing the birth of a six-pound, five-ounce daughter, Laura Antoinette, on September 21 is Brian Pritchard, Aero-Physics. . .Celebrating the birth of a seven-pound son, David Braxton, on September 13 is William J. Small, Aero-Physics.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on October 7 at 7 p.m. at the Central Labor Union Hall.

BOATING ENTHUSIASTS. . .Take advantage of the U.S. Coast Guard Auxiliary's free public education course in Basic Seamanship. This course is again being offered by Flotilla 61 of Hampton. This eight-lesson course will begin at 7 p.m. on Tuesday, October 7, at the Flotilla Base, 523 Bridge St. The class will meet each Tuesday and Thursday evening through October 30. All hands are eligible for enrollment and may do so simply by attending the first session on October 7. For further information contact W. W. Bailey, 851-7464, or W. R. Phelps, 723-8860.

ENGAGEMENTS. . .Dan Cupid scored a victory when Raymond M. Taylor, Research Support, became engaged to Elizabeth Dianne Rowe, Gloucester. The big event will take place in December. . .Making plans to desert the bachelor ranks is J. Russell McHatton, Research Support. He is engaged to Barbara Ann Forrest, Hampton, and plans call for a fall wedding. . .Sporting a new sparkler on the third finger left hand is Sharon L. Huggett, Dynamic Loads. She is engaged to Terry E. Lantz, Mt. Bradford, Pennsylvania, and the wedding will take place March 7.

GOLF TOURNAMENT. . .The NASA Golf Association will compete against golfers from the Norfolk Naval Shipyard in a get-acquainted match October 16 at the Langley Golf Course. Arrangements have been made for exclusive tee off times between 8 a.m. and noon. For further information contact Frank Lawrence, M.S. 216, extension 3989.

FIRST AID COURSE. . .The American Red Cross is offering 12 hours of instruction in basic first aid starting at 7 p.m. on October 6 at Thomas Nelson Community College. The course will continue on Monday evenings until November 10. The only cost is 78¢ for a manual. To reserve a seat in this class call the Director of Continuing Education, 826-4800 extension 48 or 49.

COURSE OFFERED. . .The Thomas Nelson Community College is again offering their community service course in Certified Professional Secretary Review Course, beginning October 8 and running through May 6. The class will meet each Wednesday from 7 p.m. to 9. Fee is $30 for 54 hours of instruction. For additional information call the Director of Continuing Education, 826-4800 extension 48, or call Gloria Alto, 3666, or Eloise McGehee, 2838, for registration blanks.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of October 6:

Monday - Cream of tomato soup, Spanish pot roast, broiled smoked ham, Polish sausage, cheese omelette. Snack bar - Soup, ham and egg sandwich, hot pastrami, French fries.

Tuesday - Chicken-noodle soup, roast fresh ham, chuckwagon steak, meat loaf, chili con carne. Snack bar - Soup, hot dogs, chuckwagon steak, French fries.

Wednesday - Puree of bean soup, half-pound chopped steak, stuffed flounder, sauteed chicken livers, tamale pie. Snack bar - Soup, barbecued pork, Lou's satellite special.

Thursday - Vegetable-beef soup, grilled steak, baked ham, deep-fried beef liver, baked hash. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - New England clam chowder, roast turkey, grilled pork steak, fried fish, western omelette. Snack bar - Soup, fish sandwich, baked ham, French fries.

The menu for the week of October 13 is as follows:

Monday - Beef broth with barley, braised beef tips, chicken pan pie, smoked pigs in pone, fish cakes. Snack bar - Soup, hamburger, hot corned beef, French fries.

Tuesday - Cream of mushroom soup, roast ribs of beef, grilled smoked ham, fried fish, Austrian ravioli. Snack bar-Soup, barbecue, flying saucer, French fries.

Wednesday - Chicken-rice soup, chicken and dumplings, fried fantail shrimp, Salisbury steak, macaroni and wieners. Snack bar - Soup, hot dog, chili dog, hot roast beef.

Thursday - Split green pea soup, country-style steak, barbecued chicken, broiled perch, grilled cheese sandwich. Snack bar - Soup, grilled cheese, steak sandwich.

Friday - Manhattan clam chowder, baked Virginia ham, breaded veal cutlet, fried fish, tamale pie. Snack bar - Soup, fish sandwich, veal cutlet, French fries.

TWO FORMER LANGLEY OFFICIALS, THREE FROM NASA AIAA FELLOWS

Two former Langley Research Center staff members and three NASA officials are among the 29 new Fellows announced by the American Institute of Aeronautics and Astronautics.

John C. Houbolt, Vice President and Senior Consultant of Aeronautical Research Associates of Princeton, New Jersey, was selected for "his notable contributions in structural dynamics of aircraft and space vehicles, and for his contributions to the Apollo lunar rendezvous concept" while at Langley. He left the Center in 1963.

The other Langley alumnus was Harry J. Goett, who left Langley in 1940 to go to the Ames Research Center and later was named first Director of the Goddard Space Flight Center. Now the Chief Engineer, Space and Reentry Systems Division, Philco-Ford Corporation, he was cited for "his valuable contributions in aerodynamic research, as a manager in the establishment and functioning of the Goddard Space Flight Center (1959-1965), and in satellite engineering."

NASA personnel honored included:

Lieut. Gen. Samuel C. Phillips, Apollo Program Director, NASA Headquarters, for "his distinguished management contributions to the success of the Apollo program."

Colonel Frank Borman, Astronaut and Deputy Director of Flight Crew Operations Directorate at the Manned Spacecraft Center, for "his outstanding achievements in the advancement of manned spacecraft."

Walter Haeussermann, Director of the Astrionica Laboratory at the Marshall Space Flight Center, for "his valuable contributions in guidance and control of rocket-powered boosters and spacecraft."

NEW TRAFFIC REGULATIONS CITED

The Langley Air Force Base provides the Center many services, including traffic control and the enforcement of traffic regulations.

As a result of an increase in traffic accidents on the Base, the Base Commander has recently revised traffic regulations to provide penalities designed to discourage violation of traffic regulations.

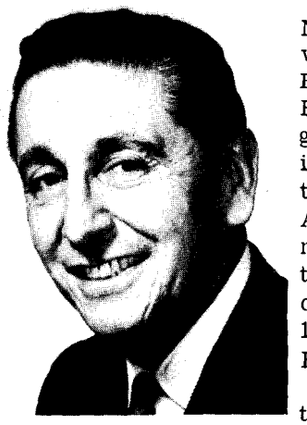
In addition to a point system which assesses points for specified offenses and provides for the suspension of driving privileges when points are assessed, moving traffic violations will result in more serious disciplinary action. This action will range from a suspension of driving privileges for 15 days for a second moving violation in a 24-month period to the suspension of driving privileges for a minimum of 6 months for a fourth moving violation.

Details of these new regulations were issued in the Langley Management Manual Instruction 1600.7 dated September 5. Charles F. Barnett, the Center's Personnel Officer, has been assigned the responsibility of administering disciplinary actions involving Center employees.

These traffic safety regulations are issued to provide for the safety of all who travel on the streets and roads of the Base and Center. By complying with these regulations, staff members help protect themselves from injury as well as the inconvenience of being deprived of driving privileges on the Base and Center.

FOR SALE: 11-1/2-foot long Kite class sailboat. Newcomb, 642-2202.

SCOTT CROSSFIELD TO SPEAK AT JOINT MEETING OCTOBER 16



A. Scott Crossfield

A. Scott Crossfield, former NASA test pilot and now Division Vice President, Flight Research and Development, Eastern Airlines, will be the guest speaker at a joint meeting of the Engineers' Club of the Virginia Peninsula, the American Institute of Aeronautics and Astronautics and the American Helicopter Society on Thursday, October 16 in the NASA West Cafeteria, Building 1213.

The subject of Crossfield's talk will be "STOL Application to Mass Airline Traffic." One solution proposed to reduce air traffic congestion safety and to expedite the progress of travellers is the development of a STOL (short takeoff and landing aircraft) system. Under the leadership of Crossfield, Eastern Airlines conducted a STOL experiment over a period of three months in 1968 in the Northeast Corridor using a McDonnell-Douglas Breguet 188 transport.

Crossfield is one of America's best known test pilots and most honored men in aviation. In guiding Eastern Airlines into the supersonic age, his responsibilities include the direction of Eastern's research and development programs for new aircraft, flight safety, flying procedures and air traffic. He also directs flight tests for all new aircraft.

Crossfield, who was a former test pilot at NASA's Flight Research Center, made aeronautical history on November 20, 1953, when he became the first man to fly more than twice the speed of sound. Piloting the Douglas D-558-II Skyrocket on a research flight at high altitudes over the Mojave Desert in Southern California, he attained the speed of 1,327 miles per hour or a Mach number of 2.01. In 1960 he piloted the X-15 to Mach 3.

The meeting will be preceded by a social hour at 6:30 p.m. and dinner at 7:30. Cost will be $4.50 per person. For reservations call John Allen, North American Rockwell, telephone number 838-6161, no later than noon October 13.

Guests are invited to attend.

Can you Solve This Problem?

An advanced pollutant sensor is required for measuring the concentration of NO, NO_2, or total oxides of nitrogen in air. A method of in-stack monitoring is also very desirable.

For additional information or should you have a solution, contact the Technology Utilization Office, extension 3281, refer to problem RTI/AP-41.

WANTED: Driving combination from Deer Park area to W.A. on 8 shift. Glaude, 3041.

WANTED: Driving combination or passengers from Norfolk to W.A. on 8 shift. Tuck, 3352.

WANTED: Driving combination from Center to Old Dominion University in Norfolk at 2:30 p.m. on Tuesdays and Thursdays. Wright, 3234 or 838-6175.

WANTED: Ride or driving combination from Portsmouth to E.A. on 8 shift. Baker, 2546.

RECEIVE AWARDS: Edgar M. Cortright, Director, recently presented Special Service Awards for Exceptional Service to three members of the Structures Research Division. L. Robert Jackson (top photo) was cited for "pioneering invention of unique structural and thermal protection concepts which establishes the technological base for sustained hypersonic flight in the atmosphere for high L/D reusable vehicles." Herman L. Bohon (center) was honored for "significant achievement in leading and coordinating an intersection task group in the definition and conduct of a broad program of research in the development of an efficient, stable aerodynamic decelerator deployable over a wide range of dynamic pressures and supersonic Mach numbers." Dr. Melvin S. Anderson (bottom) received his award for "initiative and creative leadership of the Center's Aerothermoelasticity Section in the achievement of significant technological advances in the conception and evaluation of new structural forms for hypersonic flight vehicles, in the development of an advanced design capability for lightweight shell structures for planetary entry capsules, and in the development of a sound analytical basis for design of external skin panels of aircraft and launch vehicles against flutter."

EMPLOYEES RECEIVE AWARDS

Eight staff members, pictured at right with their supervisors, recently received cash awards for suggestions under the Incentive Awards Program.

The recipients and their suggestions are as follows:

George M. Jurscaga, Fabrication Division, (two awards) - $25 for a suggestion relative to increasing safety awareness by designing a safety label for identifying containers which are filled with hazardous materials and $35 for a suggestion concerning an application of a testing procedure for determining the usability of Thermalog T-230 ablation material after it has exceeded its recommended shelf life.

Kemp L. Parrish, Research Support Division - $35 for suggesting the modification of a Singer sewing machine for sewing attachment loops on large parawings, thus resulting in substantial cost savings.

Edward G. Fink, Fabrication Division - $305 for the development of a new method for protecting sabots from destruction during mortar deployed parachute tests which results in significant cost savings.

Donald L. Posey, Research Support Division - $145 for the modification to the test section and window retainer ports on the 6-inch shock tube, Hot Gas Radiation Facility which will provide the necessary vacuum seal and eliminate the need for disassembling and removing certain tunnel parts.

Robert K. Lenning, Research Support Division - $35 for an improved method of silver-soldering joints in small, stainless steel and monel tubing by using a small, flameless, electric heat source.

M. Eloise McGehee, Administrative Services Division - $35 for the development of a more efficient procedure for initially distributing Langley Working Papers.

Kay S. Gabel, Structures Research Division - $25 for a suggestion relative to monthly verification of Xerox 813 copier meter readings which will provide a better validation of Xerox machine use.

Earl S. German Jr., Instrument Research Division - $25 for suggesting the use of color-coded tags to indicate the level of contents in gas containers.

FIRE PREVENTION WEEK OCT. 5

President Nixon has designated the week beginning October 5 as Fire Prevention Week.

In his proclamation, the President pointed out that even in our present era of technological advancement we are still plagued by fire -- man's oldest implement for self-preservation. Personal involvement, determination, and realization that fires need not occur, he emphasized, are essential for us to reduce out nation's annual fire waste of 12,000 lives and over $2 billion in property. He urged all Federal agencies to initiate and carry on effective fire prevention programs.

In a letter to the Center, Dr. Thomas O. Paine, NASA Administrator, pointed out, "Fire prevention is a year-round job that must receive year-round attention. . .It is important to have continuing emphasis on fire awareness and loss reduction."

WANTED: Driving combination from Beechwood to E.A. on 8 shift. Moore, 2231.

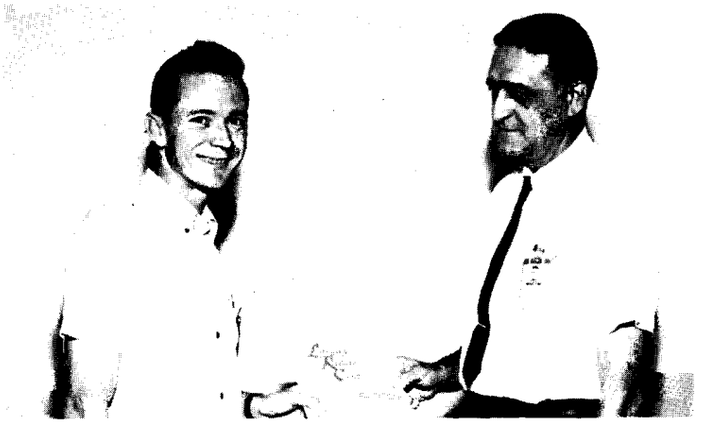
WANTED: Ride from Phoebus area to W.A. on 7:30 shift. Schmidt, 2791.

WANTED: Driving combination from Wilmont Lane, Beechwood area, to W.A. on 7:30 shift. Earnest, 2147.

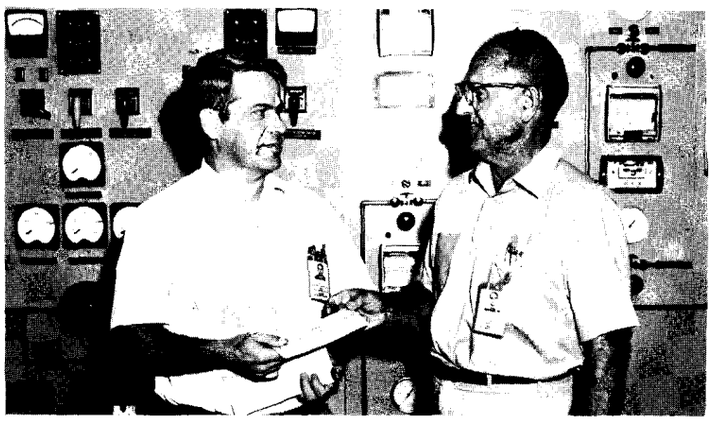
George M. Jurscaga (left) and Thomas P. Kelly

Kemp L. Parrish (right) and Daniel W. Bridges

Edward G. Fink (left) and Richard H. Newman



Donald L. Posey (left) and George R. Oden



Robert K. Lenning (left) and James S. Collins

M. Eloise McGehee and William F. Lawson

Kay S. Gabel and George J. Heimerl

Earl S. German (right) and William B. Jones

MOON SURFACE SAMPLES DISTRIBUTED

About 18 pounds of moon rocks and dusts is being distributed by Manned Spacecraft Center to scientific investigators around the world.

Lunar samples collected by the Apollo 11 astronauts will go to 106 principal investigators in the United States and 36 in eight other countries for analyses in university, industrial, and government laboratories.

The 4.2 kilograms of fine materials and chips and slices of about 30 rocks totaling 4 kilograms are being distributed for first-generation experiments. This makes up about one-third of the lunar materials returned from man's first lunar landing.

Another 15 per cent will be kept as examples of the types of material returned from Tranquility Base, where the Apollo 11 Lunar Module landed July 20. The rest will be held for later scientific experiments, from which a small amount may be available on temporary loan for public display.

Since its return in sealed containers on July 25, all the material has been under quarantine in the Lunar Receiving Laboratory at the Manned Spacecraft Center where tests on animal and plant life have shown no bad effects. Release of the samples was approved by the Interagency Committee on Back Contamination, set up to review NASA safeguards against the possibility of contamination of the Earth by alien organisms brought back from the moon.

Preliminary examinations in the Lunar Receiving Laboratory have disclosed that there are two basic rock types: (1) compacted lunar soil and (2) igneous rocks. The preliminary examination has shown that the rocks have been lying on the lunar surface from 10 to 150 million years. The igneous rocks crystallized from 3 to 4 billion years ago.

Each of the principal investigators or his representative must personally accept his sample at the Lunar Receiving Laboratory, and his plans for safeguarding the material must have been approved by Manned Spacecraft Center administrative, scientific, and security officials.

Of the 8.2 kilograms of samples being distributed, approximately 3 kilograms will be destroyed in the course of the planned experiments; the residues and the remaining 5.1 kilograms will be returned to NASA. Investigators plan to report results of their analyses early next year.

The types of investigation carried on by the principal investigators include almost every type of measurement that has been made on terrestrial igneous rocks or meteorites.

CHANGE OF ADDRESS FORMS

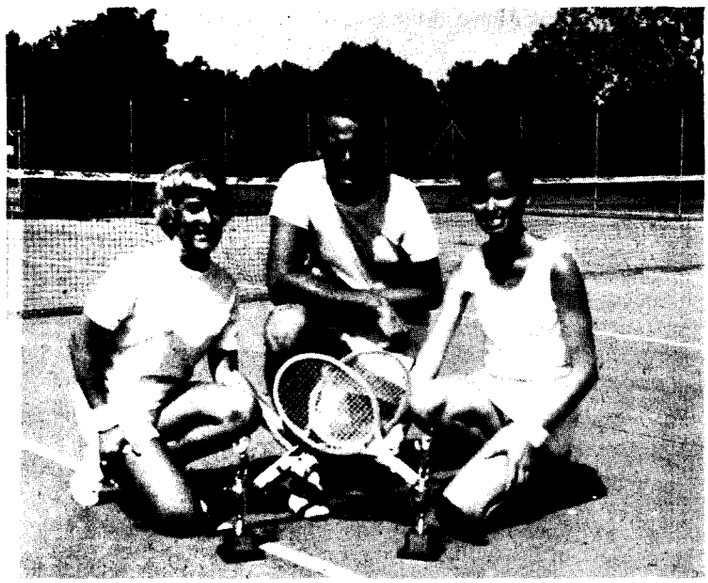
Specific forms are required by regulations to change an address on a pay check and a savings bond. To ensure that the proper form is used to change an address, the uses of the available forms are as follows:

Pay Checks - Langley Form 78 is to be used to change the mailing address for pay checks.

Savings Bonds - Standard Form 1192 is to be used to change any information concerning savings bonds.

Savings Bonds and Savings Notes Combination - Standard Form 1192-A is to be used to change any information on this combination.

Official Records - Langley Form 38 is to be used for notifying Personnel Records when an employee changes his home address. This form cannot be used for changing an address on a pay check or a savings bond.



TENNIS CHAMPS: Ann Buckingham (right), winner of the NASA women's singles tennis championship, and Betty Baker, runner-up, received their trophies from Arnold Mueller, President of the NASA Tennis Club.

NASA TENNIS CLUB NEWS

In the NASA Tennis Club tournament Ann Buckingham won the women's singles championship by defeating Betty Baker 6-2, 6-0, and Ed Riddle won the men's singles championship by defeating Charlie Ruhlin 6-1, 6-0.

Results of the matches in both groups were as follows:

Women's singles - First round: Ann Buckingham defeated Kathryn Smith 6-0, 6-0; Edith Gregory won over Miralee Gray 6-0, 6-0; Betty Baker defeated Dorothee Termaine 6-0, 6-0, and Chris Mueller won over Carol Smith 6-1, 6-0. Semi-finals: Ann Buckingham defeated Edith Gregory 7-5, 7-5, and Betty Baker won over Chris Mueller 6-1, 6-2.

Men's singles - First round: J. Italiano defeated R. Bennett 6-1, 6-0; P. Gooderum over J. Norris 6-3, 6-3; B. Boatright over C. Carter 4-6, 6-1, 6-1; J. Kaylor over D. Ehlenbeck 6-1, 6-3; W. Kelliher over D. Duxbury 6-1, 6-1; R. Smith over A. Tremaine 6-1, 6-2; L. Creduer over B. Weaver 4-6, 6-1, 6-4; T. Foughner over R. Lee 3-6, 6-3, 6-2; R. Boswinkle over T. Parrot 6-3, 5-7, 6-3; and A. Mueller over G. Egan 6-1, 6-2.

Second round: Riddle over Italiano 6-0, 6-0; Gregory over Gooderum 8-6, 3-6, 6-3; B. Haigler over Boatright 4-6, 6-1, 6-1; Kaylor over J. Mueller 7-5, 2-6, 6-3; Ruhlin over Kelliher 6-1, 6-3; Smith over Creduer 7-5, 6-2; E. Goyette over Foughner 6-3, 7-5; and Boswinkle over A. Mueller 7-9, 6-4, 8-6.

Quarter finals: Riddle over Gregory 6-0, 6-1; Kaylor over Haigler 6-3, 6-2; Ruhlin over Smith 7-5, 6-2; and Goyette over Boswinkle 7-5, 6-2.

Semi-finals: Riddle over Kaylor 6-0, 6-2, and Ruhlin over Goyette 7-5, 6-2.

FOUND: Silver charm bracelet in Langley Yacht Club parking lot. Tolson, 3081.

WANTED: Fifth driver from Gloucester Point to W.A. on 8 shift. Hudgins, 2326.

FOR SALE: Rattan (bamboo) living room or den furniture - 6-piece suit. Fontana, 693-2869.

FAI HONORS WALKER WITH MEDAL

The F.A.I. Gold Medal, the highest award given by the Federation Aeronautique Internationale, was presented to the widow of the world famous test pilot, Joseph A. Walker.

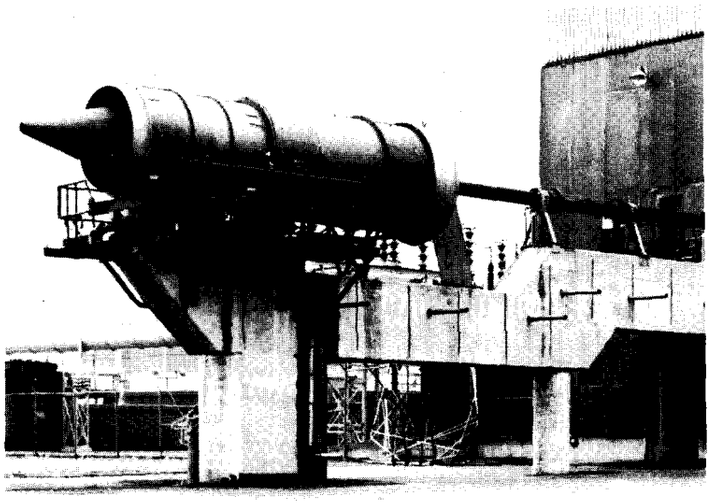
Mrs. Grace Walker, Lancaster, Calif., accepted the award from Brooke F. Allen, Executive Director of the National Aeronautic Association.

Walker was chief research pilot for NASA's Flight Research Center. He flew many of the X-series of research aircraft, including the X-15 which he piloted to its highest altitude, 354,200 feet (67 plus miles). He was also the first man to fly the Lunar Landing Research Vehicle, the craft that is being used to train the astronauts for the actual lunar landing.

Walker was killed in a mid-air collision in June 1966.

Walker received the F.A.I.'s Gold Medal for "his many enduring contributions to the advancement of aviation made during a 21-year flight research career marked by extraordinary perfection and valor." He was also recognized as the author of 20 technical papers and articles pertaining to flight test and as a teacher of fellow test pilots. Among the many test pilots under Walker at Flight Research Center was Neil A. Armstrong, Apollo 11 Command Pilot.

The F.A.I. is the world authority for the certification of aircraft and space records.



NOISE MAKER: Shown here is a view of the world's largest fan acoustic testing facility at the Lewis Research Center. The facility tests experimental engine fans for acoustic properties of fan blade configurations. It can test fans up to six feet in diameter. The purpose of the fan test facility is twofold: to collect basic fan noise information and to help determine the fan configuration for the quiet engine program.

LITTLE BROTHERS NEED BIG BROTHERS

Big Brothers of Hampton has a growing list of boys without a father in their home who are seeking the friendship of a man. The boys who come to the agency are eager to have the promise of a Big Brother fulfilled and it is the organization's belief that the men of the Peninsula will be interested.

The need for Big Brothers is important to consider, as a boy who grows up lonesome for a man's companionship may find it difficult to establish himself in the world of men. A Big Brother's experience is a rewarding one because he is able to walk along beside his Little Brother through the changes in his life and share in the satisfactions of his young friend's progress.

Little Brothers come in all sizes, shapes and ages, and with different interests and ambitions. For most of them, friendly encouragement is what they need to make them put their best foot forward. The boys the group serves live at home and a Big Brother does not assume financial responsibility for their care.

A Big Brother may be single or married, with or without children of his own, and Big Brothers come from all walks of life. A staff member supervises the Big Brother to guide and encourage him in his efforts. To be a Big Brother you must be willing to set aside some time each week when you and your Little Brother can be together to share in mutually interesting activity.

Persons interested may call the Big Brothers Office, telephone 722-0004, or write to the Big Brothers Office, P.O. Box 654 (26 Wine St.), Hampton, for an appointment.

WANTED: Ride or driving combination from Virginia Heights to W.A. on 8 shift. Heath, 3518.

FOR SALE: 15-foot Bernegat Bay sloop with 3 hp outboard and trailer. Hess, 898-5707.

FOR SALE: Minature Schnauzer, AKC registered - $125. Maynard, 245-3138.

WANTED: Wood lathe with or without motor, also turning tools if available. Carter, 838-3373.

TECHNOLOGY UTILIZATION NEWS

Space travel really isn't anything new. Man has been doing it for centuries, zooming along on a little spacecraft called Earth. Indeed, we might consider the Earth as a long-mission spacecraft with similar environmental-social problems found in the Apollo capsule or a manned orbiting laboratory. Such earthly problems as air pollution, water conservation, nutrition, and waste management exist also in the spacecraft. The technology NASA is creating to cope with these problems will be timely and appropriate to earthly solutions.

A fascinating 65-page dissertation on this theme has been prepared by Dr. Robert G. Rolan, a NASA-ASEE Summer Research Fellow at Langley, and should be especially interesting to scientists, engineers and technicians engaged in the development of manned spacecraft systems. Many of these persons have perhaps not given serious thoughts to the earthly applications of the equipment they are developing.

A limited number of copies of this report are available from the Technology Utilization Office, extension 3281.

COIN CLUB MEETS OCT. 15

The Langley Research Center Coin Club will meet on October 15 in the Activities Building at 7:30 p.m. Doors will open at 7 o'clock. The evening's activities will include a discussion of last weekend's V.N.A. show at Natural Bridge by Bill Mayo and Randy Stapilus.

The raffle will be handled differently this month in that there will be a total of 17 separate choice prizes for 17 winners.

The club is giving away a choice brilliant uncirculated $5 gold piece and a $10 gold piece and five brilliant uncirculated silver dollars at the December 17 meeting. Tickets for chances on these items are twenty-five cents each or five for a dollar from any member of the coin club, as a donation to the club.

FOR SALE: Well-trained kittens. Weidman, 868-6430.

FGAA CHAPTER MEETS OCT. 15

Raymond Einhorn

Raymond Einhorn, Director of Audits, NASA Headquarters, will speak at a meeting of the Federal Government Accountants Association on October 15.

Einhorn will discuss areas of current interest to the Federal Financial Management community in the Langley area. He is expected to comment on the audit office, which was recently opened at Langley and is in the process of expanding in order to provide additional audit service in such areas as the Viking Project.

Einhorn received his B.S. degree from the University of Florida and his M.S. degree from the University of Illinois. He is a CPA and while National President of FGAA, he presented the charter to the local FGAA chapter.

The meeting will be held at the Harbor House Restaurant, Pembroke Ave. and Mallory St., starting at 6:30 p.m. For reservations call Joe Haggerty, 3867. Guests are welcome.

INTERNATIONAL CREDIT UNION DAY

On Thursday, October 16, some 35,000,000 Credit Union members, world-wide, will celebrate International Credit Union Day. The Langley Federal Credit Union will do its part by hosting an open house between 10 a.m. and 3 p.m. The occasion will also mark the third anniversary of its new building.

The agenda will include the presentation of a savings bond to TSgt. Theophiles W. Gray by Robert L. Girouard, President, for negotiating the 100,000th loan made by the Credit Union since being chartered in 1936. In addition, there will be favors for all with 50 lucky members receiving a key chain with the attached disk being a copy of NASA's commemorative Apollo medallion. Doughnuts with coffee or coke will be served at all times.

Fred Schmidt, Program Chairman, and your Credit Union extend a hearty invitation to all members to attend. Come out and help make the day memorable!

LANGLEY TO HOST CONFERENCE

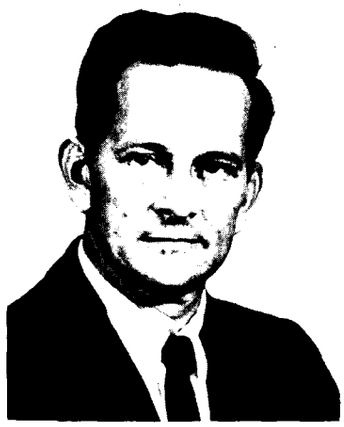
Langley Research Center will be host for the annual NASA Property and Supply Management Conference which will be held October 7, 8, and 9 in the 7 x 10 Conference Room. Approximately 50 property officials from all NASA centers and facilities will attend the three-day conference.

The conference will open with a welcoming address by Dr. John E. Duberg, Associate Director, on October 7 and close with a tour of Center facilities on October 9. L. S. Hanson, former Langley employee now assigned to NASA Headquarters, is chairman of the meeting.

TURKEY SHOOT: Center sharpshooters are reminded that the Activities Association's annual Turkey Shoot will be held Saturday, November 1 at the Activities Building. Matches will be held from 9 a.m. until 5 p.m. Further details will be announced in a later issue of Langley Researcher.

FOR SALE: 3-bedroom brick rancher with 2 baths and attached garage - $19,600 - pay equity of $1200 and assume 6-3/4% loan with $137 monthly payments. Mangum, 595-4525.

IEEE GROUP TO HEAR CUDDIHY



William F. Cuddihy

William F. Cuddihy, Electronics Manager for the Viking Project, will be guest speaker at a meeting of the Hampton Roads Chapter of the Institute of Electrical and Electronics Engineers on October 14 at the Admiralty Motel, N. Military Highway, Norfolk.

The mission of Project Viking is to send two instrumented payloads to Mars in mid-1973. After an eight-month journey through space, each spacecraft will be put in orbit around Mars.

Cuddihy will present the objectives and describe the plans for the Viking mission. Emphasis will be placed on the Communications Systems which include: transmission of data from Mars orbit to Earth, transmission of data from Mars surface to Earth, UHF relay of data from Mars surface to Mars orbit, and command tracking from Earth to Mars orbit and surface.

As Electronics Manager of the Viking Project, Cuddihy is responsible for all electronics such as communications, radars, and power systems on the Viking program which will land an instrumented payload on Mars.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30. For reservations call Frank Senft, 3461, by noon on October 13.

COSTUME BALL NOVEMBER 1

The Activities Association will sponsor a Halloween Costume Ball on Saturday, November 1 at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. to the music of Jap Curry and The Blazers.

Prizes will be awarded in three categories - best male costume, best female costume, and best couple in costume.

Admission will be $3.25 per couple, including free setups. Tickets and reservations are available at the Activities Building.

APPOINTMENTS ANNOUNCED

(Continued from page 1)

He was awarded NASA's Distinguished Service Medal in 1968 for his major contributions to the development of the legal framework, national and international, of United States aeronautical and space activities.

A native of Los Angeles, Beresford is a graduate of Harvard College and Harvard Law School. He has also done graduate work at George Washington University.

Since 1962 he has been in private law practice in Washington. After World War II service as a Navy destroyer officer in the Pacific theater, he was in private practice in Boston. From 1958 to 1962 he was special counsel to both the House Select and the Standing Committees on Science and Astronautics.

FOR SALE: Sears portable dishwasher - $110; 2 Westinghouse air conditioners, 5000 btu $50, 6000 btu $75 - both 115 volt. Steinmetz, 595-2527.

FOR SALE: 1963 Peugeot 404 sedan, 4-speed synchromesh transmission - $475. Orr, 877-9231 after 7 p.m.

Langley Researcher

VOLUME 9, NUMBER 21 LANGLEY RESEARCH CENTER OCTOBER 17, 1969

HALLOWEEN BALL PLANNED NOV. 1

Tickets are now on sale at the Activities Building for the Activities Association's Halloween Costume Ball to be held Saturday, November 1 at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. to the music of Jap Curry and The Blazers.

Prizes for the best costumes will be awarded in three categories. The person with the best costume for a male will receive a man's wrist watch. The best costume for a female will win a lady's wrist watch, and the couple with the best costumes (based on a theme) will receive his and hers Timex watches.

Admission will be $3.25 per couple, including free set-ups. Reservations may be made by calling the Activities Building.

PORTRAIT UNVEILED

The official portrait of James E. Webb, second Administrator of the NASA, was unveiled October 1 at a formal ceremony in the Smithsonian Institution.

NASA Administrator Dr. Thomas O. Paine welcomed the many guests and spoke at the unveiling. Guests included members of Congress, heads of Federal agencies, former members of NASA and personal friends of Webb.

The portrait by artist Gardner Cox will hang in NASA Headquarters with official portraits of two other space pioneers-- Dr. T. Keith Glennan, NASA's first Administrator, and Dr. Hugh L.

(Continued on page 3)

THANKS FOR 'FINE EXAMPLE'

I am taking this opportunity to extend my sincere thanks to all Langley employees for your outstanding support of the Langley Research Center Combined Federal Campaign. Vera Huckel has reported to me that the total gifts have now exceeded $123,000, which is nearly $15,000 above our official goal and which represents a 15 percent increase in our average contribution.

Numerous Peninsula leaders have contacted me to extend to us their appreciation for Langley's generous response to the needs of the community. There is no doubt that Langley has again set a fine example and one which we hope will inspire others to do their best.

As part of my responsibility to you during the coming year, I plan a series of reports to you on the activities of the various agencies we are helping support, and their use of these funds.

E M Cortright

LANGLEY AND WALLOPS STATION JOINT HOSTS FOR CONFERENCE

Langley Research Center and Wallops Station will be joint hosts for the Fifth Annual Financial Management Conference which will be held October 22, 23, and 24, in the 7 x 10 Conference Room. Fiscal and budget representatives from all NASA centers and offices will attend. H. Frank Hann, Director of Financial Management at NASA Headquarters, will preside.

H. Frank Hann

Dr. John E. Duberg, Associate Director, will open the conference with a welcome message on October 22. The conference will be divided into three workshop groups each day to discuss individual financial management problems and report back to the conference. Each group will be chaired by a Center fiscal officer.

Previous Financial Management Conferences have been held at NASA Headquarters, Manned Spacecraft Center, Ames Research Center, and Kennedy Space Center. It is the intention of the Director of Financial Management to meet at a different NASA facility each year.

RETIREES RECEIVE ANNUITY INCREASE

Staff members who are considering retirement in the near future, are reminded that Federal retirees and their survivors will get a 4 percent increase effective November 1, to be reflected in their annuity checks December 1. This was made official when official Labor Department price index figures rose .4 of 1 percent making a total 4 percent increase since the last Federal annuity adjustment.

To be eligible for this annuity increase the employee's retirement must be effective before November 1.

Officials pointed out there is a good possibility that the 4 percent annuity increase will be raised to 5 percent if, as expected, the civil service retirement bill becomes law before November 1. This legislation provides for an added 1 percent annuity rise whenever annuities are automatically adjusted on the basis of price index figures.

On this assumption, the 5 percent increase would also apply to present government workers who retire before November 1. They also would get the benefit of the high-three-year average salary feature and sick leave credit for added length of service.

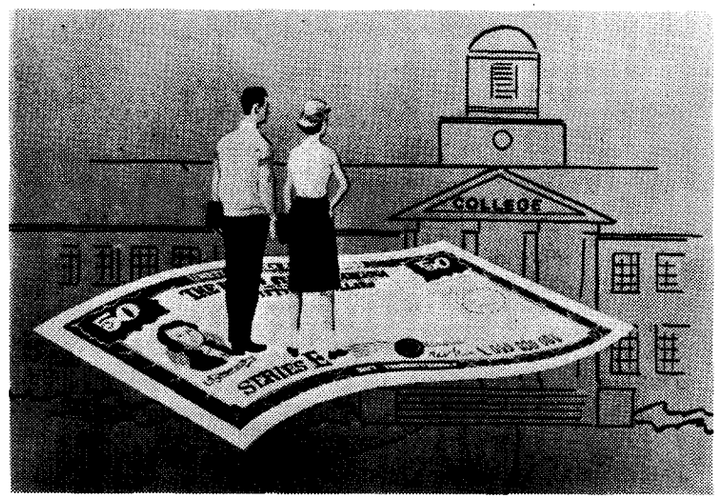
The major purpose of the legislation is to improve the financing and funding practices of the Civil Service Retirement System. Accordingly, this bill increases employees' and agencies' retirement deductions from the present 6-1/2 percent to 7 percent.

For further information call James C. Tingle, 2605.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.



ANNOUNCEMENTS

TIME CHANGE. . .Effective at 2 a.m. on Sunday, October 26, Daylight Saving Time will end in this area. Accordingly, at 2 a.m. on October 26, all clocks will be moved back one hour to conform to Eastern Standard Time.

DIAPER LINE. . .This seems to be the busy season for the stork. Announcing the birth of an eight-pound, one-ounce son, James Bevill, on September 11 is John B. Peterson Jr., Full-Scale Research. . .Celebrating the birth of an eight-pound, four-ounce son, Wade D. Jr., on September 4 is W. Douglas Morris, Applied Materials and Physics. . .Passing out cigars and candy is Daniel H. Biermann, Technical Information and Utilization. He became the father of a daughter, Nicole, on October 8. . .Weighing in at eight pounds, thirteen ounces on October 1 was Jean Catherine, daughter of Frank S. Kirkham, Aero-Physics.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, October 29 at 7:30 p.m. at the Central Labor Union Hall.

CONDOLENCES. . .Condolences to Joseph E. Robbins, Administrative Officer at Wallops Station, on the recent death of his wife, Mrs. Pauline Robbins. . .Word has also been received at the Center of the death of Mrs. George W. Lewis on October 8. Mrs. Lewis was the widow of the late Dr. George W. Lewis, former Director of Research of the National Advisory Committee for Aeronautics, (predecessor of the NASA). She is survived by six children including Leigh K. Lewis, Research Models and Facilities.

CAMERA CLUB. . .An organizational meeting of the Langley Camera Club for the 1969-70 year will be held Thursday, October 23 at 7:30 p.m. at the Langley Service Club. All prospective members and guests are invited. For further information call Abraham Leiss, 2614.

TOUR SURVEY. . .The Activities Association is conducting a survey to determine if there is sufficient interest to plan some tours abroad in the summer or early fall of 1970. Persons interested should send their name, telephone extension number, and number of family members interested to Linda Tribeck, Mail Stop 496.

TURKEY SHOOT. . .Sharpshooters are reminded that the Activities Association's annual Turkey Shoot will be held Saturday, November 1 on the grounds of the Activities Building. Matches will start at 9 a.m. and continue until dark. Refreshments will be available in the Activities Building so plan to make it an all-day affair.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of October 20:

Monday - Cream of potato soup, baked corned beef and cabbage, chuckwagon steak, beef stew, Spanish franks. Snack bar - Soup, hot dog, hot corned beef, French fries.

Tuesday - Chicken-noodle soup, pepper steak, fried oysters, sauteed chicken livers, western omelette. Snack bar - Soup, ham and egg sandwich, steak sandwich, French fries.

Wednesday - Cream of tomato soup, chopped steak, shrimp Newburg, beef pie, grilled luncheon meat. Snack bar - Soup, luncheon meat, Lou's satellite special, French fries.

Thursday - Vegetable-beef soup, grilled steak, baked ham, knockwurst, fish cakes. Snack bar - Soup, hamburger, baked ham, baked beans.

Friday - Manhattan clam chowder, grilled pork chops, fried scallops, chicken chop suey, chili con carne. Snack bar - Soup, sea dog, hot pastrami, French fries.

The menu for the week of October 27 is as follows:

Monday - Puree of bean soup, pot roast of beef, veal cutlet, smoked pork sausage, baked hash. Snack bar - Soup, barbecued pork, hot roast beef, French fries.

Tuesday - Cream of celery soup, barbecued spare ribs, chicken pie, liver and onions, grilled cheese sandwich. Snack bar - Soup, grilled cheese, flying saucer, French fries.

Wednesday - Chicken-rice soup, chicken and dumplings, fried shrimp, Salisbury steak, macaroni and wieners. Snack bar - Soup, hot dog, corned beef, French fries.

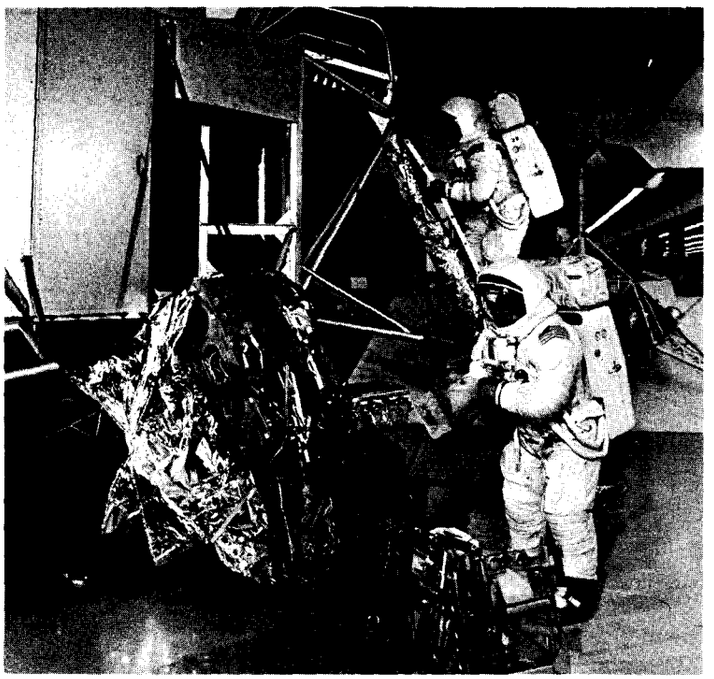
Thursday - Vegetable-beef soup, country style steak, baked ham, fried fish crisps, tamale pie. Snack bar - Soup, fish sandwich, steak sandwich, French fries.

Friday - New England clam chowder, roast beef, broiled fish, fried chicken, franks and beans. Snack bar - Soup, hamburger, baked beans, French fries.

FOR SALE: 10-room, 2-bath duplex with garage and storage sheds, lot 90 x 105 feet. Lowe, 722-0179 or 851-0065.

FOR SALE: 12 x 19-foot rubber rug cushion - $15. Byrd, 595-0160.

FOR SALE: Ludwig floor tom-tom, tom-tom and bass drum with floor pedal - $35. Ashby, 596-2840.



ASTRONAUTS REHEARSE: Apollo 12 astronauts Charles Conrad Jr., Commander, and Alan Bean, Lunar Module Pilot, rehearse in preparation for their lunar landing mission in November. Conrad is checking the Apollo Lunar Surface Experiment Package (ALSEP).

YOUNGSTERS VIEW VACATION AND SAFETY

A teacher from a small midwestern town gleaned these profound and sometimes hilarious statements from the effervescent minds of his students on the subject of vacations and safety:

When they picked the tricycle off me, I was found to have many critical cuts and bruises, but the sprung ankle was probably my best injury.

In lying in the sun on a vacation, the fun is not afterward.

Miles per hour is what you say when you cannot think of mph.

Don't forget not to look at the sun as you travel, or you will get a migrate headache.

Drivers should try to remember not to drive too close apart.

Hygiene is to keep healthy on the inside, while safety is to keep healthy on the outside.

People should not get behind the steering wheel until they have practiced driving for at least a month.

Scurry is a disease caused by driving too fast.

Safety is not playing tag in the car.

Safety is to help the driver by politely keeping shut up.

Safety is what saves iodine.

Safety is not being on the same spot that a car is on.

Safety is a revolution to keep around the year.

--DuPont Experimental Station

PORTRAIT OF WEBB UNVEILED

(Continued from page 1)

Dryden, deceased, first Deputy Administrator of NASA.

Webb served as Administrator from February 14, 1961 to October 7, 1968.

The ceremony coincided with the agency's eleventh anniversary.

COST REDUCTION OFFERS CHALLENGE

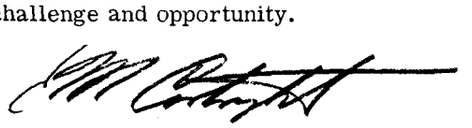
I would like to restate my views concerning the NASA-wide Cost Reduction Program, recognizing that the program is one in which every member of the Center's staff can and should participate.

The basic objective of the program is excellent; namely, to create an atmosphere in which each of us is conscious of the dollars we spend every day at work, just as we are conscious of those we spend in our personal family budgets. In addition, the program provides an excellent opportunity for idea interchange with other NASA Centers and other agencies, bringing about additional savings. Needless to say, the favorable publicity which comes from the program serves to counterbalance some of the adverse publicity which we read concerning waste in the Government. Some of the ideas reported have served to illustrate effective management to our Congressional committees. You can see from these examples that the program has many benefits besides direct savings.

I recognize that participation in a program such as this results not so much from what the stated policy is, but rather from what the staff believes in. In my view, the present budget constraints should be reason enough for support of this effort to reduce costs. But even if more funds were available, I would expect a cost conscious attitude to prevail since we are obligated to get all the return possible from each tax dollar.

Langley has made a firm commitment to meet a cost reduction goal for Fiscal Year 1970 in excess of 5 million dollars. The challenge this goal presents requires that each of us give it our personal attention. As a starter, may I suggest that if you have not been a regular participant in the Cost Reduction Program, it is not too late to begin. Take a few minutes to read Langley Management Manual Issuance 1400.4 and find out more about the program, particularly the name of the cost reduction officials at the Center and the organizational cost reduction monitors. They are working to meet the cost reduction goal, and they deserve your support. Any one of them will welcome your inquiry concerning the opportunity for savings within your organization. They will even help you develop your idea into a cost reduction submission.

Furtherance of this Center's assigned mission requires imagination as well as determination. In that spirit, I suggest that each supervisor check to insure that he or she has created an atmosphere where the objectives of the Cost Reduction Program can be met. To each staff member I again commend the program as a personal challenge and opportunity.



FOR SALE: GE kitchen range, full size, 4 burners, storage space. Copeland, 595-6772.

FOR SALE: 1965 Sears 20-inch chain saw - $95. Wilson, 877-4453.

FOR SALE: Stephens double barrel shotgun, 16-gauge, 28-inch barrel. Powell, 838-0617.

RIGHTS OF EMPLOYEES WHO PERFORM DUTY IN THE ARMED FORCES CITED

In view of the increasing numbers of Federal employees performing duty in the military service, the Civil Service Commission feels it is important to reemphasize the rights of these employees, both while they are in the armed forces and upon their return to civilian duty.

It is essential that every manager and supervisor with an opportunity to influence what happens to these employees at any stage in the cycle be thoroughly acquainted with the employees' rights so they may be assured of all benefits due them.

Managers and supervisors must recognize, for example, that employees absent on military duty are entitled to be considered while they are away for all promotions they would have been considered for had they remained on the job. Military service is regarded as an extension of civilian service and must be given appropriate credit all the time an employee is away. Significantly, the employee is entitled to consideration not only for promotions for which he was eligible before entering the armed forces but also for any promotions for which he becomes eligible while in the service.

Managers and supervisors are also reminded that there is a special provision for employees who enter military service while they are undergoing a prescribed course of training. Such an employee need not finish his training to be promoted in absentia. He may be promoted if he has substantially completed the prescribed training and has demonstrated to his agency's satisfaction an ability to perform the duties of the higher grade position for which he was being trained.

An employee's basic entitlement is to be returned to the position he left or to one he was promoted to in absentia. But there is no reason why he cannot be given a higher grade position if he is qualified and applicable requirements of the agency's merit promotion program are met. In this connection, supervisors should take care to give the employee full credit for his military experience. This is to be credited either as a continuation of his civilian service or on its own merits, whichever will be to the employee's greater benefit. In fact, if an agency is satisfied that an employee can perform the duties of a position for which he does not meet established qualification requirements, the Commission will consider waiving these requirements at the agency's request.

YOUNG STUDENT DOESN'T LOOK WITH CONFIDENCE TO FUTURE

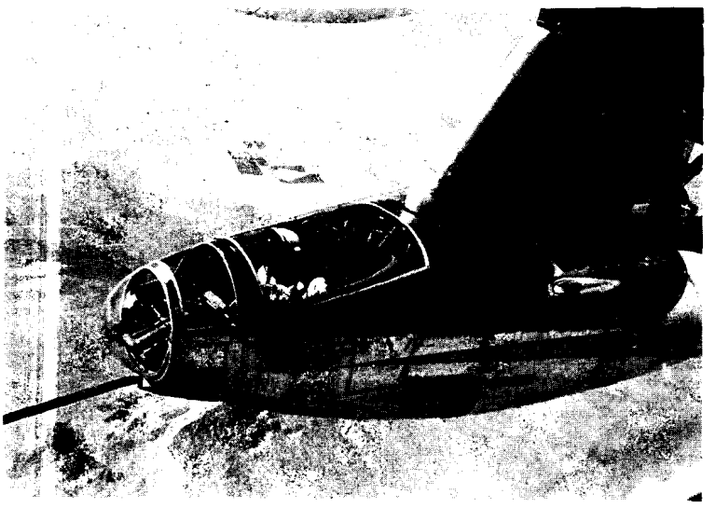
The Langley Research Center has traditionally been a laboratory which looks to tomorrow in providing the science and technology required for the advancement of flight.

Frank, a 10-year-old student of Columbia, South Carolina, has long been impressed with this fact through avid reading of booklets on the Center's mission and aeronautical and space research activities.

In his most recent letter, Frank-- admittedly only a fair student-- confides that he no longer shares Langley's interest in tomorrow: "That's when I get my report card."

FOR SALE: Dachshund puppy, minature, male, AKC registered - $65. Gerringer, 851-0518.

FOR SALE: AKC registered poodles. Price, 826-1447.



FLIGHT RESEARCH: NASA test pilot John A. Manke prepares to air launch NASA's HL-10 lifting body from the B-52 "mothership" flying at 45,000 feet. The HL-10, a Langley Research Center concept, is one of several wingless lifting body type experimental craft being studied by NASA and the Air Force for possible use as manned space shuttle craft capable of landing like a conventional aircraft. Following launch, Manke ignited the HL-10's rocket engine and flew to a speed of Mach 1.5, one and one-half times the speed of sound. Manke is a research pilot for the Flight Research Center at Edwards, California.

HARNETT NAMED TO POSITION

Daniel J. Harnett has been appointed Assistant Administrator for Industry Affairs at NASA Headquarters, effective October 1.

He will be responsible for all NASA relationships with industry. Reporting to him will be the offices of Procurement, Cost Reduction, Labor Relations, Reliability and Quality Assurance, and the staff of the Inventions and Contributions Board.

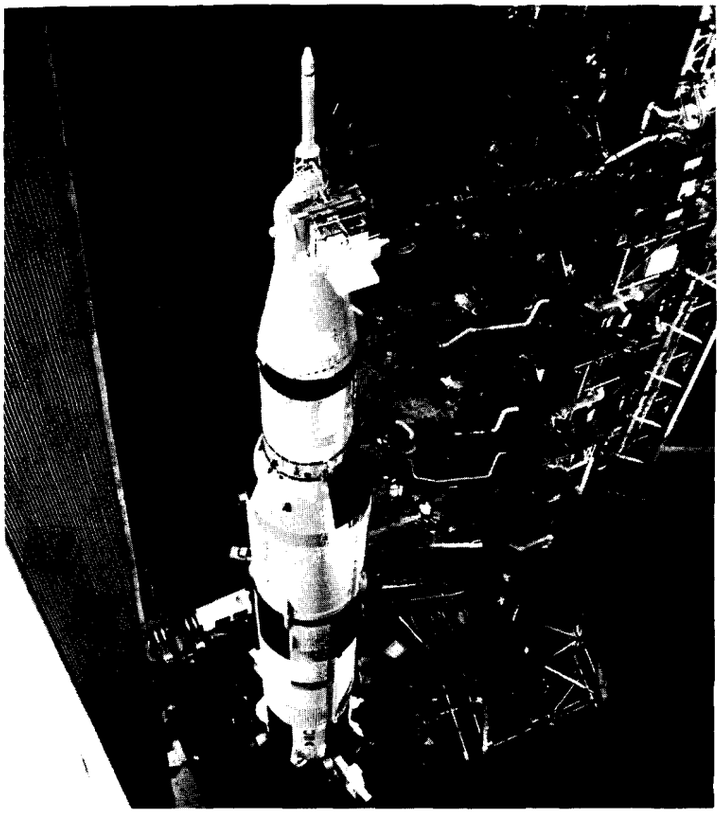
Prior to his NASA appointment, Harnett held varied executive positions with Northrop Corporation, in Beverly Hills, Calif., in the fields of contracts, pricing, programs and marketing. Before joining Northrop in 1964, he was associated with the Logistics Management Institute of Washington, D.C., the United Industrial Corporation as vice president, secretary and counsel, and the Telecomputing Corp. as director of contracts and assistant general counsel.

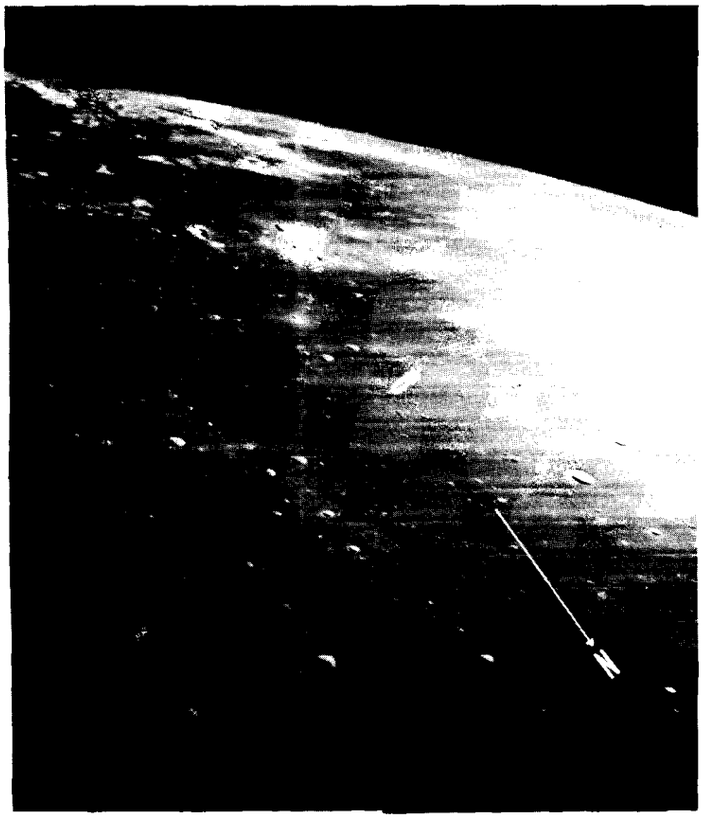
Harnett received a B.S. degree in Business Administration from Marquette University and Juris Doctor Degree at Marquette School of Law. He attended the executive program at the University of California and the senior executive program of the Sloan School of Management at the Massachusetts Institute of Technology.

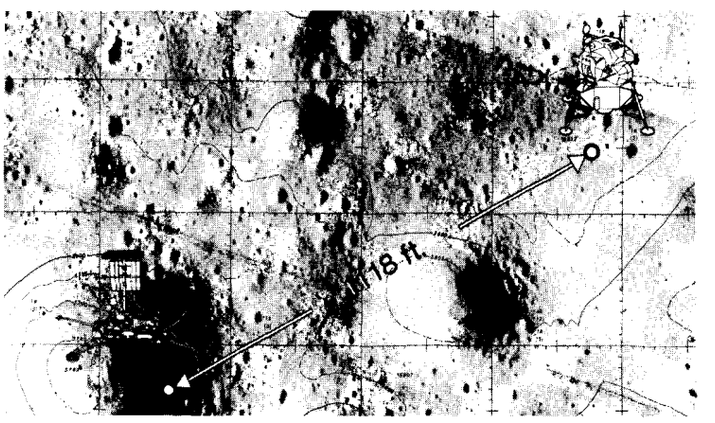
He is a member of the state bars of California and Wisconsin and of the Bar of the Supreme Court of the United States, the American Bar Association and the Federal Bar Association. He is also a national panel member of the American Arbitration Association.

FOR SALE: Complete percussion kit with carrying case - $50. May, 826-4737.

FOR SALE: 3-bedroom brick rancher with large dining room, eat-in kitchen, attached garage. Reduced to $1300 below FHA appraisal. Hanson, 851-1669.







APOLLO 12: The transporter carries the Apollo 12 Saturn V space vehicle and mobile launcher along the Crawlerway enroute to Launch Complex 39A. The 363-foot-high space vehicle was rolled out of the Vehicle Assembly Building's High Bay 3 and travelled the 3.5-mile distance to the launch pad at speeds under one mile per hour. The vehicle will launch astronauts Charles Conrad, Richard P. Gordon and Alan L. Bean on a planned lunar landing mission next month. The top right photo taken by Lunar Orbiter III shows planning activities for Apollo 12 lunar landing 100 feet east and 500 feet north of Surveyor III. The landing ellipse is 7.2 nautical miles by 2.6 nautical miles. The composite sketch (right) shows the approximate distance Apollo 12 is planned to land from Surveyor III. Background map used in sketch was made from photos obtained from Lunar Orbiter I and III.

R. L. RHODES DIES IN CRASH; BURGESS CRITICALLY INJURED

Robert L. Rhodes Jr., Experimental Machinist in the Experimental Machine Shop, Fabrication Division, died in a plane crash last Sunday in Middlesex County. Critically injured in the same accident was Littleton S. Burgess, also of the Experimental Machine Shop.

Rhodes was born March 9, 1924 in Hampton. He graduated from Hampton High School and served in the U.S. Army from 1943 to 1946. He served his apprenticeship as a machinist at the Newport News Shipbuilding and Dry Dock Co. and joined the Center staff on November 14, 1951.

He is survived by his wife, Mrs. Martha Murray Rhodes; a son, Howard Murry Rhodes, and a daughter, Nancy Grey Rhodes, all of Yorktown.

WANTED: Home for kittens, half Siamese, 9 weeks old. Davis, 898-6834.

EMPLOYEES DONATE BLOOD

The Red Cross Bloodmobile visited the Center last month and staff members donated a total of 179 pints of blood.

James J. Fay reached the eight-gallon mark and Harold Youngblood comleted his quota for seven gallons. Taylor Fraser and L. E. McDaniel were credited with five gallons. Four-gallon donors were Ralph E. Moscater, John Doyle, and Billie Short. Credited with three gallons were Moses Long, W. J. Tuovila, and William Martz. Harry W. Carlson and T. R. Driver reached the two-gallon mark.

One gallon pins were presented to Raymond L. Delozier, Anthony Fecondo, Aubrey Ferguson, William C. Henley, David Adamson, James A. Dorst, Thomas Ballard, and Ward E. Schoonover.

Assisting during the visit were Dr. G. P. Carter and Dr. A. E. Bassette.

The next Bloodmobile visit will be on December 17. Persons interested in joining the blood program may register by calling the East Dispensary, extension 2243.

TEKTITES DISCOVERED ON EARTH

Ten years of detective work by scientists at Ames Research Center has produced major new evidence that from 10 to 100 million tons of the moon is almost certainly already on Earth.

The last shower of this lunar material, called "tektites," arrived some 700,000 years ago, sprayed from the moon's surface by the impact of a meteorite the size of a small mountain, which formed the 56-mile-wide, nine-mile-deep lunar crater Tycho.

Millions of tons of this lunar splash traveled 240,000 miles through space for about three days and showered down on the Earth, mainly over Australia, the Philippines and southeast Asia.

Tektites are chunks of glass that were first fused by the heat of meteorite impact and then reshaped by aerodynamic ablation during entry into the Earth's atmosphere from space.

In the process of fusing into glass, the valuable record of what minerals composed this lunar rock was largely obliterated. Although the tektites are not a substitute for the complete minerological record contained in the rock samples brought back by the astronauts, they are providing scientists with much new knowledge about the chemistry of the lunar crust. During the past decade several tons of tektites have been assembled.

The cosmic event which created the tektites, a collision with the moon by a three-mile-diameter projectile, of iron-nickle composition, undoubtedly produced major luminous phenomena bright enough to be visible from Earth.

Reflection of sunlight from billions of glass objects diffused through space would have presented a light spectacle in the sky for many nights. To this was added a half-day-long rumble of continuous sonic booms as the tektites arrived and entered the atmosphere. Thick-browed Java man, whose fossil bones have been found with tektites, undoubtedly witnessed this extraordinary celestial event.

Scientists have differed concerning the origin of tektites since their discovery over a century ago. However, recent findings appear to clinch the moon as the source.

Dr. Dean R. Chapman, Chief of the Thermo and Gas Dynamics Division at Ames Research Center and a world authority on tektites, has been working on them since 1959. Recently he has been able to relate the chemical composition of one family of Australasian tektites to the chemical composition of the rock on Tycho's rim, as determined by Surveyor VII when it landed there in 1968.

Dr. Chapman also has identified the exact lunar source of the Australasian tektite shower. It is a ray of ejected rock, the "Rosse ray", which can easily be seen on the lunar surface, projecting out from the huge crater Tycho for a thousand kilometers in the direction of 19 degrees north of lunar east, and passing over the smaller crater Rosse.

By screening a million tektites, and chemically analyzing a select 600 of them from 200 different discovery sites, he has charted their precise landing pattern as an inclined "S" spread over the Earth's surface. Thousands of computer trajectory runs have proved that only a shower of objects originating at Tycho and traveling in the same direction as the Rosse ray could have produced this particular pattern on Earth.

These conclusions throw light on the moon's history and allow dating of certain lunar surface features. Since the Australasian tektites are an estimated 700,000 years old, so is Tycho. Material on the moon that is overlain by rock ejected from Tycho is older.

At least three cosmic impacts have showered the Earth with lunar debris: one - 35-million years ago landing in the United States; another, 15-million years ago landing in Czechoslovakia; and the 700,000-year-old Australiasian tektites.

MOON ROCK: Children view the two-pound Moon rock at the Smithsonian Institution. The rock was presented to the Smithsonian by Apollo 11 astronauts Neil Armstrong, Edwin Aldrin, and Michael Collins.

GEMINI PHOTO BOOK AVAILABLE

More than 250 full-color photographs of the Earth as seen from spacecraft in orbit are featured in NASA's newly published "Earth Photographs from Gemini VI through Gemini XII."

The book is a collection of the best of hundreds of pictures taken between 1965 and 1967 from altitudes between 99 and 850 miles as Gemini spacecraft orbited the Earth.

In this volume, however, the pictures are presented as if taken on a single flight around the world. The first and last views are of Cape Kennedy where the Gemini flights began. Between are views of all the principal areas within about 30 degrees latitude of the Equator.

The arrangement helps a reader interested in a particular area to turn quickly to pictures of that area or a reader can go page by page seeing it much the same way that it appears to astronauts.

Captions for the photographs are by specialists in geology, oceanography and other sciences.

All the photographs were taken with hand-held cameras as part of synoptic terrain and weather photography experiments.

The new book is a companion volume to "Earth Photographs from Gemini III, IV and V," published in 1967. The new book, Special Publication 171, may be purchased for $8 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

FOR SALE: 1966 Ford station wagon with air conditioner, V-8, 6-passenger. Lightner, 877-4242.

FOR SALE: 1964 All State utility trailer with cover. Wilson, 877-9560.

ISA GROUP TO HEAR BOZICH

Daniel J. Bozich

Daniel J. Bozich, Technical Director of Engineering Physics and Acoustics, Wyle Laboratories Research Staff, will be guest speaker at the October 21 meeting of the Tidewater Section of the Instrument Society of America. He will discuss the computerized data acquisition, display, and control system used in the Apollo "Short Stack" environmental test program.

The short stack test program involved simulated aerodynamic and static pressure loads, vibratory resonances, and thermal loads for maximum dynamic pressure (q) condition and end of boost condition in the launch trajectory of the Apollo vehicle. The Short Stack consisted of the service module, the spacecraft lunar module adapter, the lunar excursion module, the instrument unit, and the forward skirt of the S-IV B stage.

The meeting will be held at Sam's Seafood Restaurant, 23 Water Street, Hampton. A social period will be held at 6:30 p.m., followed by dinner at 7:15 and the talk at 8. For reservations call or write Pat Kyle, extension 3234, Mail Stop 236, Guests are cordially invited to attend.

LANGLEY HOST TO WORKSHOP

The Langley Research Center will host the 6th Transducer Workshop which will be held October 23-24 at the Activities Building. A tour of research facilities will be held Wednesday evening, October 22.

The purpose of the workshop is to examine critically practices and problems in the calibration, evaluation, and application of transducers to physical measurement. Among the types of transducers slated for discussion are pressure, force, flow, acceleration, and temperature.

Paul S. Lederer, National Bureau of Standards, is general chairman of the workshop.

The workshops are sponsored by the Inter-Range Instrumentation Group (IRIG) of the Range Commanders Council. The last workshop was held in 1966 and was hosted by the National Bureau of Standards, Gaithersburg, Maryland.

SURPLUS SALE: Local spot bid sale of surplus Government property will be held at Cheatham Annex at 9 a.m. on October 23. For further information call Stodghill, 3948.

FOR SALE: Thoroughbred miniature Dachshund puppies. Williams, 851-0675.

WANTED: Home for kittens. Goble, 595-2066.

FOR SALE: Early American sofa. Dearing, 877-5429.

WANTED: Used piano for $150 or less. Gilliland, 826-4148.

FOR SALE: 1968 Fiat Spider convertible - $1450. Frazer, 596-3982.

FOR SALE: 1963 Valiant convertible - $595. Williams, 826-0021.

FOR SALE: Luxaire down-flow gas furnace, 60,000 btu, used 3 winters - $50. Deans, 826-8416 after 5 p.m.

FOR SALE: 18-foot plywood fiberglas boat, two 35 hp Evinrude motors and trailer - $550. Sanders, 723-3048 after 6.

SPECIAL AWARDS: Special Service Awards for Exceptional Service were recently presented to Amy O. Lupton (left), Flight Instrumentation Division, and Claude W. Coffee Jr., Applied Materials and Physics Division. Lupton was cited "for exceptional performance in planning and directing the LRC instrumentation efforts for the Injun V spacecraft." Coffee was honored "for exceptional service in demonstrating breadth of technical knowledge and excellent judgment in managing the early Air Density Project and the later combined Air Density/Injun Explorer Project which in three launches has placed five satellites in earth orbit with complete success permitting the development of improved understanding of the density of the upper atmosphere and the nature of corpuscular radiation."

PROFESSORS TO VISIT CENTER

Dr. W. D. Stevenson, Dr. L. R. Monteith, and Dr. James W. Galt, Department of Electrical Engineering, North Carolina State University, will visit the Center on October 23 to discuss the opportunities for graduate studies in Electrical Engineering at their university.

A general meeting will be held in Room 246, Building 1202, at 9 a.m. Individual interviews may be arranged by calling the Training Branch, extension 2517.

Can you Solve This Problem?

A remote, non-immersion, sensing technique is needed for measuring changes of temperature with height in the lower two kilometers of the atmosphere. For additional information or if you have a suggested solution, contact the Technology Utilization Office, extension 3281. Refer to problem RTI/AP-2.

FOR SALE: 3-bedroom, 2-bath house in Willow Oaks, 1500 sq. ft., $4500 down and assume loan. Janus, 851-3204.

FOR SALE: 17-foot Traveler with cabin, 2 bunks, head, full canvas, 90 hp Evinrude, tilt trailer. Hall, 851-1653.

FOR SALE: 22-foot open sloop with 5 hp inboard, full equipment. Hunter, 596-2872.

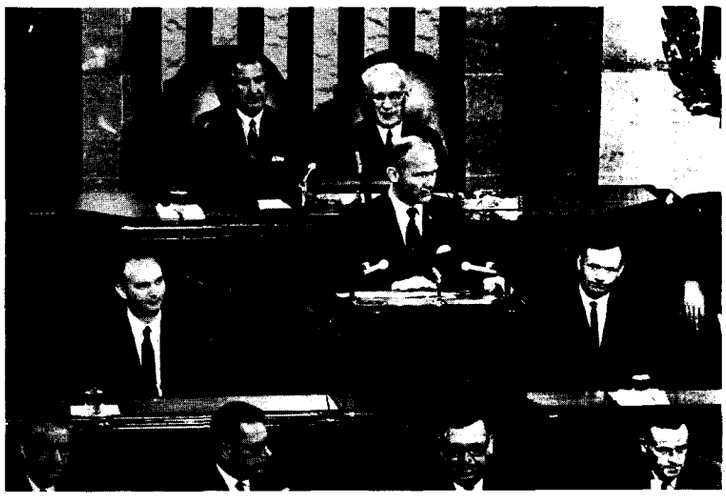
FOR SALE: Lionel and Tyco trains. Shuster, 868-6575.

FOR SALE: AKC registered miniature Dachshund puppies - $75 each. Von Wald, 877-5525.

WANTED: Good home for mixed Shepherd male puppy - had distemper shots. Powell, 722-1426.

FOR SALE: Utility trailer with bed size 50 x 55 inches with 4.5 x 12 size tires; also pool table. Karns, 851-3377.

FOR SALE: Getzen cornet with cup mute. Evans, 868-9054.



STANDING OVATION: Apollo 11 Astronauts Michael Collins, Edwin Aldrin, and Neil Armstrong received a standing ovation when they addressed a joint session of Congress.

TECHNOLOGY UTILIZATION NEWS

Civilization is currently undergoing a remarkable new age of technological progress. No small role in this "renaissance" is being played by NASA. Such devices as the transistor, the laser, and the computer are truly multiplying man's knowledge and capabilities in coping with the universe. New worlds are literally at our disposal. Each new idea or device seemingly triggers others like a chain reaction.

Your Technology Utilization Office is "in the thick" of new state-of-the-art developments and, although it is not a library, has much new technology available in the form of Special Publications, Tech Briefs, and Compilations. Keep in touch with the T.U. Office for these useful documents and become a participant in the technology revolution by submitting your ideas or inventions.

Awards of $25 are automatically presented to anyone whose name appears on a published Tech Brief. Patentable items also bring an innovator a minimum of $50 when the patent is processed to the point of application to the U.S. Patent Office. At a later time the item may be considered for higher awards ranging from $250 to several thousands of dollars. Call the T.U. Office, extension 3281, for details.

Submit your ideas freely, not only to the T. U. program, but to your co-workers. Everyone benefits through free exchange of information and our jobs are thereby made more interesting and satisfying.

CREDIT UNION AUCTION: Three cars, count 'em, three will be sold to the highest bidder in "as is" condition beginning at 12:30 p.m. on Wednesday, October 22 on the Credit Union parking lot. All three have automatic transmission. One is a 1/2-ton 1968 Ford pickup, 8 cylinders, air conditioning, with a 10-foot Goldline Camper installed. The second one is a two-door 1963 Pontiac Grand Prix, 8 cylinders with air conditioning, and number three is a 1968 Pontiac Custom Tempest with 4 doors and 8 cylinders. Cars may be seen at the Credit Union lot; test runs begin at 12:15 p.m. on October 22.

FOR SALE: 1963 Falcon - $350. Turner, 838-3196.
FOR SALE: 14 aluminum storm windows and screens - $5 each. Richardson, 723-5509.

COMBINED CAMPAIGN STANDINGS

Organization	Total Pledge	No. Gifts	% Part.	Avg. Gift
Office of Director	$2672.90	25	100	$106.84
Office Ass't Dir. (Admin.)	2961.28	59	98.4	50.19
Office E and T Service	1330.00	30	100	44.33
Viking Project Office	4145.30	87	88.8	47.65
Advanced Aerospace Projects	596.00	10	100	59.60
LSRG	1292.06	34	94.6	38.00
Scout Project Office	986.90	25	96.2	39.48
Space Vehicle Design Criteria	255.00	5	100	51.00
AMPD	9352.92	198	95.2	47.24
ASMD	4466.60	89	100	50.19
ACD	5704.70	144	93.6	39.61
FID	6481.04	229	92.3	28.30
IRD	5881.10	195	91.1	30.16
DLD	9259.04	136	100	68.08
SRD	8410.52	146	99.3	57.61
APD	7442.00	160	95.8	46.51
FMTD	4591.72	115	90.8	39.93
FSRD	8243.70	165	95.4	49.96
Fabrication	7780.42	506	86.6	15.38
FVSD	6048.72	143	97.9	42.30
RMFD	6715.92	206	99.0	32.60
Research Support	7424.30	526	92.0	14.11
Administrative Services	2402.00	80	100	30.02
Fiscal	1982.90	82	98.8	24.18
Personnel	1694.00	58	100	29.21
Procurement	2493.90	117	88.1	21.31
TIUD	1994.10	106	95.5	18.81
Confidential and Anonymous	579.00	22		
TOTALS	$123,188.04	3689	93.7	$33.31
Co-ops	90.91			
COMPLETE TOTAL	$123,278.95			

12.4% increase in total over 1969 campaign
14.6% increase in average contribution

VPI PROFESSORS TO VISIT

Dr. Joseph A. Schetz, Chairman, and Dr. Fred R. DeJarnette, Professor, Department of Aerospace Engineering, Virginia Polytechnic Institute, will visit the Center on Friday, October 24 to discuss the graduate program in aerospace engineering at VPI.

Langley personnel interested in an interview with either visitor should call the Training Branch, extension 2517, for an appointment.

ASTRONOMY CLUB NOTICE

Members of the Sky Watchers Astronomy Club are reminded that it is time to renew the club charter and the subscription of "Sky and Telescope" magazine. Members are requested to send their checks for 1969-70 to M. F. McNear, treasurer, Building 1202, Mail Stop 474. Membership dues are still $7 per year - $4 sent for magazine and $3 for club treasury.

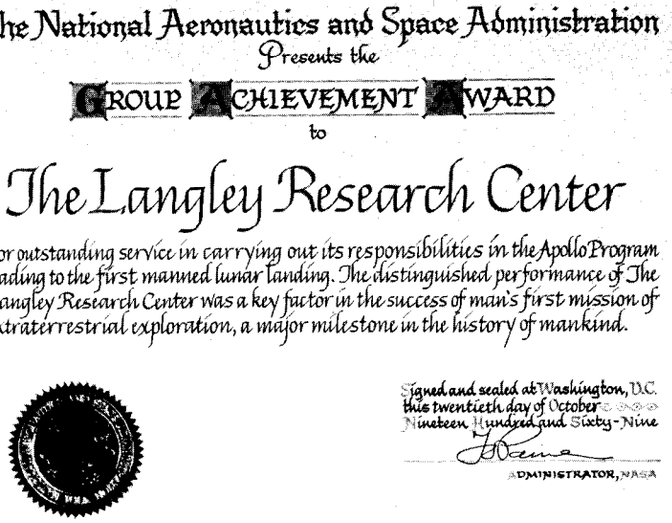
The club check for the magazine will be sent to the publisher on October 21.

The club's 16-inch telescope is operational and in use. Club membership is open to all interested staff members.

FOR SALE: Portable dish washer - $20, Zenith console TV - $25. Lambiotte, 877-5816.
FOR SALE: Pool table - $35. Bruce, 826-0783.

Langley Researcher

VOLUME 9, NUMBER 22 | LANGLEY RESEARCH CENTER | OCTOBER 31, 1969


The National Aeronautics and Space Administration
Presents the
GROUP ACHIEVEMENT AWARD
to
The Langley Research Center
For outstanding service in carrying out its responsibilities in the Apollo Program leading to the first manned lunar landing. The distinguished performance of The Langley Research Center was a key factor in the success of man's first mission of extraterrestrial exploration, a major milestone in the history of mankind.
Signed and sealed at Washington, D.C. this twentieth day of October Nineteen Hundred and Sixty-Nine
ADMINISTRATOR, NASA

CENTER HONORED: At the NASA Annual Awards Ceremony held last week at NASA Headquarters, the Langley Research Center was awarded the NASA Group Achievement Award for outstanding service in support of the Apollo manned lunar landing program. The award was accepted on behalf of the Langley staff by Edgar M. Cortright, Langley Director.

NASA HONORS STAFF MEMBERS AT CEREMONY IN WASHINGTON

NASA has presented a group achievement award to Langley Research Center for the organization's outstanding service in support of the Apollo manned lunar landing program.

NASA also presented individual awards to seven Langley staff members for their aeronautical and space research achievements.

In citing Langley for its "outstanding service in carrying out its responsibilities in the Apollo program leading to the first manned lunar landing" last July, the NASA announced: "The distinguished performance of the Langley Research Center was a key factor in the success of man's first mission of extraterrestrial exploration, a major milestone in the history of mankind."

Langley, which conceived Project Mercury, this country's first manned space flight effort, has extensively supported the manned space flight program through the operation of unique simulators, specialized laboratories, and major flight research activities.

Facilities at Langley have made it possible to duplicate some of the conditions of space to develop techniques for such Apollo events as lunar landing, walking on the moon, rendezvous and docking in lunar orbit, reentry, and earth landing.

NASA astronauts have worked with the Langley staff in operating facilities concerned with research on lunar land-

(Continued on page 5)

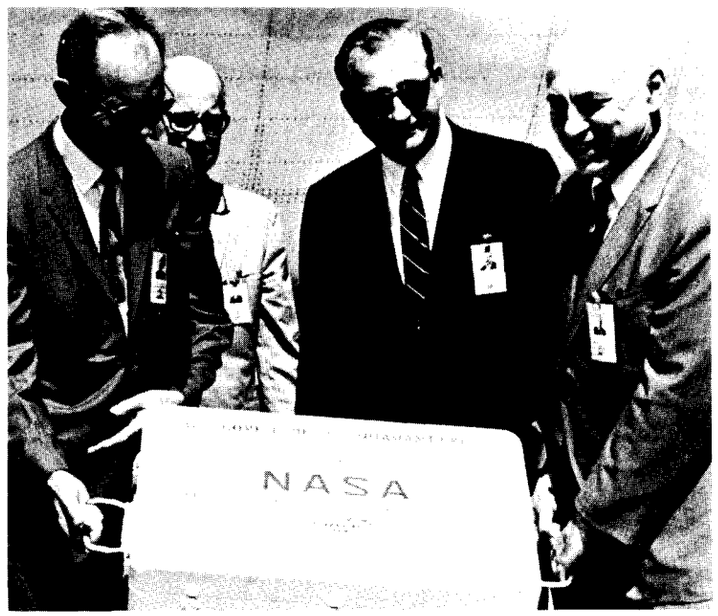
ANNUAL AWARDS CEREMONY SET FOR THIS AFTERNOON

The Center's Annual Awards Ceremony will be held today at 1:30 p.m. on the grounds of the Activities Building. In case of inclement weather, the ceremony will be held inside the Activities Building.

Each year Langley Research Center sets aside a special day in October for the purpose of making service award presentations to employees and for recognizing individuals and groups of Langley personnel for outstanding achievements which they have made in helping to realize the mission of the Center and of NASA.

This year the ceremony is especially significant in that 1969 will take its place in history as the year of man's first successful lunar landing. This achievement is a result of the combined efforts of many people and Langley Re-

(Continued on page 6)



LANGLEY SPEAKER: Dr. Robert R. Gilruth (right), Director of the NASA Manned Spacecraft Center, is principal speaker for today's annual awards ceremony. He also will make awards to Langley personnel who made outstanding contributions to the success of Apollo. Other significant awards will be presented by Edgar M. Cortright, Langley Director. Dr. Gilruth is shown with the first Apollo 11 sample return container, with lunar surface material, as it arrived in Texas in July. Others in the photograph (from left): U.S. Air Force Lt. Gen. Samuel C. Phillips, former Apollo Program Director, NASA Office of Manned Space Flight, Washington, D.C.: Eugene C. Edmonds, MSC Photographic Technology Laboratory; and Dr. Thomas O. Paine, NASA Administrator.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

CONDOLENCES. . .Condolences to the family of Donald L. Forrest who died recently in Poquoson. Forrest was employed as an Engineering Technician in the Research Support Division. He was born December 3, 1930 in Poquoson and graduated from Poquoson High School. He had been employed at the Center for 11 years. He is survived by his widow, Mrs. Ida Rollins Forrest; two sons and two daughters.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet on November 4 at 7 p.m. at the Central Labor Union Hall.

TRAFFIC REGULATION. . .It has been pointed out that a number of operators of vehicles are not observing cross walk traffic rules. According to Base regulations, all vehicles must yield to pedestrian traffic at painted cross walks.

ROSE SHOW WINNERS. . .Congratulations to Grace Shackelford, Technical Editing Section, and Basil R. Brinkley, Research Models and Facilities Division, on winning silver trays at the National Rose Show of the American Rose Society held this month in Norfolk. Grace had the best rose in the Queen Elizabeth class and Brinkley won with the best Grandiflora with a side bud.

ENGAGEMENT. . .Dan Cupid scored a victory when Jack A. Lewis, Research Support Division, became engaged to Ginger L. Stetson, Newport News. Plans call for a June wedding.

TURKEY SHOOT. . .The Activities Association's Annual Turkey Shoot will be held tomorrow at the Activities Building. Matches will start at 9 a.m. and continue until dark. The only fee charged will be fifty cents for each match. Refreshments will be available in the Activities Building so plan to make it an all-day affair.

TOUR SURVEY CONDUCTED

The Activities Association is conducting a survey to determine if there is sufficient interest to plan tours abroad in the summer or early fall of 1970.

Persons interested are requested to send their name, telephone extension number, and number of family members interested to Linda Tribeck, Mail Stop 496.

FOR SALE: Stauffer reducing couch complete with Home Plan Program. Sleeper, 826-6767.

WORKSHOP: The 6th Transducer Workshop was held at the Center last week and practices and problems in the calibration, evaluation, and application of transducers were critically examined. The event is sponsored at one or two-year intervals by the Inter-Range Instrumentation Group (IRIG) of the Range Commanders Council. Shown during the workshop are (from left): Otis Ingebritsen, Instrument Research Division and in charge of arrangements at Langley; Ronald Naylor, Canadian Defense Research Establishment; Clifford H. Nelson, Langley Assistant Director; Loyt Lathrop, Sandia Corporation and Chairman of the Transducer Committee (IRIG); and Paul Lederer, National Bureau of Standards and General Chairman of the Workshop.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 3:

Monday - Split green pea soup, roast veal with dressing, grilled pork steak, chicken chow mein, fish cakes. Snack bar - Soup, sea dog, hot pastrami, corn fritters.

Tuesday - Cream of mushroom soup, beef stroganoff, fried oysters, meat loaf, grilled cheese sandwich. Snack bar - Soup, grilled cheese, flying saucer, baked beans.

Wednesday - Cream of tomato soup, simmered corned beef, stuffed flounder, pork chopette, Spanish franks. Snack bar - Soup, hot dogs, hot corned beef, French fries.

Thursday - Minestrone soup, Swiss steak, baked lasagna, fried chicken, chili con carne. Snack bar - Soup, barbecued pork sandwich, steak sandwich, French fries.

Friday - Manhattan clam chowder, Spanish pot roast, broiled smoked ham, fried fillet of flounder, baked hash. Snack bar - Soup, hamburger, hot roast beef, French fries.

The menu for the week of November 10 is as follows:

Monday - Puree of bean soup, pepper steak, roast pork, spaghetti with meat sauce, chili-mac. Snack bar - Soup, hot dog, Lou's satellite special, baked beans, French fries.

Tuesday - H O L I D A Y

Wednesday - Vegetable-beef soup, roast beef, chicken and dumplings, fried fish crisps, Spanish omelette. Snack bar - Soup, ham and egg sandwich, hot roast beef, French fries.

Thursday - Chicken-noodle soup, grilled steak, beef stew, sauteed chicken livers, tamale pie. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Manhattan clam chowder, baked ham, veal cutlet, broiled fillet of perch, baked hash. Snack bar - Soup, fish sandwich, smoked ham, French fries.

FOR SALE: 1965 Volkswagon 1500 Squareback. Warhol, 826-3972.

FOR SALE: Ligustrum plants. Magnus, 898-4041.

BOGART APPOINTED TO POSITION AT MANNED SPACECRAFT CENTER

Lt. Gen. Frank A. Bogart (USAF Ret.) has been appointed Associate Director of Manned Spacecraft Center, succeeding Wesley L. Hjornevik who has been nominated by President Nixon to be Deputy Director of the Office of Economic Opportunity.

Succeeding Bogart as Deputy Associate Administrator for Manned Space Flight (Management) at NASA Headquarters is Harry H. Gorman, Deputy Director (Management) of the NASA Marshall Space Flight Center.

General Bogart joined NASA in December 1964 as a special assistant to the Associate Administrator for Manned Space Flight. He was named Deputy Associate Administrator (Management) in September 1965.

General Bogart is a 1931 graduate of the U.S. Military Academy. His military service includes assignments in the Army and Air Force. He was Comptroller of the Air Force when he retired in 1964.

Gorman joined the Marshall Space Flight Center staff in June 1960 following an assignment with the Atomic Energy Commission as manager of its Lockland Operations Office in Ohio.

Gorman is a graduate of St. Louis University. He served in several administrative positions in the Army and was director of the budget in the Atomic Energy Commission's San Francisco Operations Office. He also served as Deputy Assistant Director of the Division of Reactor Development for AEC in Washington.

STAFF MEMBERS DONATING MATERIAL TO HIGH SCHOOLS

Langley staff members are extending a helping hand to more than 125 high schools across the nation by donating technical and professional magazines after they have read them.

Dr. George W. Brooks, Assistant Director, conceived the idea to stimulate youth to consider the importance of aeronautics and space science and to encourage them to consider these fields as future professional opportunities.

Offers of this material have been enthusiastically received by the high schools contacted. Staff members wishing to donate magazines indicate the high school to which they wish them sent and a contact is made with the high school principal to determine the school's interest in receiving the material offered. The staff member subsequently mails the magazines on a regular basis using Government franked envelopes.

Most of the 230 Langley employees now participating in this program designated the high school from which they graduated to receive magazines. The magazines being contributed have been primarily technical type or science oriented; however, professional business management material would also be desirable.

Anyone wishing to participate may contact Virginia Lazenby at extension 2741, for further information and assistance in lending a helping hand to improve educational opportunities in designated high schools across the nation.

RECEIVE AWARDS: Edgar M. Cortright, Langley Director, recently presented Special Service Awards for Achievement to a number of Center staff members. Edwin F. Harrison (top left), Aero-Physics Division, received an award "for his outstanding achievement in developing and implementing the technique for the analysis of terminal descent systems for unmanned Mars landers for the Viking Project." Hugh B. Milteer (top right), Flight Instrumentation Division, was cited "for his outstanding performance in planning and implementing a reliability and quality control program for the Injun V spacecraft and for his effective analysis and resolution of component failures." In the bottom photograph Cortright (left) congratulates Robert E. Johnson, Flight Vehicles and Systems Division, on receiving his award "for outstanding performance and conbributions in providing technical leadership and spacecraft management for the Air Density/Injun Explorer project."

FOR SALE: Aldrich Bantam hot water furnace system, complete with feed lines and heating elements, suitable for six-room house - $300. Vann, 596-4157

FOR SALE: G.E. drop-in range - $65. Satterfield, 596-0258.

FOR SALE: Gibson Kalamazoo electric guitar, 2 pickups, fuzz box; Silvertone solid state 100 watt amp, two 12-inch speakers, reverb, tremolo, 2 channels, foot switch - $225. Osborne, 596-7866.

FOR SALE: 1955 Ford 3/4-ton pickup with portable stake sides and 8-foot steel bed. Kurtz, 868-9618.

WANTED: Adult scout uniform, shirt 14-1/2 or 15, slacks 31W, 32L. Raiford, 851-1385.

FOR SALE: Two Firestone snow tires 6.50 x 13, tubeless, blackwall, 4-ply - $30. Flechner, 838-1360.

FOR SALE: 1963 Ford Falcon - $150. Watkins, 595-2786.

SILVERSTEIN RETIRES AS LEWIS DIRECTOR; LUNDIN NAMED SUCCESSOR

Dr. Abe Silverstein, former Langley Research Center official and a pioneer in shaping the nation's aeronautics and space program, will retire as Director of the NASA Lewis Research Center today.

Dr. Abe Silverstein

Dr. Silverstein will be succeeded by Bruce T. Lundin, Acting Associate Administrator for the Office of Advanced Research and Technology in NASA Headquarters. Lundin's appointment will be effective November 1.

In announcing Dr. Silverstein's retirement, Dr. Thomas O. Paine, NASA Administrator, said, "Few have made so great a contribution to our national space effort as Dr. Silverstein. We will miss him, but we intend to continue to call on him for advice and counsel. In Bruce Lundin we have a highly qualified successor and we are pleased he has agreed to return to the important Lewis lab to continue the effort there."

Dr. Silverstein gave his reasons for requesting retirement at this time in a letter to Dr. Paine. "As NASA engages in its second ten-year program, it may be important that the men whose decisions initiate the new long range projects be available to complete them. Since I do not think I can stretch my 40 years of service into 50, it is perhaps best for me and for the Lewis Center if I bow out now."

At the same time he requested retirement. Dr. Silverstein said, "I intend to continue an active professional career and hopefully direct my talents into challenging areas adjacent to those in which I have been engaged."

Lundin has served NASA with distinction since 1943 when he joined the staff at the Lewis Research Center. He was named a division chief there in 1952 and in 1961 was appoint- Associate Director for Development. In May 1968 he was asked to go to NASA Headquarters to become Deputy Associate Administrator for the Office of Advanced Research and Technology. Earlier this year he was named Acting Associate Administrator.

This spring Dr. Silverstein was presented the Career Service Award by the Greater Cleveland Growth Association. At the ceremony, his career up to the present was summarized by saying, "There are only a few people in the world who have the knowledge, opportunity, wisdom and privilege necessary to help create and shape the course of a program which touches and benefits the life of all mankind. Such a man is Dr. Silverstein."

During his career, Dr. Silverstein has received many awards including the President's Award for Distinguished Federal Service, NASA's Medal for Outstanding Leadership, and the Rockefeller Public Service Award.

Dr. Silverstein began his professional career in 1929 at Langley, where he helped design the Full Scale Wind Tunnel and directed significant research in it which lead directly to speed increases of World War II combat aircraft. When the Lewis Research Center was authorized by Congress in 1942, he transferred to Cleveland with a nucleus of Langley personnel. At Lewis he conceived, helped design and supervised construction of our nation's first major supersonic wind tunnels for propulsion research on full scale engines. In 1949 he was placed in charge of all research at Lewis.

As the space age came closer, Dr. Silverstein helped develop the program placed before President Eisenhower which resulted in the formation of the National Aeronautics and Space Administration.

When Congress officially created the new agency, Dr. Silverstein was named Chief of Space Flight Programs. His insight into the potential of the space program lead him to initiate the very successful satellite program in meteorology, communications and geodosy. He helped establish the large rocket engine development program for space flight and define goals for our extensive space sciences program of sounding rockets, satellites and other space probes. Probably best known is his key role in creating and directing the space task force which carried out the manned space flights of Project Mercury and established the technical basis for the Apollo program. He is credited with naming the Mercury and Apollo programs.

Returning to Lewis as its director in 1961, he directed a major expansion of the laboratory and such programs as the development of the Centaur launch vehicle. . .our nation's first high energy liquid hydrogen fueled rocket.

Despite his many duties, Dr. Silverstein has never neglected his responsibilities to his community and its young people. He has been active in Boy Scouting and community affairs. He is a Trustee of Cleveland State University, Case Western Reserve University and the Cleveland Natural Science Museum. He is a past chairman and member of the Cleveland Federal Executive Boards.

RED CROSS OFFICIALS THANK STAFF

Letters of appreciation from Ellen W. Morrison, Executive Director, Hampton Roads Chapter, and Richard Bjurberg, Regional Manager, The American National Red Cross, have been received at the Center thanking staff members for their contributions during the emergency appeal to aid victims of Hurricane Camille.

During the voluntary campaign, sponsored by the Activities Association, employees donated a total of $1,280.44 to the disaster relief.

In her letter Miss Morrison stated, "The Hampton Roads Chapter wishes to express its deep appreciation to. . .the employees of NASA for their most generous contribution for disaster relief. You may be sure that this contribution will be used to help rehabilitate the victims of Hurricane Camille who have suffered the loss of their homes and personal belongings in this most devastating hurricane."

In his letter Bjurberg wrote, "Personally, and on behalf of the American National Red Cross I wish to express to. . . the employees of NASA our grateful thanks for this fine support. At the present time, more than 30,000 families have come to the Red Cross for recovery assistance in the Gulf Coast area and we estimate now that the cost in that area will exceed 20 million dollars. In the Virginia and West Virginia territory more than 1,300 families will receive assistance and we estimate that we will spend a million dollars in these two states."

WANTED: Two persons wish to join or form driving combination from Wythe area to W.A. on 8 shift. Leatherwood, 3451.

Richard R. Heldenfels

Paul R. Hill

Homer G. Morgan

A. Gerald Rainey

NASA HONORS STAFF MEMBERS

(Continued from page 1)

ing, lunar walking, and rendezvous and docking.

Many individuals and organizations at Langley have served as consultants and in other capacities in helping to solve various general problems concerned with the development and operation of Apollo.

The NASA Exceptional Service Medal went to four Langley employees: Richard R. Heldenfels, Chief of the Structures Research Division; Paul R. Hill, Associate Chief of the Applied Materials and Physics Division; Homer G. Morgan, Head of the Structural Dynamics Branch of the Dynamic Loads Division; and A. Gerald Rainey, Head of the Aeroelasticity Branch of the Dynamic Loads Division.

Three Langley staff members received the NASA Exceptional Scientific Achievement Award: Clarence D. Cone Jr., Head of the Molecular Biophysics Laboratory of the Instrument Research Division; Harvey H. Hubbard, Head of the Acoustics Branch of the Dynamic Loads Division; and Dr. Richard T. Whitcomb, Head of the 8-foot Tunnels Branch of the Full Scale Research Division.

The following are the NASA citations for the individual Langley award winners:

Heldenfels: "In recognition of his exceptional achievement in the initiation and guidance of timely and effective development of high temperature facilities and research programs for advanced aerospace structures, and for his foresight in the creation of a sound technical base for development of structures for future aerospace transportation systems."

Hill: "For sustained excellence in providing the guidance and leadership in research and development which resulted in a technology base for planning earth orbital space station and other advanced manned spacecraft missions."

Morgan: "For outstanding leadership of a task force which skillfully evaluated and documented the impact of NASA's university programs on NASA, the universities, and the Nation."

Rainey: "For distinguished service in conceiving and conducting research programs in the field of aeroelasticity in relation to aircraft and launch vehicles, and for leadership in the development and application of unique research techniques which have resulted in substantial contributions to improved safety and utility of aircraft and launch vehicles."

Cone: "For initiation at Langley of a research program on the effects of space radiation on mammalian cells at the molecular level, and for his discovery of interconnecting bridges between cancer cells which have been recognized as a possible mechanism for cancerous growth."

Clarence D. Cone

Harvey H. Hubbard

Dr. R. T. Whitcomb

Hubbard: "For continuing international leadership in the origination and implementation of highly effective research programs for definition, alleviation, and control of aircraft noise and sonic boom; in particular, for his timely recognition and initiation of research programs on the technology of nacelle-engine duct treatment as a practical means of reducing noise of current and future aircraft.'

Whitcomb: "For his continuing technical contributions in providing an improved basis for the aerodynamic design of high speed aircraft, and particularly for his origination and development of the supercritical airfoil concept for enabling efficient flight in the vicinity of sonic speed.'

Can you Solve This Problem?

A device or material is needed which will improve the efficiency of coupling of ultrasonic energy between the low acoustic impedance of human flesh and the high acoustic impedance of a piezoelectric ceramic transducer. This problem has been identified by the Biomedical Application Team at Southwest Research Institute.

Contact the Technology Utilization Office, extension 3281, for additional information or if you have a suggestion. Refer to problem WSM-1.

FREE: Four black puppies - mother AKC registered Golden Retriever and father AKC registered German Shepherd. Martin, 898-5644.

FOR SALE: Tropical fish equipment including tanks, pumps, heater, lights, filters, aquarium cleaner, fish and other items. Fedziuk, 722-1846 from 5 to 6 p.m.

FOR SALE: Maple double dresser and two beds. Schrader, 596-4963.

FOR SALE: Roll-away bed - $10; 1/2-size violin - $35. McGuire, 851-4287.

ANNUAL AWARDS CEREMONY

(Continued from page 1)

search Center will recognize some of its employees who have made particularly outstanding contributions in assuring the success of this mission.

Dr. Robert R. Gilruth, Director of the Manned Spacecraft Center and a former Langley staff member, will be guest speaker and will make the award presentations.

The Center will also recognize employees' outstanding contributions which are not specifically Apollo oriented. These awards will be presented by Edgar M. Cortright, Langley Director.

Several musical selections will be played by the Fort Eustis 384th Army Band. The invocation will be given by the Reverend Chester L. Brown, Hampton Baptist Church, and the presentation of colors will be performed by the U.S. Marine Color Guard, Marine Barracks, Naval Weapons Station, Yorktown.

Diamond studded pins representing 40 years of Government service will be presented to John L. Crigler, Dynamic Loads Division, and Robert E. Hunt, Flight Mechanics and Technology Division.

Thirty-year service pins will be presented to 65 Center employees and 209 staff members will be recognized for 25 years of service.

Gilruth, 56-year-old native of Nashwauk, Minn., joined the Langley staff in 1936. He was a Langley assistant director at the time he was appointed in 1958 to manage Project Mercury, conceived at Langley as this nation's first manned space flight program. His headquarters were at Langley until mid-1962 when the Mercury group moved to Houston to establish the NASA Manned Spacecraft Center.

He has B.S. and M.S. degrees in Aeronautical Engineering from the University of Minnesota, and holds numerous honorary doctorate degrees. He is a fellow of the American Institute of Aeronautics and Astronautics and other professional societies, and is the holder of numerous professional society, industry and government awards and honorary memberships.

The following employees will receive 30-year emblems:

Benjamin B. Adderholdt, Donald D. Baals, James A. Bertoci, William A. Branson, Clarence T. Brown Jr., Kenneth W. Brown, T. Melvin Butler, Melvin M. Carmel, Clinton L. Chalkley, Howard D. Cole, Joseph S. Cross Jr., Herman E. David, Eugene C. Draley, Francis R. Dreisbach, George M. Dudley, Eric S. Eggleston, Henry A. Fedziuk, Aubrey T. Ferguson, Denis D. Flanagan, Dorothy D. Gorthy, Eugene R. Guryansky, Margery E. Hannah, Luther O. Harcum.

Paul R. Hill, Vera Huckel, Raymond M. Hulcher, Arvid L. Keith Jr., Walter H. Lee Jr., Lindsay J. Lina, Floyd M. Lowe, John G. Lowry, Arvo A. Luoma, Edward T. Maher, Wilbur L. Mayo, William B. Mayo, Lee E. McDaniel Jr., Charles H. McLellan, Charles W. Meissner, Richard J. Moberg, Robert L. Mundie, Clifford H. Nelson, Stanley C. Olin, William J. O'Sullivan Jr., Elizabeth W. Patterson.

Albert R. Philips, Harold B. Pierce, Leslie S. Powell, Fred N. Rector, Norman W. Reynolds, Floyd S. Rogers Jr., Charles E. Schnell, Maurice L. Sisson, Linwood W. Stancil, George S. Stroyan, Irvin W. Tarkenton, Edward F. Taylor Jr., Robert J. Terpening, Harold B. Tolefson, John P. Tribble, Roland Tully, Milton A. Wallio, Ronald W. Weade, John H. Wood, and John A. Zalovcik.

--Buy U.S. Savings Bonds--

BOYD C. MYERS II, Assistant Administrator for Administration, NASA Headquarters, was one of the principal speakers at the three-day NASA Property and Supply Management Conference held this month at the Center. The conference was attended by approximately 50 property officals from all NASA centers and facilities.

SPERRY AWARD PRESENTED TO EX-LANGLEY EMPLOYEE

Edgar C. Lineberry Jr., an engineer who conducted pioneering research at Langley in 1960 to prove the feasibility of space rendezvous, has been named to receive the Lawrence Sperry Award.

Lineberry, now Chief of the Orbital Mission Analysis Branch for Manned Spacecraft Center, played a leading role in developing mission plans for all U.S. manned space flights.

The American Institute of Aeronautics and Astronautics, which announced the award, cited Lineberry for "...significant advancement in the field of rendezvous mechanics through his development of the spacecraft maneuver logic and associated control techniques, and his formulation of the mission plans which contributed decisively to the success of all rendezvous operations conducted during United States manned space flights."

The Sperry Award is given each year to a young man under 35 who has made a notable contribution to aerospace. The award, carrying an honorarium of $500, was given at the Honors Banquet on October 23, a highlight of the Institute's 6th Annual Meeting and Technical Display in the Anaheim (Calif.) Convention Center.

Lineberry, who is 32 years of age, joined the Center staff on June 19, 1959 as a scientist in the Flight Research Division. He transferred to the Space Task Group on December 23, 1961.

FOR SALE OR RENT: 2-bedroom house. Gaetano, 244-5946.
WANTED: 20-inch bicycle with training wheels. Maddalon, 838-2821.

LANGLEY SIGNS VIKING CONTRACT WITH MARTIN MARIETTA CORP.

NASA has signed a contract with the Martin Marietta Corporation, Denver, Colorado, to build the lander portion of the Viking spacecraft and to provide project integration services to the government.

Martin Marietta was selected for negotiations on May 29, 1969, from among three firms bidding for the project.

The contract is a cost-plus-incentive-fee/award fee contract with a basic value of $313,620,000. Of that sum, $299,100,000 is the target cost and $14,520,000 the target fee. Under provisions of the contract, Martin Marietta could earn as much as $23,392,000 additional for superior management and technical performance.

Project management for Viking is assigned to Langley Research Center under the overall direction of the Office of Space Science and Applications in NASA Headquarters. The NASA Jet Propulsion Laboratory is responsible for the orbiter portion of the Viking spacecraft system and for tracking and data acquisition during the missions.

Viking's principal goal is to send two instrumented spacecraft-- each consisting of a lander and an orbiter-- to the planet Mars during the launch opportunity which occurs during the summer of 1973.

On arrival at Mars early in 1974, the lander portion of each of the two Viking spacecraft will descend to the surface. Detection of life on the planet is a particularly important objective of the lander.

The orbiter portion of the Viking spacecraft will circle Mars during the mission to provide reconnaissance, communications support for the lander, and to gather scientific information from orbit.

Viking is NASA's most advanced project in a series of scientific spacecraft for exploring Mars, and will make the first soft landing on the planet. Viking will benefit extensively from information obtained by the Mariner '69 spacecraft which flew by Mars this summer, and from the Mariner '71 orbiter flights currently being developed. The Mariners are managed by Jet Propulsion Laboratory.

The Titan III Centaur launch vehicle to be used for Viking will be managed by Lewis Research Center.

TECHNOLOGY UTILIZATION NEWS

The voyage of Apollo 11, as with Christopher Columbus' voyage of 1492, will prove its value to mankind many times over its cost. The great scientific and industrial team responsible for this dramatic and spectacular accomplishment will continue onward and upward to even greater achievements.

"What the mind can conceive, man can achieve" is an expression which certainly seems to be true in our modern technological revolution. With new NASA goals in sight, the Technology Utilization Office plans to play an increasingly important role in the business of transforming and using new space-research knowledge in other sectors of the economy.

Keep on the alert for new ideas, inventions, tools, processes, or techniques to submit to the T.U. program as reportable items and win $25 for a Tech Brief. Call 3281 for details.

WANTED: Ride from LaSalle Ave. and Kecoughtan Rd. to E.A. on 8 shift. Hazen, 2235.

HOST FOR CONFERENCE: Langley Research Center and Wallops Station were joint hosts for the Fifth Annual Financial Management Conference held at the Center on Oct. 22, 23, and 24. Shown on the opening day of the conference are (from left): H. Frank Hann, Director of Financial Management at NASA Headquarters, who presided at the conference; Edward A. Howe, Chief of Langley's Fiscal Division; Dr. John E. Duberg, Langley Associate Director, who welcomed the group; and Arnett R. Knapp, Chief of the Fiscal Division at Wallops Station.

NASA TENNIS CLUB NEWS

The tennis season will conclude with a social hour at 6 p.m. and dinner at 7 p.m. on Friday, November 7 in the Activities Building. Cost will be $2.25 per person and reservations must be made by Monday, November 3 with Frances Taylor, extension 3544.

Ed Kilgore and Nancy Watson won the Annual Mixed Doubles Tennis Championship by defeating Arnold Mueller and Barbara Faulkner 6-1, 6-1 in final round competition.

Results of other rounds were as follows:

First Round: Carol Smith and Ron Johnson defeated Leonard Credeur and Barbara Hixon 6-3, 6-4; Tom Foughner and Sharon Haythorne won over Ron Hansen and Sharon Phenneger by default; and Jim Norris and Pat Griffin defeated Bob Lee and Helen Lee 6-4, 6-3.

Second Round: Kilgore and Watson over Al and Dorothy Tremaine 6-0, 6-1; Smith and Johnson over Bob Smith and Frances Taylor 6-1, 6-4; Bob and Pat Murray over Foughner and Haythorne 6-1, 6-4; Jim and Laura Mueller over Joe Italiano and Shirley Shuber 10-8, 2-6, 6-0; Norris and Griffin over John and Edith Gregory 7-5, 6-4; Jack Kaylor and Jan Host over Paul Gooderum and Hanna Shuber 6-2, 6-1; Jack Butler and Betty Baker over Warren Kelliher and Rosalyn Hampton 6-1, 6-2; and Mueller and Faulkner over Tony Parrott and Chris Mueller 6-0, 6-0.

Quarter Finals: Kilgore and Watson over Smith and Johnson 6-1, 6-3; Bob and Pat Murray over Jim and Laura Mueller 7-5, 6-3; Norris and Griffin over Kaylor and Host 6-3, 7-5; and Mueller and Faulkner over Butler and Baker 6-4, 7-5.

Semi-finals: Kilgore and Watson over Bob and Pat Murray 6-0, 6-2; and Mueller and Faulkner over Norris and Griffin 6-3, 6-2.

FOR SALE: 1964 Corvette convertible. Haraway, 838-1207.

ENGINEERS' CLUB TO HEAR NEWMAN

Robert B. Newman, Vice President of Bolt Beranek and Newman Incorporated, Cambridge Mass., will speak at a meeting of the Engineers' Club of the Virginia Peninsula on Wednesday, November 12 at 8 p.m. at Thomas Eaton Junior High School.

Robert B. Newman

Newman will speak on "Sound in Our Environment." A great deal can be done in the design of buildings to make it possible to hear when we want to and to be protected from intruding noise from both outside and within the building. The talk will deal with some basic principles governing the behavior of sound that must be understood by building designers and users before effective control measures can be undertaken.

In addition to serving as Vice President of Bolt Beranek and Newman Inc., Newman is as Associate Professor of Architecture at Massachusetts Institute of Technology and Visiting Lecturer on Acoustics at Harvard University.

Newman was born in 1917 in China. He received his B.A. and M.A. degrees in Physics from the University of Texas, M. Arch. from MIT, and a Sc.D. (Honorary) from Lawrence College.

The meeting will be preceded by a social hour at 6 p.m. and dinner at 7 at the Holiday Inn. For reservations call Jim Cawthorn, 3691 or 838-2644.

HALLOWEEN DANCE CANCELLED

Officials of the Activities Association announced that because of unavoidable circumstances the Halloween Costume Ball scheduled for tomorrow night at the Activities Building has been cancelled.

The next Association sponsored dance will be the New Year's Eve celebration. Complete details will be announced in a later edition of Langley Researcher.

TOUCH FOOTBALL LEAGUE

The Boozers and ACD are again battling it out for the NASA Touch Football Championship. Boozers are in first place with 5 wins and 1 loss and ACD is in a close second with 4 wins and 1 loss.

SCORES: ACD 25 - KNADS 7; Bombers 19 - Boozers 27; Boozers 24 - Losers 0; Bombers 20 - KNADS 6; ACD 40 - Losers 0; KNADS 19 - Losers 12; Boozers 19 - ACD 18; Boozers 25 - Bombers 13; ACD 30 - KNADS 6; ACD 21 - Bombers 12; Losers 27 - Boozers 19; Bombers 18 - Losers 14; Boozers 19 - KNADS 6.

STANDINGS

Team	W	L
Boozers	5	1
ACD	4	1
Bombers	2	3
KNADS	1	4
Losers	1	4

FOR SALE: 8-inch RCA portable radio for home, car, or boat -with ear phone - $80, G.E. portable radio needs minor repair on volume control - $50. Harvey, 723-8235.

NASA MANAGEMENT TECHNIQUES AID HAMPTON URBAN RENEWAL

NASA planning and management techniques are being utilized through the cooperation of Langley staff members in the $15 million Old Hampton Redevelopment Project, a plan for the revitalization and beautification of the historic area over the next five to ten years.

Hampton City Manager C. E. Johnson recently wrote to Langley to report current progress on the city's use of the techniques and to express appreciation for the assistance given by Center personnel in developing the program.

The story goes back to the beginning of the year when Center officials met with Johnson to discuss techniques used by Langley in planning, scheduling, and management of large complex programs and projects in an effort to determine how they might be applied in the conduct of city business.

The city expressed interest in the potential of the Progress Evaluation Review Technique (PERT) for the planning and management of certain municipal projects and operations, and Johnson indicated he would like to try PERT on some city project. Langley agreed to provide consultation to city personnel in the setup and trial operation of PERT on such a project.

The system has been applied to the Old Hampton Redevelopment Project, which includes plans for a large shopping complex on a pedestrian mall, supported by parking for 3,500 cars, a City Hall building, a lawyer's row of offices, 150 garden apartment units and the city's portion which consists of approximately 1.5 miles of 100-foot divided streets and 2,000 feet of pedestrian malls.

Scheduling and reporting of progress are the problems to which the city has applied the PERT system, according to Johnson, who said "the city, with the assistance of NASA, has developed a PERT flow chart showing all activities which must take place from project initiation to project completion and the responsible parties."

Johnson commented that "the Progress Evaluation Review Technique has provided us with an efficient and quick means of scheduling the many phases of this project and for solving problems. . ."

ENDORSES SUPPORT

Edgar M. Cortright, Director, describes Langley's participation in the Hampton urban redevelopment project as "but one example of the many ways in which government and industrial organizations can aid their local communities by contributing some of their unique management or technical know-how.

"I strongly endorse such support and will continue to seek ways for groups or individuals at Langley to work with local government for the good of our community.

"Depending on the task, such cooperative effort may be permitted on government time, with my approval," the Director concluded.

Staff members having suggestions concerning such cooperative endeavors should direct them to the Assistant Director for Administration.

WANTED: Ride from 24th St., Newport News, to W.A. on 8 shift. Shirley Wills, 3886.

FOR SALE: 1967 Plymouth Barracuda convertible, V-8, power accessories, 12,000 miles - $1695. Johnson, 877-0842.

FOR SALE: 6-cylinder Dodge pickup truck with 8-foot bed. $550. Verser, 868-4731.

Langley Researcher

VOLUME 9, NUMBER 23 LANGLEY RESEARCH CENTER NOVEMBER 14, 1969

LANGLEY EMPLOYEES HONORED AT ANNUAL AWARDS CEREMONY

The annual ceremony for presentation of awards to staff members of the Langley Research Center was held October 31 in the Activities Building.

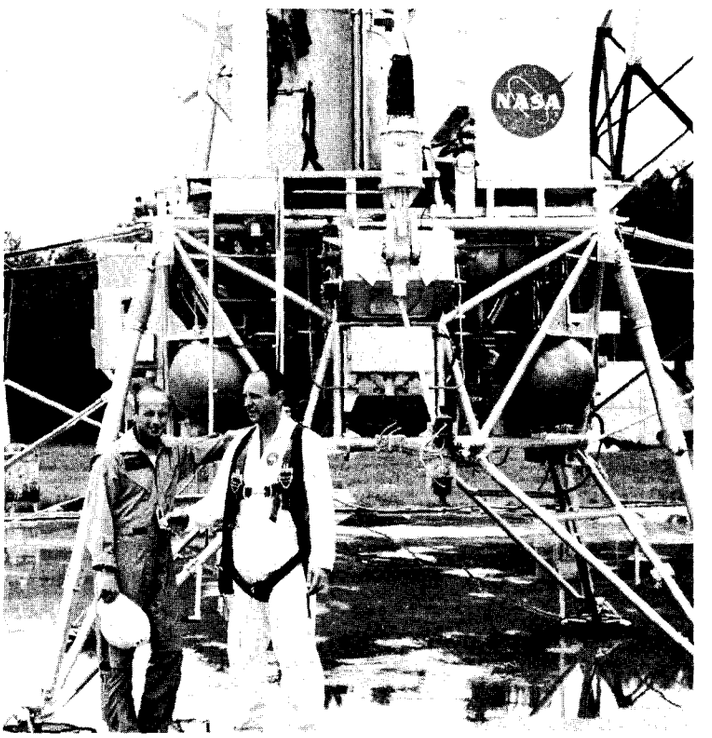
Diamond-studded pins representing 40 years of Government service were presented to John L. Crigler, who retired October 30 from the Dynamic Loads Division, and Robert E. Hunt, Flight Mechanics and Technology Division. Sixty-five employees received emerald studded 30-year pins and 209 were recognized for 25 years of Federal service.

Eleven Group Achievement Awards and 25 Special Achievement Awards were presented. Group Achievement Awards were presented to the following organizations:

Members of Aero-Physics Division, Applied Materials and Physics, Fabrication, Flight Instrumentation, Flight Vehicles and Systems, Research Models and Facilities, Research Support, and Structures received an award for development and evaluation of efficient ablation materials for the Apollo heat shield. They were cited "for pioneering de-

(Continued on page 7)

CITE ACCOMPLISHMENT: Edgar M. Cortright (right), Langley Director, presents a plaque to Dr. Robert R. Gilruth, Manned Spacecraft Center Director, at the recent awards ceremony. The plaque, an engraving case highlighted by an etched aerial photograph of the Center, includes an inscription signed by Cortright: "To the staff of the Manned Spacecraft Center from the staff of the Langley Research Center in recognition of your outstanding accomplishment in the development of the Apollo spacecraft and in your direction of the historic flight of Apollo 11 resulting in man's first landing on the moon." The plaque contained the signatures of more than 3,000 Langley staff members.



PREPARE FOR MOON: Astronauts Charles Conrad Jr. (left) and Alan L. Bean made training flights at Langley's Lunar Landing Research Facility in preparation for the Apollo 12 mission. They visited the Center in July and Conrad, Apollo 12 Commander, returned for a lunar landing training simulation the night of October 27. Bean is Lunar Module Pilot and the third crew member is Richard F. Gordon Jr., Command Module Pilot. Planned Apollo 12 landing is 1,120 feet from Surveyor 3 which landed on the moon nearly 31 months ago.

APOLLO 12 LUNAR LANDING MISSION SCHEDULED FOR LAUNCH TODAY

Apollo 12, the second United States moon landing mission, is scheduled to blast off from Cape Kennedy this morning at 11:22 on a flight that will last 10 days.

Astronauts Charles H. Conrad and Alan L. Bean will spend 32 hours on the moon, making two walks that will total up to eight hours. Richard F. Gordon will remain in the Apollo 12 command ship, orbiting the moon.

The Apollo 12 astronauts may be the first to bring man-made machinery back from another world.

Conrad and Bean are to land only 1,120 feet from the Surveyor 3 spacecraft that touched down on the moon's Ocean of Storms April 20, 1967.

The three-legged robot flashed back 6,315 television pictures of the surrounding terrain and even looked into the

(Continued on page 5)

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

CALENDAR NOTICE. . .Officials of the Stock Section announced that requests for 1970 desk and wall calendars should be submitted by Monday, December 1. Sections are asked to take an inventory as to the number of calendars needed and report it to their division office. The division office will forward the order to the Stock Section. In order to cut down on the supply of wall calendars, employees using wall boards are requested to use one calendar for this purpose instead of ordering three.

NEWLYWEDS. . .Wedding bells rang on Saturday, October 25 when Sue Nelson, Analysis and Computation Division, took her final vows with Latta C. Norton Jr., Newport News, at the LaCrosse Memorial Presbyterian Church, Hampton. . . J. Russell McHatton, Research Support Division, deserted the bachelor ranks when he said "I do" with Barbara Ann Forrest, Hampton, on October 25 at the Central United Methodist Church, Hampton. . .Sandra K. Clark, Fiscal Division, joined the ranks of newlyweds on October 25 when she took her vows with Lt. Col. Clarence M. Dunagen, Chicago, Illinois, at the Fort Eustis Memorial Chapel.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees will meet on Wednesday, November 26 at 7:30 p.m. at the Central Labor Union Hall.

NEW HEIRESS. . .Passing out cigars and candy is James N. Moss, Structures Research Division. He became the father of a six-pound daughter, Valerie, on October 29.

ENGAGED. . .Making plans for a December 13 wedding is Nancy Jane Cyrus, Structures Research Division. She is engaged to George Bains Jr., Hampton.

COIN CLUB. . .The LRC Coin Club will meet November 19 in the Activities Building at 7:30 p.m. A program on insuring coin collections will be given by L. M. von Schilling. The raffle item will be a B.U. Mercury dime set from 1941 through 1945 P.D.S. The club's numismatic investment program will also be discussed. The war nickel set holders will be available at the meeting. Club members wish to express their appreciation to Randy Stapilus and Bill Mayo for their description at last month's meeting of the VNA show. Interested coin collectors are invited to attend the meeting.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 17:

Monday - Cream of potato soup, pot roast of beef, grilled pork steak, stuffed cabbage, beef ravioli. Snack bar - Soup, barbecued pork, hot roast beef, German potato cakes.

Tuesday - Tomato barley soup, fried oysters, chuckwagon steak, beef pie, franks and beans. Snack bar - Soup, hot dogs, chuckwagon steak, French fries.

Wednesday - Cream of mushroom soup, roast veal, chicken pie, pork chopette, fish cakes. Snack bar - Soup, sea dog, hot pastrami, French fries.

Thursday - Vegetable-beef soup, country-style steak, stuffed flounder, creamed dried beef on toast, chili con carne. Snack bar - Soup, hamburger, steak sandwich.

Friday - Manhattan clam chowder, roast beef, fried shrimp, broiled halibut, grilled hash patties. Snack bar - Soup, fish sandwich, hot roast beef, French fries.

The menu for the week of November 24 is as follows:

Monday - Puree of bean soup, corned beef and cabbage, baked lasagna, Salisbury steak, western omelette. Snack bar - Soup, ham and egg sandwich, hot corned beef on rye.

Tuesday - French onion soup, grilled smoked ham, fried beef liver, grilled cheese. Snack bar - Soup, grilled cheese, beef liver, French fries.

Wednesday - Thanksgiving dinner - $1 - served from 10:30 a.m. to 1:30 p.m. - chilled tomato juice, toassed salad, roast turkey with cornbread dressing, cranberry sauce, baked Smithfield ham, candied yams, whipped potatoes, giblet gravy, buttered peas, hot rolls, butter, olives, pickles, pumpkin or mince pie, coffee or tea.

Thursday - H O L I D A Y

Friday - Cream of tomato soup, grilled steak, stuffed shrimp, knockwurst and beans, Spanish franks. Snack bar - Soup, barbecued meat, steak sandwich, French fries.

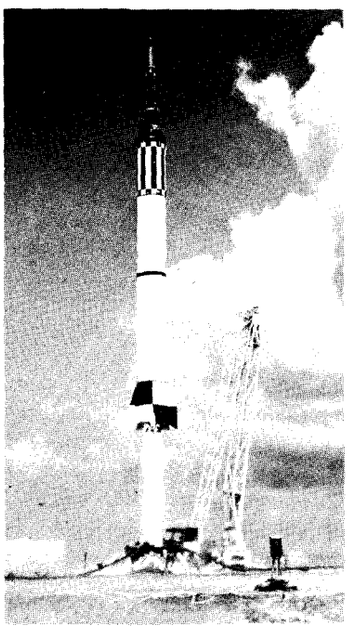
WANTED: Third driver from Southampton area to W.A. on 8 shift. Keith, 2701.

FOR SALE: Seven-inch leather all-weather boots, never been worn, size 8-D - $12. Burtner, 838-3744.

BIG SCOOP. . .The Public Affairs Office happily announces the engagement of its secretary, Dianne L. Adams, to Larry T. Puckette, Newport News. The big event will take place on Valentine's Day at the Riverside Baptist Church.

GILRUTH THANKS LANGLEY STAFF FOR MANNED SPACE FLIGHT SUPPORT

Dr. Robert R. Gilruth, Director of the NASA Manned Spacecraft Center in Houston, Texas, returned home to Langley recently to personally express his appreciation to staff members for their key role in helping to assure the success of this Nation's manned space flight program.



Appearing as the principal speaker at Langley's annual awards ceremony, Dr. Gilruth thanked the Center for its scientific and technological support of Mercury, Gemini, and Apollo, including direct contributions leading to the spectacular accomplishment of the first manned lunar landing in July.

Dr. Gilruth made reference in his speech to the Space Task Group's September report to the President entitled: "The Post-Apollo Space Program: Directions for the Future." The STG was established last February under the leadership of the Vice President to propose a space program for the decades ahead.

The STG report cited by Dr. Gilruth said the Nation's future space program possesses potential for significant returns, including new operational space applications to improve life on earth; non-provocative enhancement of national security; scientific and technological dividends from past space investments and expansion of our understanding of the universe; operational space systems with a high degree of commonality and reusability; and international involvement and participation on a broad basis.

The study group recommended the basic goal of a balanced manned and unmanned space program conducted for the benefit of all mankind. As a focus for the development of new capability, it favors the long-range option or goal of manned planetary exploration with a manned Mars mission before the end of this century as a target.

Dr. Gilruth observed that the Langley-managed Viking project is a "vital first step in that direction." Viking's principal goal is to send two instrumented spacecraft-- each consisting of a lander and an orbiter-- to Mars in 1973. Detection of life on the planet is a particularly important objective of the landers.

The STG report "adds purpose and direction to our future in space," commented Dr. Gilruth, who heads the center responsible for development of manned spacecraft, flight crew training and flight control. But he took time out in his contemplation of the future to review for the awards ceremony audience some of the highlights of his 22 years as a member of the Langley staff.

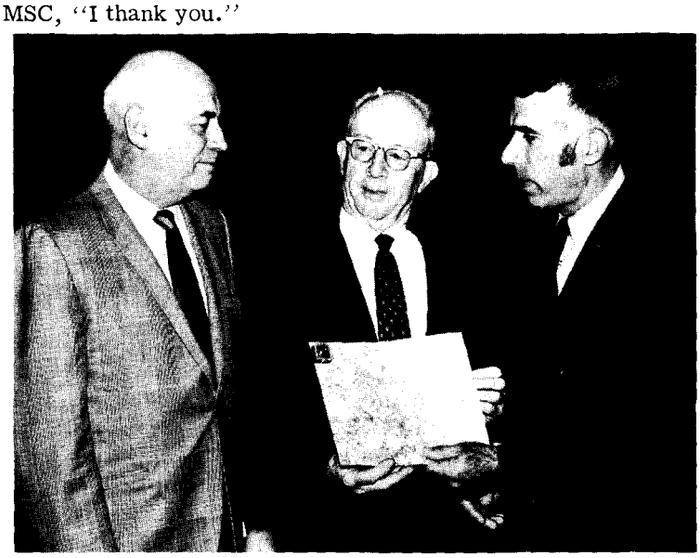
"I saw a lot of history at Langley," which has been "in the thick of things" throughout this country's development of the aeronautical and space sciences, said Dr. Gilruth, who started his career as a young University of Minnesota engineering graduate in 1936 in the Center's Flight Research Section.

Dr. Gilruth participated significantly in Langley's efforts to enhance the capabilities of World War II aircraft, and was closely involved during the late Thirties and early Forties in the expansion of Langley, and the establishment of the Ames Research Center, the Lewis Research Center, Wallops Station, and the Flight Research Center. These new installations were staffed with a nucleus of Dr. Gilruth's former Langley associates, many of whom are still actively contributing to the advancement of flight.

The man who headed Langley's early work on manned satellite concepts in the Fifties reminisced about the historic event which drastically changed the course of his life-- the flight of the first Sputnik twelve years ago. He remembers watching it from his waterfront home in Seaford as it passed overhead. A month later, when the Russians rocketed a dog into orbit, Dr. Gilruth said he knew it was only a matter of time before they sent a man into space.

Dr. Gilruth was an Assistant Director at Langley in October 1958 when the National Aeronautics and Space Administration was established, using Langley and other installations of the former National Advisory Committee for Aeronautics as a nucleus. At about the same time, he was appointed Director of the NASA Space Task Group, formed at the Center for the conduct of Project Mercury-- this country's first manned space flight program which grew out of Langley's early space research. He moved to Houston to head the Manned Spacecraft Center when it was created in the early Sixties.

After he and the NASA Space Task Group left Langley, the Center continued to provide valuable assistance to the manned space flight effort, Dr. Gilruth commented, concluding his talk with the observation that, as a participant in the awards program, "I salute you;" and as Director of MSC, "I thank you."



FLIGHT PIONEERS: Robert E. Hunt (center), Flight Mechanics and Technology Division, was in Langley's Flight Research Section in 1936 when Dr. Robert R. Gilruth (left), Manned Spacecraft Center Director, started his Langley career. Edgar M. Cortright (right) presented Hunt a 40-year service emblem and certificate at the Center's annual awards ceremony, where Dr. Gilruth recalled early flight history-- including the launch of America's first man in space on the Mercury-Redstone-3 (inset) May 5, 1961.

TECHNOLOGY UTILIZATION NEWS

New materials are constantly being developed to meet the requirements of new space missions. In fact, program goals are often set before materials are available to fully meet them. This calls for intensive efforts in the materials laboratories throughout the country both in industry and government. Sometimes multiple materials are required to provide both the high strength and the lightweight required by the mission.

A recent development in very strong, light weight materials has been made by the Dow Badische Company as a result of a Langley space mission requirement. Langley s Atmospheric Physics Branch needed an extremely lightweight, porous, radar reflective, self-erecting, high altitude decelerator parachute for radiosonde meteorological observations. Excellent materials for this purpose made of a specially slit and woven nylon and lurex (a metallized polyester resin thread) are now available following a definition of requirements by Flight Vehicles and Systems Division. To achieve deployment of the parachute at the extreme altitudes involved, an inflatable structure consisting of mylar tubes with bonded Saran bladders is used.

Information on numerous new materials is available through Special Publications covering state-of-the-art technological surveys conducted by the Technology Utilization Division. New developments resulting from space expenditures are thus ploughed back into industry to increase our standards of living. Lists of these Special Publications are available. Tech Briefs are also an excellent source of information on developments in new materials. Several thousand have now been printed and circulated throughout industry. Up-to-date indexes of these are also available for use. Contact the T.U. Office, extension 3281, for additional information.

FIRE - SERVANT OR MASTER?

Fire can do many things to sustain life, including the cooking of food, heating of homes, schools, industries, etc., generating power and many other services. Yet fire can destroy life itself. Therefore, we must decide if fire will be our servant or master. The answer depends on whether we will accept our responsibility in preventing or controlling unwanted fires.

The following seven suggestions are conducive to fire safety:

1. Smoke only where it is permitted.
2. Store flammable solvents and flammable materials in safety containers if they must be retained.
3. Maintain good housekeeping procedures.
4. Prevent or control all heat sources, whether they be open flames, static electricity, friction, spontaneous heating from a chemical reaction, over-loaded electrical wiring, etc.
5. Learn the various fire exits available, realizing one exit is not enough as the fire may encompass that exit; thereby blocking it.
6. Know where the portable fire fighting equipment is located and how to use this equipment.
7. Pull the fire alarm and notify the Fire Department as soon as a fire is detected so help can be on the way.

Remember this-- the first five minutes of a fire are the most important. Therefore, what you do or don't do could be the difference between saving or losing your home, school, industry, or even your life.

LOST: Man's all-weather coat. Cox, 2233.

RECEIVE AWARDS: Edgar M. Cortright, Langley Director, recently presented Special Service Awards to a number of Center staff members. James L. Raper (top left), Applied Materials and Physics Division, received an award which recognized him "for exceptional service in the rocket flight projects activity including RAM B and culminating in Reentry F wherein the rigorous technical approaches necessary to the successful conduct of flight experiments within prescribed aerodynamic environments were developed." Frederick O. Allamby (top right), Flight Instrumentation Division, received an achievement award " for his outstanding achievement in directing contractor and LRC efforts in the development, production, and testing of instrumentation for the Reentry F spacecraft, and the planning for follow-on reentry research vehicles." In the bottom photograph Cortright (left) congratulates Earl C. Hastings, Applied Materials and Physics Division, on receiving an achievement award "for exceptional service as Manager of the Reentry F Project which culminated in a successful flight test on April 27, 1968, and which contributed significantly to our understanding of turbulent boundary layer phenomena in flight regimes critical to current and potential National missions."

FOR SALE: 1960 Ford 4-door custom, 6-cylinder. Sykes, 595-2897.

WANTED: Alternate driver from Stuart Gardens to W.A. on 8 shift. Harman, 3772.

FOR SALE: Girl's 20-inch sidewalk bicycle with training wheels and basket - $10. Burcher, 877-1614 after 5 p.m.

FOR SALE: 3-bedroom brick house with central air conditioner, humidifier, fenced yard, attached garage - located near GEX - 5-3/4% assumption - $17,500. Hanks, 826-4939.

APOLLO LAUNCH SCHEDULED TODAY

(Continued from page 1)

black sky and photographed Earth and Venus.

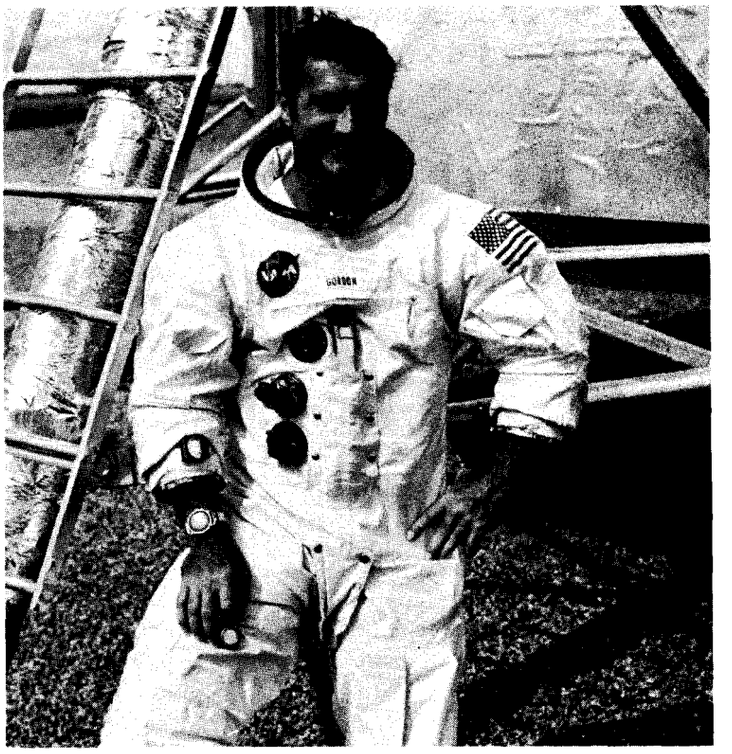
Getting to the spacecraft will be a tricky job. Surveyor 3 rests about 150 feet down the gently sloping wall of a crater 650 feet wide and 50 feet deep. Bean will climb into the crater first, linked to Conrad by a 30-foot line. If Bean has trouble getting out, Conrad can pull him to the surface.

If everything goes well, the astronauts will inspect and photograph the spacecraft to see if there have been any changes over the past two and one-half years. They will also snip off a power cable leading to Surveyor's television camera. Before Surveyor was launched from Cape Kennedy, scientists knew how much bacteria were on the wire and they want to see how the lunar environment affected them.

Conrad then will cut two of five aluminum rods supporting the camera and he will clip off a two-inch piece of tubing. Next he will collect a few samples of glass from a heat-reflecting surface and then he will clip off the camera for study in earth laboratories.

All the parts will be stowed in a fiberglas knapsack attached to the back of Conrad's backpack.

APOLLO 12 INSIGNIA: This is the official crew badge for Apollo 12, the United States' second lunar landing mission which was scheduled to be launched from Cape Kennedy this morning at 11:22. Crewmen are Astronauts Charles Conrad, Commander; Richard Gordon, CM Pilot; and Alan Bean, LM Pilot. The clippership signifies that the crew is all Navy and symbolically relates the era of the clippership to the era of space flight. As the clippership brought foreign shores closer to the United States and marked the increased utilization of the seas by this nation, spacecraft have opened the way to other planets and Apollo 12 marks the increased utilization of space based on knowledge gained on earlier missions. The portion of the moon shown is representative of the Ocean of Storms area in which Apollo 12 will land.



MOON ORBITER: Astronaut Richard F. Gordon, Command Module Pilot, will orbit the moon while Charles H. Conrad and Alan L. Bean take two walks on the lunar surface.

★★★★

The Lunar Module is scheduled to touchdown on the lunar Ocean of Storms at 1:52 a.m. on Wednesday, November 19. At 6:09 a.m. Conrad steps on the moon under the gaze of a television camera he turned on three minutes earlier while coming down the landing craft ladder. He is joined by Bean at 6:36 a.m. At 6:47 a.m. the astronauts plant an American flag, unpack a self-powered scientific research station and set station up on the lunar surface. They also gather moon rock samples. At 8:55 a.m. Bean re-enters landing craft, followed 20 minutes later by Conrad.

The second moonwalk will take place on Thursday, November 20. Conrad steps on the moon for the second time at 12:40 a.m. Bean joins him seven minutes later. At 2:30 a.m. the moonwalkers hope to reach Surveyor. The astronauts return to the landing craft and Bean climbs back inside, followed by Conrad 25 minutes later. At 9:23 a.m. the astronauts fire the big ascent engine, climbing away from the lunar surface to rejoin the command ship in orbit. The landing craft is scheduled to dock with the command ship at 1:02 p.m.

Splashdown will take place at 3:58 p.m. on Monday, November 24, about 460 miles southeast of Pago Pago.

The quarantine period for the astronauts will end December 10.

FOR SALE: 1969 Volkswagen - $1695. Hicks, 595-4327.

FOUND: Pocket watch back of Bldg. 1268-A. Owner may claim by calling Security Office, 2297, and identifying watch.

FOR SALE: Male Miniature Dachshund puppy - $35. Williams, 851-0675.

FOR SALE: Browning shotgun, lightweight automatic, 12-gauge. Breen, 723-7308.

OPEN SEASON FOR HEALTH BENEFITS NOVEMBER 10-28

An open season in the Federal Employees Health Benefits program has been scheduled for the period November 10-28.

During the open season eligible employees may make any one of the following changes: from not enrolled to enrolled, from one plan to another plan, from one option to another option in the same or a different plan, from self only to self and family, and from self and family to self only (this change may be made at any time).

Changes made during the open season will be effective beginning with the first full pay period in January 1970.

Brochures describing the Service Benefit Plan and the Indemnity Benefit Plan are being distributed to employees. Both plans have changed benefits and rates. Staff members are advised to study the brochures to determine if they wish to make a change at this time.

The following premium increases will affect Center employees:

Indemnity Benefit Plan (Aetna) - Self only, high option, will increase from $5.34 to to $6.68; self and family, high option, an increase from $13.31 to $16.64; self only, low option, an increase from $2.11 to $2.89; and self and family, low option, an increase from $4.99 to $6.84.

Service Benefit Plan (Blue Cross) - Self only, high option, an increase from $4.98 to $5.57; self and family, high option, an increase from $12.16 to $13.59; self only, low option, an increase from $1.76 to $2.16; and self and family, low option, an increase from $4.24 to $5.30.

Employees wishing to make an open season change may obtain a Health Benefits Registration Form (Standard Form No. 2809) from the Employee Services Branch, Telephone 2605. The form must be filled out to show the change desired and returned to Employee Services Branch, Mail Stop 305, no later than November 28.

TURKEY WINNERS ANNOUNCED

A total of 105 turkeys were won at the Activities Association's annual Turkey Shoot held November 1. The turkeys weigh between 10 and 12 pounds and winners may pick up their Thanksgiving dinner after 3:30 p.m. on Tuesday, Nov. 25 at the Activities Building. Winners are requested to bring their stubs along for identification. The turkeys must be picked up on November 25 because the Activities Building is not equipped to store them.

Sharpshooters who won in the matches were as follows: Brian Christenbury, John S. Hunt, Robert W. Mitchell (2 turkeys), D. E. Stiltner, Si Carney, R. C. Speight (2), Bill Flowers, Ronald White, Jim Cross (2), Joe Siefring, J. P. Smith (2), Jack Vohringer, Joe Graham, B. Rush, William Johnson, K. S. Krebler, J. W. Amiss, John Midgette, Paul Holloway, and C. N. Robeson.

Winning the drawing were the following: Bill Read, John Turlington, P. C. Flansberg, Phillip Fetter, Jack Spears, W. S. Valentine, M. G. Beasley, R. Carter, Sam McAdams (3 turkeys), Virginia Salky, H. W. Wood, V. Walker, R. M. Byers, M. Sussman, D. T. Weidman, R. Benton, W. R. Rice, John Meekins, V. Clifton, J. H. Gregory, Fanny Parker, T. M. Whitmore, Audrey Caffee, W. H. Sleigher, Paul Bosta, Sue Wilder, J. D. Doman, C. N. Davis, Mel Carmel, Joe Eason, Bill Piland, Miriam Hall, F. Hughes, Raymond Burris, C. Walker, M. L. Spearman, R. P. Barr, Al Schy.

Also Bill Letko, W. E. Wright, E. Prill, Frank L. Jones, G. O. Lehman (2), Bud Hunt, John Cunningham, George Stacey, R. W. Ferree, Al Curtis, W. H. Boothe, W. Fox, G. M. Ware, Mary Soper, H. H. Russell, Ed Jenkins, Bill Carrol, Burley Miller, K. L. Quinn, N. E. Greenberg, Bill Williams, Mr. Redman, D. F. Booth (2), Joe Guy (2), J. L. Dillon (4), P. C. Flansburg (2), Bob Phelps, G. M. Hogg, J. M. Millican, Roosevelt Borden, and H. N. Bright.

John Unangst won the drawing for volunteer workers.

SIGN AGREEMENT: Rhomie Heck (left), Office of Financial Assistants and Placement, Hampton Institute, and T. Melvin Butler, Assistant Director for Administration, sign a work-study agreement between LRC and Hampton Institute whereby 15 students will work an average of 15 hours per week in chemistry, mathematics, office assistants, accounting and business administration. Looking on are Edward T. Maher (standing left), Chief of Administrative Services Division, and J. Norwood Evans, Assistant Personnel Officer. The students reported for duty November 3 and the program will continue until the end of May. Eighty per cent of the salary will be paid by Hampton Institute funded by the Health, Education and Welfare Department, and the remaining 20 per cent will be paid by Langley Research Center.

CAMERA CLUB PLANS ACTIVITIES

The Langley Camera Club met recently to formulate plans for the coming year. All camera enthusiasts are invited to participate in the club's scheduled event of activities. All meetings are held at 7:30 p.m. in the Air Force Service Club located in the Shellbank Area.

Other scheduled events include a color slide open category contest and a black and white print contest for the December 18 meeting; a guest speaker for the January 15 meeting; a model night shooting and lighting demonstration in March; a contest of the pictures taken on model night at the May meeting; and a field trip is being planned for the June meeting.

The annual banquet and contest with trophies presented to the winners will be held July 18.

Persons interested in joining the Langley Camera Club may obtain additional information from Abraham Leiss, extension 2614.

FOR SALE: 1966 Corvair Corsa, 4-speed, IECO equipped. Campbell, 596-8440.

FOR SALE: 9 venetian blinds with aluminum slats, nylon cords, tapes, off white - 8 size 21 x 41 inches, 1 size 17 x 33 inches. Henry, 596-7829 after 5 p.m.

STAFF MEMBERS HONORED

(Continued from page 1)

velopments in low-density charring ablators culminating in the present Apollo heat shield, and for formulating analytical procedures and conducting extensive ground and flight tests of the Apollo heat shield material in order to provide key information for definition of materials characteristics."

The Life Support Research Group, Flight Instrumentation, was cited "for conceiving and experimentally verifying the principle of hydrophobic-hydrophilic zero gravity liquid/gas phase separation and assisting in the development of a separator which was used successfully for removing hydrogen gas from potable water on the Apollo 11 mission."

An award for lunar orbit rendezvous concept was presented to Dr. John E. Bird, Dr. William H. Michael, Dr. Manuel J. Queijo, and Ralph W. Stone, Aeronautical and Space Mechanics Division. They were cited "for outstanding contributions to the development of the lunar-orbit rendezvous mode, and the technical analysis of the operational advantages and disadvantages which led to the adoption of the concept of Project Apollo."

Roy F. Brissenden, Mac C. Kurbjun, Alfred J. Meintel, Jack E. Pennington, Donald R. Riley, Arthur W. Vogeley, and Marvin C. Waller, Aeronautical and Space Mechanics, received a group award for rendezvous and docking simulation and training. They were cited "for the analysis and development of visual rendezvous and docking procedures, the experimentation and development of suitable docking visual aids, and the training of astronauts for the Gemini and Apollo programs."

An award for lunar landing research and astronaut training was presented to members of Aeronautical and Space Mechanics, Fabrication, Flight Vehicles and Systems, Research Models and Facilities, Research Support, Flight Instrumentation, and Instrument Research "for the development of the Lunar Landing Research Facility from a concept to a working research tool. For the research in lunar landing handling qualities and for the training of astronauts in the lunar landing approach and touchdown resulting in a significant contribution to the Apollo program."

Members of Applied Mechanics and Physics, Fabrication, Fiscal, Flight Instrument, Flight Vehicles and Systems, and Procurement received an award for the Air Density/Injun Explorer Project. The citation reads as follows: "In recognition of the Air Density/Injun Explorer Project Group whose outstanding management, performance, and dedicated effort in orbiting five satellites in three launches have accomplished the mission objectives which have provided discovery of new phenomena and increased understanding of the upper atmosphere density and the geomagnetically trapped particles in the earth's radiation belts."

The Rentry F Project Group received an award "in recognition of the outstanding performance and dedicated efforts of the Reentry F Project Group in significantly contributing to the basic understanding of turbulent flow phenomena with application to future national advanced missions in hypersonic flight." Included in the group were members of Applied Materials and Physics, Aero-Physics, Fabrication, Fiscal, Flight Instrumentation, Flight Vehicles and Systems, Procurement, and Scout.

The Dielectric Processing Group received an award "in recognition of the group effort and for significant contributions to the development and application of dielectric heating process technology for manufacture of low-cost ablative heat shields." Included were members of Fabrication, Flight Vehicles and Systems, Instrument Research, Research Model and Facilities, Research Support, and Structures.

PASSES MILESTONE: John L. Crigler (left), Dynamic Loads Division, receives a certificate and diamond-studded 40-year service pin from Dr. John E. Duberg, Associate Director, before starting his new career as an NASA retiree on October 30. Crigler received his B.S. degree in Mathematics from the College of William and Mary in 1927 and started his career at Langley's old Propeller Research Tunnel on November 16, 1928.

The 8-Foot High-Temperature Structures Tunnel Operations Group were cited "for their outstanding performance and responsiveness to numerous difficult tasks associated with achieving operational readiness for the unique and highly complex 8-Foot High-Temperature Structures Tunnel." Included in the group were members of Research Models and Facilities, Research Support, and Structures.

The following Special Achievement Awards were presented to individuals for their outstanding manned space flight contributions leading to the success of the Apollo 11 mission:

Dr. George W. Brooks, Assistant Director; William F. Croswell and Melvin C. Gilreath, Flight Instrumentation; Herbert D. Hendricks, Applied Materials and Physics; Robert A. Jones, Aero-Physics; W. Linwood Jones Jr., Flight Instrumentation; Sumner A. Leadbetter, Dynamic Loads; Axel T. Mattson, Office of the Director; William H. Phillips, Aeronautical and Space Mechanics; Wilmer H. Reed III, Dynamic Loads; Harry L. Runyan Jr., Dynamic Loads; and James B. Whitten, Aeronautical and Space Mechanics.

Special Achievement Awards were presented to the following individuals for outstanding contributions in their special fields of endeavor, resulting in the advancement of the aeronautical and space sciences:

William J. Alford Jr., Full-Scale Research; Roger A. Anderson, Structures Research; James S. Bowman Jr., Flight Mechanics and Technology; Andrew C. Dibble Jr., Dynamic Loads; Graydon L. Elliott, Flight Mechanics and Technology; Macon C. Ellis Jr., Aero-Physics; H. Douglas Garner, Flight Instrumentation; Paul R. Hill, Applied Materials and Physics; Charles Husson, Flight Instrumentation; Thomas P. Kelly, Fabrication; Vernie H. Knight Jr., Flight Instrumentation; John G. Lowry, Full-Scale Research; Martin M. Mikulas Jr., Structures Research; and Harold N. Murrow, Dynamic Loads.

AIAA TO TOUR INDUSTRIAL SITES

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will have an oyster roast and a York County Industrial Tour to American Oil Company's Yorktown Refinery and VEPCO's York Power Station on Wednesday, November 19. Buses will leave the Activities Building (1222) at 12 noon.

The Yorktown Refinery, completed in the spring of 1957 is the State's only petroleum refining facility. Its basic design makes use of many of the most recent concepts of petroleum technology. More than 85 tanker loads of crude oil a year are received from distant ports and in turn the refinery ships out by tanker, barge, railroad tank car, and tank truck, hundreds of millions of gallons of high quality finished petroleum products.

The Yorktown Power Station contributes 300,000 kilowatts to the VEPCO system. The station is designed to operate on four fuels: coal, coke, oil, and refinery gas. The coke, oil, and refinery gas are products of the neighboring American Oil Refinery.

The tour will be limited to 100 persons. Reservations may be made by calling Bill Woods, 851-5331; Marty Copp, 838-8926, or Tom Foughner, 838-4177.

RETIRED EMPLOYEE DIES AT AGE 78

William P. Tully, retired employee, died October 30 after a lengthy illness.

Tully was born October 9, 1891 in Glasgow, Scotland. He attended school in Glasgow and also served his apprenticeship as a machinist there. Before entering on duty at the Center on July 9, 1930, he worked 11 years for the Southern Shipyard Company in Newport News and nine years for the Newport News Shipbuilding and Dry Dock Company.

He was appointed Superintendent of East Machine Shop in 1945 and retired January 9, 1959.

Survivors include his widow, Mrs. Mabel L. Tulley; a son, Roland Tully, Fabrication Division; and two daughters.

NEW YEAR'S DANCE PLANNED

The Activities Association is making plans to hold its annual New Year's Eve Dance on Wednesday, December 31 at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. and music will be furnished by The Progressions featuring Luther Briggens at the organ.

Admission will be $8.50 per couple including set-ups and favors. Tickets will go on sale December 1 at the Activities Building on a first come basis. Reservations may be made only with ticket purchase. No reservations will be held past 10 p.m. and there will be no refunds.

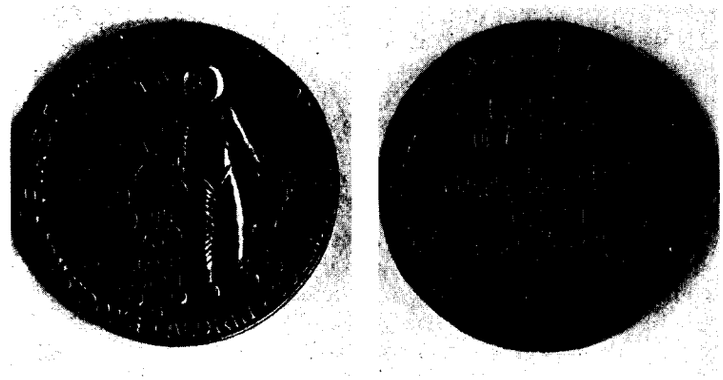
Tickets are limited to the available seating capacity.

Can you Solve This Problem?

A small force transducer is required to measure the force that can be exerted by the fingers of a person suffering from mytonia (tonic muscular spasm) when the hand is clenched into a fist. A 1/4-inch by 1/4-inch unit 1/16-inch thick having an accuracy within 0.5 ounces with a measurement range from 0.5 ounce to 5 pounds is desired. Refer to problem IRM-17.

Contact the Technology Utilization Office, extension 3281, if you have a contribution or desire additional information.

FOR SALE: Sunfish sailboat - $350. Glenny, 596-2568.



APOLLO SOUVENIR: A medallion commemorating the landing of the Apollo 11 Lunar Module on the surface of the moon is being used by the Langley Federal Credit Union to promote membership and new services to members. The back side (right) was struck especially for the Credit Union and identifies Langley as the "Birthplace of America's Manned Space Flight Program."

CREDIT UNION OFFERS APOLLO SOUVENIR

An Apollo medallion commemorating the landing on the moon of Apollo 11 is being used by the Langley Federal Credit Union to promote membership, savings, and use of new services.

The back side of the medallion was minted in antique bronze especially for the Credit Union and identifies Langley as the birthplace of America's manned space flight program.

The medallion, complete with key chain, is a fitting and valuable memento of this historic event.

To qualify for a medallion members have the following options:

1. Signing up for payroll deduction
2. Establishing a reddy reserve account
3. Opening a share account
4. Increasing shareholdings
5. Bringing in two new members

Items 3, 4, and 5 require a net increase of at least $30 in the appropriate account between now and December 31.

Be a proud member - have an "Eagle" in your pocket.

IEEE GROUP TO HEAR HARRISON

Ernest Harrison, Research Engineer, Biomedical Application Team, Research Triangle Institute, Durham, North Carolina, will be guest speaker at a meeting of the Hampton Roads Section of the Institute of Electrical and Electronics Engineers on Tuesday, November 18 at Bennett's Creek Farm Restaurant, Route 17, Portsmouth.

Harrison is engaged in the NASA supervised technological transfer program. He will discuss the application of knowledge gained in the space program to the field of medical and biological sciences.

The meeting will be preceded by a social hour at 6:30 p.m., followed by a buffet dinner at 7:30 and the meeting at 8:30. Reservations may be made by calling Frank Senft, extension 3461, by noon on Monday, November 17.

WANTED: Alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3571.

FOR SALE: 1960 Oldsmobile Dynamic 88 - 2-door. Rector, 851-0576.

FOR SALE: 1966 Mustang hard top, V-8, air conditioning - $1400. Ritchie, 877-0891.

Langley Researcher

VOLUME 9, NUMBER 24 LANGLEY RESEARCH CENTER NOVEMBER 28, 1969

GEORGE M. LOW NOMINATED NASA DEPUTY ADMINISTRATOR

President Nixon has nominated George M. Low, Manager of the Apollo Spacecraft Program at Manned Spacecraft Center in Houston, as Deputy Administrator of NASA.

Low, 43, served as Deputy Director at Manned Spacecraft Center from 1964 until 1967 and has been associated with the United States space program since 1949 when he joined NASA's predecessor, the National Advisory Committee for Aeronautics.

He served as a research engineer at Lewis Research Center in 1947 and as Assistant Director for Manned Flight at NASA Headquarters from 1958 until 1961. In 1961 he was named chairman of the Select Committee Studying Manned Lunar Landing. Prior to moving to Houston, he served as Deputy Associate Administrator for Manned Space Flight from 1961 to 1964. Since Apollo 11, Low has been serving as Special Assistant to Dr. Robert R. Gilruth, Director of Manned Spacecraft Center.

Low's contributions to the Mercury, Gemini and Apollo programs earned him NASA's Outstanding Leadership and Distinguished Service Awards. In 1963 he received the Arthur S. Flemming Award as one of the ten outstanding young men in Government.

Born in Vienna, Austria, Low holds bachelor and master degrees from Rensselaer Polytechnic Institute in Troy, New York. He is a National Director and Fellow of the Institute of Astronautics and Aeronautics and is a Fellow of the American Astronautical Society.

CHILDREN'S CHRISTMAS PARTY SCHEDULED FOR DECEMBER 14

The annual Children's Christmas Party, sponsored by the Activities Association, will be held Sunday, December 14 at the Activities Building.

There will be two exciting shows with the first one beginning at 1:30 p.m. and featuring Bungles, a local TV personality and a favorite of all children. He will be there to meet each child and hand out autographed pictures.

The second show beginning at 3:30 p.m. will feature Troy and his Friends, another local TV personality. They will present a program of comedy-magic and ventriloquism. This act is an untempo, colorful presentation that calls for a great deal of audience participation.

The main feature of each show will be Jolly Ole Saint Nick, direct from the North Pole, laden with gifts for each child.

Tickets are 50¢ each for children and adults and are available from District Representatives or from the Activities Building. There are limited number of tickets available for each show and they will be sold on a first come, first served basis.

APOLLO 12 CREW RETURNS HOME AFTER SUCCESSFUL MOON TRIP

Apollo 12, the second United States manned lunar landing mission, was successfully completed Monday when the Apollo 12 spacecraft splashed down in the Pacific Ocean at 3:59 p.m.

Astronauts Charles H. Conrad, Alan L. Bean, and Richard F. Gordon aboard Apollo 12 left the launch pad at Cape Kennedy at 11:22 a.m. Friday, November 14 on their ten-day trip to the moon and back.

With Conrad and Bean, the Lunar Module, designated Intrepid, landed on the moon at 1:54 a.m. on November 19. They steered their lunar ferry to a perfect landing just 20 feet from the edge of their target crater. Just 600 feet away was an unmanned Surveyor spacecraft that soft-landed on the slope of the crater 31 months earlier.

The mother ship which brought them, designated Yankee Clipper and commanded by Gordon, continued to orbit the moon awaiting their reunion approximately 32 hours later.

Conrad was first on the lunar surface at 6:44 a.m, nearly five hours after the pinpoint landing, which NASA officials hailed, saying it opened the way for future Apollo crews to attempt risky descents into difficult areas like mountains and the inside of craters. (Continued on page 3)

HAPPY CREW: Apollo 12 Astronauts Charles Conrad Jr., Commander, Richard F. Gordon, Command Module Pilot, and Alan L. Bean, Lunar Module Pilot, splashed down Monday in the Pacific Ocean after a successful 10-day trip to the moon and back.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

NOTE OF THANKS. . .James E. "Pat" Michael, Flight Vehicles and Systems Division, and his family wish to express their deep gratitude to Center employees and other community residents who gave blood through the Tidewater Red Cross Bloodmobile and at Dixie Hospital in the name of Michael's daughter, Patsy Michael Huneycutt. This was a life giving gift which helped sustain her during her 10-month battle with leukemia.

Calendar Notice. . .Staff members are reminded that December 1 is the deadline for submitting requests for 1970 desk and wall calendars. Sections are asked to take an inventory as to the number of calendars needed and report it to their division office. The division office will forward the order to the Stock Section.

ENGAGEMENTS. . .Dan Cupid scored a victory when J. Thomas Foughner, Dynamic Loads Division, became engaged to Charlene Ann Watkins, Newport News. The wedding will take place on December 27. . .Making plans to desert the bachelor ranks is K. James Weilmuenster, Aero-Physics Division. He is engaged to Sue Page Blanks, Williamsburg, and plans call for a February 21 wedding.

BASKETBALL LEAGUE. . .Teams or individuals interested in playing in the NASA Basketball League are requested to contact George Boyles, M.S. 125, extension 3544.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet December 2 at 7 p.m. at the Central Labor Union Hall.

CLASSIFICATION ASSOCIATION. . .Robert A. Myers, Langley's Classification and Organization Branch, has been elected to serve a two-year term as vice president of the Hampton Roads Classification Association. Other officers are: Don Mills, president, Classification, Headquarters, USCONARC; Frankie Wandall, secretary, Classification, Civilian Personnel, Fort Monroe; and Dick Tweedell, treasurer, Classification, Langley Air Force Base.

CHORAL SOCIETY. . .The Peninsula Choral Society will present Handel's Messiah, with orchestra accompaniment, on Monday, December 8 at 8:15 p.m. at Jefferson Davis Jr. High School. Soloists include Ann Rowe, Phillis Yon, Robin Roark, and Herbert Deppe. Regular admission is $1.50 with students and enlisted servicemen tickets 50 cents. Tickets may be purchased at the door or from the following Center employees who are members of the chorus: Don Hewes, Aeronautical and Space Mechanics Division; Mary Catlett, Aero-Physics, and Stanley Pearson, Instrument Research.

PROFESSOR TO VISIT. . .Dr. Robert W. Truitt, Head of the Mechanical and Aerospace Engineering Department, North Carolina State University, will visit the Center December 8 to discuss the graduate program with interested staff members. Persons wishing an appointment with Dr. Truitt are requested to call Training Branch, extension 2517.

REMOVE OLD DECALS. . .Now that the new NASA bumper stickers are being used for vehicle identification purposes, staff members are requested to remove the old windshield decals which became obsolete November 15.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 1:

Monday - Cream of mushroom soup, grilled pork chops, fried fish, creamed beef on toast, baked hash. Snack bar - Soup, hot dog, hot pastrami, French fries.

Tuesday - Split green pea soup, baked ham, Salisbury steak, sauteed chicken livers, tamale pie. Snack bar - Soup, hamburger, baked ham, French fries.

Wednesday - Cream of potato soup, chopped steak, stuffed flounder, chicken chop suey, chili con carne. Snack bar - Soup, ham and egg sandwich, Lou's satellite special, baked beans, French fries.

Thursday - Vegetable beef soup, roast beef, breaded veal cutlet, spaghetti and meat sauce, western omelette. Snack bar - Soup, hot roast beef, French fries.

Friday - Manhattan clam chowder, country-style steak, chicken pie, broiled halibut, macaroni and wieners. Snack bar - Soup, hot dog, steak sandwich, fried egg plant.

The menu for the week of December 8 is as follows:

Monday - Puree of bean soup, grilled pork steak, braised short ribs, smoked pigs-in-a-pone, Austrian ravioli. Snack bar - Soup, sea dog, hot corned beef, French fries.

Tuesday - Cream of tomato soup, pot roast of beef, fried shrimp, liver and onions, grilled cheese. Snack bar - Soup, grilled cheese, hot roast beef, French fries.

Wednesday - Chicken-noodle soup, beef stroganoff, grilled pork steak, fried chicken, Spanish franks. Snack bar - Soup, hot dog, flying saucer, French fries.

Thursday - Vegetable-beef soup, grilled rib eye steak, stuffed shrimp, beef stew, baked hash. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Cream of celery soup, hot roast beef sandwich, broiled smoked ham, fried fish, cheese omelette. Snack bar-Soup, fish sandwich, hot corned beef, French fries.

NEW YEAR'S DANCE PLANNED

Center socialites are reminded that tickets for the Activities Association's New Year's Eve Dance go on sale Monday.

The annual celebration will be held on Wednesday, Decembet 31 at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. to the music of The Progressions featuring Luther Briggens at the organ.

Admission will be $8.50 per couple including set-ups and favors. Tickets may be purchased at the Activities Building on a first come basis.

SCOUT LAUNCHES GERMAN SATELLITE

NASA launched a 157-pound International Satellite for the Federal Republic of Germany early this month.

Designated GRS-A/AZUR, the German-built spacecraft was launched aboard a four-stage, solid-fuel NASA Scout rocket carrying seven experiments designed to study the Earth radiation belt, the aurorae, and solar particle events. Special emphasis was placed on measuring the intensity and distribution of protons and electrons in terms of time and location. In orbit the satellite is called AZUR.

The new International satellite was launched in a cooperative program between the Federal Republic of Germany and the United States. The formal agreement for the program was signed in July 1965 by representatives of the German Ministry for Scientific Research (BMwF) and NASA.

The launching of AZUR is a major milestone marking the second phase of a two-phase cooperative program between the BMwF and NASA. The first phase consisted of a series of sounding rocket launchings-- from sites in Canada, Sweden and Brazil-- designed to checkout GRS-A instrumentation These activities were conducted during 1966 and 1967.

The first of the seven experiments were turned on and checked out one day after launch on command from the Alaska station during a pass over Fairbanks. The balance of the experiments were turned on during a pass over Alaska two days later. The spacecraft's operational lifetime is approximately one year.

In general the experiment objectives continue studies conducted by earlier NASA Explorer-series satellites as well as the Orbiting Geophysical Observatories launched by NASA into near polar orbits.

Data will be made available exclusively to the German principal investigators for a period of one year, during which they will exercise their rights of first publication.

After this one-year period data records will be deposited with the NASA Space Science Data Center operated by the Goddard Space Flight Center and will be made generally available to any interested scientist.

The NASA Kennedy Space Center, Western Test Range Operations Division provided the launching services in coordination with the Mission Support Office of the Langley Research Center located at Vandenberg Air Force Base. Project Coordination and initial tracking operations were supervised by the NASA Goddard Space Flight Center. Members of the Air Force 6595th Aerospace Test Wing launched the NASA Scout rocket in cooperation with personnel from the Langley Mission Support Office.

E. H ROWELL DIES AT AGE 59

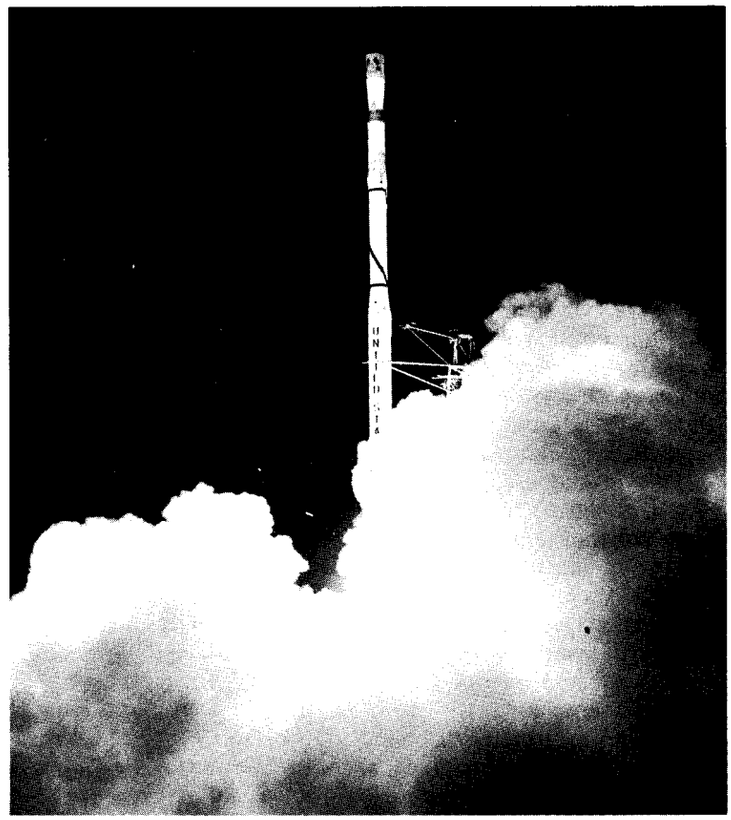
Evander H. Rowell, Supervisory Engineering Technician, Research Support Division, died November 12 in Riverside Hospital after a lengthy illness.

Rowell was born May 1, 1910 in Marion, South Carolina. He served in the U.S. Air Force from 1942 to 1945 and joined the Center staff in 1945.

Survivors include his widow, Mrs. Alice Anthony Rowell; a daughter, Mrs. Thomas E. Snead of Newport News; and a son, Evander H. Rowell Jr., a student at Virginia Polytechnic Institute.

FOR SALE: Bell and Howell movie camera and projector - $75. Maynard, 595-2133 after 5:30 p.m.

FOR SALE: Standard Smith-Corona typewriter. Pease, 851-0181 Monday through Friday.



ROCKET LAUNCHED: NASA launched a 157-pound International Satellite for the Federal Republic of Germany early this month. Designated GRS-A/AZUR, the German-built spacecraft was launched aboard a four-stage, solid fuel Scout rocket carrying seven experiments.

AIR CAN BE DEADLY

It is a known fact that compressed air can be dangerous, even to the point of death, if improperly used.

Accident reports indicate that a 40-pound per square inch air jet at a distance of four inches can rupture an ear drum, be responsible for a brain hemmorhage, if improperly directed, and in some cases fatal to the victim. Such an air jet will propel small metal chips and similar debris at speeds at 70 miles per hour. This pressure, if aimed into the mouth, can rupture the lungs and intestines. Blindness can be the result if directed at the eyes. As little as four pounds per square inch of jet air can do serious damage to the bowel.

Compressed air, if directed at the skin, can cause damage to tissues, resembling a burn. Additional damage could occur if dirt or other foreign bodies are on the skin at the time the blast hits.

All personnel are warned against the use of compressed air to blow dust and dirt off the hair or clothing. It is evident that such use could do serious damage to the eyes and ears.

Swelling and agonizing pain can be the result even if low pressure air is directed at a scratched or punctured area of the skin. It is highly possible for air bubbles to enter the blood vessels, if so directed, causing death.

In numerous cases workers have been seriously injured from inexcusable horseplay. There have been cases of permanent maiming and even death from horseplay.

Compressed air may be like the typhoon- just air, but deadly-- so respect it and be cautious.

ALSEP STEPPING STONE TO PLANETS

The Apollo Lunar Surface Experiments Package (ALSEP) system which Astronauts Charles Conrad and Alan Bean left on the moon has been called a stepping stone to scientific exploration of the planets. The knowledge gained from its experiments will contribute to the object of all planetary and subplanetary investigations: to provide a sound basis for comparative study of the galaxy.

It will have more immediate applications, as well. Lunar exploration will enable scientists to determine the moon's environment, composition, and gross body properties; utilize the unique characteristics of the moon to establish observatories and laboratories for long-term scientific investigations; and determine whether lunar resources could be used for extended lunar operations, future interplanetary exploration, and terrestrial purposes.

Conrad and Bean placed the first ALSEP on the moon. It is composed of five electronic experiments: a Passive Seismic Experiment (PSE) to measure lunar quakes and study the physical properties of the moon's interior; a Lunar Surface Magnetometer (LSM) to measure the magnetic fields of the moon; a Solar Wind Spectrometer to measure the strength, velocity and directions of the medium energy electrons and protons which emanate from the sun; and Lunar Ionosphere Detector (LID) and Lunar Atmosphere Detector (LAD) experiments.

The Earth has its own magnetic field which protects it from the direct stream of solar wind charged particles and the solar magnetic flux. The moon, however, has only a small or negligible magnetic field of its own. As a result, the moon is subject to forces of the solar wind, the solar magnetic field, and the Earth's magnetic field.

Four of the ALSEP experiments deal with the charged particles which emanate from the sun, and the magnetic field which this solar wind carries from the sun. By examining the effects on the moon, much can also be learned about the physical properties of the moon's surface and its interior.

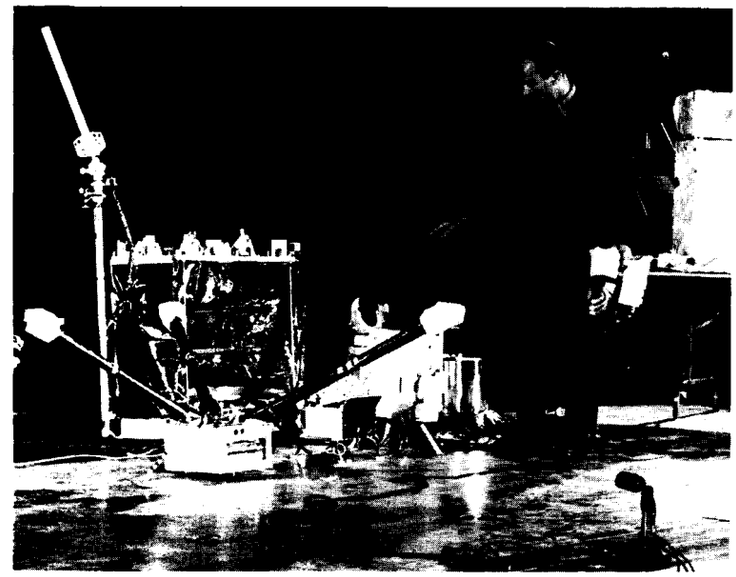
Lunar composition will be approached by examining a variety of data: magnetic, seismic, and atmospheric.

The Lunar Surface Magnetometer will measure the magnetic field at the lunar surface. Since the electrical properties of the material which makes up the moon determine what happens to the magnetic field, much can be learned about the composition of the moon by studying the behavior of the magnetic field.

Further information on the physical properties of the lunar crust and interior will be gathered by the Passive Seismic Experiment. The PSE will detect surface tilt produced by tidal deformations, moon quakes, and meteorite impacts. Seismic methods were selected to investigate the moon's internal structure and composition since this has proved the best such tool on Earth.

The PSE will also detect vibrations on the lunar surface. It is expected that moonquakes and meteoroid impacts will be the two primary sources of vibrations. The PSE may turn out to be the best means of determining the numbers and sizes of meteoroids in space.

The LID and LAD experiments will pick up data on whether there exists a residual primordial lunar atmosphere on the moon, and the extent of continuous and sporatic outgassing from the lunar surface, if this is still taking place. Some bonus information will be gathered when the moon passes through the magnetic tail of the Earth-- such information as the ion flux in the Earth's bow shock and magnetotail. LID will study the charged particles, LAD will measure the pressure of neutral particles.



DEMONSTRATES ALSEP: At a preflight press conference Apollo 12 Astronaut Alan Bean demonstrates the ALSEP which he and Conrad deployed on the moon. The experiments are : Lunar Surface Magnetometer (left center foreground), Central Station (left rear, largest object), Solar Wind Spectrometer (center, smallest object), Suprathermal Ion Detector (center, large white object), and Passive Seismic Experiment (cylinder-like object in center.)

It has been calculated that the solar wind puts one kiloton of energy into the Earth's magnetic field every second. This enormous amount of energy influences such Earth processes as the aurora, the ionosphere, and the weather. The Solar Wind Spectrometer will get data on the solar wind without virtually any of the interference which confronts Earth-bound scientists. It will measure the strength, velocity, and directions of the electrons and protons which emanate from the sun. The data which it transmits will help in interpreting the magnetic field of the moon, the lunar atmosphere, and the analysis of lunar samples. Its structure includes seven Faraday cup sensors, interconnected in such a way that a sequence of 186 measurements are completed in 28.1 seconds.

OPEN SEASON ENDS TODAY

Interested staff members are reminded that today is the deadline for making changes in the Federal Employees Health Benefits program.

During the open season, which ends today, eligible employees may make any one of the following changes: from not enrolled to enrolled, from one plan to another plan, from one option to another option in the same or a different plan, from self only to self and family, and from self and family to self only (this change may be made at any time).

Changes made during the open season will be effective beginning with the first full pay period in January 1970.

Brochures describing the Service Benefit Plan and the Indemnity Benefit Plan have been distributed to employees. Persons wishing to make an open season change must return a Health Benefits Registration Form (Standard Form No. 2809) to Employee Services Branch, Mail Stop 305, today.

APOLLO 12 LUNAR LANDING MISSION

(Continued from page 1)

Thirty-one minutes after Conrad was on the surface, Bean joined him and the two began their exploration.

Conrad's first words as he placed his 13-inch boot in the lunar soil were: "That may have been a small one for Neil, but that's a long one for me." He referred jokingly to Neil Armstrong's first words last July when he became the first man to step on the moon: "That's one small step for a man, one giant leap for mankind." Conrad is 5 feet, 6-1/2 inches tall; Armstrong is 5-11.

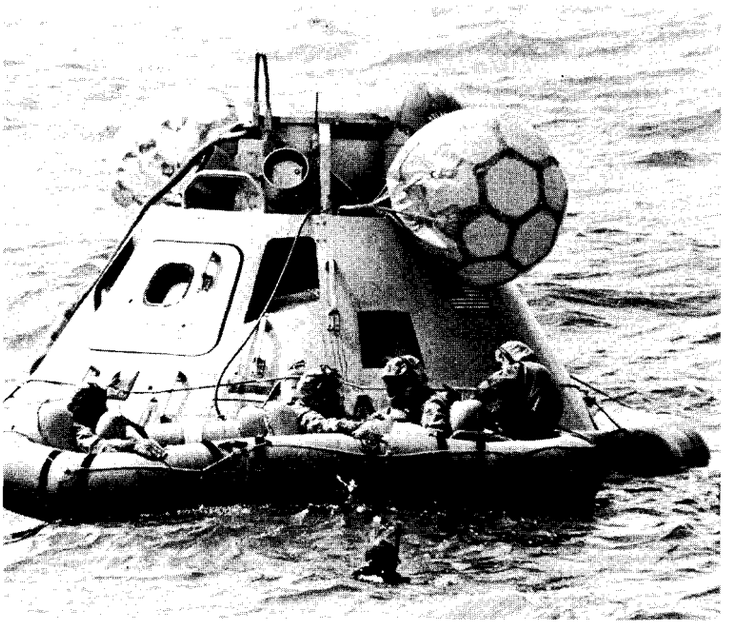
Conrad and Bean spent 32 hours on the moon and made two walks that totalled about eight hours. On the first walk the astronauts erected the American flag, collected a few rocks and set up five sophisticated scientific instruments to measure such things as the solar wind, moonquakes and the moon's atmosphere and ionosphere.

On the second walk the astronauts collected more rocks and dust and inspected the Surveyor III spacecraft. They clipped off five pieces of the spacecraft for scientific study on the affect of the lunar environment on the equipment.

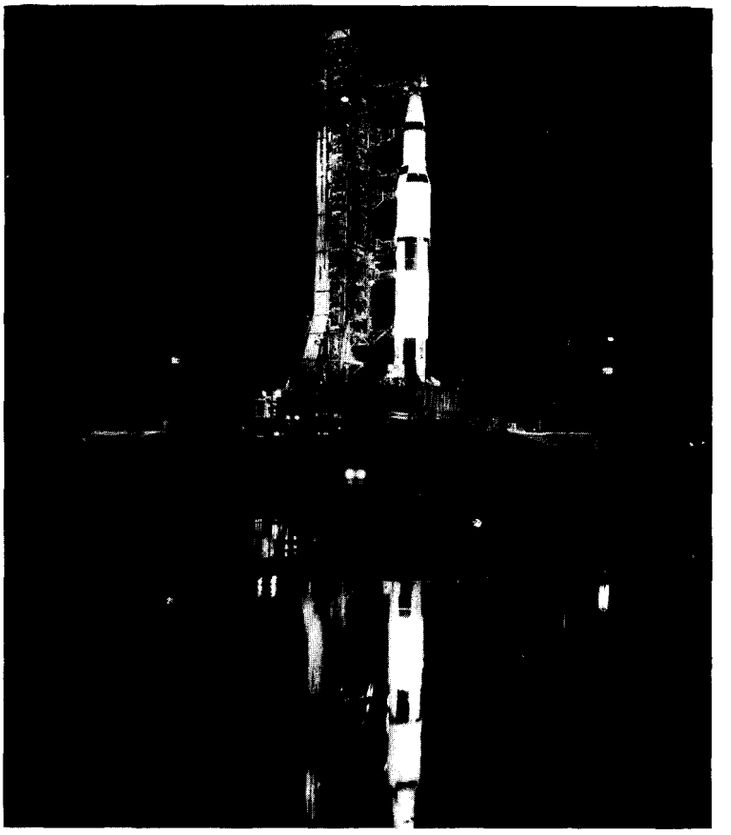
Right on schedule at 9:26 a.m. on November 20, a burst from the engine at the base of Intrepid's cabin section vaulted Conrad and Bean off man's second lunar outpost, this one on the Ocean of Storms. After executing a complex series of maneuvers, they were hooked up with the command ship at 12:55 p.m.

Conrad, Bean, and Gordon face almost 17 days of quarantine after their return to Earth. They will be in isolation until December 10.

The quarantine is a precaution against the astronauts returning to Earth with germs from the moon's surface. The rocks and Surveyor pieces also will be quarantined until medical men are satisfied the moon matter presents no hazard to man or the Earth.



SPLASHDOWN: Apollo 12 Astronauts Conrad, Gordon and Bean and a team of Navy Frogmen are shown undergoing egress training with a dummy spacecraft in the Gulf of Mexico off Galveston, Texas. The Apollo 12 crew splashed down Monday in the Pacific Ocean after a 10-day lunar trip.



READY FOR LAUNCH: The Saturn V/Apollo for Apollo 12 is reflected in a nearby pool prior to launch from Cape Kennedy. Apollo 12, which carried the second crew of astronauts to the lunar surface, was launched at 11:22 a.m. Nov. 14.

MOON PLAQUE: This is a close-up view of a replica of the plaque which the Apollo 12 astronauts left on the moon in commemoration of their flight. The plaque was attached to the ladder on the landing gear strut on the descent stage of the Apollo 12 Lunar Module.

DR. MUELLER LEAVING NASA

Dr. George E. Mueller, who directed the United States manned space flight program for six years-- from the beginning of Gemini flight operations through the first manned lunar landing-- will leave NASA December 10.

Dr. Mueller, NASA's Associate Administrator for Manned Space Flight, was responsible for the largest research, development and operational program ever undertaken by man. At its peak, the Apollo Program involved over 400,000 NASA, other government, university and industry personnel.

No successor to Dr. Mueller has been named and he has not announced his plans for the future.

"It is due to Dr. Mueller's creative leadership of the magnificent manned space flight organization that the flight of Apollo 11 in July, 1969, achieved the national goal set in May, 1961: the landing of men on the moon and their safe return to Earth by the end of the decade," said Dr. Thomas O. Paine, NASA Administrator.

"We regret that Dr. Mueller has made the decision to return to private life, but recognize that decision comes at a time when the task he accepted is complete and a sound foundation for our future national space program has been established."

Some of Dr. Mueller's important contributions to the manned space flight program include:

Achieving an early operational flight schedule in Gemini with launches about every six weeks.

Formulating a concept for thorough and comprehensive ground testing, which made possible "all-up" flight testing of vehicles (all stages actively flying) rather than flight testing stage by stage. All-up testing in turn made possible early operational availability of Saturn-Apollo hardware.

Introduction of new and improved techniques that established efficient management of the nation-wide industrial complex that led to the accomplishment of man's first lunar landing and return on schedule and within cost.

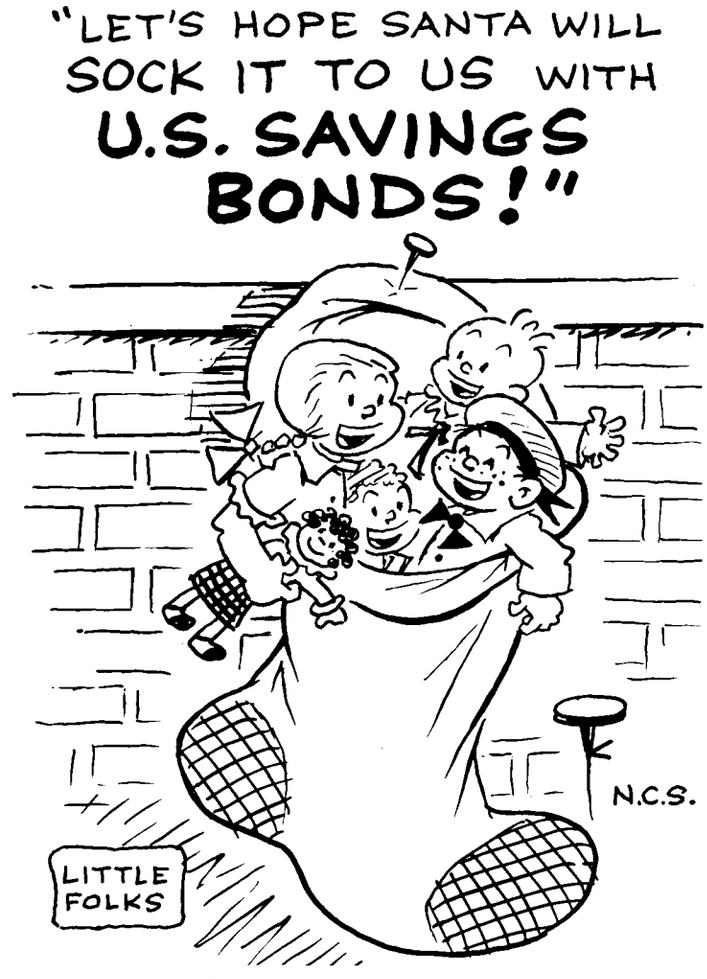
Formulation of low cost space transportation and operations, which are the basis for the space shuttle and space station programs to be undertaken by the United States in the next decade.

"It has been a great privilege to serve the United States in the most important technological and scientific program of the last century," said Dr. Mueller. "Heading the Nation's manned space flight program was a rare opportunity. Never have so many people worked together so successfully to achieve through excellence an almost unbelievable challenge, he added."

Dr. Mueller, who holds many honors, including the NASA Distinguished Service Medal, was born in St. Louis July 16, 1918. He received his B.S. in Electrical Engineering from the Missouri School of Mines in 1939, his M.S. in Electrical Engineering from Purdue University in 1940, and his Ph.D. in Physics from Ohio State University in 1951.

Before joining NASA Dr. Mueller was senior official of Space Technology Laboratories, Inc., Redondo Beach, Calif., where he made a dynamic contribution to the early growth of the United States space program. He was responsible for critical design, development and test work on the Nation's major missile programs-- Atlas, Titan, Minuteman and Thor missiles, the Pioneer I, Explorer VI and Pioneer V satellites and the U.S. SPAN Satellite tracking network.

--Buy U.S. Savings Bonds and Freedom Shares--



BOOKS FOR SALE

The following books may be purchased at the NASA Exchange, extension 2209, Building 587:

Boundary Layer Theory by Schlicting
Continuim Mechanics by Frederick and Chang
Thermodynamics by Lewis and Randall
Introduction to Mathematical Statistics by Hoel
Space State Analysis of Control Systems by Ogata
Elements of Partial Differential Equations by Sneddon
Elementary Quantum Mechanics by Saxon
LaPlace Transforms (Paperback - Schaum outline series)
Foundations for Microwave Engineering by Collin
Introduction to Elementary Functions by Combellach
Elementary Numerical Analysis by Conte
Engineering Analysis by Crandall
Partial Differential Equations of Mathematical Physics by Webster (Paperback)
Complex Variables (Paperback - Schaum outline series)
Practical Mathematics by Palmer and Bibb
Machinery Handbook

FOR SALE: Two snow tires on Chevrolet rims - 7.75 x 14 - $15 each. Childs, 898-6719.

FOR SALE: Two wooded acres with oyster rights and sandy beach on Severn River - $8000. Jensen, 877-0777.

FOR SALE: 3-bedroom rancher on fenced wooded lot - $3000 and assume 5-1/4% loan at $93 monthly. Wood, 595-2350.

FOR SALE: Walnut dining room table and 5 chairs - $50. Shelton, 596-2451.

PAPERWORK BURDEN STILL A PROBLEM

A communication was recently received by NASA and all other Government agencies from President Nixon in which he pointed out the importance he attached to good paperwork management. He indicated that time spent in reducing the burdens of Federal paperwork deserves the high praise of Federal managers and tax-paying citizens, and he urged a continuous effort in this area.

In June of this year, Edgar M. Cortright, Center Director, issued a directive to all staff members at Langley, citing the problem of an increasing paperwork load while at the same time the Center is reducing its staff, and he asked for the cooperation of supervisors and individual staff members in attacking the paperwork problem.

The results of Cortright's appeal were somewhat limited, but a few significant paperwork items were eliminated and others were reduced by changing procedures. For example:

A quarterly report of progress on research tasks was changed to a semi-annual report with approval of NASA Headquarters. This change will save several man-years of effort throughout the Center formerly spent in gathering and preparing the data for this report.

A reevaluation of procedures resulted in the elimination of a number of courtesy copies of some outgoing letters, both to industry and to other Government agencies. Approximately 8,000 pieces of paper will be reduced by this single action.

The intermittent travel authority lists have been eliminated as the need no longer exists. About 2,000 of the travel authorities were reproduced annually, but the paperwork can now be handled in a more expeditious manner.

The authority to approve travel advances was delegated to personnel in the Travel Reservations Office, eliminating the need for having higher officials at the Center sign the approximately 5,000 forms each year.

Four monthly reports showing the status of research and development funds were eliminated. These reports were being distributed to management officials and supervisors, but it was determined that essentially the same information could now be obtained from the Center's management information system.

A number of other individual actions were taken within the different organizational elements of the Center to reduce paperwork.

In reviewing the results of this past summer's activity, Cortright indicated that he considered the initial response to his request for improved paperwork management as but a first step in the right direction. "I am certain that there are a number of other paperwork requirements that should be looked at seriously, and I hope that each supervisor will consider it his duty to be alert to any possibilities for reducing the amount of paperwork being handled at Langley."

Cortright went on further to state that what he said in his original announcement with respect to ideas of individual staff members still holds. He wishes to consider any ideas of any member of the staff which might contribute to better paperwork management, and he urges staff members to submit their ideas. Each will be looked at and studied.

The occasion of Nixon's statement on paperwork management was in connection with the presentation of awards in Washington to the 1969 winners of the Federal Paperwork Management Awards, for outstanding accomplishments in reducing paperwork.

Leadbetter

Walton

Leonard

PERFORMANCE AWARDS PRESENTED

Sumner A. Leadbetter, William C. Walton Jr., and H. Wayne Leonard, all of Dynamic Loads Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Leadbetter was cited for "exceptional service in providing guidance and direction of dynamic model studies of structural dynamic phenomena associated with an Apollo Saturn 502 structural anomaly investigation that led to an improved understanding of the dynamics of the Apollo Saturn vehicle and successfully demonstrated the structural integrity of the spacecraft lunar module adapter/lunar module interface by simulating static and dynamic flight loads on the model."

Walton received his award for "sustained superior performance in developing analytical methods, directing and conducting analyses, and directing tests that led to an understanding of the structural dynamics of the lunar module/spacecraft-lunar module adapter during investigations of an Apollo Saturn 502 structural anomaly."

Leonard was honored for "sustained superior performance as assistant project engineer, in formulating the conceptual dynamic model design, and in correlating analytical and experimental data during investigations of structural dynamic phenomena associated with an Apollo Saturn 502 structural anomaly."

TECHNOLOGY UTILIZATION NEWS

A new technology survey on Automation is now being conducted. As usual, Langley Research Center is expected to be a major contributor of the latest state-of-the-art information on this important subject.

A well recognized authority on Automation, William R. Corliss, has been selected by NASA's T. U. Division to conduct this survey. Corliss is a technical writer and was responsible for two previous surveys in the field of automation. These are available in SP-5047, Teleoperators and Human Augmentation, and SP-5070, Teleoperator Controls.

Technology Surveys are published as soft-back "textbooks" in the SP-5000 series and serve as a most effective media of transferring new technology from NASA sponsored research and development efforts to industry and the public. These publications are widely distributed and accepted.

Interviews by the author with Langley personnel considered knowledgeable in special phases of the subject are being made through T. U. monitors in each of Langley's division offices. In case you have not been contacted but feel that you can contribute to this worthwhile effort, please call the T. U. Office, extension 3281. Corliss is expected to be at Langley during the week of December 8.

MINI-SYMPOSIA SPEAKERS: Speakers for the two mini-symposia hosted last week by Langley are (from left): Professor John K. Gillham, Princeton University; Dr. Stephen S. Hirsch, Geigy Industrial Chemicals; Dr. Jack Preston, Chemstrand Research Center, Inc., and Robert A. Jewell, Applied Materials and Physics Division.

MINI-SYMPOSIA HELD AT LANGLEY

Langley Research Center was host for two mini-symposia on November 19 and 20. The subject for the first meeting was the Thermo-Stability of Polymers and the second meeting was concerned with Electronic and Molecular Processes in Polymers.

Approximately 35 persons attended each day including representatives from England, Australia, Greece, and the United States. The object of the symposia was to identify some of the most recent problem areas and to identify current trends in the coming decade for significant research programs.

The next mini-symposia, sponsored by the Chemistry and Physics Branch, will be held December 1 and the topic will be Ion-Implantation. For details contact H. D. Hendricks, extension 3418.

STAFF THANKED FOR CONTRIBUTIONS

Two letters of thanks to staff members have been received at the Center as a result of the recent death of Evander Hoyt Rowell, Research Support Division.

Mrs. Alice Rowell, widow of the deceased, made the following statement: "Thank you very much for your contribution to the Cancer Society in Hoyt's memory. If Hoyt knew that his death had contributed in any way to the control and cure of this dreadful disease, he would be happy."

Courtland W. Bostic, President of the Peninsula Unit, Virginia Division, Inc., American Cancer Society, wrote the following: "On behalf of the American Cancer Society, I want to take this opportunity to thank the friends at NASA of Mr. Evander H. Rowell for the most generous memorial gift.

"Your contribution has provided a way to perpetuate the memory of a life that has been lost, and it offers a way to prevent the further suffering of others by contributing to the work of the American Cancer Society.

"We hope that in the not too distant future, prevention and cure of cancer will become a reality. When this does occur, it will be the result of the unselfishness of people such as you at NASA."

FOR SALE: 60 x 275-foot vacation home property located on Piankitank Shores - $1500. Lodge, 595-3539.

TAKE TIME TO DO JOB SAFELY

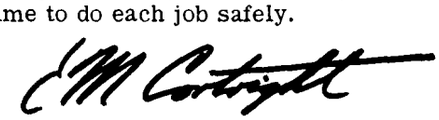
Langley has experienced a sharp increase in our accident/incident experience during the last year. This trend concerns me and I solicit the help of each of you in acting to reduce our accident experience rates to or below those rates in keeping with previous Langley experience.

Our management policy concerning safety is that safety is a paramount consideration of every job, that the federal government should lead the way in safety practices and that Langley should be a leader in comparable government installations.

Safety is a particular area of importance at the present time when we have tightly limited personnel ceilings and reduced funding imposed by national policy. Time and material lost due to accident experiences have a serious detrimental effect on critical research programs in addition to the personal distress caused by these accidents.

Most of our personnel injuries for the last year have been slips, falls, bumps, and strains; the same type of accident that happens in our homes. However, there have been some work related accidents that are uniquely related to our research environment. Each of these accidents are investigated and corrective actions are taken whenever possible. It has been difficult to establish any general pattern for the recent increased level of accidents. There is some indication that we have a changing situation in our work areas due to personnel ceilings and shifting work loads. Some accidents/incidents may have occurred because work was attempted without adequate planning for the job. The suggestion has also been made that our work force is older on the average and more sprains, falls, and slips might be expected. I believe that our increase in age represents a more highly skilled and experienced group and should result in a lower accident experience rate rather than a higher one.

I ask each of you to concern himself with safety and help reduce our personal and center losses due to accidents. I believe this can and will be done by personal attention to safety, proper planning for manpower, equipment, and taking time to do each job safely.



Can You Solve This Problem?

To help reduce air pollution, an efficient combustion process is needed which will minimize the emission of NO_x and SO_x to the atmosphere. There is a possibility that solid materials, perhaps with both adsorptive or catalytic properties, can be used in a fluidized state to assist in the combustion of liquid, solid or gaseous fuels and at the same time provide NO_x reduction and SO_x absorption. Refer RTI/AP-32. Contact the T. U. Office, extension 3281, if you have a contribution or desire additional information.

FOR SALE: Stereo record changer, 4-speed automatic, turntable only - $5; Buick chassis service manual - $3. Barfoot, 826-8139.

FOR SALE: Lionel trains and parts. Shuster, 868-6575.

Silent Night

I am taking this opportunity to wish each of you and your families the happiest of holiday seasons. I hope that 1969 was a good year for you and that 1970 will be even better.

The same sentiments might well apply to this Center. On balance this has been a good year. We've been going through a period of critical self examination in order to set our goals for the future and to establish priorities. Many of you have been involved. At this point in time we have reason to feel confident. A vital role for Langley Research Center in most of the emerging national goals in aeronautics and space seems assured. Continued preeminence is up to us.

During the past year we've also increased our community involvement in several ways in an effort to improve the quality of life on the Peninsula. We've made a good start. Because of your support many of our neighbors will enjoy a merrier Christmas and a happier New Year. That's something nice to think about during this holiday season!

E M Cortright

NEW ADVISORS: Receiving their appointments to the Langley Researcher Advisory Committee in time to wish the Center staff a Merry Christmas are front row (from left): Marvin C. Waller, Lawrence F. Rowell, John D. Antinori, Rupert E. Bullard, chairman, and Wayne D. Goff. Back row - Rita J. Southall, James A. Osborn, and Elizabeth F. Buchan.

EIGHT STAFF MEMBERS APPOINTED TO RESEARCHER ADVISORY GROUP

Eight young men and women of the Langley staff have been appointed by Edgar M. Cortright, Center Director, as members of an official advisory committee to Langley Researcher.

Rupert E. Bullard, Classification and Organization Branch, Personnel Division, has been named chairman of the group. He will be assisted by Rita J. Southall, Protective Structures Section, Structures Research Division; John D. Antinori, Experimental Machine Shop, Fabrication Division; Wayne D. Goff, Gas Parameter Measurements Section, Instrument Research; Elizabeth F. Buchan, Staffing and Special Programs Branch, Personnel; Marvin C. Waller, Guidance and Control Branch, Aeronautics and Space Mechanics Division; James A. Osborn, Mechanical Systems Section, Research Models and Facilities; and Lawrence F. Rowell, Analog Computing Section, Analysis and Computation.

The purpose of the committee is to advise the Researcher staff on the types of articles and features they feel will be of particular interest to employees. It is hoped that the Researcher will become more employee-oriented by giving better coverage to employee activities, such as social and sports events, and by including more personal and human interest articles.

Persons having suggestions or news items are requested to contact one of the members of the advisory group or the Langley Researcher Office.

NEW YEAR'S DANCE DEC. 31

The Activities Association will close its 1969 social season with the annual New Year's Eve Dance on Wednesday, December 31 at the Activities Building.

The affair will be semi-formal which means the ladies may wear long or short dresses and their escorts may wear business suits, tuxedoes, or tails.

Music will be furnished by The Progressions featuring Luther Briggens at the organ.

The evening events will start at 9 p.m. and continue until the New Year is one hour old. At the stroke of midnight Father Time will make his exit and the New Year will arrive on the scene.

Tickets are $8.50 per couple including set-ups and favors. Only a limited number of tickets will be sold and they may be purchased at the Activities Building. Reservations may be made only with ticket purchase and no reservations will be held past 10 p.m. There will be no refunds.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Virginia 23365, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 154, telephone 3116.

Editor.....Ruth Angel Verell
Staff Photographer.....Bob Nye
Reporters.....Langley Employees

The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised here must be offered for sale or as otherwise advertised without regard to race, color, religion, sex, or national origin.

ANNOUNCEMENTS

BADGES STILL GOOD. . .As a number of employees have noted, the expiration date on NASA identification badges is December 31, 1969; however, this date has been extended and the badges will continue to be recognized by Base security officials. New badges with color photographs will be issued to staff members during calendar year 1970.

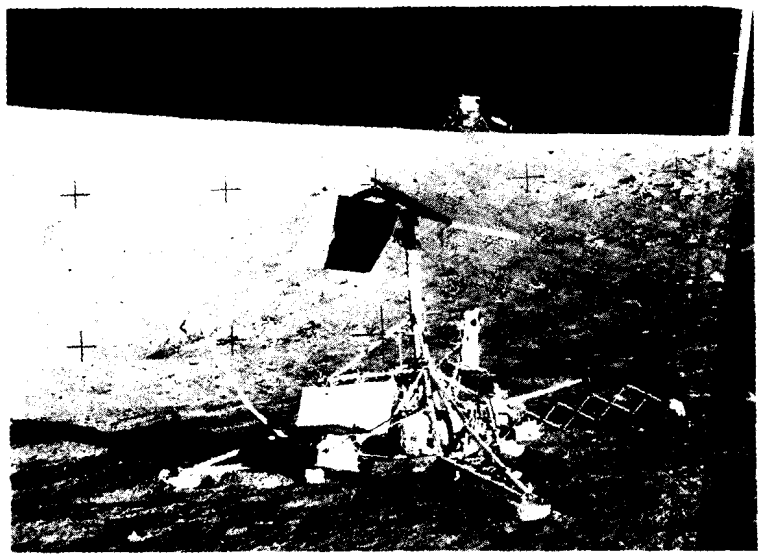
BLESSED EVENT. . .Thanksgiving day proved to be a big day at the Carlton Purgold household when the blessed event arrived in the form of a seven-pound, seven-ounce daughter, Denise Michelle. The proud father works in Applied Materials and Physics Division, and grandfather Joe Purgold works in Fabrication Division.

WINS AWARD. . .Dr. Robert R. Gilruth, Director of the NASA Manned Spacecraft Center, has been named one of seven winners of the 1969 Rockefeller Public Service Awards given annually in recognition of "distinguished service to the Government of the United States and to the American People." Administered by Princeton University, the awards are the highest privately-sustained honors for the nation's career civil servants. Each award carries with it a $10,000 cash grant. Dr. Gilruth, former Langley Assistant Director, received a special "at large" award created this year for "an extraordinary accomplishment of so broad a nature that it cannot properly be categorized by one field of endeavor." The award followed the completion of man's second journey to the moon.

WORD OF THANKS. . .Alverta Barnes, Procurement Division, wishes to express her sincere thanks to her many friends and co-workers for the reception given on the occasion of her retirement and also for the many beautiful and useful gifts she received.

THE COVER. . .Our thanks to Bob Nye, Staff Photographer, for designing and photographing the beautiful Christmas cover for this issue. Bob has been a member of the Technical Information and Utilization Division since 1955 and staff photographer since 1961.

HEADS NEW ORGANIZATION. . .Robert E. Boughner, Aero-Physics Division, has been elected president of the newly-formed Hampton Roads Alumni Chapter of Tau Beta Pi, national engineering honorary fraternity. David Eberle, Applied Materials and Physics Division, was elected vice president. The chapter, which plans to hold three or four meetings a year, has drawn members from throughou Tidewater area. The next meeting will be in late Jan Members of Tau Beta Pi may obtain additional inform from Boughner, extension 3271.



TWO SPACECRAFT ON MOON: This unusual photograph, taken during the second Apollo 12 extravehicular activity, shows two U.S. spacecraft on the surface of the moon. The Apollo 12 Lunar Module is in the background. The unmanned Surveyor III is in the foreground. The Apollo 12 LM, with Astronauts Charles Conrad and Alan Bean aboard, landed about 600 feet from Surveyor in the Ocean of Storms.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 15:

Monday - Split green pea soup, corned beef and cabbage, roast pork, Salisbury steak, fish cakes. Snack bar - Soup, hamburger, hot pastrami, French fries.

Tuesday - Tomato-barley soup, roast beef, breaded veal cutlet, broiled perch, chili con carne. Snack bar - Soup, barbecue, hot roast beef, French fries.

Wednesday - Chicken-rice soup, chicken and dumplings, fried oysters, pork chopette, tamale pie. Snack bar - Soup, hot dog, Lou's satellite special, French fries.

Thursday - Cream of potato soup, pepper steak, chuck-wagon steak, chicken chow mein, franks and beans. Snack bar - Soup, fish sandwich, steak sandwich, French fries.

Friday - Manhattan clam chowder, turkey sandwich, baked lasagna, fish crisps, grilled cheese. Snack bar - Soup, hot corned beef, grilled cheese, French fries.

The menu for the week of December 22 is as follows:

Monday - Puree of bean soup, Spanish pot roast, grille smoked ham, beef pie, western omelette. Snack bar - Soup barbecued pork, hot roast beef, French fries.

Tuesday - Cream of mushroom soup, grilled pork chop braised beef tips, baked salmon loaf, Spanish franks. Sna bar - Soup, hot dog, flying saucer, French fries.

Wednesday - Vegetable-beef soup, chopped steak, stuff flounder, sauteed chicken livers, baked hash. Snack ba Soup, ham and egg sandwich, hot pastrami, French fries.

Thursday - H O L I D A Y

Friday - Cream of tomato soup, boiled ham, fried fi creamed dried beef on toast, macaroni and wieners. Sn bar - Soup, hamburger, smoked ham, French fries.

●●●●●●

TOP SCORES: Receiving grades of 91.8 on a Civil Service examination for clerk-typist were clerical trainees Mary Cox (standing) and Claudia Ervin. All thirteen of the trainees who took the examination received passing grades. The program is a joint effort of the Langley Research Center and the Newport News Office of Economic Opportunity.

TECHNOLOGY UTILIZATION NEWS

NASA's spectacular success in reaching the moon and planets would not be possible without "clean rooms" in which extremely rigid controls are exercised to prevent contamination of delicate instruments and other spacecraft hardware during manufacture and assembly. Sterile conditions to prevent biological contamination to or from other planets are also of utmost importance and impose many restrictions to the designers and users of space hardware.

SP-5076, Contamination Control Handbook, is the latest Technology Utilization publication of use to anyone associated with the rigid control of sterile conditions in space hardware. It contains over 400 pages of procedures and tests to insure absolute control of microbial flora.

SP-5074, Clean Room Technology, is a recent 65-page treatise to acquaint technicians and their supervisors with the characteristics and operation of a clean room. A limited number of these publications is available from the T.U. Office, extension 3281.

Special Publications such as these are issued by NASA's Office of Technology Utilization as a media for the transfer to industry and the public of technology generated by NASA's aerospace programs. Contact the T.U. Office for a list of these SP s which are currently available. Many of Langley's scientists, engineers and technicians find them to be a most useful source of up-to-date information on various subjects.

FOR SALE: 2 table lamps, 2 walnut step-tables with lamp table to match, tables with formica tops 36 inches x 5 feet, new linen window shades, blackboard, old bottles. Barricklow, 595-5108.

FOR SALE: Kenmore wringer washer - $35, Craftsman's 7-foot pool table - $150, 120 base AAA accordian - $100, electric blanket - $15. Bulle, 838-3322.

FOR SALE: 1968 coppertone Hoover portable washer-spin dryer - apartment size - $100. Woodman, 838-0945.

13 LUCKY NUMBER FOR TRAINEES

Thirteen proved to be a lucky number for the thirteen clerical trainees who took the Civil Service examination for clerk-typist last month -- all thirteen passed.

It all started last February when officials at Langley Research Center and the Newport News Office of Economic Opportunity launched a pilot program under which fourteen clerical trainees were selected to participate in a training effort designed to improve skills of the trainees to permit their handling increasingly more difficult clerical assignments.

The rewards of the program were reaped last month when thirteen out of thirteen young ladies who took the examination received passing grades. The fourteenth trainee was on maternity leave and couldn't take the test.

The range of scores for the girls, none of whom had been able to pass the test when they began their training at Langley, was 76 to 91.8. Mary Cox and Claudia Ervin tied for top honors with scores of 91.8.

Although most of the girls had high school degrees when NNOEO recruited them for the program, only one or two had had office work experience. Without experience which would show they could be useful in an office and unable to present themselves postively to interviewers, they had found themselves either unemployed or doing odd jobs such as waitresses which offered little opportunity for advancement.

So last February Langley staff members, along with OEO counselors, set about the task of teaching them office skills and building up their confidence.

Eloise McGehee, Head of Stenographic and Special Typing Section, Administrative Services, worked with them on grammar, typing, and related subjects; Evelyn Meyers, Office of the Chief Counsel, trained them in office practice; and Katherine Johnson, a research mathematician in Aeronautics and Space Mechanics Division, taught basic math to the group.

The girls spent only four hours a week in the formal classroom. The rest of the working week they were assigned to various offices throughout the Center, rotating every few weeks, where they "learned by doing." Glenna Martin was in charge of the office and coordinated work assignments between the trainees and representatives of the organizational elements.

J. Norwood Evans, Assistant Personnel Officer, was coordinator for the program at the Center.

COIN CLUB MEETS DEC. 17

The Langley Research Center Coin Club will meet on December 17 at 7:30 p.m. in the Activities Building. A 1963 proof set will be the raffle prize. In addition to the auction and raffle, nominations of officers for the coming year will be held.

The drawing for $10 and $5 gold pieces and a group of five uncirculated silver dollars will also be held at this meeting. Anyone who wishes to buy tickets on these coins may do so by contacting George Boyles, Bob Wright, Thayer Sheets, or any other member of the coin club.

FOR SALE: Tropical fish equipment including tanks, pumps, heater, lights, filters, aquarium cleaner, fish and other items. Fedziuk, 722-1846 from 5 to 6 p.m.

LOST: Gold ring with green and pink gold leaves and cluster of gold grapes on front - has sentimental value - reward. Doolittle, 2001.

CO-OP STUDENTS MAKE DEAN'S LIST

The cooperative education coordinator at Auburn University has advised the Center that Dan Causey Jr. qualified for the Dean's List as a result of grades during the summer quarter. This means Dan achieved a scholastic average which placed him in the upper five percent of the School of Engineering at Auburn. He is currently assigned to the Analog Computing Section of ACD.

Michael R. Hazen, University of Missouri at Rolla, placed on the First Honor Roll during the spring 1969 semester, as he has for three previous semesters at school while a co-op student. Mike is currently assigned to the Dynamic Stability Branch of Flight Mechanics and Technology Division.

Additional co-op students who made the dean's list or equivalent during their previous school period are Mark Lewittes, University of Illinois, assigned to Instrument Physics Research Section of Flight Instrumentation Division, and William T. Hardrath, Virginia Polytechnic Institute, assigned to Spacecraft Equipment Section of Flight Vehicles and Systems Division. Several co-op students from North Carolina State University made the dean's list during the summer session: Dennis Crenshaw, Configurations Aerodynamics Branch of Aero-Physics Division; Roy Fleming, Space Vacuum Lab Section of Applied Materials and Physics Division; Carl Freeman, Guidance and Control Branch of Aeronautics and Space Mechanics Division; and Jim Smith, Thermodynamics and Combustion Section of AMPD.

CENTER'S EQUAL EMPLOYMENT OPPORTUNITY POLICY REAFFIRMED

Each year, as Director of Langley Research Center, I am asked to reaffirm the policy of the Center regarding equal employment opportunity so that the policy will be clearly understood by all employees and all applicants for employment. Even if this were not an annual requirement, I think it is just good sense to do this, and I am pleased to restate the policy.

For many years, Langley Research Center has implemented a policy of equal opportunity in employment, training, and promotions for all qualified personnel or applicants, without regard to race, creed, color, sex, or national origin. This basic policy will continue to guide all personnel actions at this Center.

In addition to the policy itself, the Center has appointed an Equal Opportunity Committee whose responsibility is to insure that the goals of the Center's Affirmative Action Plan are being met and expanded as new opportunities become available.

The social problems facing the nation today, however, transcend just a reaffirmation of the equal employment opportunity policy. They require of each of us, supervisors and staff members alike, that we exercise imagination and initiative to resolve some of the situations associated with unemployed who may not immediately possess the necessary qualifications for employment. President Nixon, in a recent statement setting forth the national policy on equal employment opportunity, called upon Federal managers and staff members to use imagination in utilizing existing Federal facilities for the training of the disadvantaged. At Langley, we are attempting to do this and currently have two training programs under way, one involving 14 clerical trainees and one involving 20 mechanical trainees. These programs are being conducted jointly with the Newport News Office of Economic Opportunity and are progressing very well.

Our role in special training for the disadvantaged has been a limited one, and we can do more. Perhaps some members of the Center's staff have ideas which should be explored, and we would like to hear from you. Personal involvement within the community in support of outside programs is another way to show support of the Center's overall policy of equal opportunity.

So, while the Center has long endorsed the policy of equal employment opportunity and will continue to do so, there is an opportunity for each of us to actively engage in its implementation and expansion. Individually, it may seem that we can do little, but collectively, all that is done by individuals and organizations working together adds up to a better community.

FOR SALE: 1967 Oldsmobile Delmont 88 with air conditioning and power accessories - $1700. Vaughan, 596-6393.

FOR SALE: Console T.V. - needs a little work on vertical tuner. Tribeck, 877-3725.

WANTED: Fifth driver from Windsor Great Park to W.A. on 8 shift. Weaver, 2143.

FOR SALE: 1964 Buick Special, 6 cylinder with air conditioner - $675; also molded plywood boat with 10 hp motor and trailer - $275. Siviter, 723-1989.

WANTED: Drivers to form car pool from Riverdale Apts. to W.A. on 8 shift. Thibodeaux, 3621.

(Leroy Spearman, Head of Large Supersonic Tunnel Branch, Full-Scale Research Division, wrote this poem especially for Langley Researcher 22 years ago. It is still timely and we reprint it this holiday season in hopes you will get a good chuckle from it.)

T'was the night before Christmas and all through the flat
Not a creature was stirring but the upstairs brat.
The stockings were hung by the chimney with glue
And we hoped that St. Nick wouldn't get stuck in the flue.
The children were nestled all snug in a cot,-
Some of 'em sleeping but most of 'em not.
While maw in her 'kerchief and I in my gown
Had raided the icebox and were just sitting down
When in the apartment above there arose such a clatter
I sprang up and dropped my teeth in the platter.
Away to the window I flew like a flash,
Tore open the shutter and threw up the hash.
The moon on the breast of the new fallen rain,
Made Mercury Freeway look like a broken water main.
When what to my bloodshot eyes should appear
But a coupla sleighs and sixteen reindeer.
When I saw the old driver I dropped the bottle quick
Because even I knew it must be St. Nick.
More rapid than Monday these deers they came
And he whistled and shouted and called them by name.
"Hey Dasher, Dancer, Prancer, and Vixon,
On Comet, on Cupid, on Mason and Dixon.
To the top of the porch, to the top of the wall,
And do be careful, I don't want to fall!"
Then as I looked up high on the roof,
I said to myself now I've had enoof.
I heard a dog bark so I turned around
And down the chimney St. Nicholas came with a hound.
He was dressed all in fur from his feet to his head
And his clothes looked like he had worn them to bed.
His feet were muddy and he tracked everywhere,
The maid would be mad but he didn't care.
He was a funny little man, a right jolly old soul
But he swore when he stepped on a red hot coal.
His droll little mouth was nothing to view
And his beard was so heavy it was hard to chew.
A stump of a pipe he held in his teeth
And the smoke was so dense you could hardly seeth.
His eyes how they twinkled, his dimples so big,
His cheeks were like roses, his nose like a fig.
He had a broad belly and a little round smile
And he shook when he laughed like jelly in a pile.
He filled all the stockings 'til they were quite big
And when he had finished he lit up a cig.
Then to the chimney stepped the big bloke
And up it he went like a cloud of smoke.
He jumped to his sleigh with a leap quite nift
And off he sped like the 4:30 shift.
But I heard him exclaim as he drove out of sight,
"Merry Christmas to all and to all a goodnight!"

EXAMS OPEN FOR SUMMER JOBS

The federal government is accepting applications for the 1970 test required for certain summer jobs. Passing the examination will qualify students for office jobs that pay $94.40 to $106 a week.

Three nationwide examinations are being given for summer employment in Federal installations. Filing date for the first exam has passed. Filing dates still open and the scheduled dates for examinations are as follows: January 9 with exam scheduled February 14 and February 4 with exam scheduled March 14.

Applicants rated eligible in 1969 will not have to take the 1970 test.

Candidates who want to take the test should ask for a copy of announcement No. 414 "Summer Jobs in Federal Agencies," which may be obtained from high school counselors, college placement offices, major post offices, and federal job information centers.

For further information call Employment Office, 2581.

FOR SALE: Monophonic Hi-Fi components - EICO preamp, Dyna Mark III 60W; EICO HFT-91 FM tuner, Electrovoice 3-way system with T-30, T25A, SP12- in Aristocrat enclosure. Weaver, 877-4255.

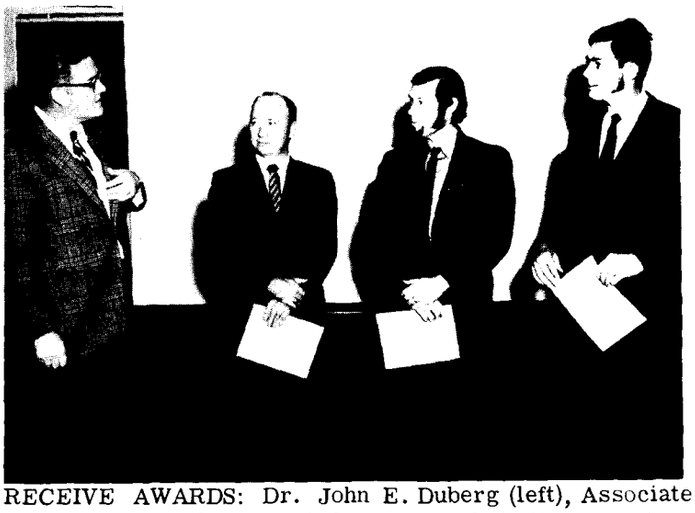
FOR SALE: 23-inch RCA solid-state color TV Belgrave, in sliding-door cabinet - $620. Davis, 838-2648.

FOR SALE: 2,000 btu Whirlpool window air conditioner- $150. Pearce, 851-1254.

WANTED: Home for young cat and 3-month old kitten. Gaskins, 826-0168.

FOR SALE: Guitar, fender, jaguar, double pickup, floating vibrato - $200. Davey, 898-5664.

FOR SALE: 1969 MGB convertible. Sabo, 838-8100.



RECEIVE AWARDS: Dr. John E. Duberg (left), Associate Director, recently presented cash awards to three employees for Tech Briefs. The recipients are (from left): Edward Fleenor, Don Cone, and Philip Glaude.

TECHNOLOGY AWARDS PRESENTED

In ceremonies held recently Dr. John E. Duberg, Associate Director, presented cash awards to three staff members for Tech Briefs.

The Langley Tech Briefs for which the awards were presented are as follows:

69-10236 - Imprinting of Confining Sites for Cell Cultures on Thermoplastic Substrates awarded jointly to Edward Fleenor, Instrument Construction Shop, Fabrication Division, and Don Cone, head of Microbiology Laboratory, Instrument Research Division.

69-10226 - Camera Mount for Close-up Stereo Photographs by Philip H. Glaude, Materials Processing and Development Section, Fabrication Division.

Tech Briefs summarize new inventions, innovations, discoveries, or improvements having potential industrial applications and are published through NASA's Technology Utilization Program for nation-wide distribution. At least 10,000 private companies subscribe to this service which provides a rapid means of incorporating new materials, techniques, manufacturing processes or products generated through space research.

Each Tech Brief published automatically brings a $25 award with eligibility for much higher awards. Tech Briefs get new ideas from innovator to the market in the shortest possible time.

Can You Solve This Problem?

The Federal Water Pollution Control Administration is seeking information concerning the applicability of lasers to the analysis of pollutants in water. Lasers may be a better light source in Raman spectroscopy than Toronto lamps. Refer to WP-8. Contact the T.U. Office, extension 3281, for the complete problem abstract or if you have a contribution.

FOR SALE: 22 magnum, 8-shot revolver, western frame - $35. Myers, 826-2333.

FOR SALE: Air conditioning units - 220v RCA Whirlpool - 16500 btu, 110v Sears Coldspot - 8500 btu - both for $150. Mangum, 595-4525.

WANTED: 24-inch bicycle. Johnson, 877-0842.

CHRISTMAS PARTY SUNDAY

The Children's Christmas Party, sponsored annually by the Activities Association, will be held Sunday at the Activities Building.

Bungles

Two shows have been planned with the first one beginning at 1:30 p.m. and featuring Bungles, a local TV personality. Most of the tickets for this show have been sold.

A number of tickets are still available for the 3:30 p.m. performance which will feature Troy and his Friends, another local TV personality. This act is a fast moving, colorful presentation that calls for a great deal of audience participation.

The main event for each show will be the visit of Jolly Ole Saint Nick who will be laden with gifts for each child.

Tickets are 50¢ each for children and adults and are available at the Activities Building.

BOOZERS WIN FOOTBALL TITLE

Boozers won the 1969 Touch Football Championship by defeating ACD and the KNADS in the last two weeks of play.

An all-star team was selected by the league and they will play the Boozers tomorrow at 10:30 a.m. at Kecoughtan High School.

Members of the all-star team are: Ed Phillips, George Lawrence and Ken Sutton, Boosers; Jim Gardner, Bob Ward and Jim Harris, ACD; Ron Reeves and Harris Hamilton, Bombers; Dr. Pat McCormick and Len Credeur, Losers; and Billy Ashworth and Ron Chavers, KNADS.

FINAL STANDINGS

Team	W	L	Tied
Boozers	7	1	0
ACD	6	2	0
Bombers	2	5	1
KNADS	2	5	1
Losers	2	6	0

ANNUAL LEAVE REMINDER

As the 1969 leave year comes to a close, staff members are reminded that they have until January 10, 1970, to use any excess annual leave they have to their credit.

For those who started this year with more than 30 days of accumulated annual leave, all the annual leave they earned during 1969 must be used by January 10 or they will lose the unused portion. In other words, they may keep all the accumulated annual leave they had at the beginning of the year but cannot increase it.

Those who had less than 30 days of accumulated leave at the start of the year may end the leave year with 30 days leave, but no more. This means that they must use all of this year's earned leave in excess of 30 days. If the excess leave is not used, they will lose the unused portion.

Unused sick leave may be carried over from year to year with no restrictions and there is no limit on the amount of sick leave which may be accumulated.

Langley Researcher

VOLUME 9, NUMBER 26 LANGLEY RESEARCH CENTER DECEMBER 26, 1969

FORMAL PRESENTATION: The presentation of the NASA Structural Analysis (NASTRAN) computer program to Dr. George W. Brooks (center), Assistant Director, took place this month. The presentation was made by Steven Wall, Computer Sciences Corporation. Shown in the group are (from left): Dr. Thomas G. Butler, NASTRAN Project Manager at Goddard Space Flight Center; Erwin Allen, Computer Sciences Corporation; and Herbert J. Cunningham, NASTRAN monitor at Langley. The NASTRAN program has been installed and staff members have been trained at six NASA field centers. At Langley, about 30 staff members from six divisions took the two-week training course.

DRIVING HOME FOR THE HOLIDAYS? STOP FOR A 'SAFETY COFFEE' BREAK

"Stop for a free coffee break and help save lives." That's the message you, as one of the Nation's thousands of motorists, will be getting as you throng the highways for this year's Christmas and New Year's holidays.

To help insure that drivers heed the advice, some 10,000 restaurants in every part of the country will be serving free "safety coffee" during peak traffic hours of both holidays. It is all part of the national coffee safety stop program, a vast effort to reduce the holiday death toll by getting road-weary motorists off the highways for safety rest breaks.

Participating restaurants will display an hexagonal sign reading: Stop Here - Free Coffee - Safety Break.

Most of the restaurants on super highways will be serving free coffee. Stop whenever you see the sign. If you don't see it, stop anyway. The rest will help keep you alert and alive!

In many localities, attendants at toll gates and bridges will direct drivers to the nearest free coffee service.

Recommended hours of free coffee service this year are:

6 p.m. Sunday, Dec. 28 to 6 a.m. Monday, Dec. 29

6 p.m. Wednesday, Dec. 31 to 6 a.m. New Year's Day

6 p.m. Sunday, Jan. 4 to 6 a.m. Mon., Jan. 5

The National Coffee Safety Stop Program is the cooperative effort of participating restaurant operators, the International Association of Chiefs of Police, the American Association of Motor Vehicle Administrators, the International Bridge, Tunnel and Turnpike Association, the Coffee Information Service and safety officials of the Armed Forces and NASA.

ANNUAL NEW YEAR'S EVE DANCE CLOSES 1969 SOCIAL SEASON

A number of tickets are still available to the Activities Association's New Year's Eve Ball which will be held on Wednesday, December 31 at the Activities Building.

Dress for this outstanding social event will be semi-formal which means the ladies may wear maxi or mini dresses and their escorts may wear business suits, tuxedoes, or tails.

Music will be furnished by The Progressions featuring Luther Briggens at the organ.

Dancing will start at 9 p.m. and continue until 1 a.m. At the stroke of midnight Old Father Time will place his burdens on the shoulders of the young and energetic New Year. The New Year will also have the added responsibility of ushering in a new decade.

Tickets are $8.50 per couple including set-ups and favors. Only a limited number of tickets will be sold and they may be purchased at the Activities Building. Reservations may be made only with ticket purchase and no reservations will be held past 10 p.m. There will be no refunds.

FRA MAURO AREA SELECTED APOLLO 13 LANDING SITE

NASA is proceeding with plans and preparations for the launch of Apollo 13 manned lunar landing mission on March 12 with the Fra Mauro area as the planned moon landing site.

The decision is based on a review of the photographs taken of the Fra Mauro area and successful demonstration of pinpoint landing techniques by the Apollo 12 mission.

NASA is continuing to assess the effects of lunar dust on visibility during the final portion of the landing phase as reported by the Apollo 12 crew.

Fra Mauro is a flat, vast highland area located at 17 degrees 36 minutes west longitude and 3 degrees 48 minutes south latitude, approximately 110 miles east of the Apollo 12 landing point in the Ocean of Storms.

The site of the Fra Mauro formation is an extensive geologic unit covering great portions of the lunar surface around Mare Ibrium. Expected result of a landing there is an understanding of the nature, composition and origin of this wide-spread formation.

Apollo 13 is expected to be launched from Kennedy Space Center no earlier than 3:28 p.m. EST March 12.

Prime crew members are Spacecraft Commander James A. Lovell, Command Module Pilot Thomas K. Mattingly II and Lunar Module Pilot Fred W. Haise Jr. Haise is a civilian and Mattingly is a Navy Lieutenant Commander; neither has flown in space. Lovell, a Navy Captain, is a veteran of Gemini 7 and 12 and Apollo 8. Lovell has more time in space than any other astronaut.

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ANNOUNCEMENTS

THREE RETIREES DIE. . .Word has been received at the Center of the recent deaths of three retirees. Robert E. Mixson, former Chief of Photographic Division, died December 7 at the age of 74. At the time of his retirement in 1957, he was the Center's oldest employee in point of service. . . Clarence L. Decker, formerly of Mechanical Services Division, died December 11 at the age of 68. He retired from the Center this year with a total of 39 years of Federal service. . .Teresa E. Brennan, who retired last year as a supervisory mathematician in the Aeronautical and Space Mechanics Division, died unexpectedly on December 8 at the age of 60. She is survived by her husband, Martin J. Brennan, who retired in 1966 from the Technical Service Contract Support Unit.

IAM MEETING. . .The NASA Lodge No. 892, International Association of Machinists, will meet January 6 at 7 p.m. at the Central Labor Union Hall.

NEWLYWEDS. . .Wedding bells rang on December 5 when William I. Watson, Viking Project Office, took his final vows with Judith B. Trump, Newport News.

BOATING COURSE. . .The Hampton Roads Power Squadron is offering a free boating safety course in piloting to all persons interested. Registration will be held at 7 p.m. on January 6 and 13 at Ferguson High School. Established in 1914, the United States Power Squadron is an educational, non-profit organization of boatmen. It is dedicated to the promotion of safety afloat through education and carries on a free educational program at the local squadron level. For further information call 595-2666.

ENGAGED. . .Making plans for a January 24 wedding is Patricia Hemeter, Flight Mechanics and Technology Division. She is engaged to Ensign David Spriggs, Newport News.

Can You Solve This Problem?

The mining industry needs a portable, continuous reading, real time instrument which can measure the concentration of coal dust in mine atmospheres. Coal dust can initiate, as well as propagate methane gas explosions. In addidion, it is a serious health hazard to miners, being a cause of penumoconiosis or "black lung." Refer to MS-1. Contact the Technology Utilization Office, extension 3281, for the problem abstract or if you have a contribution.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 29:

Monday - Cream of tomato soup, broiled slice of ham, chuckwagon steak, smoked pork sausage, chili con carne. Snack bar - Soup, hamburger, chuckwagon steak, French fries.

Tuesday - Puree of bean soup, barbecued pork chunks, broiled halibut steak, fried chicken, cheese omelette. Snack bar - Soup, ham and egg sandwich, corned beef.

Wednesday - Vegetable-beef soup, breaded veal cutlet, chicken chow mein, Salisbury steak, franks and beans. Snack bar - Soup, hot dog, flying saucer, French fries.

Thursday - N E W Y E A R' S D A Y

Friday - Minestrone soup, pot roast, stuffed shrimp, barbecued pork sandwich, knockwurst. Snack bar -No hot food in snack bar today.

The menu for the week of January 5 is as follows:

Monday - Split green pea soup, roast beef, stuffed flounder, spaghetti and meat sauce, baked hash. Snack bar - Soup, hamburger, hot roast beef, French fries.

Tuesday - French onion soup, grilled pork steak, baked meat loaf, creamed dried beef, fish cakes. Snack bar - Soup, fish sandwich, hot pastrami, German potato cakes.

Wednesday - Chicken-noodle soup, country-style steak, baked lasagna, fried chicken, grilled cheese. Snack bar - Soup, grilled cheese, steak sandwich, French fries.

Thursday - Vegetable-beef soup, grilled steak, chicken pie, deep-fried liver, Spanish franks. Snack bar - Soup, hot dog, flying saucer, French fries.

Friday - Manhattan clam chowder, corned beef and cabbage, fried flounder, sauteed chicken livers, tamale pie. Snack bar - Soup, sea dog, corned beef, French fries.

FOR SALE: 1966 Corvair Corsa - $995; 1958 Nash Metropolitan convertible with new top - $125; HO trains - $60. Campbell, 596-8440.

FOR SALE: Boston Terrier puppies - 1 male and 2 females, born Nov. 7. Pinckney, 596-9129.

FOR SALE: 1964 Oldsmobile 88 convertible. Mitchell, 838-5068.

FOR SALE: 1962 Chevrolet Impala station wagon, 6 cylinder, automatic transmission. Bielat, 722-6976.

WANTED: Receiver, solid state, AM-FM stereo with speakers and tape recorder, Miller, 722-8993.

CENTER TOTS ENJOY THEIR DAY WITH SANTA AND BUNGLES

RETAIN DEC. 13 EARNINGS STATEMENT

In completing your federal and state income tax returns, you may claim all or part of the cost of your health insurance. The deduction total for the calendar year 1969 is the amount shown on the Statement of Earnings and Deductions for the period ending December 13, 1969, which you received on December 22.

Other information shown on this statement, which may be used to calculate your return, includes gross earnings, union dues, CFC fund deduction, and state and federal tax deductions.

W-2 statements will be furnished all NASA employees by December 31.

FOR SALE: Panasonic tape recorder, 3-speed recording - $90, Spanish guitar and case - $45. Samos, 244-7508.

FOR SALE: 1968 Gibson amplifier model GSS 50, also Toneau cover for MG TD - $20. Pendleton, 596-8034 after 4 p.m.

WANTED: AKC registered female Basset Hound pup. Pendleton, 596-8034.

FOR SALE: 1960 Opel Rekord with 5 new tires, new carburetor - engine needs repair - $75. Reeder, 596-0628.

WANTED: Beginner's Spanish records - will buy or trade for French records. Holley, 722-7178.

TECHNOLOGY UTILIZATION NEWS

Great opportunities exist for Langley s prolific innovators in marketing their inventions. NASA's generous patent and licensing regulations encourage full industrial use of inventions that result from research and development work performed by NASA employees.

The T.U. Office is interested in helping promote potentially marketable items since one of the primary objectives of the technology utilization program is to shorten the traditional time gap between the discovery of new knowledge and its effective use in the marketplace.

It has long been recognized that there exists a chasm between organizations that harbor new technology and organizations with potential marketing capabilities. Some inventors may imagine that certain conflicts of interest exist with their civil service position and the marketing of their inventions. Adequate patent and legal counsel is available to clarify such doubts and surely, in almost every instance, the best interests of the inventor as well as the government will be served.

If you have an idea for an item which you consider to be marketable, please bring it to the attention of the Technology Utilization Office.

FOR SALE: Guitar amplifier, 25 watts - $60. Braig, 596-6469.

LIFE AT LANGLEY RESEARCH CENTER IN 1969

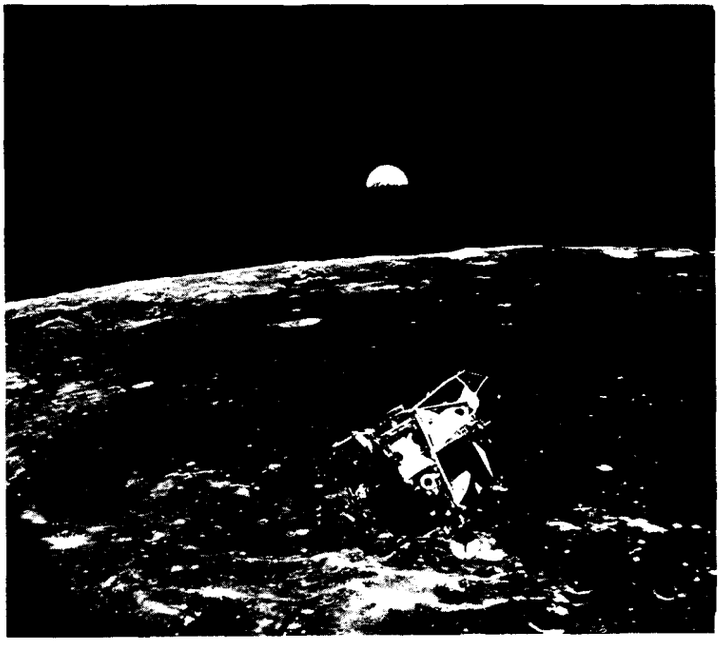
As another year comes to a close and we stand on the threshold of a new decade, let's look back over the past year and recall some events that made Center history in 1969.

January - X-15 Flight Programs Ends. . .Langley X-15 Team Receives Eugen Sanger Medal. . .Newscaster Walter Cronkite Visits Center and Walks on Lunar Walker. . .Trial Retirement Program Planned.

February - Centrex Telephone System Installed at Center. . .Langley-Developed Supercritical Wing to be Flight-Tested. . .Two Mariner Spacecraft Launched. . .Center Launches Pilot Clerical Training Program. . .Major C. A. Montgomery Named Liaison Officer. . .Merit Promotion Plan Revised. . .George Doerner Plays for Dance.

March - Apollo 9 Vehicles Undock, Rendezvous in Space. . . Dr. Thomas O. Paine Named NASA Administrator. . .Dr. Hans M. Mark Appointed Ames Director. . .Industry Invited to Bid on Viking Project. . .Apollo 10 Crew Named. . . Mechanical Trainees Join Staff.

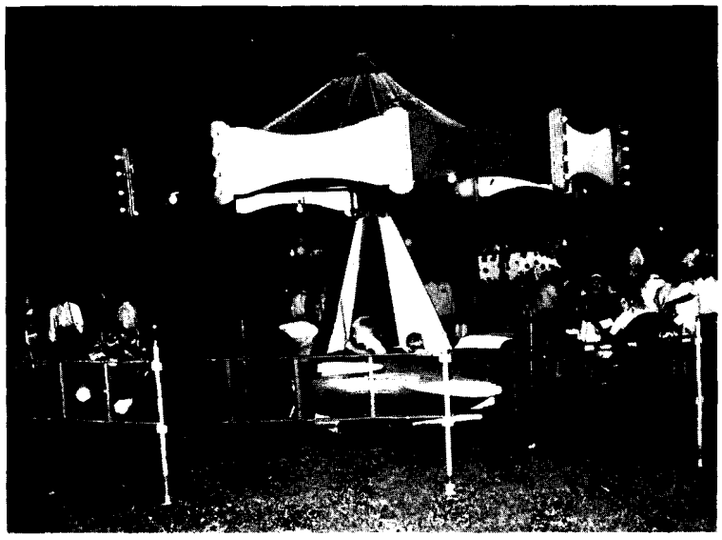
April - Raymond G. Romatowski Named Deputy Assistant Director for Administration. . .Discovery by Scientist May Help Explain Cancer Spread. . .Scout Launch Vehicle Celebrates Decade of Service. . .NASA Aerospace Explorer Scout Post 36 Active at LRC. . .Frank Moore Recipient of Career Education Award.



May - Apollo 10 Orbits Moon and Descends Within 50,000 feet of Moon's Surface. . .Echo II Falls Back into Atmosphere After Five Years in Space. . .Viking Management Team Named. . .Dr. Randall Chambers Cited for Outstanding Research in Aerospace Medicine. . .X-15 Aircraft Placed in Smithsonian Institution. . .Summer Fellowship Programs Begin at Center.

June - Plans for Grand Tour of Planets Being Developed. . . Wingless Aircraft Being Developed with Eye to Use as Space Shuttle. . .Martin Marietta Selected Viking Lander Contractor. . .Summer Youth Program Begins.

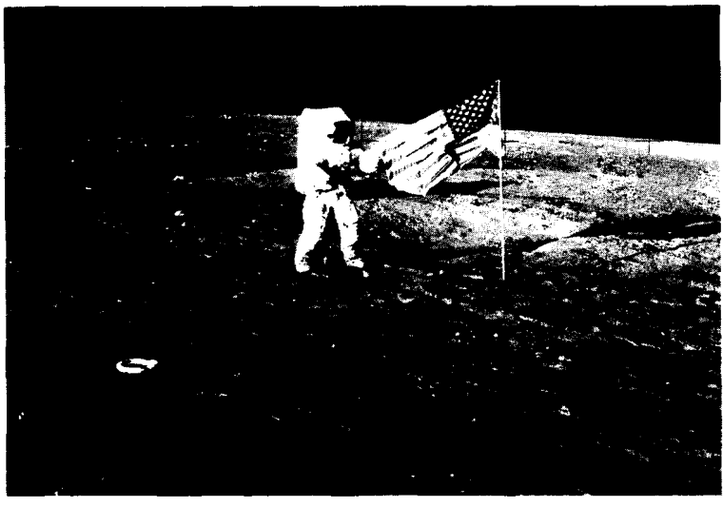
July - Apollo 11 Makes Successful Flight; Man Walks on Moon. . .Family Night Spacemobile Program Scheduled. . . Orientation Program Held for 120 Summer Employees. . . Beckman Selected as Viking Quarantine Program Contractor.



August - Two-Day Carnival Proves Big Success. . .Hugh Bergeron Wins Berth on U.S. Skydiving Team. . .Apollo 12 Crew Announced. . .Mariner Sends Photographs Back to Earth. . .Fifty-five Staff Members Receive Degrees.

September - Vera Huckel Heads Combined Federal Campaign. . .Red Cross Announces Emergency Appeal for Hurricane Victims. . .NASA Assigns Seven New Astronauts. . . Co-op Students Receive Bachelor Degrees. . .General Electric Co. Selected Viking Support Services Contractor.

October - Staff Contributes $123,000 to Combined Federal Campaign. . .NASA Honors Staff Members at Ceremony in Washington. . .Langley Receives Group Achievement Award for Apollo Program. . .Center Holds Annual Awards Ceremony. . .Abe Silverstein Retires as Lewis Director; Bruce T. Lundin Named Successor. . .NASA Management Techniques Aid Hampton Urban Renewal.

November - Apollo 12 Crew Returns Home After Successfull Moon Mission. . .Dr. Robert L. Gilruth Thanks Langley Staff for Manned Space Flight Support. George M. Low Named NASA Deputy Administrator. . .Open Season Held for Health Benefits. . .Scout Launches German Satellite.

December - Langley Researcher Advisory Committee Named. . .Thirteen Trainees Pass Civil Service Exam. . . Annual Children's Christmas Party Held. . .Plans Announced for New Year's Dance.