Langley Researcher

VOLUME 6, NUMBER 1 LANGLEY RESEARCH CENTER JANUARY 13, 1967

POWERED FLIGHTS OF LIFTING BODIES SET FOR EARLY 1967

NASA plans to begin powered flights of the HL-10 and M-2 manned lifting bodies early this year. The HL-10, a wingless, tri-finned flight research vehicle, was designed and developed by Langley Research Center.

The two research vehicles will be flown at altitudes up to 80,000 feet and speeds of about 1,000 miles per hour in a series of test flights under conditions spacecraft encounter returning to Earth. Propulsion will be supplied by the 8,000-pound-thrust XLR-11 rocket engine which was used on the X-1 and in early flights of the X-15 research airplane.

The rocket engine is now being installed in the M-2 which recently finished a series of 14 glide flights by four NASA and U.S. Air Force pilots. Engine installation is expected to be completed by February.

The initial low-speed, glide portion of the M-2 test program has permitted pilot evaluation of the vehicle's handling characteristics and maneuverability during the descent and landing phases. In general, performance has been as good or better than anticipated.

The HL-10 configuration, with the engine already installed, is expected to begin a similar series of unpowered glide flights before the end of the year. High speed taxi tests and at least one captive flight will precede the glide flights.

The lifting body concept is being investigated in flight by NASA's Office of Advanced Research and Technology to help establish the technological base for the design of future manned reentry vehicles.

Charles J. Donlan (left), Associate Director, presents a Special Service Award for Exceptional Service to Donald E. Hewes, Head of Spacecraft Research Branch, Space Mechanics Division. Hewes received the award for "exceptional service in conception and development of the Lunar Walking Facility and research on the metabolic requirements of men under conditions of reduced gravity."

ALMOST 500 YEARS OF SERVICE REPRESENTED BY FOURTEEN RETIREES

Fourteen Center employees retired recently with a combined total of over 423 years of Federal service.

Percy R. Keffer, Head of Modelmaking Branch, Mechanical Service Division, was the Center's oldest employee in point of service with 48 years and five months to his credit. Keffer was born April 16, 1897 in Blacksburg. He served his apprenticeship as a patternmaker at the Newport News Shipbuilding and Dry Dock Company. He was a member of the U.S. Navy from August 1918 to January 1919. He joined the Center staff on September 21, 1920 and retired December 30.

William B. Fox, Full-Scale Research Division, retired on November 30 after almost 47 years of service. He was born November 14, 1896 in New Madrid, Missouri. He began his Federal career in July 1917 with the U.S. Navy. He was discharged in January 1919 and joined the Air Force in 1921. Following his discharge in 1950 he entered on duty at the Center in May 1951.

Robert F. Goodness, Head of Machine Branch, Mechanical Service Division, retired December 30 with over 37 years of service to his credit. Goodness was born December 11, 1905 in Newport News. He served his apprenticeship as a toolmaker at the Newport News Shipbuilding and Dry Dock Company and joined NASA on July 29, 1929.

Henry A. Pearson, Head of Flight Mechanics Branch, Space Mechanics Division, retired December 30 with over 36 years of service. He was born March 11, 1906 in Gardner, Massachusetts. He received his B.S. degree in Mechanical Engineering from Worcester Polytechnic Institute and joined NASA September 8, 1930.

Carl M. Styles, Scout Project Group assigned to the Pacific Missile Range, Point Arguello, California, retired December 30 with almost 26 years of service. He was born May 13, 1924 in Rockwell, Texas. He served a number of years in the Air Force and entered on duty at Langley on June 11, 1945.

Roselyn C. Cardwell, Large Supersonic Tunnel Branch, Full-Scale Research Division, retired December 13 with almost 16 years of service. She is a native Hamptonian and graduated from Hampton High School. She attended Mary Washington College and joined the Center staff January 29, 1951.

Charles E. Watkins, Head of Analysis Section, Dynamic Loads Division, retired December 30 with almost 30 years of service. He was born November 27, 1906 in Bay Springs, Mississippi. He received his A.B. and M.A. degrees in Mathematics from the University of Alabama. He transferred from the War Department, U.S. Engineers, to NASA on August 16, 1943.

Simon V. Olsson, Model and Pliant Structures Shop, Mechanical Service Division, retired December 30 with almost

(Continued on page 2)

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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 herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

REPRESENTATIVE TO VISIT. . .Beverly Beale, Government-wide Service Plan representative will be here on January 18 from 2 p.m. until 3 p.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

NEW HEIRESS. . .Announcing the birth of a seven pound, one ounce daughter, Susan Paige, on January 9 is Robert M. Ely, Applied Materials and Physics Division.

ENGAGEMENTS. . .Walking on cloud nine is Gayle J. Routten, Personnel Division. She is engaged to Sammie D. Joplin, Flight Vehicles and Systems Division, and plans call for a May 6 wedding. . .Dan Cupid scored a victory when Frank H. Drees, Mechanical Services Division, became engaged to Ida Sue Moore, Dare. No date has been announced for the wedding.

INCOME TAX NOTICE

Federal Income Tax withheld from salaries is based on salaries paid and the number of exemptions claimed on Withholding Exemption Certificate, Form W-4, filed with the Payroll Office. In addition to exemptions now being claimed for dependents, the Internal Revenue Service has informed us that effective January 1, 1967, employees having large itemized deductions in Calendar Year 1966 and who expect to have large itemized deductions for Calendar Year 1967 may be entitled to claim additional withholding exemptions.

In order to claim this allowance, a Schedule A, Determination for Withholding Allowances for Itemized Deductions, and a revised Form W-4 Employee's Withholding Exemption Certificate, must be submitted to the Payroll Office, Mail Stop 323. The Internal Revenue Service indicates that the time to claim this allowance is as soon as your 1966 Federal Tax Return has been filed.

Questions concerning claiming additional allowances and requests for the necessary forms should be referred to Sidney Parker, Fiscal Division, extension 4702.

FOR SALE: French Besson trumpet - excellent for student. Genone, 851-3634.

FOR SALE: 1964 Corvette Stingray - hardtop coupe. Sealey, 826-2679.

FOR SALE: 1963 Chevrolet II - 4 cylinder, 2-door - $600. Sutherland, 723-3485.

Down Payments Come EASIER with U.S. SAVING BONDS

FOURTEEN EMPLOYEES RETIRE

(Continued from page 1)

23 years of service. He was born August 28, 1898 in Artemark, Sweden, where he served his apprenticeship as a cabinetmaker. He joined NASA on January 18, 1944.

Thomas C. Appleby, Model and Pliant Structures Shop, Mechanical Service, retired December 30 with almost 26 years of service. He was born September 20, 1905 in Wilmington, Delaware. He served his apprenticeship as a patternmaker at DuPont Company and joined the Center on March 10, 1941.

Robert C. Schaefer, Building Equipment Supply Section, Plant Maintenance Division, retired December 30 with almost 30 years of service. He was born November 4, 1906 in New York City. He first joined the Center staff in October 1946 and resigned in July 1948. He returned November 13, 1956.

Martin J. Brennan, Head of Technical Service Contract Support Unit, retired December 20 with almost 24 years of service. He was born April 14, 1900 in Waterbury, Conn., and received his B.S. degree in Industrial Arts from California State Teachers College. He entered on duty at the Center on December 28, 1945.

Guy Sturgill, Electrical Shop, Electrical Systems Division, retired December 30 with 31 years of service. He was born August 19, 1908 in Andover, Virginia. He served in the U.S. Army for six years and entered on duty at the Center on February 21, 1945.

John F. A. Franske, Head of Aircraft Maintenance Section, Flight Mechanics and Technology Division, retired December 30 with 32 years of service. He was born April 24, 1909 in Viscount, Sask, Canada. He served in the Air Force from 1928 to 1940 and joined NASA on November 5, 1940.

Miriam D. Mann, Reentry Physics Branch, Aero-Physics Division, retired January 4 with over 23 years of service. She was born in Covington, Georgia and received her A.B. degree in Chemistry from Talladega College. She entered on duty at the Center on May 17, 1943.

FOR SALE: 1963 Valiant - 2-door sedan - $785. Verser, Pasture Rd., Poquoson.

KNOW YOUR CREDIT UNION

Most members will agree that the year 1966 was a momentous one for the Credit Union. In it the Credit Union reached levels only dreamed of a few short years ago. At the end of 1961, with 25 years of earnest effort behind it, the Credit Union had 6519 members; it now has some 11,000. It had $2,044,000 in shares; it now has almost $6,500,000. It had $1,680,000 in outstanding loans; it now has well over $4,000,000. Also in the year just past the Credit Union built its own building, installed its own parking area, and purchased its own computer-type accounting system - and very reasonably, too. The value-received/dollar-cost rations demanded by the Board and achieved by professionally competent committees left nothing to be desired.

Quite a year! But what of 1967? Well, for one thing, the physical plant almost guarantees continued statistical and financial growth at a satisfying rate. Up to the limits imposed by a finite field-of membership, that is. Office space and equipment have little room for improvement. So, for what will 1967 be remembered? Hopefully, SERVICE. Only if the goal of better and more convenient service to all members is achieved will the possibilities now open be fully realized and the moneys expended earlier completely justified.

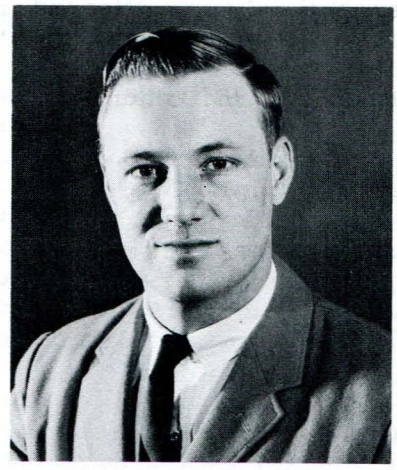
As a beginning, although statements as of December 31, 1966 were of the old type, it was possible to mail them much more promptly than in the past and, also, to include data of special interest which will be a regular part of future releases. Dividends were shown for 1966 (credited January 1 and so 1967 income) while the interest paid the Credit Union last year was entered in a special block. Conversion to the new accounting system will be completed early in the new year with additional member-pleasing features.

Other examples of what will be a continuing effort to provide both comfort and convenience along with faster, friendlier service include expanded service areas, a direct-line taxi phone, soothing Muzak music, a direct Hampton-line (722-6622) for at-home callers, a night depository, a special section of the bulletin board for sell/buy notices, and extended office hours of 9 a.m. to 3:30 p.m. (with transactions after 2 p.m. credited the next day).

Finally, there are two improved services whose potential has just been tapped. For one, the easy, no-waiting way to make a payment/deposit (or withdraw) is by mail. With pay checks now being sent to homes and banks, this service should be investigated. Initially, no special form is required. Just a letter will do, stating action desired and giving the name, address, and account number of the member. The member gets back a receipt, the vouchers needed for the next transaction, and a self-addressed envelope. It works even better than it sounds. Try it and see why!

The other is a personalized telephone loan. It is the perfect solution for those whose responsibilities limit their ability to "get away". Of course, some loan applications are so involved that submission in person is advisable. But there are many, many cases where the processing is open and shut. Past record, ability to repay, etc., are all in order. Or shares may be available for pledging with the added advantage of a more favorable interest rate. In either case, for fast, dignified service the member should call NASA 3606. The last of a few simple questions will be, "When would you like to pick up your check? The teller will have it for you". Again the proof is in the trying - just dial 3606.

WOOLLEY RECEIVES AWARD



Charles T. Woolley

Charles T. Woolley, Student Trainee, recently received a Sustained Superior Performance Award for "his outstanding performance in and valuable contributions to the development of the AAP flight experiment on vehicle disturbances due to crew activity."

Woolley was born August 9, 1945 in East Orange, New Jersey. He graduated from Seacrest High School, Freeport, Grand Bahama, and joined the Center staff as a Student Trainee on April 26, 1965. He is working for his B.S. degree at Florida State University.

AIAA MEETS JANUARY 18

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will meet January 18 at the Holiday Inn, Mercury Boulevard. Richard W. Underwood, a member of the Photographic Laboratory, Manned Spacecraft Center, will speak on "Around the World With Gemini Photography."

During the past twenty years, many thousands of photographs have been taken from altitudes above 50 miles which is considered the boundary of space. Hyper-altitude photography was first secured through sounding rockets and other ballistic missiles and later from orbiting unmanned satellites. The Mercury and Gemini spacecraft produced some interesting results in photography. The Gemini program exhibited a camera system which produced excellent color photographs of the Earth's surface, extra-vehicular activities, and rendezvous and docking.

Underwood received his B.S. degree in Geology from the University of Commecticut. He is responsible for identification of Gemini photography and serves as a consultant to staff offices and other divisions for problems on photogrammetry. He is also technical monitor for scientific photographic experiments carried onboard Gemini and Apollo spacecraft.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30 and the meeting at 8:30. Reservations may be made by calling Tom Foughner, 722-1587; Bob Keynton, 826-5549, or George Jones, 898-6750.

FOR SALE: 1954 Ford 2-door station wagon, V-8, standard transmission, overdrive - $100. Vann, 596-4157.

FOR SALE: Mahogany buffet, size 19 x 24 x 52 inches, 2 drawers and 3-door storage area - $22.50. Raines, 596-8012.

FOR SALE: Electric bass guitar. Current, 868-9070.

FOR SALE: Fiberglas bow, 30-pound draw, 62 inches - $7, beginners golf clubs and bag - $30, spin casting and fishing outfit, tackle box, lures, spinners, etc. - $35, pipe rack - holds 12 pipes - $5. Covington, 722-8544.

SOHIER RESIGNS, DEMBLING NAMED GENERAL COUNSEL

NASA announced that its General Counsel, Walter D. Sohier, has resigned to enter the private practice of law as a partner in the firm of Curtis, Mallet-Prevost, Colt and Mosle in New York City. Paul G. Dembling, Deputy General Counsel, will succeed Sohier.

Reporting to Dembling will be Robert F. Allnutt, Assistant General Counsel for Patent Matters; Neil S. Hosenball, Assistant General Counsel for Procurement; Edward M. Shafer, Assistant General Counsel for International Affairs, and Arthur D. Holzman, Assistant General Counsel for Administration.

Sohier has served as General Counsel for three years and has been in the Office of the General Counsel since NASA was organized in 1958. Prior to that he served in the Office of the General Counsel, Department of the Air Force, and in the Office of the Assistant Secretary of the Air Force (Materiel).

Born in Rahway, New Jersey, January 11, 1920, Dembling received his A.B. and M.A. degrees from Rutgers University and his Juris Doctor from The George Washington University Law School where he served as an editor of the Law Review.

Dembling entered the Federal service in 1942 with the Department of the Army and served in various industrial relations capacities until he joined the National Advisory Committee for Aeronautics in 1945. He served successively as Special Counsel, Legal Advisor, and General Counsel with NACA. In that capacity he participated in the drafting of the Administration's proposal which became the National Aeronautics and Space Act of 1958.

When NACA was absorbed into the National Aeronautics and Space Administration in October 1958, Dembling was appointed Assistant General Counsel. In addition, he served as Chairman of the NASA Board of Contract Appeals from 1958 to 1961. In 1961 he was named Acting Assistant Administrator for Congressional Relations and on Nov. 1, 1961 he was appointed Director, Office of Legislative Affairs. In December 1963 he was appointed Deputy General Counsel.

Dembling is a member of the District of Columbia Bar and of the American Bar Association, Federal Bar Association, and the International Institute of Space Law. He is currently serving as Editor-in-Chief of the Federal Bar Journal and contributes to law reviews and other professional journals.

WANTED: Ride from Arrollton Dr.-Briarfield Rd. area to W.A. on 8 shift. Coleman, 3313.

WANTED: Driving combination from Glendale to W.A. on 8 shift. Holt, 4851.

WANTED: Ride from Poquoson to W.A. on 8 shift. Rozier, 868-9219.

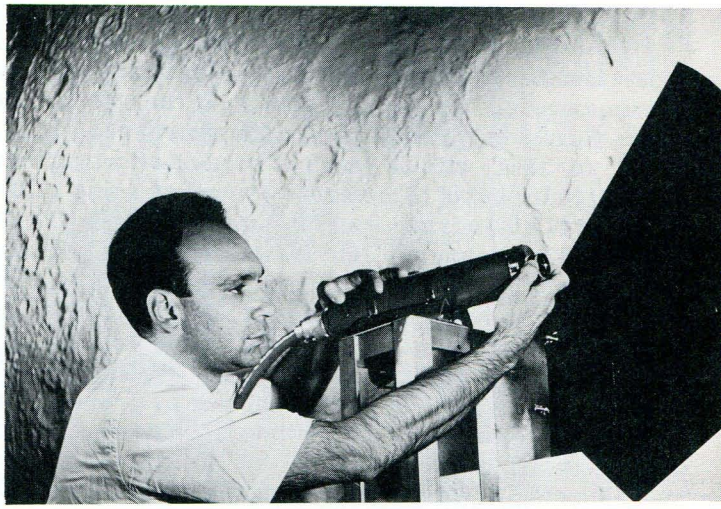
WANTED: Ride from E.A. to Newport News at 4:30 p.m. on Mon., Wed., and Fri. Edmondson, 2605.

WANTED: Ride from downtown Newport News to W.A. on 7 shift. Bennett, 4881.

FOR SALE: Westinghouse double-oven range - $25. McGrath, CH 5-5667.

FOR SALE: 1951 Ford and 1965 Ford - both straight shift. Goens, 722-8043.

FOR SALE: Day bed - $20. White, 723-8184.



Lockheed engineering psychologist Charles Juliano adjust a TV camera and disk arrangement in front of a model c the lunar surface. Lockheed scientists have devised a sys tem for astronauts to measure their distance from th moon with the aid of a simple, hand-held device.

USE OF SEAT BELTS CITED

A recent Safety 70 News issue referred to recent cour rulings concerning the use of seat belts. Some question have been raised concerning the determination of the con tributory negligence of persons injured when they are no utilizing installed seat belts. To help clarify this matter Langley's Chief Counsel has prepared the following in formation:

"The motor vehicle law of Virginia requires private pas senger vehicles manufactured for the year 1963 and fo subsequent years and registered in Virginia to be equippe in the front seat with safety belts or shoulder harnesses However, failure to use installed belts or harnesses doe not constitute negligence.

"While this may be the law in Virginia, it does not neces sarily mean it is the law in other states. There are ver few cases which have decided the issue of contributor negligence on the part of an innocent driver involved in collision who had failed to use an installed seat belt. Sinc the law is not settled, it is difficult to predict at this tim exactly how the issue of contributory negligence would b decided under a given set of facts.

"LRC employees who may be driving in states other tha Virginia in automobiles equipped with safety belts woul be wise to use them, not only for safety reasons but als to eliminate the possibility of being judged contributoril negligent if involved in an automobile accident where th other driver was at fault."

FOR SALE: Nylon tweed swivel rocker with foam rubbe cushion, portable Roto-broil rotisserie, 2 floor lamps Tubbs, 722-6193.

FOR SALE: 1964 Chevrolet Impala hardtop, V-8, 2-door $1300. Williams 722-4864 after 4:30.

FOR SALE: 4-inch dynascope reflector telescope - $25 Magnavox AM-FM 10 transistor radio - $30, 1966 Chevell SS-396. Dearing, 877-5429 after 5 p.m.

WANTED: Ride from Cay St., Newport News, to W.A. on 8 shift. Deans, 3606.

WANTED: Ride from Norfolk to E.A. on 8 shift. Lawson 2535.

Several employees recently received cash awards for applications that might result in the granting of patents. Top left photo - Edwin C. Kilgore, Chief of Flight Vehicles and Systems Division, congratulates Austin D. McHatton and Bert C. Deis. Top right photo - Kilgore presents a check to Ian O. MacConochie. Lower left photo - Harold I. Maxwell (left), Chief of Research Models and Facilities Division, congratulates William W. Anderson Jr. Center photo - Joseph Getsug, Chief of Electrical Systems Division, presents a check to Arthur L. Newcomb Jr. Lower right photo - Thomas K. Lusby Jr. receives a check and congratulations from Getsug.

MARINE PHOTOGRAPHY EXHIBIT

Photographers throughout the world are invited to submit monochrome prints and color slides to the 20th Anniversary Exhibition of Marine Photography International under the joint sponsorship of The Mariners Museum and the James River Camera Club of Newport News. This exhibition is intended to stimulate the creation of photographs which have a maritime theme. Entries must in some way illustrate man's association with the sea.

Suggested subjects are: hand, sail and power craft; maritime news events; ship details, equipment and instruments; lighthouses and other marine structures; scenes from marine industries; fishing, cargo handling, shipbuilding, oceanography; sailors, fishermen, aquanauts and other watermen engaged in their activities; naval, amphibious and space vehicle recovery operations.

First, second and third awards and honorable mentions will be made for prints and for slides.

Accepted entires will be on public exhibition at The Mariners Museum from April 30 through May 28.

Entries must be received by March 28. Entry forms and information may be obtained from Mrs. Thomas V. Brabrand, The Mariners Museum, Newport News, Virginia 23601, telephone 595-0368.

EMPLOYEES RECEIVE AWARDS

Several staff members recently received cash awards for applications that might result in the granting of patents by the United States Government in connection with their inventions on the job.

Austin D. McHatton, Flight Vehicles and Systems Division, and Bert C. Deis, Office of Assistant Director, shared a $400 award for their joint invention entitled "Traveling Sealer for Contoured Table."

Ian O. MacConochie, Flight Vehicles and Systems, received $100 for his invention concerning "Excessive Temperature Warning System."

William W. Anderson Jr., Research Models and Facilities Division, received $100 for "Semi-Linear Ball Bearing."

Arthur L. Newcomb, Electrical Systems Division, shared a $150 award with Norman M. Hatcher and Nelson J. Groom, both of Applied Materials and Physics Division, for an "Electromagnetic Mirror Drive System."

Thomas K. Lusby, Electrical Systems Division, was awarded $300 for "Circuit Module Extractor."

FOR SALE: Lionel O gauge engine, transformer and five cars - $15. Voros, 877-3050.

TIME-PROVEN AIDS EASE FOG LANDINGS

The next time you land in an airplane with fog surrounding the airport you can relax in your seat because the crew is using time-proven devices to bring you home safely.

Today, commercial airlines are making routine landings in bad weather, day and night, with the aid of electronic landing instruments perfected through many years of research.

The highly complex landing aids now in use all result from a very modest beginning in air safety research in the early '20's at the Langley Memorial Aeronautical Laboratory.

Even in those early days of aviation the safety of crew and passengers took high priority on the work schedules of aeronautical researchers. Admittedly, their first experiments made use of crude and unsophisticated devices and a veteran research pilot recently recalled early attempts to perfect air-borne equipment for landing in fog.

As the pilot approached the landing area, a wire cable was reeled out with a weight on the end. When the cable had been fully extended the pilot began his descent until he felt the weight striking the ground. This gave him the airplane's position above the ground and guided him to his landing.

Early experiments were followed by years of progress in flight safety research culminating in the high degree of reliability in landing aids at most of the nation's major airports today.

Commercial airlines, under the Federal Aviation Agency's strict safety program, make routine landings now when the cloud ceiling is as low as 200 feet and visibility at the airport is limited to one-half mile.

Soon, the huge passenger airliners will be coming into airports under conditions twice as bad - 100-foot ceiling and 1,200 feet visibility.

By the early 1970's with the further development of electronics, landings may be made under true "zero-zero" conditions.

Research work to perfect instrument landing systems for the nation's airways continues, and much of it is still going on at that same site here in Virginia where air safety research began under the direction of the National Advisory Committee for Aeronautics. Only the name of the laboratory has changed. It is now called Langley Research Center and is operated by NASA, successor to NACA.

RAPIDOGRAPH PENS IN STOCK

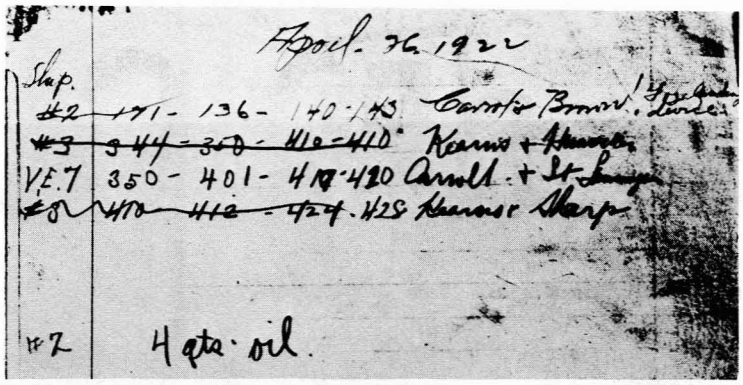
Rapidograph technical drawing pens have been placed on the stock list and in the future will be drawn from the Stock Section - not Technical Illustrating Section. Initial orders should requisition one "drawing point section" of each size required and one "holder" for each drawing point section. Point replacement orders should call for "pens, lettering, replacement" in the sizes desired.

The following are the stock numbers of these items:

Drawing point sections - size 00: 7510-267-9790; size 0: 7510-267-9791; size 1: 7510-267-9792; size 2: 7510-880-1816, size 3: 7510-267-9793; size 4: 7510-P19-0939.

Holders - 7510-978-5329

Replacement points - size 00: 7510-P19-0940; size 0: 7510-P19-0941; size 1: 7510-P19-0942; size 2: 7510-P19-0943; size 2-1/2: 7510-P19-0944; size 3: 7510-P19-0945; size 4: 7510-P19-0946.



ROARING TWENTIES. April 26, 1922 was a day like any other at Langley Memorial Aeronautical Laboratory. Test pilot Thomas Carroll and scientist W. C. Brown were testing a fog landing device (see entry at top of log book page). They flew NACA plane No. 2 on a mission aimed at eliminating a hazard that still exists. For the record - and the comptroller - they used four quarts of oil (last entry).

ASTRONAUTS WILL STUDY GEOPHYSICS

America's first astronauts to touch down on the lunar surface will give the moon a thorough physical examination - geophysical, that is.

The Apollo crew, in addition to exploring the lunar terrain and returning samples to Earth, will deploy and activate scientific instruments capable of making basic observations of lunar geophysics.

The scientific instruments will gather and report to Earth such geophysical characteristics as:

Lunar tremor of moon-quake measurements to study the moon's interior to its center - whether it has a crust and core and whether it is layered in structure.

Lunar internal magnetic field measurements as well as the interaction of the solar wind with the magnetic field around the moon. (The solar wind is electrically conductive gas flowing out from the sun.)

Measurement of electrically charged particles in the solar wind and the interaction of these particles with the lunar surface.

Measurement of electrically charged particles in moon's ionosphere to determine solar wind effects on moon's ionosphere.

Measurement of heat flow out of moon's interior to study the distribution of radioactive elements and the thermal history of the moon, including volcanism.

Measurement of the lunar surface physical properties to a depth of about 500 feet.

The scientific instruments will be left on the moon to collect and transmit lunar geophysical information back to Earth for six months to one year.

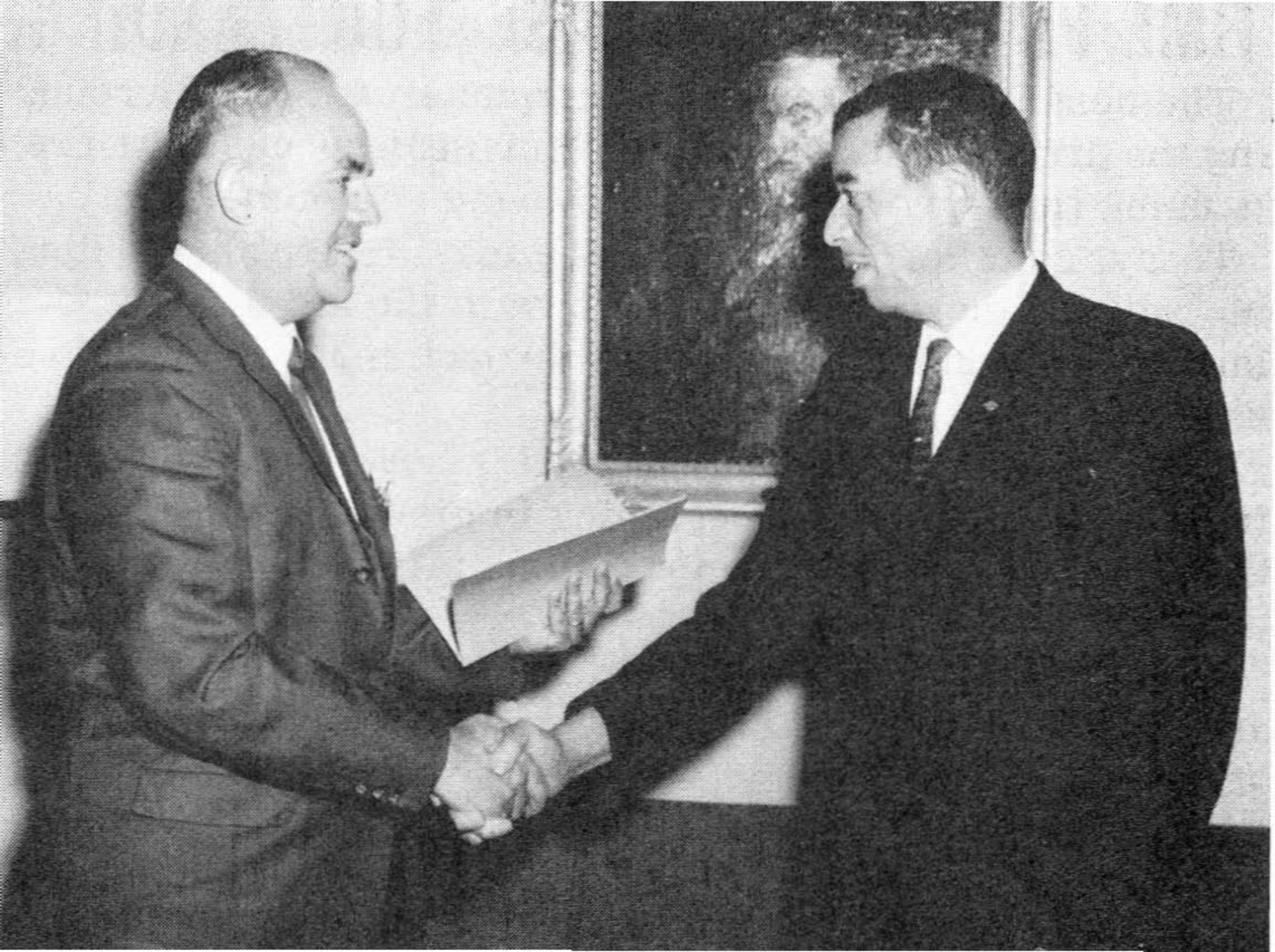
WANTED: Ride from Tide Mills Farms to W.A. on 7 shift. Dobbins, 3360.

WANTED: Driving combination from Oasis Restaurant to W.A. on 8 shift. Watson 3346, or Davenport, 3711.

WANTED: Ride from Norfolk to W.A. on 8 shift. Poulter, 4687.

WANTED: Alternate driver from Northampton-Todds Lane area to W.A. on 7:30 shift. Carpini, 3492.

WANTED: Driving combination from Maxwell Gardens to E.A. on 8 shift. Gammon, 2214 or 595-1060.



Seven employees recently received cash awards for sug-
gestions under the NASA Incentive Awards Program. Top
left photo - William B. Mayo (left), Chief of Mechanical
Services Division, presents checks to Max B. Bryan, Powell
D. Mitchell, and Stephen E. Devan. Top right photo - E.
J. Maher, Chief of Administrative Services Division,

ratulates Vernon S. Courtney. Lower left photo - Robert
. Trimpi (right), Head of Reentry Physics Branch, Aero-
hysics Division, presents a check to Louis G. Moore.
ower right photo - Mary D. Wilson and Ann S. Harrison
eceive congratulations from Paul F. Fuhrmeister, Chief
f Analysis and Computation Division.

VANTED: Boy scout uniform size 10 or 12. Miller, 595-
731.

OR SALE: Twin Lionel train outfit, mounted on 4 x 8-foot
oard, 2 engines, 2 switches, etc. Cole, 851-1183 after 4.

OR SALE: Complete model airplane radio control outfit.
ggers, 595-1686.

OR SALE: Beginner's guitar with case and instruction
ooks, also girl's 24-inch bicycle. Shultz, 596-9474.

OR SALE: 2-pair men's Nunn Bush shoes, never used,
black pair, 1 brown pair, size 7-1/2 - 3E - $10 each;
lso light tan fur cape - $35. Wade, 877-3059.

OR SALE: Karpen sofa and chair with slip covers, antique
uffet, twin beds complete, 4-drawer knee-hole desk, table

NASA BASKETBALL SCHEDULE

TEAMS: 1. ACD, 2. Boozers, 3. 8-Foot, 4. Structures, 5. Bucket Brigade, 6. X-Raiders, 7. Misfits, 8. Exciters, 9. Short Circuits.

Date	5:00	6:15	7:30	8:45
Jan. 14 *	8-9	2-4	3-5	6-1
Jan. 16	5-8	7-9	1-3	2-6
Jan. 21 *	1-5	3-8	4-9	2-7
Jan. 23	4-8	2-5	1-7	6-9
Jan. 25	2-9	4-6	3-7	8-1
Jan. 28 *	5-7	3-9	6-8	1-4
Jan. 30	1-2	5-6	7-8	3-4
Feb. 1	1-9	2-3	4-5	6-7
Feb. 2	3-5	2-4	8-9	1-6
Feb. 4 *	5-9	4-7	3-6	2-8
Feb. 8	7-9	5-8	1-3	2-6
Feb. 11 *	5-9	4-7	3-6	2-8
Feb. 13	1-5	3-8	4-9	2-7
Feb. 15	6-9	2-5	1-7	4-8
Feb. 16	3-7	4-6	2-9	1-8
Feb. 20	5-7	3-9	6-8	1-4

*Sat. games played at 10, 11:15, 12:30, 1:45

COIN COLLECTING CLUB

Are you interested in coin collecting? Coin collecting has become one of the major hobbies of the world and there are an estimated six million collectors in the United States alone.

As a result of the intense interest in coin collecting, efforts are being made to form a Langley Research Center Coin Club which would be sponsored by the Activities Association. This club would provide educational programs, an exchange of current numismatic information and good fellowship, as well as a means of obtaining desirable coins for your collection.

The "old pros" as well as the "beginners" are invited to help organize and establish this activity at Langley. The initial organization and the success of this club will depend upon member interest and their support.

Organizational meetings will be held on January 16 and January 18 at 4:45 p.m. in the Activities Building, Building 1222. Anyone interested in helping to form this coin club is invited to attend. Additional information may be obtained by calling one of the following: Sam McAdams, 2275; Bill Henderson, 3711, or Thayer Sheets, 2214.

COURSE OFFERED EMPLOYEES

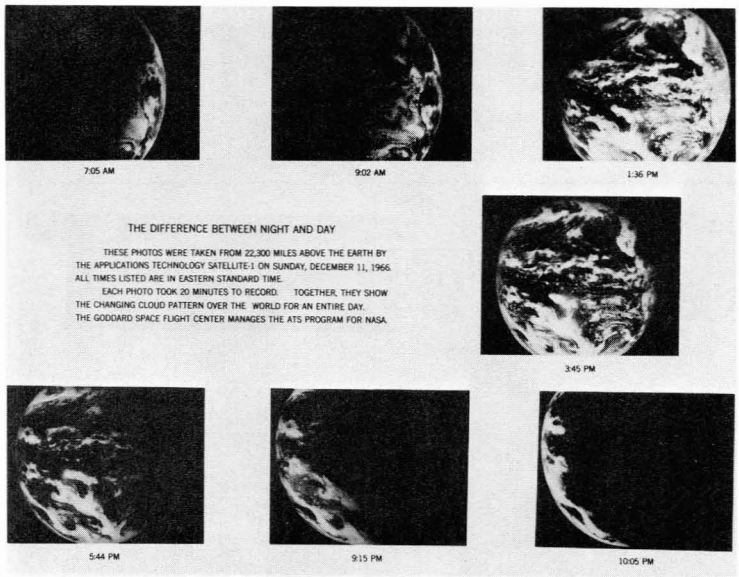
A class entitled Introduction to Digital Computer Programming will start at 7 p.m. on Monday, January 16 at York High School, Room 129. The class is sponsored by the York Adult and Technical School and meets on Monday and Thursday nights from 7 to 10 o'clock for 10 weeks.

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 an IBM 1401 digital computer and a field trip to a computer facility.

For further information contact the Office of York Adult and Technical School, telephone 898-5957.

WANTED: Gentleman to share apartment until June. Price, 826-0698.

FOR SALE: Pekinese dog. Boykin, 838-1428.



NASA BOWLING LEAGUE

Outlaws lead Group A in the Tenpin League with 39 wins and 25 losses. Clean Ups are in second with 38 wins and 26 losses. Top scores were rolled by Robert McGee with a 225 game and Tom Dudley with a 573 set.

ACD leads Group B with 41 wins and 23 losses. High scores were rolled by John Royall with a 249 game, William Carmines with a 659 set and Janice Phelps with a 214 game and 597 set.

Sad Sams are in first place in Group C with 43 wins and 21 losses. Trailing in a close second are RPM's with 42 wins and 22 losses. Top bowlers were Ed Prior and Charlie Goad with a 252 game each, James Qualls with a 643 set, Lonna Hudgins with a 216 game and Mary Carmines with a 621 set.

GROUP A

Outlaws	39	25	Misfits	35.5	28.5
Clean Ups	38	26	Unitary	31.5	32.5
Odd Balls	37	27	Alley Cats	25	39
Hornets	37	27	Phantoms	21	43
Flyers	36.5	27.5	Short Circuits	19.5	44.5

GROUP B			GROUP C		
ACD	41	23	Sad Sams	43	21
Wood Nickers	39	25	RPM's	42	22
Payloads	38	26	A-OK's	40	24
Golfers	37	27	Gliders	39	25
Flight Engineers	34	30	Ten-Benders	37	27
Flight	34	30	Bowling Belles	37	27
Getogethers	34	30	Hotshot Tunnel	35	29
Strike Outs	33	31	Mets	34	30
Greenhorns	30.5	33.5	Sparkys	33	31
Cee Pee's	28.5	35.5	Wa-Hoppins	33	31
HMS	27	37	Dillys	27	37
Galaxies	26	38	Class Kats	21	43
Trackers	24	40	Hits & Misses	19	45
Pinwigglers	22	42	Gutter Jumpers	8	56

FOR SALE: 1 961 Ford Starliner - $600. Jones, 877-1951.

FOR RENT: Room for woman - kitchen privileges. Mason, 723-6159.

FOR SALE: Frigidaire refrigerator - $15; contractor's wheelbarrow - Phaup, 826-6941.

FOR SALE: 34-foot Richardson Express cruiser - fully equipped - $4500. Malley, 877-2994.

Langley Researcher

VOLUME 6, NUMBER 2 LANGLEY RESEARCH CENTER JANUARY 27, 1967

ANNUAL CREDIT UNION MEETING

Something new will be tried at the Annual Meeting of the Langley Federal Credit Union. Would you believe that such a meeting can be a top entertainment event of the year on your social calendar? Well, it can.

For one thing, the meeting will be held on St. Valentine's Day, February 14, at 7:30 p.m. The site of the meeting will be a new first for the Credit Union - The Riverdale Theater in Riverdale Shopping Plaza. Bob Girouard, LFCU President, promises that the business part of the meeting will last about 40 minutes. Following an intermission, Credit Union members will view a premier showing on the Peninsula of the motion picture "A Funny Thing Happened on the Way to the Forum."

Tickets will be required for this event. The limit is two (2) tickets to a LFCU account, and not more than four (4) tickets for multiple family accounts. The tickets may be obtained at the LFCU Office by members only on a "first-come, first-served" basis beginning Wednesday, February 1 and continuing until tickets for all the seats in the theater are gone. At the theater, except for a small section for guests, the seating will also be on a "first-come, first-served" basis. So, for a sweetheart of an evening pick up your tickets early, come early (the theater doors open at 7 p.m.) and enjoy the program which starts at 7:30.

The LFCU Board of Directors believes that by this combined action, a much larger than usual Annual Meeting audience will not only learn more about their Credit Union but will also spend an enjoyable evening in a select company of fellow members.

AFFIRMATIVE ACTION PLAN FOR EQUAL EMPLOYMENT OPPORTUNITY DISTRIBUTED

On January 9 Dr. Floyd L. Thompson, Director, provided all division chiefs, program office managers, and branch heads with a copy of the recently updated Langley Affirmative Action Plan for Equal Employment Opportunity. The Center's plan sets forth a number of objectives which are believed to be achievable in support of the national program to provide equal opportunity in employment, training, and promotion for all qualified persons.

The plan is a program of action in areas such as recruitment, career development, skills utilization, and advancement of employees in all occupations. In transmitting the Affirmative Action Plan to supervisors Dr. Thompson stated, "Each of us, as supervisors and managers, should be aware of the Government's policy with respect to equal employment opportunity and the Center's program objectives in support of this policy. In making day-to-day personnel decisions, we should insure that they are in keeping with this policy."

Grove Webster, NASA Headquarters, serves as NASA's Equal Employment Opportunity Officer and Edward T. Maher serves as Langley's Deputy Equal Employment Opportunity Officer.

LAUNCH OF LUNAR ORBITER III PLANNED FOR EARLY FEBRUARY

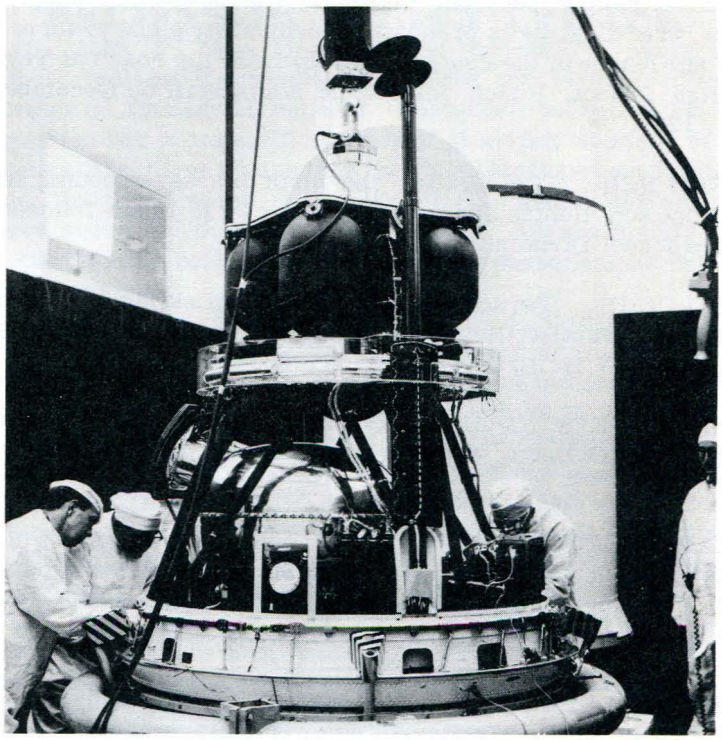
Lunar Orbiter III is now being readied for a February launch. The primary objective of this mission will be to obtain detailed photographic information of possible landing sites for Apollo and Surveyor spacecraft.

Preliminary testing of the spacecraft hardware was completed prior to January 16, when the spacecraft was transported from the controlled atmosphere facility at Hangar "S", Cape Kennedy, to another controlled atmosphere facility located in an Explosive Safe Area at the Cape. The atmosphere in these facilities would be a housewife's dream for it is virtually free of dust particles.

Fueling and further testing of the spacecraft is accomplished in the Explosive Safe Area, after which the spacecraft is transported to Pad No. 13 for installation on the Atlas/Agena vehicle.

After successful completion of readiness checks of all participating ground TLM and tracking stations, a simulated launch demonstration will be performed and, a few days later, the space vehicle will be launched.

The next available launch period for Lunar Orbiter III is February 3 to February 7.



Final preparations are being performed on the Lunar Orbiter spacecraft at the Explosive Safe Area at Cape Kennedy. The shiny container located in the central portion of the spacecraft houses the photo system. The next available launch period for Lunar Orbiter III is February 3 to February 7. Additional pictures are shown on Page 5.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 302, telephone 2575.

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

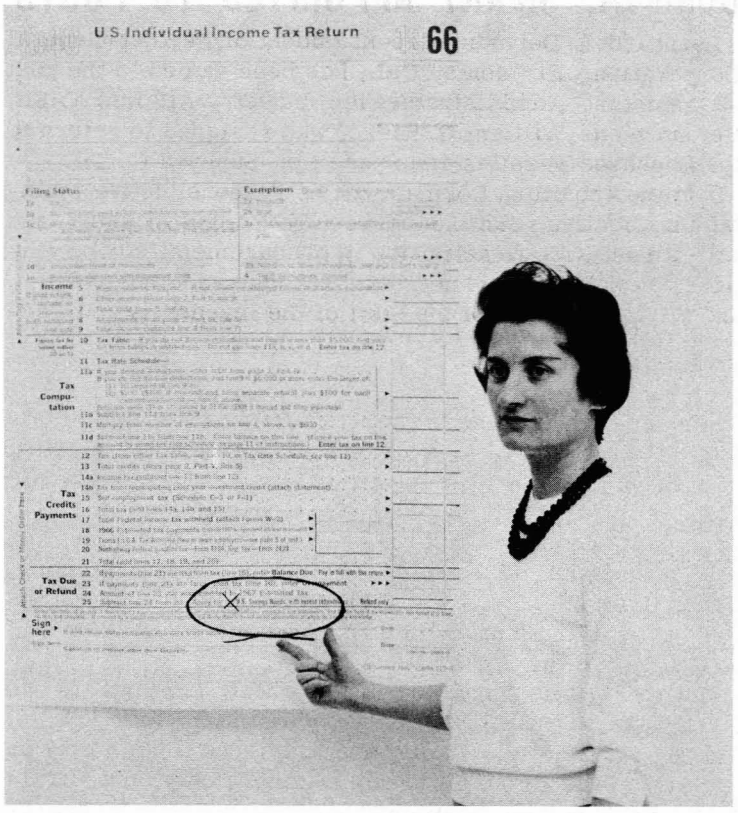
AWARD WINNER. . .Congratulations to Leo O. Roach Jr., Procurement Division, on winning the York Jaycees physical fitness leadership award as well as the State leadership award. The Jaycees award honors men and women who have made significant contributions to the nation's fitness effort. Roach has umpired baseball in the York Little League and Babe Ruth League since 1962. He started umpiring in the district all star tournament in 1962 and in 1965 and 1966 he was umpire in chief of the tournament. In 1966 he umpired in the State all star tournament and helped broadcast the games to York County when he wasn't umpiring. In basketball he has refereed in the York Junior League and the Newport News UMCA Church League since 1964. In football, he started coaching in 1965 in the York County Youth Football League. He coordinated plans for moneymaking projects to defray expenses of the league. In wrestling, he is presently coordinating plans to form a youth league in the county with help from the coach at York High School. Roach joined the NASA staff on December 1, 1947.

NEW HEIR. . .Celebrating the birth of a seven pound, six ounce son, Hunter James, on January 24 is Linda Johnson, Personnel Division.

SKI CLUB. . .Persons interested in snow skiing trips with the Peninsula Ski Club are requested to contact John Chess, CA 9-4687, or Brian O'Hare, 877-3634.

NEWLYWEDS. . .Julian Maynard, Applied Materials and Physics Division, was married to Nettie Ashe on January 7.

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



Myrtle Yates, Photographic Division, illustrates on an enlarged Income Tax Return form the easy way taxpayers may apply for Savings Bonds instead of a cash refund when filing their returns this year.

TAKE BOND, NOT REFUND

When you get your 1966 tax return form, take a look at the option that lets you take U.S. Savings Bonds instead of a cash refund. You'll find how to hang on to your tax refund, if you're lucky enough to have one coming.

When you check the box on line 25 for Savings Bonds on Form 1040 or opposite line 1040-A, you automatically assure yourself of two advantages. You provide an easy way of hanging on to your money and a sure way of making it grow one-third bigger at maturity.

Here's how that check mark goes to work for you. If you're entitled, for example, to a refund of $42, you'll get a $50 face value Series E Bond (cost $37.50), plus a check for $4.50.

Another good thing about that check mark - it also helps to strengthen our country's future security. Uncle Sam puts our bond dollars to good use in safeguarding our freedom.

Think it over. And, if you haven't started that regular savings program you've been promising yourself, here's a good chance to get it with ease - merely by checking the Savings Bond box on your tax return.

FOR SALE: Antique love seat and sideboard, mahogany bedroom suite, Craftsman's power tools, and other miscellaneous articles. Harris, 722-4674.

WANTED: Ride from Norfolk to W.A. on 7:30 shift. Bain, 838-1010.

WANTED: 1 or 2 alternate drivers from Beechwood to W.A. on 8 shift. Cavelli, 3247, or White, 3330.

FOR SALE: White miniature poodle - $75. Oakes, 723-8686.

FOR SALE: 3-piece maple living room suite - $35. Riddle, 877-9577.

FOR SALE. Westinghouse undercounter dishwasher - $25. Hasel, 723-4497.

FOR SALE: 2 German Shepherd dogs. Crawley, 722-8406.

FOR SALE: 3-bedroom brick rancher with attached garage in York County - $500 down. Evans, 898-5004.

FOR SALE: 1965 Volkswagon camper bus - fully equipped-$1950. Davis, 838-1789.

DORMAN, SMART APPOINTED TO POSTS

Bernhardt L. Dorman, vice-president of Aerojet-General Corporation, El Monte, Cal., has been named to the post of Assistant Administrator for Industry Affairs, NASA. He succeeds William B. Rieke, who resigned to return to the Lockheed Missiles and Space Co., Sunnyvale, Cal.

In his new position, Dorman will be responsible for maintaining effective relations between NASA and industry, and will direct NASA's activities in procurement, labor relations, reliability and quality assurance and construction, and will have charge of the staff of the Inventions and Contributions Board.

General Jacob E. Smart, USAF (Ret.), has been named Acting Administrator for Administration. The position was held by Rieke concurrent with his other NASA duties.

Dorman has been vice-president, Future Operations, at Aerojet since 1964. He joined the company in 1943 and has been closely connected with Aerojet missile programs. He has been Head Test Engineer, Manager of Test and Field Service Division, Vice-President of Test Engineering and has headed corporate long range planning.

A 1928 graduate of Purdue University, Dorman received an honorary degree of Doctor of Engineering from Purdue in 1960. Before joining Aerojet he spent nine years with International Harvester Co.

General Smart, former Deputy Commander-in-Chief of the U.S. European Command retired with 35 years of service last July 31. He was named a special assistant to Administrator James E. Webb on November 1.

A native of Ridgeland, South Carolina, Gen. Smart was graduated from the U.S. Military Academy in 1931. In World War II he commanded the 97th Bombardment Group in Italy and in 1950 the 32nd Air Division. Later assignments included Assistant Vice-Chief of Staff of the Air Force, Vice-Commander of the Tactical Air Force, and Commander-in-Chief, Pacific Air Forces. He received his fourth star in 1963.

QUALITY INCREASE REPORT

In the Federal Salary Reform Bill of 1962 provisions were made to grant Quality Step Increases to General Service (GS) employees who were performing their duties at a high quality level. During Fiscal Year 1966, NASA granted 781 Quality Increases as compared to 627 in 1965.

For the second consecutive year, Federal employees achieved new highs in the number and value of their adopted suggestions for increased economy, efficiency and effectiveness of Government operation.

In acknowledging this record, President Johnson said, "I congratulate each individual who earned an award in Fiscal Year 1966 and I commend the supervisors and managers who encouraged these employee contributions. In the coming months we will need to redouble our efforts to cut costs and increase efficiency, to hold down government expenditures, and to fight inflationary pressures. We will depend on each employee to exert his very best effort in the continued research for ways to save on supplies, to cut paperwork, to streamline procedures, or to get a high quality job done with fewer man hours."

FOR SALE: 10-year-old Volkswagon convertible, engine 1-1/2 years old. Newcomb, 642-2202, Gloucester.

FOR SALE: 8 mm movie camera, 3 turret lens; also light meter. Gibson, 826-2678.

John P. Reeder (right), Assistant Chief of the Flight Mechanics and Technology Division, and Robert A. Champine (left), Head of the Pilots' Section, visited Canadair in Montreal late last year to fly the CL 84 tilt-wing vertical takeoff-landing aircraft (background). Greeting them is William Lundquist, Canadair test pilot. Reeder and Champine were invited to Canada to perform a brief engineering evaluation of the aircraft in the light of their past experience with a variety of VTOL and short takeoff-landing vehicles. They were the first non-Canadians to fly the CL-84. Langley is a pioneer in V/STOL research, having begun laboratory studies in this field about 20 years ago.

PROFSSOR VISITS CENTER

Dr. John F. Mee, Mead Johnson Professor of Management, Indiana University, presented two lectures at the Center on January 20 entitled "Changing Concepts of Management in a Scientific Society." His visit was part of a series of lectures planned for Langley's Management Training Program which will bring in outstanding university professors in the management area. Approximately 30 supervisors, branch heads and key personnel attended each lecture.

Dr. Mee was introduced by William L. Williams, Staff Assistant to the Assistant Director for Administration. Williams studied under Dr. Mee while at Indiana University on a National Institute of Public Affairs Fellowship.

Dr. Mee holds a Ph.D. from Ohio State University and a LL.D. from Miami University of Ohio. He was formerly Chairman, Department of Management, Graduate School of Business, Indiana University. He is a Fellow in the International Academy of Management. In 1950-51 he was Distinguished Ford Visiting Professor at the University of California. He served as Editor-in-Chief of Personnel Handbook and his text, Management Thought in a Dynamic Economy, received a national award as the best management book published in 1963.

FOR SALE: New Springfield 12-gauge slide action shotgun. Larson, 596-1922.

FOR SALE: Large space heater - $37.50, also small hot air furnace - $20. Childs, 898-6719.

FOR SALE: 1957 Chevrolet - $425. Mulligan, 723-1161.

COOPERATIVE EXTENSION SERVICE

Area homeowners, youth, businesses involved in the Industry of Agriculture, farmers, and many organizations find a close working partner with the Cooperative Extension Service. This department provides an educational service on the Peninsula through Virginia Polytechnic Institute Land-Grant University in cooperation with the U.S. Department of Agriculture, and the Cities of Newport News, Hampton, and the County of York.

Up-to-date experimentally proven data is disseminated to adults and youth in the fields of horticulture, agriculture, home economics, youth development, and community development to meet the needs and progress of a complex urban society. Methods used in the educational process include mass media, office and telephone calls, home visits, special and regular meetings, tours, demonstrations, and bulletins or circulars.

Extension offices are located at the following places: Newport News, 112 Main Street, telephone 596-3011 extensions 298 or 304; Hampton, 122 South Hope St., telephone 723-6011 extension 307, and York County, Courthouse-Yorktown, telephone TU 7-5646.

In the field of horticulture and/or agriculture, educational services are rendered to Peninsula residents to include lawn establishment and maintenance, entomology and plant pathology, landscape plant selection and design, vegetable garden-fruit production and management, livestock and dairy management techniques, and general agronomic practices. The area clientele respond well to outdoor clinics, demonstrations, special schools, leader training meetings, and regular news releases.

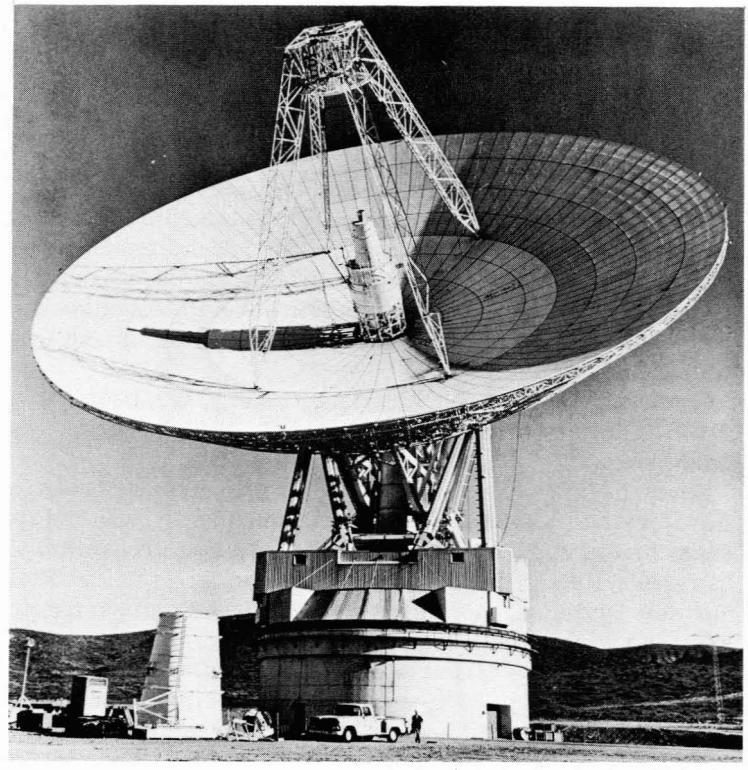
Extension home economics is an educational program for the homemakers. It is designed to meet the needs of contemporary living. The Extension Agents in home economics provide up-to-date information in foods and nutrition, housing and home furnishings, clothing, management, child development and human relations, and in consumer education. This information is presented through leader training meetings, home demonstration club meetings, special interest meetings, home visits, etc. These home economic programs give the homemaker learning opportunities that make her a better citizen as well as a wiser homemaker.

The Extension Agents working with youth develop adult leadership to guide young citizens who are 4-H members and other interested youth in the area. The community 4-H Clubs meet once per month for educational programs, club business and recreation. Project skills are taught by adult leaders through special interest groups. Learning experiences in the phases of home economics, light horse and pony, leadership development, public speaking, automotive care and safety, electricity, wildlife, and other related areas result through the special interest project groups.

An annual total staff effort culminates in assistance to over 25,000 individuals and families and 800 organizations and agencies by providing information, advice, and guidance. Four thousand different leaders are trained in one or more subjects. Over 60,000 publications including bulletins, circulars and leaflets are distributed in response to special problems and desires of the citizens of the Lower Peninsula.

All services are FREE.

WANTED: Home for mother and kitten. Meidinger, 244-2452.
FOR SALE: English Pointer - $75. Smith, 245-8427.



BIGGEST EAR - Capable of tracking spacecraft as far out in space as the planet Pluto, this 210-foot diameter tracking and communication antenna was placed in service last June by NASA's Deep Space Tracking Network. Located at Goldstone in California's Mojave Desert, the antenna and its supporting members weigh nearly 5 million pounds and float on an oil bearing the thickness of a sheet of paper. The antenna, the largest of its kind in the world, is operated for NASA by the Jet Propulsion Laboratory, Pasadena.

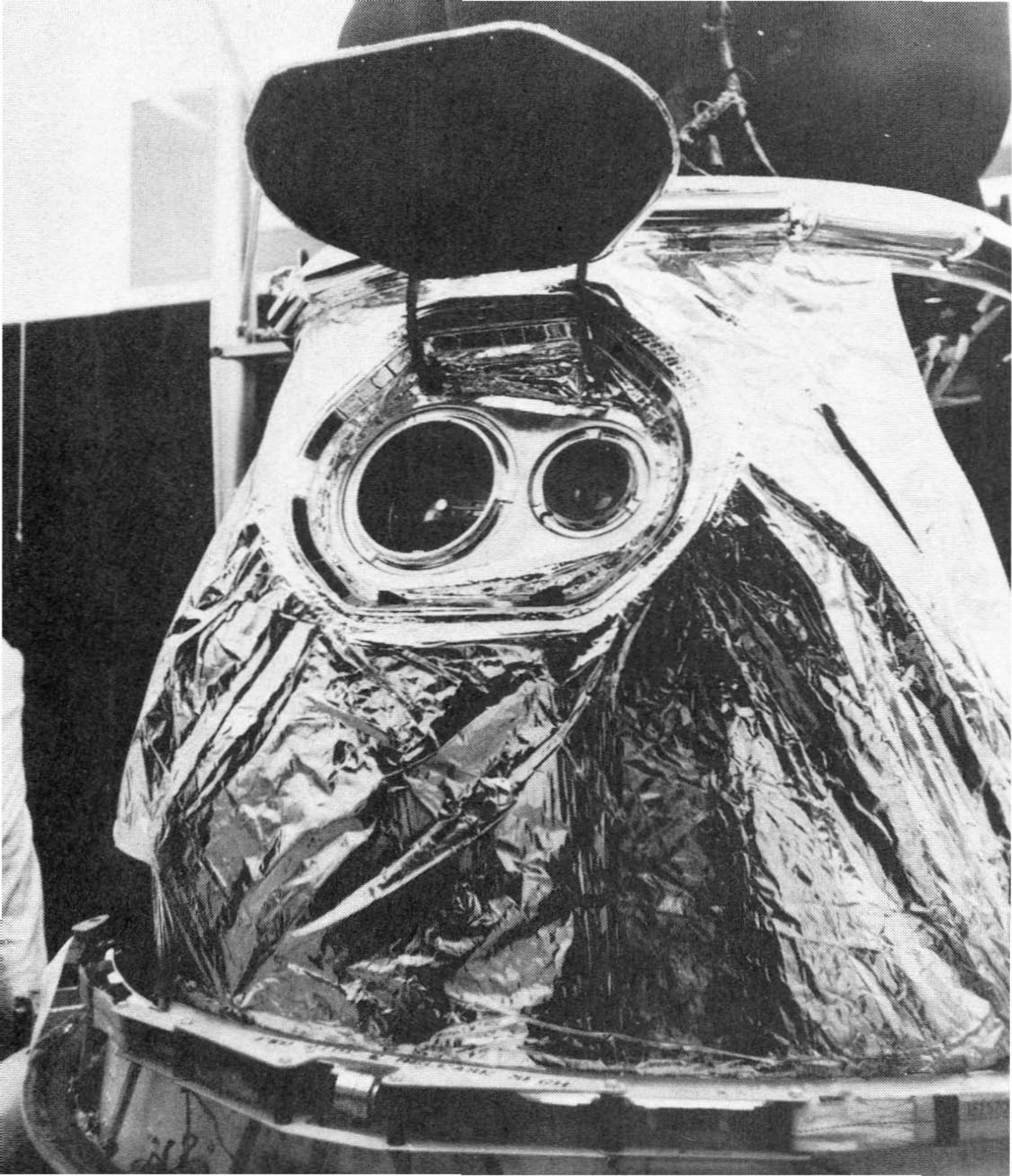
EVENING GRADUATE PROGRAM

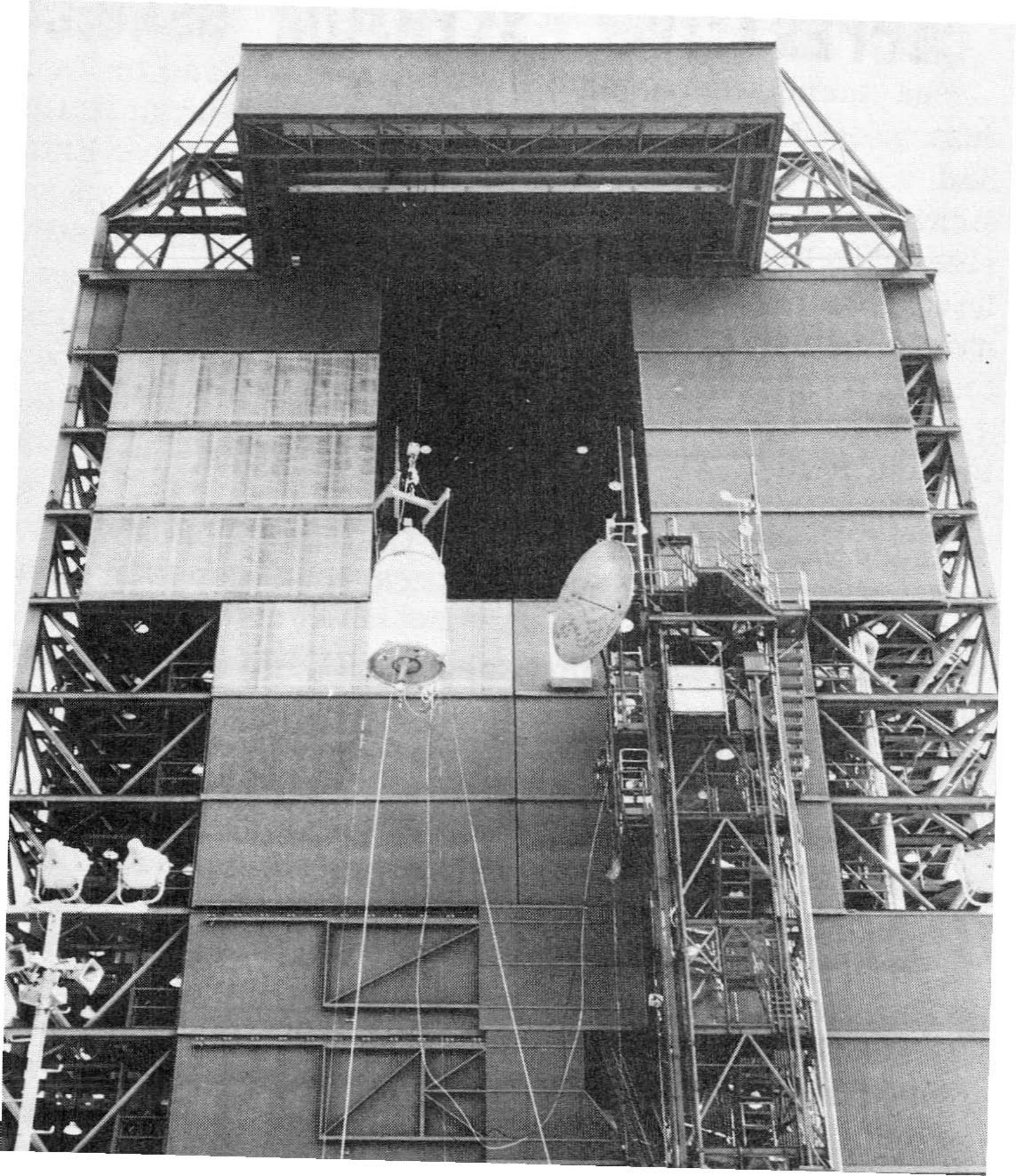
The Department of Business Administration of The College of William and Mary has worked out plans for certain courses leading toward a graduate degree in Business Administration to be offered at night time at Christopher Newport College.

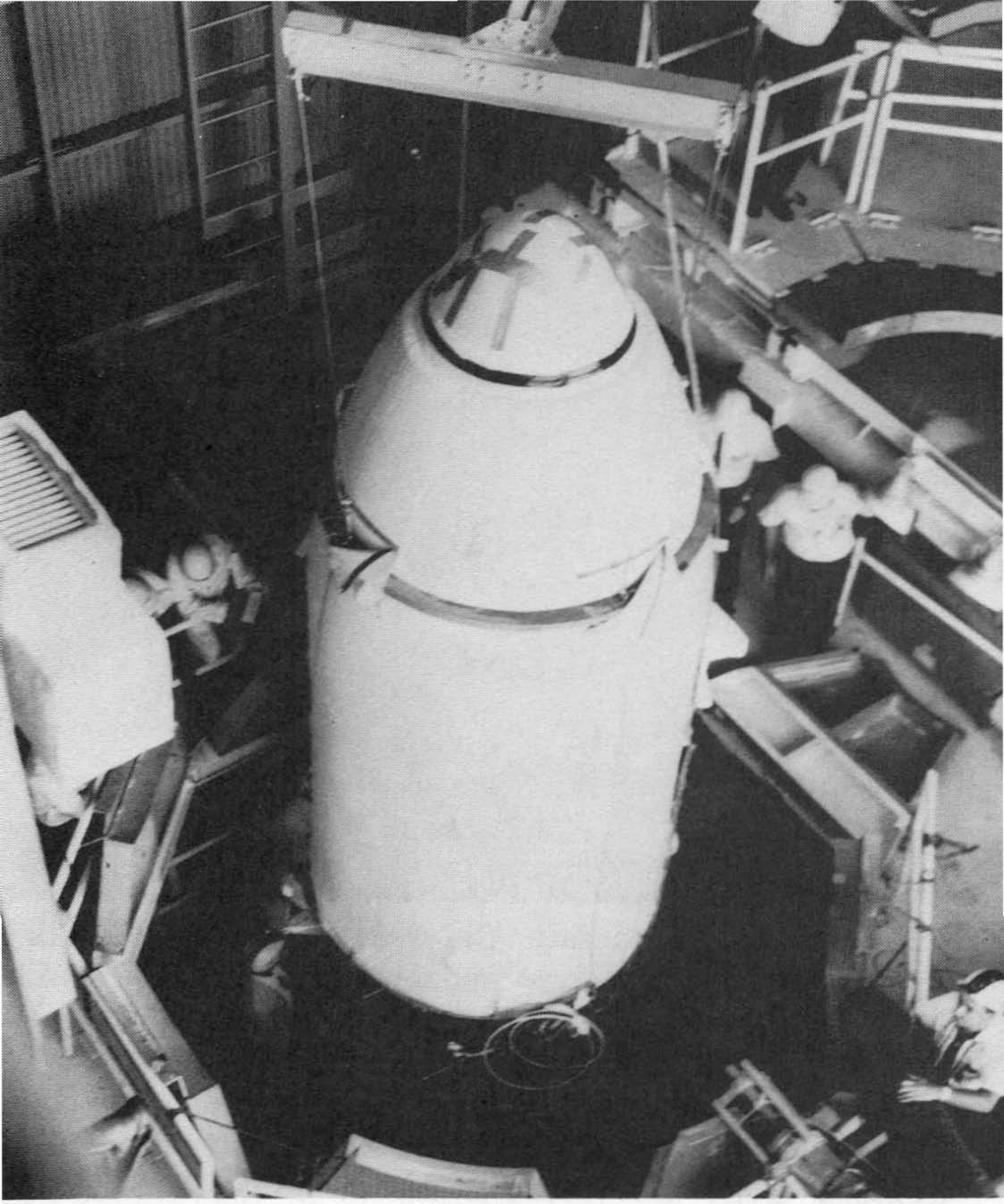
The program may be entered by qualified individuals holding non-business or business undergraduate degrees from approved institutions. Applicants must take the Admission Test for Graduate Study in Business (an aptitude test given by the Educational Testing Service.)

Employees interested in enrolling in this program are requested to call the Training Office, telephone 2611.

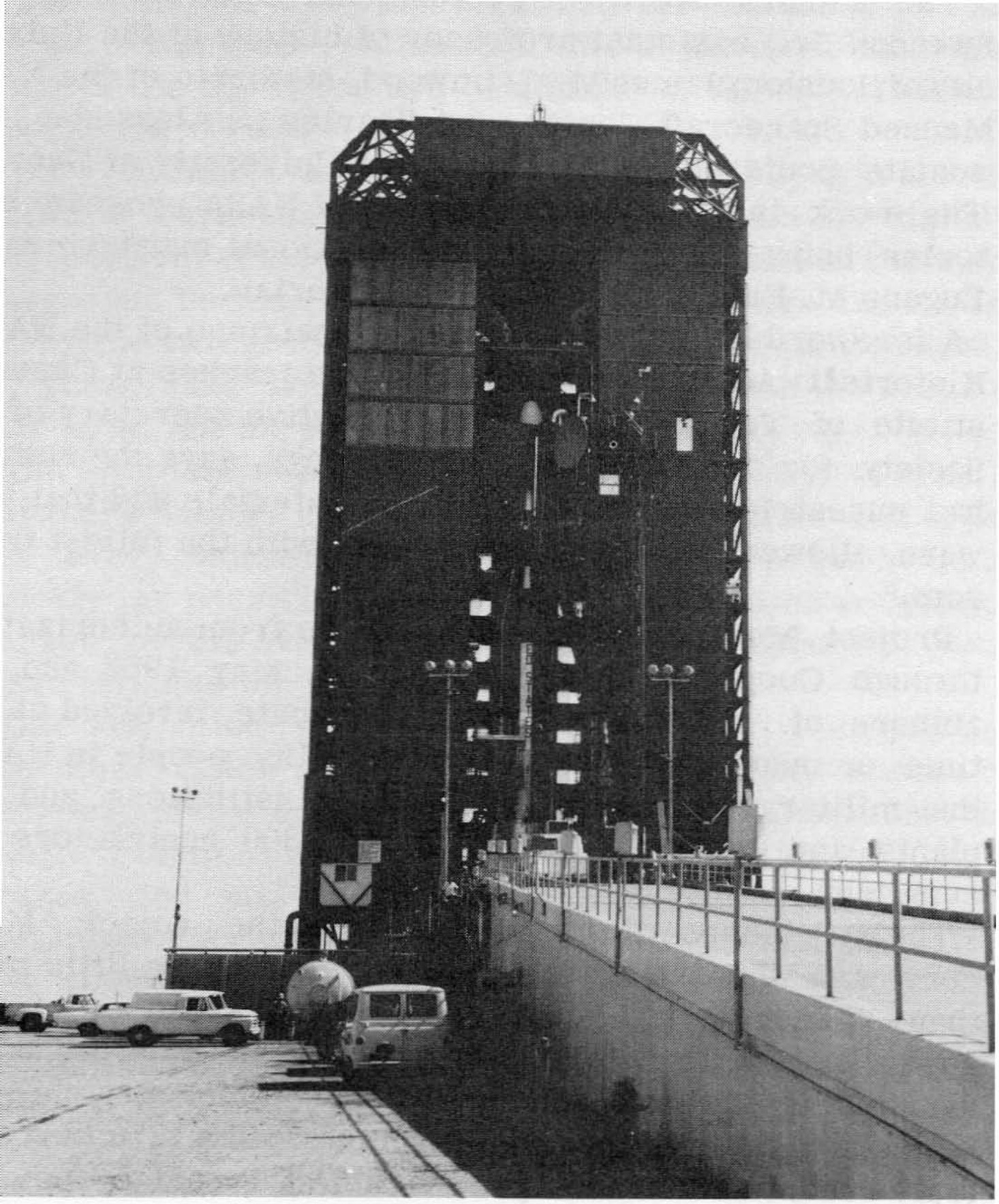
FOR SALE: Kenmore washing machine - $75, size 7 shoe skates and carrying case - $10. Neihouse, 826-8239.
WANTED: Driving combination from Middlesex, Mathews or Gloucester to W.A. on 8 shift. Johnson, 4530.
WANTED: Ride from W.A. at 4:30 p.m. to Jefferson Ave. and Oyster Point Rd. Grant, 3731.
WANTED: Gentleman to share furnished 2-bedroom apartment. Hawkins, 596-5665.
WANTED: Driving combination from Spottswood Place, near intersection of LaSalle Ave. and Chesapeake Blvd. to W.A. on 7:30 shift. Weinstein, 722-2025.
FOR SALE: 24-inch Nautilus-type exhaust fan - for grill or stove - $20. Tyndall, 826-0789.
FOR SALE: 1962 Volvo 122-S - $540. Oertel, 229-6220.







LUNAR ORBITER. Upper left photo - Shown here are the yes of Lunar Orbiter. This view of the spacecraft shows he thermal barrier in place. The camera thermal door is



nd into the gantry at a level above the launch vehicle
ower left photo - The encapsulated spacecraft is bein
owered into position for connection to the Agena vehicle

APPRENTICE SCHOOL NOTICE

The Spring Semester of the Center's Apprentice School will start February 6 and classes will be held in Building 586.

Courses offered and the instructors are as follows:

Monday - College Trigonometry, L. V. Clark; College Trigonometry, G. B. Boyles; Machine Shop Theory, J. B. Davenport; A. C. Fundamentals, T. K. Lusby.

Tuesday - Analytic Geometry, J. G. Shearin; Industrial Instrumentation, E. J. Yarrington; Engineering Drawing I, C. W. Osborn; Strength of Materials I, Gordon Owsley.

Wednesday - Industrial Electronics, R. H. Coultrip; Machinery Handbook I, R. D. Ross; College Physics III, G. C. Moen; College Physics III, V. G. Collins; Machinery Handbook III, S. E. Devan.

Thursday - D. C. Fundamentals II, J. J. Roberts; Descriptive Geometry, A. B. Vig; Principles of Electronics II, A. L. Jones; Plastics, C. L. Wray.

PROJECT MERCURY HISTORY

NASA has published a 680-page illustrated history of Project Mercury, the first United States manned space flight program.

The book is titled "This New Ocean," a phase from a speech by President Kennedy in 1962 in which he said, "We intend...to become the world's leading spacefaring nation." The book is for sale as NASA SP-4201 for $5.50 (in cloth binding) from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The authors are three professional historians, Loyd S. Swenson Jr., assistant professor of history at the University of Houston; James M. Grimwood, historian of the NASA Manned Spacecraft Center, and Charles C. Alexander, associate professor of history at the University of Georgia. The work is the first of a series of NASA program histories being planned under the functional management of Eugene M. Emme, official NASA historian.

A foreword by Melvin Kranzberg, chairman of the NASA Historical Advisory Committee, who teaches at Case Institute of Technology and is executive secretary of the Society for the History of Technology, says the authors had unrestricted access to source materials and that they were allowed to pursue their task "with the fullest freedom."

Project Mercury spanned 55 months from authorization through Cooper's 22-orbit flight in May 1963 and, the authors of "This New Ocean" estimate, involved at one time or another more than two million people in NASA, the military services, educational institutions and the plants and laboratories of about 7,300 contractors and suppliers.

The book closes with this evaluation of the project: "Mercury saw the evolution of the astronaut from little more than a passenger in a fully automatic system to an integral and fully integrated element in the entire space flight organism. By the end of the project the Mercury capsule, instead of simply being a machine with a man in it, had truly become a manned space vehicle."

FOR SALE: 1964 36-foot Peterson Viking sedan. Flybridge, twin 210 Chrysler engines, 3 KW Onan generator, air conditioning, all electric galley, shower, S/S radio and many extras. Tynan, 877-2642.

Paul R. Hill, Associate Chief of Applied Materials and Physics Division, recently presented cash awards to three AMPD employees for applications that might result in the granting of patents by the United States Government in connection with their inventions on the job. Top photo - Dewey E. Wornom received $50 for his invention entitled "Leading Edge Curvature Based on Convective Heating." Center photo - Joseph H. Judd was award $100 for his suggestion concerning "Spacecraft Airlock." Lower photo- Norman M. Hatcher shared $150 award with Nelson J. Groom, AMPD, and Arthur L. Newcomb, Electrical Systems Division, for "Electromagnetic Mirror Drive System."

24 RECEIVE GROUP AWARD

Twenty-four staff members who served as members of the Center's Rocket Motor Review Board from its establishment in early 1963 to December 1, 1965 recently received a Honorary Group Achievement Award "For his role in establishing, through exceptional diligence, perseverance, and careful attention to fine details, a remarkable record of 97 successes in 98 attempts for solid propellant rocket motors flown by the Langley Research Center."

Receiving the award were: Laurence J. Bement, Baxter C. Carr, George T. Carson, Don D. Davis, Philip L. Getzinger, David E. Guthrie, William K. Hagginbothom, William M. Haraway, James L. Jones, Edwin C. Kilgore, Charles B. King, Edward C. Lingenfelser, Melvin H. Lucy, Harry L. Smith, R. Donald Smith, Robert L. Swain, Clyde Thiele, Henry T. Thornton, H. Scott Wagner, James C. Ward, Andrew S. Wright, Alfred Bruns, Paul Jarvis, and Sidney P. Leonardy.

The Rocket Motor Review Board is authorized to obtain technical assistance either at Langley or outside as required to perform the following functions:

Review rocket motors and make recommendations concerning their acceptance, rejection, or repair when they are found upon inspection to be non-conforming.

Record the correlation of action recommended by the Board with action taken.

Make specific recommendations for changes in design or manufacturing and process techniques in the event of a recurring deviation on a particular motor.

Review technical specifications for procurement of rocket motors.

Review the design of new rocket motors with regard to soundness of design, manufacturing and process techniques, inspection procedures, and qualification program.

Robert L. Swain is presently serving as chairman of the Board with William K. Hagginbothom, H. Scott Wagner, and Melvin H. Lucy designated as alternate chairmen.

BOOKS FOR SALE

The following books are on sale at the NASA Exchange:

Characteristics and Limitations of Transistors by Thornton, DeWitt, Gray and Chenette; Discrete and Continuous Methods in Applied Mathematics by Mathews and Langenhop; Switching Theory - Volume One - Combinational Circuits by Raymond E. Miller; Viscous Flow Theory by Shih-I Pai; Vector Analysis by Brand; Advanced Mechanics of Materials by Seely and Smith; Fundamental Concepts of Geometry by Meserve; The Theory of Group and Quantum Mechanics by Weyl, Mathematical Tables of Elementary and Some Higher Mathematical Functions by Dwight; Principles of Cyclic Particle Accelerators by Livingood; Statik and Dynamik der Schalen by Flugge; Logical Design of Digital Computers by Phister; Applied Complex Variables by Dettman; Key to German Translation by Pollard; Procurement: Principles and Cases by England; Mathematics of Physics and Modern Engineering by Sokolnikoff and Redheffer; Hypersonic Flow Research edited by Riddell; Introduction to Space Dynamics by Thomson; First Year Mathematics for Colleges by Rider; Blurprint Reading by Nicholson, Jones and Baughman; Dynamics of Flight by Etkin.

For further information call Mrs. Oliver, 2209.

Dr. Floyd L. Thompson, Director, recently presented an Honorary Group Achievement Award to twenty-four staff members. Shown in the group are front row (from left): Dr. Thompson, Clyde Thiele, William M. Haraway, David E. Guthrie, George T. Carson, R. Donald Smith, Edward C. Lingenfelser, Baxter C. Carr, and Charles B. King. Back row: H. Scott Wagner, James C. Ward, James L. Jones, William K. Hagginbothom, Philip L. Getzinger, Henry T. Thornton, Robert L. Swain, Don D. Davis, Edwin C. Kilgore, and Andrew S. Wright. Absent when the picture was taken were: Laurence J. Bement, Melvin H. Lucy and Harry L. Smith. Also not shown are Alfred Bruns, Paul Jarvis, and Sidney P. Leonardy who have left the Center.

SAFE AFTER DARK

What were you doing last night between the hours of 5 and 8 p.m.? Did you realize that this is the most hazardous time of the day if you are behind the wheel or on foot as a pedestrian?

Did you make allowance for the fading daylight and increasing darkness which reduces your vision and distorts perspective? This change in visual conditions is the more dangerous because it may catch you unaware and unprepared, for twilight - and danger - increases quite gradually. Things are not always what they seem in the hours of half light, but the danger is just as deadly.

Did you start early and allow yourself plenty of time to get there without hurrying and worrying? At the end of the day every worker is generally anxious to get home as quickly as possible; be prepared for the added congestion caused by the evening rush hour and allow yourself some extra minutes for your trip.

Did you allow for the day's-end fatigue - your own and the other fellow's? You're tired after a day of work or shopping, and your attention wanders just a little from the traffic situation around you. Suddenly there is a scream of brakes, and just in time, another tired motorist brings his mind abruptly back to the job of driving. No matter how tired and irritable you feel, don't rely on the other fellow's driving ability he may feel the same way and be relying on you. The next time it may be a hit instead of a near-miss.

FOR SALE: Silvertone guitar and amplifier - $100. Jones, 596-1349.

FOR SALE: Sailfish and trailer - $150. Singleton, PA3-3735.

FOR SALE: 12 volt battery, five 145 x 15 tires, body and motor parts for 1961 Renault; also registered male Bassett - $35. Blanks, 838-1572.

VALENTINE DANCE FEBRUARY 11

A Valentine Dance is being planned by the Activities Association for Saturday, February 11 in the Activities Building. Scheduled to furnish the music for the affair are The Echoes.

The Echoes, a seven-piece band led by Jerry Leggett, has been doing a series of week end dates along the Virginia and Carolina coasts. The band is noted for rhythm and blues and also plays the top tunes of today along with a few oldies. Dancing will be from 9 p.m. until 1 a.m.

Tickets are available at the Activities Building, Building 1222, in the West Area or from Dick Kurtz, Building 586, telephone 2203, in the East Area. The price of tickets is three dollars per couple, including free setups. Table reservations for groups may be made by calling Bruce Amole, telephone 4508.

ELECTION PLANNED FOR APRIL

Charles A. Clarke, Acting President of the Activities Association, announced that redistricting of Center areas has been completed and approved for the General Assembly election and he stated that geographical location was the predominate factor in the new alignment.

The General Assembly election will be held in April with all seats on the Executive Board subject to the General Assembly meeting in May.

IEEE MEETS FEBRUARY 2

The Hampton Roads Section of the Institute of Electrical and Electronics Engineers will meet on Thursday, February 2 at the Shore Drive Inn, 4768 Shore Drive, Norfolk. Chester L. Buchanan, Head of Deep Research Branch, Ocean Science and Engineering Division, Naval Research Laboratory, Washington, D.C., will be guest speaker.

Buchanan will speak on "Instrumentation for Deep Ocean Research." The deep ocean environment poses interesting problems in mechanical and electronic instrument design. The most important environmental factors influencing instrument design are the hydrostatic pressure and the corrosive effect of sea water. Many electronic circuit components can withstand high pressure and some equipment can be used without pressure protection although little has been produced commercially. Buchanan will describe typical examples of the type of instrumentation that was used to locate the hulk of the Thresher (SSN593) and the H-bomb lost off the coast of Spain.

A social hour will be held at 6:30 p.m., followed by dinner at 7:30 and the meeting at 8:30. Reservations may be made by calling Frank Senft, 596-7808 extension 3461.

FOR SALE: Eico 30-watt integrated hi-fidelity amplifier-$45. Tate, 838-4280.

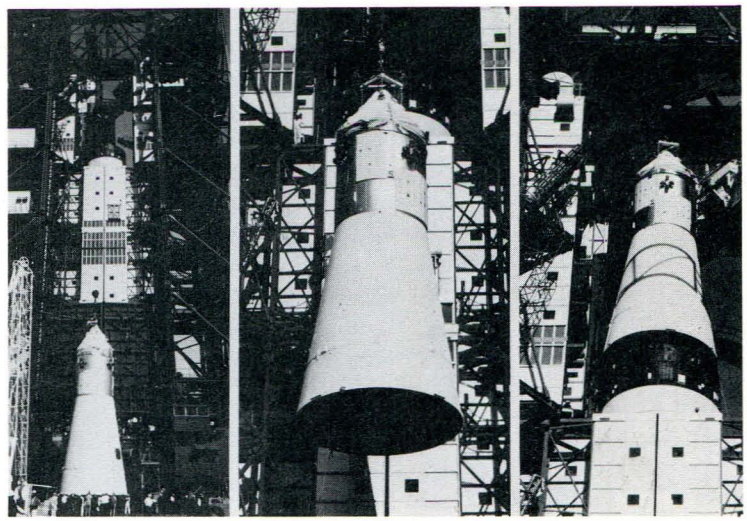
FOR SALE: 21-foot Commodore cruiser, 50 hp Johnson outboard motor, sleeps 2 - $900. Eggleston, 722-6672.

FOR SALE: Two 7.60 (8.45)-15 tires - $25 or will swap. Mulqueen, 898-6327.

FOR SALE: 150 x 200 wooded lot in Edgehill. Keynton, 826-5549.

FOR SALE: Four 6.70 x 15 tires - $15; one 6.50 x 16 Sears tire - $5. Boyle, PA 3-3400.

FOR SALE: Weather-tight luggage carrier for flat-top station wagon. Miller, 723-4720.



Apollo-Saturn 204 spacecraft is being erected for mating to the uprated Saturn I launch vehicle at Complex 34, Cape Kennedy, in preparation for NASA's first manned Apollo/Saturn mission early this year. Astronauts for the mission are Virgil Grissom, command pilot, Ed White, senior pilot, and Roger Chaffee, pilot.

NASA BOWLING LEAGUE

Flyers Group lead Group A in the NASA Tenpin League with 43.5 wins and 28.5 losses. Trailing by only a half game are Outlaws with 43 wins and 29 losses. Top scores were rolled by George Bewley with a 227 game and Billy Beasley with a 626 set.

ACD leads Group B with 46 wins and 26 losses. Wood Nickers are in second with 44 wins and 28 losses. Top bowlers for the week were John Dupere with a 252 game, Jerry Deaton with a 666 set, and Jackie Andrada with a 218 game and 605 set.

RPM's lead Group C with 49 wins and 23 losses and Sad Sams trail in a close second with 48 wins and 24 losses. Top scoring honors went to Leonard Weinstein with a 231 game, Ed Manestar with a 644 set, Linda Rutherford with a 249 game, and Lois Moore with a 631 set.

GROUP A					
Flyers	43.5	28.5	Odd Balls	39	33
Outlaws	43	29	Unitary	38.5	33.5
Clean Ups	41	31	Alley Cats	28	44
Misfits	40.5	31.5	Phantoms	26	46
Hornets	40	32	Short Circuits	19.5	52.5
GROUP B			GROUP C		
ACD	46	26	RPM's	49	23
Wood Nickers	44	28	Sad Sams	48	24
Golfers	43	29	A-OK's	45	27
Payloads	40	32	Bowling Belles	43	29
Strike Outs	39	33	Gliders	40	32
Flight Engineers	38	34	Hotshot Tunnel	40	32
Flight	37	35	Ten-Benders	39	33
Getogethers	34	38	Mets	39	33
Greenhorns	32.5	39.5	Wa-Hoppins	39	33
Cee Pee's	31.5	40.5	Sparkys	37	35
Galaxies	31	41	Dillys	28	44
HMS	30	42	Hits & Misses	24.5	47.5
Pinwigglers	29	43	Class Kats	24	48
Trackers	29	43	Gutter Jumpers	9.5	62.5

FOR SALE: 1957 Chevrolet Bel-Air. Ferro, CH 5-2438.

Langley Researcher

VOLUME 6, NUMBER 3 LANGLEY RESEARCH CENTER FEBRUARY 10, 1967

LUNAR ORBITER SUCCESSFULLY LAUNCHED ON MOON MISSION

At 8:17 p.m. EST on February 4 Lunar Orbiter III lifted away from Pad 13 at Cape Kennedy, thus beginning another fact-finding probe of the lunar surface.

The primary objective of the Lunar Orbiter Program is to obtain topographic data with regard to the lunar surface for use in the selection and confirmation of landing sites for the Apollo mission. Orbiters I and II have made outstanding contributions to this objective. Orbiter I is also credited with the historical first picture of Earth as seen from the moon, and Orbiter II is credited with a spectacular oblique picture of the moon crater Copernicus.

The spacecraft is lifted from the pad and thrust toward the moon by an Atlas/Agena launch vehicle. Kennedy Space Center has the responsibility for launch operations while the Air Force Eastern Test Range (AFETR) and the Manned Space Flight Network (MSFN) provide telemetry and tracking coverage during the early phases of flight. After the spacecraft has separated from the expended launch vehicle, telemetry and tracking coverage is provided by the Deep Space Network.

Langley Research Center personnel are responsible for over-all management of the program in addition to overseeing of the testing and performance of the spacecraft.

The complexity of the Lunar Orbiter mission dictates the requirement for operations to be coordinated from two locations during a given mission. Launch operations are conducted from Cape Kennedy and Deep Space Operations are conducted from the Space Flight Operations Facility (SFOF) at Jet Propulsion Laboratory in Pasadena.

The primary facilities at Cape Kennedy which are utilized during the launch phase are Complex 13 (launch area), Range Control Center Building, the Mission Operations Center at Building AO and Deep Space Station 71. Operations at Complex 13 are directed by Kennedy Space Center personnel. The Range Control Center Building is the location from which all AFETR stations receive direction. The supervisor of Range Operations and the Range Safety Officer are located here. Status of all Range instrumentation is reported to the Instrumentation Operations Coordinator at this facility. Overall direction and coordination of the mission launch operations are conducted from the Mission Operations Center at Building AO. Status of the space vehicle and all support areas, including the Air Force Eastern Test Range, the Manned Space Flight Network, the Deep Space Network (DSN) and the Space Flight Facility are displayed at this Center. During the countdown and launch operations, the Mission Director, the Operations Manager, and other Project Office personnel are stationed in the Mission Operations Center. The function of the Langley team is that of receiving and interpreting prelaunch data and making recommendations,

(Continued on page 5)

3-MAN APOLLO CREW DIES DURING LAUNCH PAD TEST

The entire three-man crew of the Saturn Apollo I mission was killed Friday, January 27, in a flash fire aboard the huge space craft designed to take man to the moon.

Killed in the blaze were Air Force Lt. Col. Virgil I. (Gus) Grissom, one of the seven original Mercury astronauts; Air Force Lt. Col. Edward H. White II, the first American to walk in space, and Navy Lt. Cmdr. Roger B. Chaffee, a rookie awaiting his first flight in space.

The astronauts apparently died instantly. They were the first to be killed in a space craft. Three others have died in duty-connected mishaps.

According to NASA officials, the fire broke out at 6:31 p.m. EST while the three men were involved in a full-scale simulation of the scheduled February 21 launch which was to take them into space for 14 days of orbiting the Earth.

The spacecraft was located 218 feet above the launch pad and was mated to the uprated Saturn 1B launch vehicle. Hatches on the spacecraft were closed. Emergency crews were hampered by dense smoke in removing the hatches.

An unknown number of launch crew workers were treated for smoke inhalation at the Cape Kennedy dispensary.

The crew had entered the spacecraft at 3 p.m. Minor difficulties had been encountered during the count with the environmental control and communications systems. All data has been impounded pending an investigation.

Continued on page 7)

Prime Apollo I crewmen Edward H. White II, Virgil I. Grissom, and Robert B. Chaffee were killed Friday, January 27 in a flash fire aboard the huge spacecraft designed to take man to the moon.

Langley Researcher, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Langley Station, Hampton, Virginia, is published biweekly in the interest of its employees. Address contributions to the Editor, Mail Stop 302, telephone 2575.

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. . .Making plans for a spring wedding is Helen H. Clarke, Aero-Physics Division. She is engaged to James V. Calhoun, Leesburg, Florida, and plans call for a March 11 wedding.

GAME NIGHT. . .The next biweekly Game Night, sponsored by the Activities Association, will be held on Thursday, February 23 at 8 p.m. in the Activities Building.

REPRESENTATIVE TO VISIT HERE. . .Beverly Beale, Government-wide Service Plan representative will visit the Center on February 15 from 2 p.m. until 3 p.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

BASKETBALL NEWS. . .Bucket Brigade leads the NASA Basketball League with 10 wins and 1 losses. Misfits are in a close second with 9 wins and 1 loss. ACD and Boozers are tied for third with 7 wins and 4 losses each and 8-Foot is in fifth with 6 wins and 5 losses. Trailing in the last four slots are Structures, Short Circuits, X-Raiders, and Exciters.

PENINSULA SKI CLUB. . .Snow skiing enthusiasts are invited to attend the next meeting of the club on Monday, February 20 at 7:30 p.m. at Nachman's Community Hall in Warwick Shopping Center.

VALENTINE DANCE FEBRUARY 11

The Activities Association will open the 1967 social season with a Valentine Dance tomorrow night in the Activities Building. Dancing will be from 9 p.m. until 1 a.m. and music will be furnished by The Echoes.

The Echoes, a seven-piece band led by Jerry Leggett, has been doing a series of week-end dates along the Virginia and Carolina coasts. They are noted for rhythm and blues.

Admission is three dollars per couple, including free setups, and tickets are available at the Activities Building, Building 1222, in the West Area or from Dick Kurtz, Building 586, telephone 2203, in the East Area. Table reservations for groups may be made by calling Bruce Amole, telephone 4508.

FOR SALE: 3-bedroom house with attached garage on corner lot; also Kenmore electric range - $85. Privette, 1128 78th St., after 4 p.m.

KNOW YOUR CREDIT UNION

To identify its members so that each may take pride in his membership and that of his co-workers, the Credit Union is again sponsoring a "Fly-the-Flag" contest. NASA employees will compete among themselves for prizes totaling $200. Air Force military and civilian personnel will do the same.

The "flag" is a 3 x 6-inch decal identifying an individual as a member of the Credit Union. A member wins if his account number is selected at random and he, in fact, is "flying-the-flag", i.e., has the decal affixed to the left side of the rear bumper of his automobile. Drawing will be held every two weeks with the results announced in Langley Researcher beginning February 24.

If the account number selected is that of a qualifying member, he will receive a minimum of $25. Prizes not won in any two-week period will be added to the prize for the following period. Members may pick up decals at the Credit Union building or write/phone and request that one be sent them. A simple method is for one person to call NASA 3606 and ask for as many as necessary to meet the requirements of his office or group.

Now about that automobile. Maybe you have a new one in mind to show off that new decal. If so, see your Credit Union and save yourself some looking. It is mighty tough to find a loan (1) to 3/4 of sales price, (2) with 36 payments as low as $31.63 per month per $ 000 and (3) with loan-insurance at no extra cost.....any place else.

CAFETERIA MENU

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

Monday - Puree of bean soup, braised short ribs on egg noodles, grilled pork chops, knockwurst, sea dog.

Tuesday - Chicken-rice soup, Swiss steak, crab cakes fried chicken, macaroni and wieners.

Wednesday - Minestrone soup, baked Smithfield ham chicken pie, stuffed pepper, fish cakes and cole slaw.

Thursday - Vegetable-beef soup, grilled steak, clam croquettes, spaghetti and meat sauce, baked hash.

Friday - Clam chowder, braised beef tips over rice breaded veal chop, fried fish, cheese ravioli.

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

Monday - Tomato-rice soup, roast beef, grilled ham slice, chicken chow mein, grilled cheese sandwich.

Tuesday - Split green pea soup, corned beef brisket roast fresh ham, fried fish sticks, western omelette.

Wednesday - H O L I D A Y

Thursday - Vegetable-beef soup, grilled steak, fried shrimp, meat pot pie, franks and beans.

Friday - Clam chowder, pot roast of beef, liver and onions, fried fish, hot dog.

FOR SALE: Hampton One Design sailboat No. 62. Mrs Gilman, PA 2-5847.

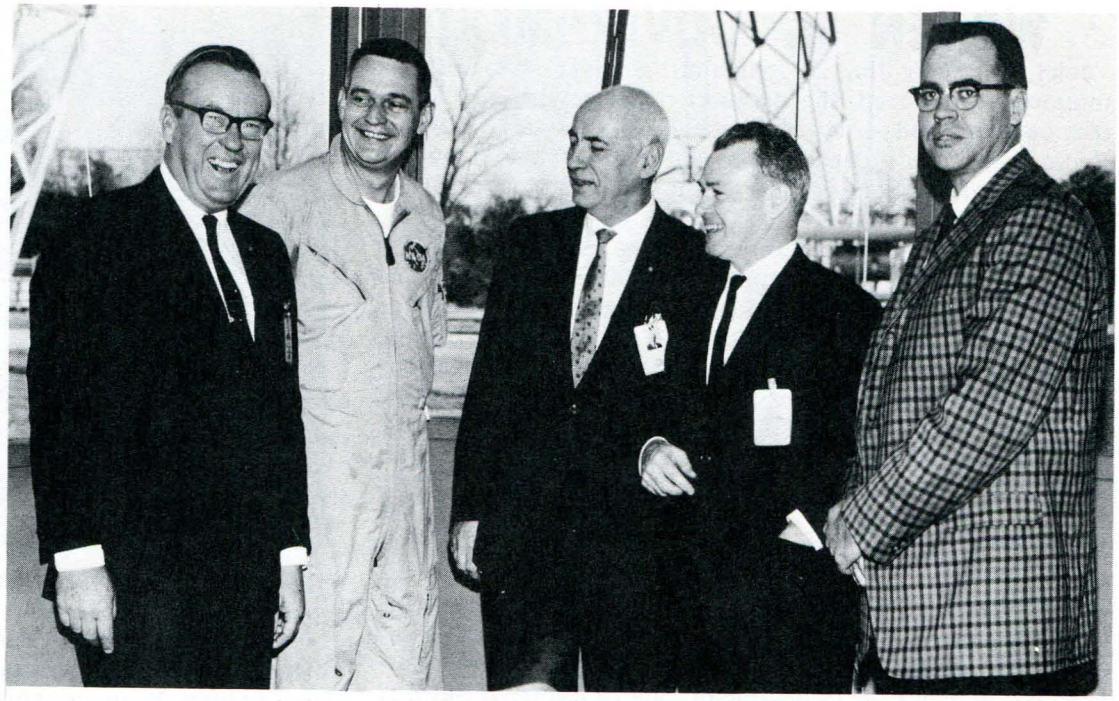
FOR SALE: 1957 Ford V-8. Moss, 851-0347.

FOR RENT: 3-room house near Buckroe Shopping Center $55 per month. Belda, 898-6310.

FOR SALE: 1963 Volkswagon, 2-door sedan - $800. Sealy PA 3-2527.

LOST: Pair of man's black rim glasses. Pickrell, 3461.

WANTED: Driving combination from Bethel Park-Greenwood Farms area to W.A. on 7:30 shift. Spruill, 3737.



Astronauts Frank Borman (left photo) and Clifton C. Williams Jr. visited the Langley Research Center last month and received instructions on the operation of the Lunar Landing Research Facility and were indoctrinated in the problems involved in flying the Lunar Module. Robert R. Gilruth, Director of Manned Spacecraft Center, visited here on January 26 and stopped by the LLRF to see the astronauts in training. Right photo - Shown with Astronaut Williams are (from left): Axel T. Mattson, Research Assistant for Manned Spacecraft Projects; Gilruth, Charles J. Donlan, Associate Director, and Donald E. Hewes, Head of the Spacecraft Research Branch, Space Mechanics Division. Williams and Borman are two of several astronauts who have flown the rocket-powered research vehicle to obtain data on the problems of lunar landing. The vehicle is partially supported from a 250-foot high, 400-foot long gantry structure to simulate the one-sixth gravity of the moon. The indoctrination program at Langley was in prepration for an extensive flight training program in the Lunar Landing Research Vehicle in Houston.

ACM FORMS LOCAL CHAPTER

The Virginia Peninsula Chapter of the Association for Computing Machinery will hold its initial meeting on February 14 at the Strawberry Banks Motel. A social hour will be held at 6 p.m., followed by dinner at 7 and the business meeting at 8.

Guest speaker will be Hugh Donaghue, Assistant to the President of the Control Data Corporation, Capital Region Representative of the Association for Computing Machinery.

The local association was formed for the purpose of providing a forum for the discussion of techniques, problems and ideas bearing on the phases of computer science of local interest; organizing projects in which participating members may make contributions to the computer science and broaden their knowledge, and to invite computer science specialists to speak on techniques, problems and ideas of more than local interest.

The group will meet monthly and chapter membership is initially open to anyone interested in computing science. Dues are three dollars per year and membership forms may be obtained from Floyd Shipman, Mail Stop 125.

Members of the Executive Council are as follows: John N. Shoosmith, NASA, Chairman; George C. Salley, NASA, Vice-Chairman; David I. Hoop, VARC, Secretary; John A. Petrick, IBM, Treasurer, and Floyd Shipman, NASA, Membership.

HUMPHREY CONGRATULATES NASA ON GEMINI PROGRAM SUCCESS

James E. Webb, NASA Administrator, recently received the following letter of commendation from Hubert H. Humphrey, Vice President:

"The Gemini program has been a most impressive success from the first flight on April 8, 1964, through the twelfth which made November 15, 1966, such a memorable and historic day.

"This program has proven through experience so many things about astronauts' courage and spacemanship, the reliability of our launch vehicles and spacecraft, and the efficiency and dedication of our support personnel. Moreover, it has imprinted on the pages of space history a series of records which reflect so clearly technical competence this nation has already reached in its national space program. There is, however, much more to be done.

"Above all, this Gemini program has revealed how a team representing the Federal Government and private industry can work together and, in so doing, show the world in an open fashion the vitality and efficiency of our democracy and free enterprise system.

"I congratulate you and your associates for your contributions to Gemini. The American people are proud of your role and participation."

FOR SALE: 3/4 size roll-away bed with innerspring mattress - $10, 2-piece bedroom suite with spring and mattress - $25. Hartmangruber, 596-3931.

FOR SALE: Fairchild stereo turntable, Grado arm, Pickering cartridge - $45, Eico monural FM tuner - $25. Layman, 868-5701.

WOMEN IN GOVERNMENT

John W. Macy Jr., Chairman of the Civil Service Commission, announced the promotion of Evelyn Harrison to the newly created position of Assistant to the Chairman for Federal Women's Programs. Miss Harrison will retain the post of Deputy Director of the Commission's Bureau of Policies and Standards, which she has held since 1955, in addition to the responsibilities of the new position.

She will be the CSC Chairman's representative in all the major aspects of the President's program for women in the Federal civil service. She will coordinate activities to improve employment, training, and advancement opportunities for women throughout the Government. Working with other Commission officials in Washington and in the field, she will identify areas and activities needing special attention to insure equal opportunity for women. She will also act as consultant and adviser to officials of other Federal agencies for improvement of their programs for women.

Miss Harrison is Chairman Macy's alternate on the Interdepartmental Committee on the Status of Women, and executive officer of the Subcommittee on Federal Employment of which he is chairman. She is the Civil Service Commission representative on the Subcommittee's task force. She is on the executive committee of the Presidential study group of Federal Woman's Award winners.

A native of Washington, D.C., Miss Harrison holds the distinction of being the first woman to graduate from the Engineering College of the University of Maryland, having received a B.S. degree in Civil Engineering in 1932. She has done graduate work at George Washington University and American University in psychology and public administration. Her career in the Civil Service Commission began in 1938, following four years as a topographic draftsman with the Geological Survey, Department of Interior.

From her first position as junior examiner in engineering and allied fields, Miss Harrison has advanced steadily within the Commission. Her positions prior to 1955 included administrative officer, assistant to the chief, executive assistant, and acting chief, all in the Examining Division, and Acting Director of the Bureau of Programs and Standards from 1953 to 1955. She has served on detail for special assignments with the President's Committee on the Status of Women (1962), the White House Task Force on Education (1965), and the Department of Housing and Urban Development (1966). In 1962 she received the Federal Woman's Award, one of the highest honors that can be won by Federal career women, for her outstanding competence in the formulation and development of Government-wide personnel policies.

FOR SALE: Custom trailer hitch for 1964 or 1965 Tempest- $5. Whitlock, 838-1591.

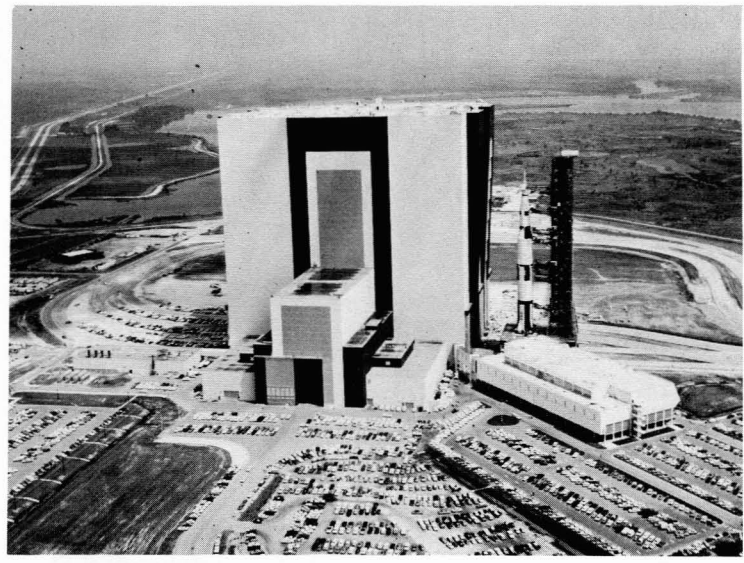
FOR SALE: Refrigerator - $25, Schwinn 16-inch bicycle - $8. Elliott, 596-0397.

FOR SALE: 1965 Falcon Futura station wagon - take over payments. Chaney, 722-2448.

WANTED: Ride from McLawhorne Dr. (near Brentwood) to W.A. on 8 shift. Peggy Lewis, 3343.

FOR SALE: 2-piece modern living room suite, 2 end tables, coffee table, 2 lamps, 1 pole lamp - all for $50. Sain, 826-7389.

WANTED: Alternate drivers from Aberdeen Rd. - Briarfield Rd. area to W.A. on 8 shift. Wright, 4817.



THE BIG ONE. The largest building in the world and a test version of NASA's biggest rocket are shown in this photograph made at Kennedy Space Center. The Vehicle Assembly Building will be used to assemble and check out the Saturn V moon rocket. When the actual Saturn V is assembled in the VAB on a mobile launcher, a 3,000-ton crawler will move under the launcher and transport it to the launch pad.

COIN CLUB MEETS FEBRUARY 16

The first regularly scheduled meeting of the Langley Research Center Coin Club will be held at the Activities Building on February 16 at 7:30 p.m. The doors will be open at 7 o'clock or anyone interested in becoming a member of the club or who would like to set up displays, trade coins, or just visit.

Adoption of the club's Constitution and By-Laws will be the first order of business and will be followed by the election of officers for the coming year. An election committee has nominated the following candidates: President, R. Thayer Sheets; Vice President, William P. Henderson; Secretary-Treasurer, John T. Taylor, and Sergeant-at-Arms, Samuel R. McAdams. Elections are subject to the ratification of the club's Constitution and By-Laws.

After a short recess following the business portion of the meeting, the club will raffle off a lot of five brilliant uncirculated silver dollars - dated 1885, 1886, 1887, 1888, and 1889, which will be presented to the holder of the lucky ticket. The evening's program will be concluded with an auction which will be open to any Center employee or member of his immediate family. All future auctions and other club functions will be subject to the provisions of the club's Constitution and By-Laws. The proposed Constitution, By-Laws, and auction listing can be obtained by calling Sam McAdams, 2275, or Thayer Sheets, 2214.

Approximately 30 Langley employees have expressed an interest in becoming members of the coin club and members are looking forward to a large turnout. Come and bring a friend and help get the club off to a tremendous start and remember the time and place - February 16, 7 p.m. at the Activities Building.

WANTED: Alternate drivers from Kecoughtan Rd. and La Salle Ave. to W.A. on 8 shift. Watson, 3346, or Davenport, 3711.

ORBITER SUCCESSFULLY LAUNCHED

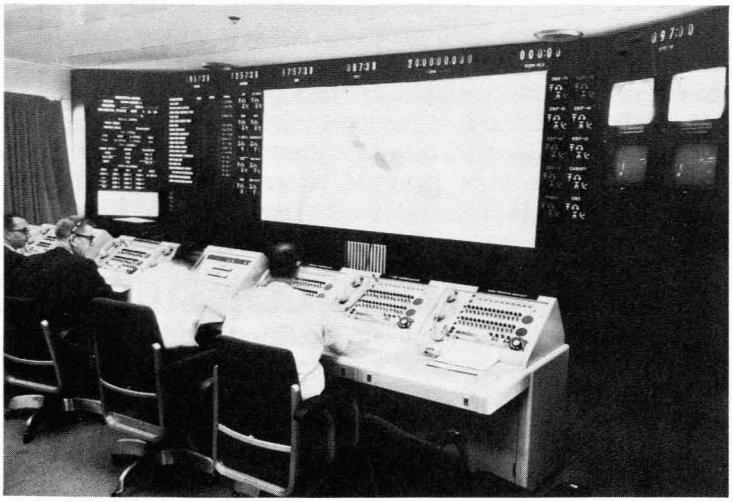
(Continued from page 1)

based on this data, to the Mission Director. This constantly updated information enables the Mission Director and Launch Director, who are in close communication, to reach quickly a mutual decision to launch or hold.

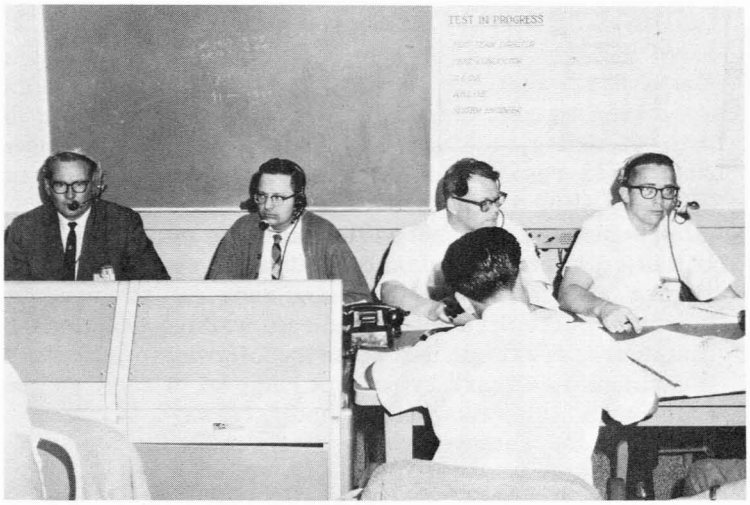
The following Langley personnel, stationed in Building AO with the Mission Director, provide the information required for the decision to launch:

Mission Coordinator - The Operations Manager or his designee fulfills this responsibility during the countdown. The Mission Coordinator (MC) receives at regular intervals reports of the current status of the communications, data processing systems, and other related hardware located at the Space Flight Operations Facility at Pasadena, and the current status of the communications and equipment of the Deep Space Network (DSN). Should any problems develop at any of these facilities, the MC receives a running account of the progress of corrective operations.

Deputy for ETR Operations - Receives, at regular intervals, status reports of the spacecraft, launch vehicle, Range stations and ships of the AFETR and the MSFN, plus weather and communications. He is kept informed of the status of any system experiencing difficulty.



The pictures above show the Mission Operations Center. The top photo shows a view of the control room with its status display. Bottom photo - Manning the consoles dur- Lunar Orbiter operations are (from left): D. H. Ward, Langley Deputy for ETR Operations; C. H. Nelson, Mission Director; W. J. Boyer, Mission Coordinator; E. B. Lightner, Mission Analyst; B. F. Barry, JPL, and E. B. Martin, JPL. Shown at the console to the rear is R. C. Turner, JPL.



Langley and contractor personnel stationed at DSS-71 during Lunar Orbiter operations are (from left): J. Stansell, TBC Test Conductor; G. Webb, TBC Test Team Director; N. Holmberg, Langley Test Engineer, and the Eastman Kodak representative. Missing from the photo are C. H. Green, Langley Communications System Engineer, and H. L. Smith, Langley Test Engineer.

Mission Analyst - Responsible for the evaluation of the mission during the early phase of the flight; that is, from liftoff until acquisition of the spacecraft by tracking equipment of the Deep Space Network. He also makes recommendations concerning the required data coverage and launch plans to be used.

Operations being conducted at Deep Space Station 71 (DSS-71) are the final spacecraft testing and the spacecraft flight programmer memory fill - the operation of loading the memory banks of the programmer with certain groups and sequences of command, which the spacecraft will execute whenever so directed by a DSN ground station. The Boeing Company has the responsibility for these prelaunch checkouts, with Langley personnel monitoring and advising. The Langley personnel must be aware of the characteristics of Range equipment as well as spacecraft equipment to properly advise the contractor during the many situations that arise during prelaunch testing and countdown. Langley personnel assigned to DSS-71 for launch operations are responsible to the Mission Director for knowledge of the status of the spacecraft testing and hardware, in addition to the status of mission related equipment at the station.

After liftoff, the Lunar Orbiter mission continues to receive direction from the Mission Operations Center until the spacecraft has been acquired by the DSN.

FOR SALE: 1961 Volkswagon, new battery, $675. Klye, 595-3923.

FOR SALE: Norge washing machine, news slight repair - $25. Coward, 877-4696.

FOR SALE: 1965 Corvette. Fontana, 693-2869.

FOR SALE: Four-level house on deep water at Grandview Shores - 3 bedrooms, 3 full baths. Zanks, 851-2961.

FOR SALE: Girl's 20-inch Skyder bicycle with spare saddle and handlebars - $15. Youngblood, 877-1224.

DON'T BE A FALL GUY THIS WINTER

Now that winter is here, we can also expect its seasonal companions - ice and snow. The slipperiness of ice and snow is a mixed blessing. It provides winter fun in the form of skiing, ice skating, and sledding. On the other hand, it is responsible for numerous pedestrian injuries caused by slips and falls.

Slipperiness is an asset on the ski slope or skating pond, but it is a distinct hazard on the sidewalk, steps, or street. Slipping and falling due to ice and snow can be prevented by prompt corrective action and safe walking practices.

Employees are reminded to take the following precautions:

Eliminate the hazard by prompt removal of snow and ice from home sidewalks, steps, and driveways. A chemical ice and snow remover will usually make the job easier and do it better.

Use proper footwear for walking on ice or snow-covered sidewalks and streets. Get maximum traction by wearing overshoes or snowboots. Leather-soled shoes, like smooth tires, have poor traction on slippery surfaces. Women should avoid high heels, since the small heel surface provides very little traction and body balance is difficult to maintain.

When you are walking on slippery surfaces, you'll find it easier to keep your balance by taking short steps and leaning forward in a slight crouch, lowering the body's center of gravity.

Always use the handrail on steps. In case of a slip, a firm grip on the handrail will prevent or minimize a fall. When using steps that have no handrail, you can get maximum traction by turning the body so that the feet are sideways on the step.

Walk "defensively." When waiting to cross snow or ice covered streets at intersections controlled by traffic signals, be on the lookout for skids by automobiles attempting to stop. Wait until all traffic comes to a complete stop before crossing. When walking on the sidewalk or street during thawing periods, watch out for areas where oncoming cars may splash you. This will eliminate the need for haste on a slippery surface - haste that could result in a fall.

Learn how to fall properly. If you fall, try not to topple like a tree. Relax as much as possible, and crumple like an empty sack, rolling on the fleshy parts of the body. A limp fall is less likely to result in serious injury.

Ice and snow can make winter walking difficult and hazardous, but safe walking practices will keep you and your family accident-free.

SUGGESTIONS TOP RECORD

Cost-cutting suggestions by Federal employees rose to an all-time high during Fiscal Year 1966 and produced economies in Government operations valued at more than $123 million.

John E. Macy Jr., Chairman of the Civil Service Commission, reported to President Johnson that the following new records were set:

Adopted employee suggestions total 140,779 - a 5.5 per cent increase over Fiscal Year 1965.

Measurable benefits from adopted suggestions amounted to $123,395,573 - a 28.7 per cent increase.

Awards to employees for adopted suggestions totaled $4.2 million - a 6.8 per cent increase.

An additional 80,513 employees received superior performance awards for work achievements which went "beyond the call of duty" and which returned over $158 million in measurable benefits to the Government, plus important intangibles, including scientific advancement, better service, and more effective accomplishment of agency functions. These employees shared $10.3 million in awards with the average award amounting to $146.

Selected as one of the pictorial highlights of the U.S. space program during 1966 was this shadow on the moon. With the evening sun furnishing proper backlighting, NASA's Surveyor I spacecraft made this photo of its own shadow where it soft-landed on the surface of the moon. Launched last May, Surveyor I made this picture on June 13 with the moon's sunset less than 24 hours away. The 600-scan-line, wide-angle television photograph was received at Jet Propulsion Laboratory in Pasadena, California.

ZISCH NAMED CONSULTANT

William E. Zisch, Vice-Chairman of the Board of Aerojet General Corp., El Monte, Calif., has been sworn in as a part-time consultant to James E. Webb, NASA Administrator.

Zisch, a student and associate of the late Dr. Theodor von Karman who was an eminent physicist and aeronautical engineer at California Institute of Technology, will assist in developing studies related to such matters as the differing patterns of technology development between the United States and other countries and the utilization by non-aerospace industries of new technology developed in the NASA program.

Zisch, a native of Denver, Colo., joined Aerojet in 1942 after three years at Cal Tech's Guggenheim Aeronautics Laboratory. He was named President of Aerojet in 1963 and Vice-Chairman of its directorate in 1966.

Zisch is also a trustee of the California Institute of Technology and Director of the General Tire and Rubber Co.

FOR RENT: Unfurnished 2-bedroom bungalow in Buckroe. Schuchert, 723-2458.

FOR SALE: Scott amplifier 299 stereo, 2 screen doors, 3 window screens, Riggin, 722-6087.

3-MAN APOLLO CREW DIES

(Continued from page 1)

Dr. Floyd L. Thompson, Director of the Langley Research Center, has been named to head a formal board of inquiry. E. Barton Geer, Associate Chief of Flight Vehicles and Systems Division, has been appointed as a member of the board. George T. Malley, Office of Chief Counsel, will serve as counsel for the board.

Grissom was one of the original seven astronauts and was stationed at Langley during the early part of his career with the space agency. He was the first to ride a rocket twice into the skies. After his first flight, a suborbital hop in a Mercury spacecraft, he wound up swimming for his life when the ship sank in the Atlantic. With John W. Young, he flew the first three-orbit mission in Gemini 3 and became the first man to maneuver a spacecraft in flight.

White, who joined NASA with the second group of astronauts in 1962, was the first American to walk in space, orbiting outside the Gemini 4 spacecraft for 21 minutes.

Chaffee joined the space program in 1963 with the third group of astronauts and was training for his first flight into space.

All three astronauts were buried Tuesday, January 31 with full honors from their country. Grissom and Chaffee lie side by side in Arlington National Cemetery, across the Potomac River from the capital. White was buried in the West Point Cemetery in New York, above the Hudson river.

Each of the three Apollo fliers were married and each had two children.

Other astronauts killed, all in the line of duty, were Theodore C. Freeman, Elliot See Jr., and Charles A. Bassett.

See and Bassett died when their jet plane crashed into the building housing their space capsule at St. Louis. Freeman was on a routine training flight when a goose hit his windshield as he came in for a landing.

EXECUTIVE SAFETY COMMITTEE

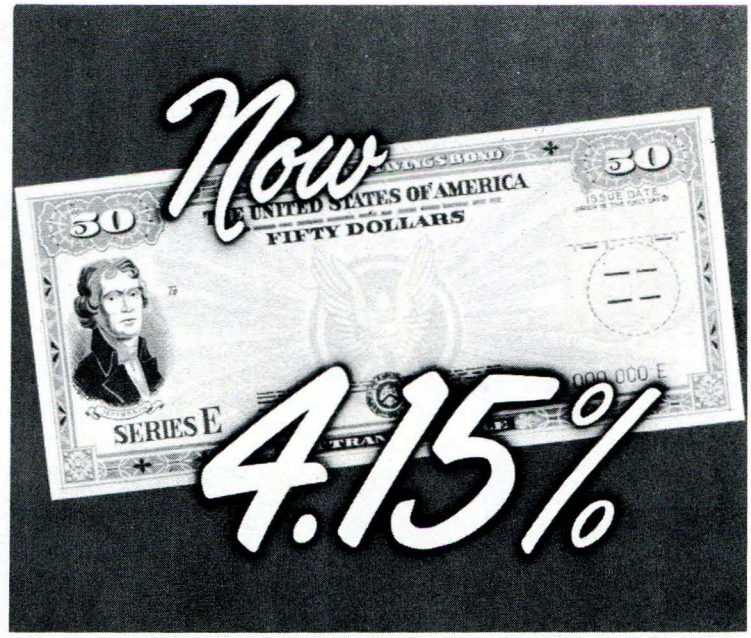
Langley's Executive Safety Committee met January 27 for the purpose of discussing the Center's progress on the Mission Safety-70 Program, to review overall safety efforts and to outline methods for improving the safety record.

George D. McCauley, NASA Safety Director, was guest at the meeting.

The functions of the committee are to audit the Center's safety program, provide consultation to operating groups on safety, serve as an advisor to the Director on safety, and investigate accidents, when necessary, to determine the cause, extent of damage, and corrective action to prevent recurrence, except in those instances involving incidents of injury, facality, or property damage to non-government persons or property.

Thomas A. Harris is Chairman of the committee, T. Melvin Butler is Vice-chairman, and Duane McSmith is Secretary. Members are Charles F. Barnett, Eugene H. Britt, William E. Craig, Marvin Forrest, Richard R. Heldenfels, Edwin C. Kilgore, Laurence K. Loftin, Herbert A. Wilson, and Lindsey I. Turner.

FOR SALE: Silvertone guitar - $25. Poling, 826-8975.
FOR SALE: 1960 Pontiac, 4-door - $500. Smith, PA 3-6488.



NASA BOWLING LEAGUE

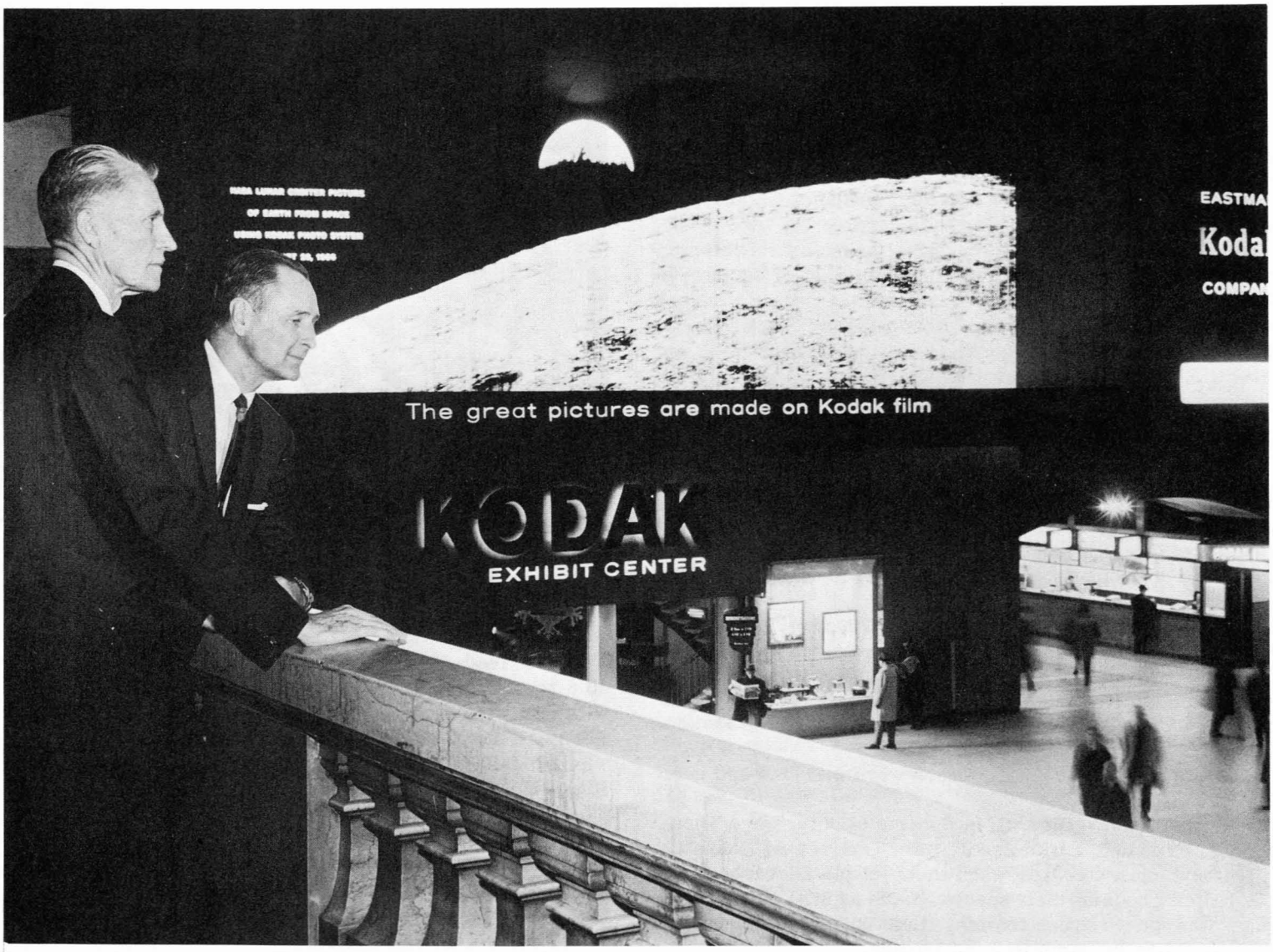
Flyers lead Group A in the NASA Tenpin League with 48.5 wins and 31.5 losses. Trailing in second are Outlaws with 47 wins and 33 losses. Top scores were rolled by Bernie Polk with a 247 game and Henry Lee with a 660 set.

ACD leads Group B with 50 wins and 30 losses. Wood Nickers and Golfers are tied for second with 48 wins and 32 losses each. Top bowlers were Larry Bement with a 265 game, Sam Sokol with a 684 set, and Jackie Andrada with a 220 game and 619 set.

Sad Sams lead Group C with 56 wins and 24 losses. Top scoring laurels went to Willie Wright with a 245 game and 667 set and Megan Lynch with a 232 game and 657 set.

GROUP A					
Flyers	48.5	31.5	Odd Balls	41	39
Outlaws	47	33	Hornets	41	39
Misfits	44.5	35.5	Alley Cats	32	48
Clean Ups	44	36	Phantoms	31	49
Unitary	42.5	37.5	Short Circuits	27.5	52.5
GROUP B			GROUP C		
ACD	50	30	Sad Sams	56	24
Wood Nickers	48	32	RPM's	50	30
Golfers	48	32	Bowling Belles	49	31
Strike Outs	46	34	Hotshot Tunnel	48	32
Payloads	43	37	Gliders	47	33
Flight Engineers	41	39	A-OK's	47	33
Flight	39	41	Ten-Benders	44	36
Getogethers	38	42	Mets	43	37
Pinwigglers	36	44	Wa-Hoppins	43	37
HMS	36	44	Sparkys	40	40
Cee Pees	35.5	44.5	Dillys	34	46
Galaxies	34	46	Hits & Misses	24.5	55.5
Trackers	33	47	Class Kats	24	56
Greenhorns	32.5	47.5	Gutter Jumpers	10.5	69.5

FOUND: Man's thick-lens glasses in Library, Building 1244. Call Oneda Moore, 4788.
WANTED: Man's size 10-1/2 bowling shoes with rubber soles. McMath, 3511.



Grand Central commuters in New York City watched on January 23 as the historic first picture of the Earth from deep space was unveiled on the huge Kodak Colorama. The Lunar Orbiter picture shows the Earth at a distance of 232,000 miles. It was taken August 23 using a 145-pound Kodak photo assembly "canned" in an aluminum shell, 15,000ths of an inch "thin." The photograph was developed and dried right in the photo unit then scanned for relaying to Earth. Looking at the completed installation are Dr. Floyd L. Thompson (left), Director of Langley Research Center, and Dr. Lewis K. Eilers, President of Eastman Kodak Company.

PROFESSORS TO VISIT HERE

Dr. Fred R. DeJarnette, Department of Aerospace Engineering, Virginia Polytechnic Institute, will visit the Center on February 17 to discuss the graduate program with interested personnel.

Professor Dan H. Petta, Head of Engineering Mechanics Department, VPI, will be at the Center on February 24 to discuss the graduate program and theses with staff members.

Employees wishing an interview with Dr. DeJarnette or Dr. Petta should call the Training Office, 2611, for an appointment.

FOR SALE: Filter Queen vacuum cleaner with all attachments, 1940 Ford coupe with 1958 Corvette engine. Oliver, 722-1733 after 5 p.m.

FOR SALE: 8.20-15 snow caps - 2 for $10. Mulqueen, 898-6327.

FOR SALE: 1 967 Mustang. George, 826-1526 after 4:30.

NATIONAL ENGINEERS WEEK

Every year during the week of George Washington's birthday the National Society of Professional Engineers sponsors National Engineers Week. This year the theme is "Engineering for the Human Environment."

The local Professional Engineering Society has obtained radio and television time for promoting Human Environment Engineering. Speakers will be at all the local schools during the week emphasizing the need for control of water pollution, air pollution, solid waste disposal, auto safety.

Climaxing the week's activities will be a banquet held at 7:30 p.m., February 25, at the Langley Officers Club. Following the dinner, Ned Landon, Manager of the Publications Center of the General Electric Company, Schenectady, N.Y., will speak on "What's New in Research."

Members and non-members of all the professional societies on the Peninsula are invited to attend. Tickets must be obtained prior to February 18 from Robert C. Basford, 723-3212. Dancing will follow the meeting.

Langley Researcher

VOLUME 6, NUMBER 4 LANGLEY RESEARCH CENTER FEBRUARY 24, 1967

LANGLEY TO NEGOTIATE CONTRACTS FOR RESEARCH TO REDUCE JET NOISE

Langley Research Center will negotiate contracts totaling over $10 million with two companies for research to achieve significant reductions in the noise generated by commercial jet transports.

Acting on behalf of the government Inter-Agency Noise Abatement Program, Langley will negotiate cost plus fixed fee contracts with the Boeing Company for about $7.5 million and with the Douglas Aircraft Company for approximately $3 million.

This first step in the inter-agency program is directed specifically at minimizing fan-compressor noise radiation. The contract calls for engineering studies, design analyses, fabrication, ground run-up, and flight testing to determine the effectiveness and feasibility of modifying front-fan jet engines.

Boeing and Douglas will make available to the government without any proprietary restrictions the result of their in-house program in noise research. Thus, in effect, the work done under government contract will add an important element to the much larger total effort of the aerospace industry in noise abatement.

The Douglas effort will seek a reduction in fly-over noise level on the ground by 7 to 10 decibels by acoustic treatment of fan inlet and discharge ducts. This is the equivalent of moving the noise source about three to four times as far away.

The Boeing work will be aimed at a reduction of 15 decibels, equivalent to moving the noise source about five times as far away. Boeing will attempt this by adapting principles of choking the air flow to the engine inlet in order to prevent the noise generated by the fan and compressor from propagating forward.

Boeing and Douglas responded to invitations by Langley in September 1966 to submit proposals for the research program.

The NASA research program, fully coordinated with the Federal Aviation Agency and the airlines and aircraft industries, is of major importance to the potential total solution of aircraft noise problems.

All methods that produce aircraft thrust, unfortunately, involve airflow processes that generate noise.

The Douglas and Boeing companies will be called upon to develop, fabricate, and test modified engine nacelles applicable to operational commercial jet transports.

Hardware must be suited to flight testing on all four engines of a jet transport.

NASA has responsibility under the inter-agency program for research and development required to reduce engine noise and to provide information upon which judgment can be made for the most effective overall approach to solving this problem.

(Continued on page 4)

LUNAR ORBITER STARTS SENDING TOP QUALITY MOON PICTURES

Lunar Orbiter III, which was launched from Cape Kennedy on February 4 and entered lunar orbit four days later, started televising new pictures from the moon on February 15. The pictures showed broad level areas pitted with small craters but probably safe for astronaut landings.

The photographs, flashed on screens at the Jet Propulsion Laboratory, were made at an altitude of 33-1/2 miles over the dry Sea of Tranquility on the equator near the moon's eastern edge.

No scientific evaluation was released immediately but comparison of the pictures with those of the same area by Lunar Orbiter I and II indicates the site probably is smooth enough for manned landing.

The basic task of Orbiter III is to supplement information gained from Lunar Orbiter I and II by obtaining detailed photographs on selected areas on the moon's surface. Orbiter III is assigned 12 primary target sites within the Apollo zone of interest on the moon's front face.

(Continued on page 4)

This photograph is an enlargement of a portion of a wide-angle photograph taken by Lunar Orbiter III. The crater Hyginus appears in the center of the picture and the two branches of the Hyginus Rille (valley) extend to the Northwest and the East. Hyginus is approximately 6-1/2 miles in diameter and 2600 feet deep. It is located between Sinus Medii and Mare Vaporum near 8 degrees North Latitude and 6 degrees East Longitude. An area known as the Schneckenberg Uplands appears in the upper left corner. The photograph was made at 10:30 p.m. EST February 16 when the spacecraft was in its 56th orbit of the moon. At the time of the exposure, Lunar Orbiter III was 49 miles southwest of the crater at an altitude of 39 miles. The area shown is not considered a potential astronaut landing site.

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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 herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

ENGAGEMENTS. . .Making plans for a spring wedding is Norma L. Fox, Flight Vehicles and Systems Division. She is engaged to Raymond L. Davis and the big event will take place on March 25. . .Margaret L. Brower, Full-Scale Research Division, has announced her engagement to Dr. Hilton Almond, Medical College of Virginia. No date has been announced for the wedding.

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

DIAPER LINE. . .Weighing in at nine pounds, nine ounces on February 6 was Anita Celeste, daughter of Michael Hudson, Structures Research Division. . .Announcing the birth of an eight pound, one ounce daughter, Marci, on February 15 is Edward P. Phillips, Structures Research.

STORES BRANCH NOTICE. . .Facility coordinators are requested to return all wooden skids and/or pallets to Building 1206. After the skids have been collected in one location, a telephone call to Parcel Pickup, 3528, will have them removed.

NEWLYWEDS. . .Wedding bells rang on February 18 when Roy A. Heath Jr., Mechanical Division, took his final vows with Charlotte L. Fox, Newport News, at the Calvary Baptist Church in Newport News.

SAFE BOATING COURSE. . .A free eight-lesson course in safe boat handling will be given for the public by the U.S. Coast Guard Auxiliary Flotilla 61 at 523 Bridge St., Hampton. The lessons will be given each Tuesday and Thursday starting February 28 at 7 p.m. Students will be accepted through March 7. The course is for old boatmen as well as new boat owners and non-owners - no age limit. A certificate will be awarded upon satisfactory completion of the course. For information call 722-8401, 723-8860, or 244-1921 after 5 p.m.

FOR SALE: 25-foot l.o.d. Morc sailboat. Hull, decks and cabin fiberglassed. Watercooled Kermath engine. 3 dacron sails, nylon spinnaker - $2,400. Lovell, 595-1572.

FOR SALE: Maple double bed with box springs and mattress. Schrader, 877-4936.

STEVENSON NAMED TO POST

Maj. Gen. John D. Stevenson (USAF, Ret.) has been appointed Director of Mission Operations in NASA's Office of Manned Space Flight.

He succeeds Everett E. Christensen who has returned to Lockheed Missiles and Space Co., Sunnyvale, Cal., after serving in the director post since December, 1964.

General Stevenson joined NASA last October and has been serving as special assistant to Dr. George E. Mueller, Associate Administrator for Manned Space Flight.

He is a graduate of the United States Military Academy, attended the Air War College and served in the Air Force as commander of the Central and Western Air Defense Forces and assistant chief of staff for operations at Supreme Headquarters Allied Powers in Europe (SHAPE). His last assignment before retirement in 1966 was commander, Joint Task Force Eight of the Defense Atomic Support Agency.

FOR SALE: 3-bedroom brick rancher with attached garage in Fairfield. Collie, 851-0086.

FOR SALE: Frigidaire clothes dryer - $40. Moughan, Mathews 725-5050.

FOR RENT OR SALE: 3-bedroom house with built-in kitchen, attached garage, and fenced backyard. Harrison, 826-1877.

FOR SALE: 1964 Rambler - $900. Eledge, 868-9348.

LINDA JOHNSON RECEIVES AWARD

Linda T. Johnson, Personnel Division, recently received a letter of commendation and a cash award from the Langley Incentive Awards Committee for Sustained Superior Performance.

Linda T. Johnson

Her citation read as follows: "For assuming supervisory duties during her supervisor's absence and for helping to train new personnel at both the supervisory and clerical level while at the same time sustaining her regular duties in an outstanding manner."

Mrs. Johnson is a native of Hampton. She graduated from Hampton High School and joined NASA on July 31, 1961 as a Clerk-Stenographer with the Space Task Group. She transferred to Langley on February 4, 1962.

UNMANNED APOLLO FLIGHTS

Dr. George E. Mueller, NASA's Associate Administrator for Manned Space Flight, announced that NASA will proceed with the launching of the three unmanned Apollo flights presently scheduled in 1967.

The unmanned flights are:

AS-206, an unmanned lunar module mission on an Uprated Saturn I, scheduled for the second quarter of this year.

AS-501, the first launch of a Saturn V, scheduled for the second quarter. It will fly a command and service module.

AS-502, a second Saturn V launch, scheduled in the second half of the year. It will fly a command and service module.

NASA centers and contractors have been instructed to proceed with Apollo work on the assumption that the first manned orbital flight will be a Block II command module and service module on an Uprated Saturn I; that thereafter manned orbital missions with command, service and lunar modules will be flown on either the Saturn V or dual Uprated Saturn I launch vehicles.

When the AS-204 investigation is completed, changes determined as necessary from the findings will be made and flight schedules established.

MERIT PROMOTION PLAN

The Merit Promotion rosters for Stenographers and Typists are being updated and employees who applied before December 31 should reapply in order to insure their being considered for future promotional opportunities.

For additional information check the official bullentin boards or call Employment Office, telephone 2233.

FOR SALE: 3-bedroom brick rancher in Lynnhaven. Hood, 826-8760.

FOR SALE: Doberman Pinscher, Spear, 595-3068 after 6.

FOR SALE: 1962 Chevrolet Impala - $995. Melfi, 851-2418.

FOR SALE: 1959 Ford Country Station Wagon - $180. Goudy, 898-6176.

FOR SALE: 1962 Pontiac - 4-door sedan. Larson, 596-1922.

YOC EMPLOYEES ATTEND ORIENTATION

T. Melvin Butler, Assistant Director for Administration, recently addressed a group of Youth Opportunity Campaign employees as part of the orientation program for these employees. Youth Opportunity Campaign employees are high school students who have been recommended by their schools for employment in this program. The Federal program was organized to enlist the help of government and industry in identifying job opportunities for deserving high school students.

Butler told the group that Langley was very pleased to have them as employees and appreciated the responsible attitude they had taken in relation to their work. He assured them that each job was considered vital to the mission of the Center, and none were simply tailored to fit the program. The group was told that their jobs here would enable them to get a good idea of what would be expected of them in their jobs when they finished their education and became permanently employed. He emphasized the importance of their learning to work as part of a team and acquiring a responsible attitude toward their jobs.

Students hired under this program also have the opportunity to look over different types of jobs which may help them decide on the type of work in which they might want to specialize and thus prepare themselves through education for such an opportunity.

The students were asked to write a sentence describing what they had gotten from the program. Some of the comments were: "I feel that this program will help us with the responsibilities that we will meet in the future," "From my job I hope to get some experience that would help me or enable me to get a better job in the future," and, "I hope to gain experience and be able to work with others." Several students had a very practical answer and stated that the job enabled them to earn some money which was important to them now or would become important when they enrolled in college.

HELICOPTER GROUP MEETS FEB. 28

Claude V. Williams will be the guest speaker at a meeting of the Hampton Roads Section of the American Helicopter Society on February 28 at the Fort Eustis Officers Open Mess.

Williams, who is a group engineer at the Lockheed-Georgia Company, will discuss his company's new low speed V/STOL wind tunnel.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30 and the meeting at 8:30. Members and non-members are invited to attend. Reservations should be made with John Garren or Dan DiCarlo, extensions 4505 or 4584, by noon on February 27.

FOR SALE: 1966 Mustang 289. Ingram, 244-6407.

FOR SALE: 7-cubic-foot corner type speaker enclosure - $5. Spruill, 826-2251.

FOR SALE: Amateur radio DX-20 - $25. McSmith, 722-8488.

FOR SALE: Double bed with springs and mattress, also modern sofa with cover. Bell, 851-1188.

WANTED: To contact young NASA employee experienced in competition diving and gymnastics who is interested in participating in a 2-hour research program in this area. Bird, 2537.

ORBITER SENDS GOOD PHOTOS

(Continued from page 1)

Other areas of the moon on the front and the hidden sides may also be photographed.

The photographic flight plan is an ambitious one and assumes that all spacecraft systems, ground support systems, and the operations team will be able to operate at maximum efficiency. Covering the 12 primary sites requires photography on a great many of the orbits; thus, there will be fewer priority readouts - the relay by radio to Earth of pictures between picture taking sequences - than on the first two.

In addition, the full photographic flight plan requires about photographic maneuvers by Orbiter III where only 40 were required for the Lunar Orbiter II photographic flight plan.

In addition to its photo task, Orbiter III will monitor meteoroids and radiation intensity in the vicinity of the moon. After more than two months in orbit, Lunar Oribter II had experienced four meteoroid punctures in its detecting instruments. The radiation counters on Lunar Orbiter I clearly measured the effects of a series of solar flares which took place after its photography was complete.

Meteoroid and radiation measurements are used primarily for spacecraft performance analysis since the hermetically-sealed camera package potentially could suffer damage from a meteoroid hit or the photographic film could fog from solar proton radiation.

Orbiter III, like its two predecessors, will add to and refine the definition of the moon's gravitational field, but at a higher inclination on this mission.

The Lunar Orbiter program, which is managed by Langley Research Center, has two more lunar orbiter flights scheduled for later this year.

LANGLEY TO NEGOTIATE CONTRACTS

(Continued from page 1)

Information is required on the extent to which jet engine noise can be reduced (in practical, full-scale application) and the cost of these reductions in terms of hardware and aircraft operating expenses.

NASA is continuing studies with small-scale compressors and inlets to see how geometric details of components affect noise generated from the front of jet engines, and is developing ground test equipment for full-scale studies of acoustically-treated engine nacelles.

LANGLEY CAMERA CLUB

A color slide contest was held at the February meeting of the Langley Camera Club. First place was awarded to Russell Parr for his entry entitled "Fascinating Light." Other winners were: second place - "Chucky" by Sid Hall, third place - "Candy Apples" by Russell Parr, fourth place - "Rose" by Billy Hall, fifth place - "Arcadia" by Sid Hall, and sixth place - "Irene" by Abe Leiss.

The Langley Camera Club will hold its next meeting on March 23 at 7:30 p.m. at the Langley Service Club. A Kodak lecture will be presented. A color slide contest in open category will be held. Plans for the forthcoming year will be discussed.

FOR SALE: 1966 MG Midget. Thomas, 838-2827 after 5.

The uprated Saturn I booster for NASA's Apollo/Saturn-206 mission is being erected at Complex 37, Cape Kennedy. The 80.2-foot booster has eight Rocketdyne H-1 engines capable of producing 1,600,000 pounds of thrust at sea level.

EMPLOYEES DONATE BLOOD

The Red Cross Bloodmobile visited the Center on February 15 and employees donated a total of 179 pints of blood.

Peter F. Korycinski, Charles E. Edmiston and Jules M. Miller completed their quota for a six-gallon pin.

Reaching the three-gallon mark were Aubrey Ferguson, Merriman E. Call, Kenneth E. Singleton, David P. Haynes, William G. Guy, Edward T. Maher, and Walter Bressette.

Two-gallon pins were presented to Maywood L. Wilson, Jarrell Elliott, Barbara B. Holley, Kelly C. Hinnant, Robert S. Freeman, Elizabeth M. Gillis, Philip E. Weatherwax, Kenneth W. Crocker, and David F. Gourley.

Receiving one-gallon pins were Jason Shackelford, Dewey M. Smith, Horace W. Jones, Granville L. Webb, George T. Carson, and Gale A. Harvey.

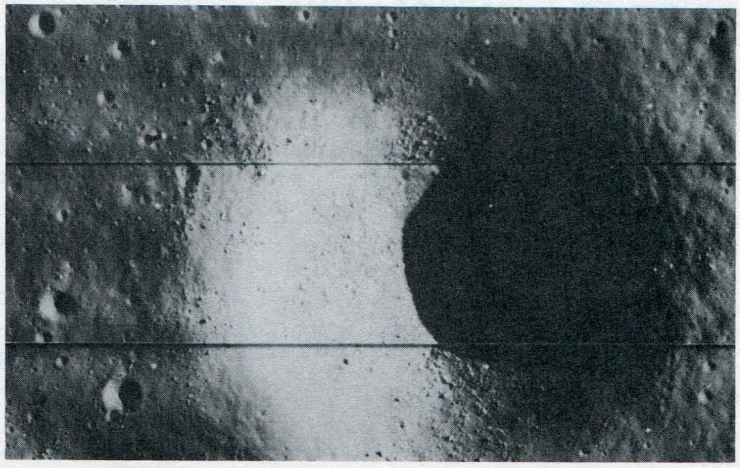
Assisting during the visit were Dr. Fred Robinson and Dr. G. P. Carter.

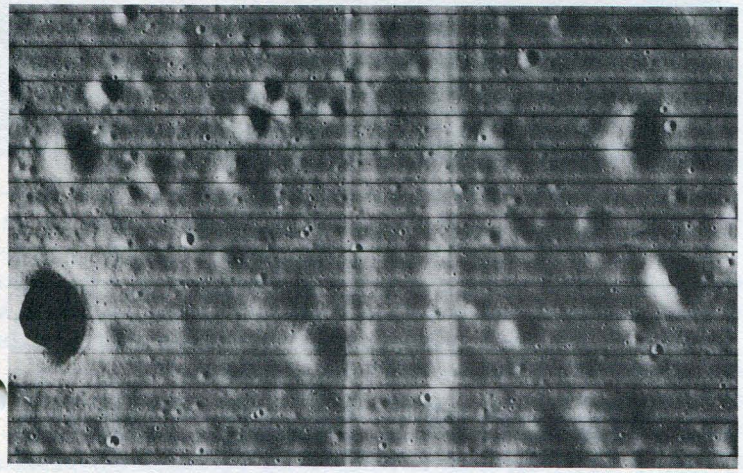
PROFESSORS TO VISIT HERE

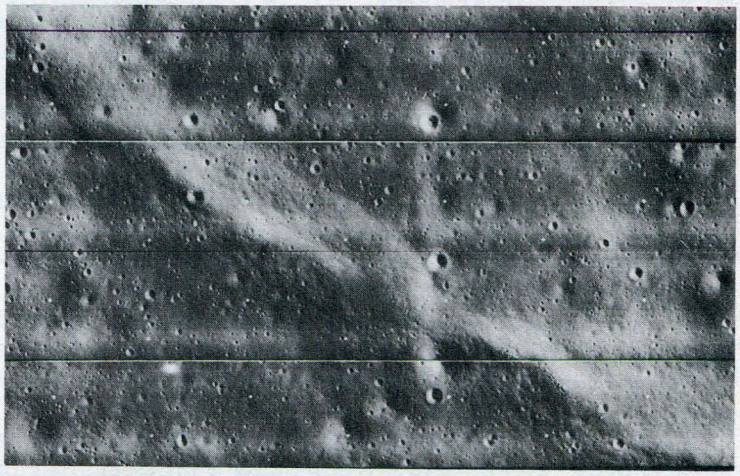
Dr. Tien-Sun Chang, Department of Engineering Mechanics, Virginia Polytechnic Institute, will visit the Center on March 3 to talk with employees interested in the graduate program in Engineering Mechanics.

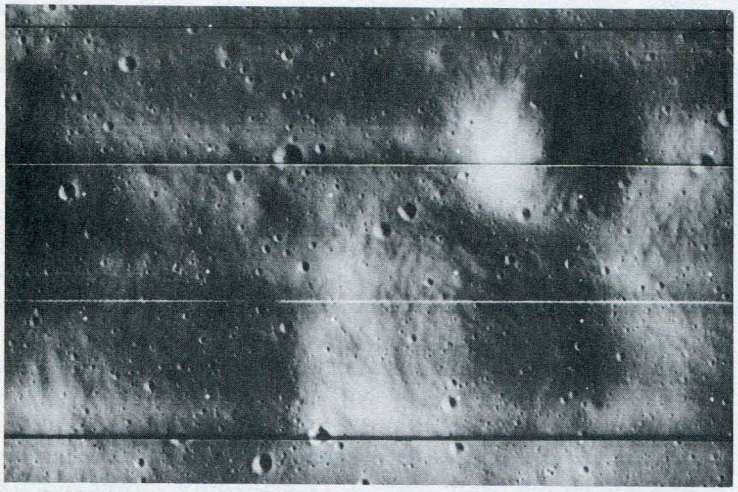
Dr. James B. Eades Jr., Head of the Department of Aerospace Engineering, VPI, will visit the Center on March 10 to talk with interested graduate students.

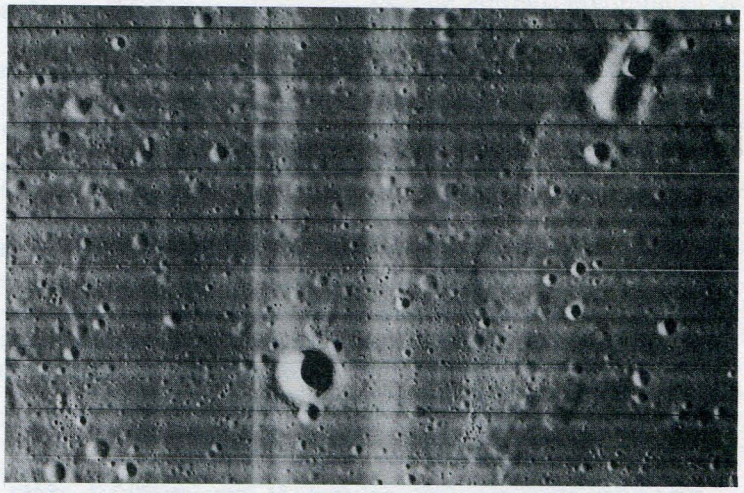
Persons desiring an appointment with Dr. Chang or Dr. Eades are requested to call the Training Office, 2611.











LUNAR ORBITER III PHOTOS. Upper left - This telephoto photograph of the Moon's surface was taken by Orbiter III of Site 3P-1 in the Apollo zone of interest. It is composed of 28 framelets of the 86 framelets that make up the twelfth full telephoto picture exposed over Site 3P-1 in southeastern Mare Tranquillitatis. It covers an area on the moon 3 miles by 4 miles. Upper right - This photo is an enlargement of a portion of the twelfth telephoto lens photograph taken of Site 3P-1. It covers a portion of the lunar surface approximately three-quarters of a mile. Center left - This is the fourteenth telephoto picture taken of the first primary Site (3P-1). It includes 28 of the 86 framelets that make up the full telephoto frame. Center right - This is an enlargement of part of telephoto frame sixteen taken at Site 3P-1 in the eastern part of the Apollo zone of interest. The main feature of interest is a low ridge in Mare Tranquillitatis. Craters pock the surface of the ridge and clusters and trains of small boulders can be seen along the crest of the ridge. Lower left - This is an enlargement of part of telephoto frame 17. The picture is of a moderately rought area within Mare Tranquillitatis. It shows young craters partially superposed on older craters and the development of texture in the surface material around and within craters. Lower right - This photo was taken by the wide angle lens of prime photographic Site 3P-1. The picture is composed of all 26 framelets of the eleventh wide angle picture exposed at Site 3P-1. It covers an area 27.7 miles by 23.4 miles. The possible Apollo manned landing site is in southeastern Mare Tranquillitatis. Lunar Orbiter is a project of Langley Research Center.

INCENTIVE AWARD GIVEN FOR ORBITER

The Lunar Orbiter Incentive Evaluation Board of NASA gave the Boeing Company, Seattle, a net award of $1,895,312 for the Lunar Orbiter I mission.

The Lunar Orbiter incentive contract between NASA and Boeing, the prime contractor, contains provisions under which the contractor could incur a fee reduction for late delivery of Orbiter spacecraft, and earn a reward on the basis of photographic data returned by the mission.

On the Orbiter I mission, the spacecraft was delivered by Boeing and accepted by NASA at Cape Kennedy approximately one month later than scheduled, for which Boeing was assessed a reduction in fee of $100,000 out of a possible maximum reduction of $300,000.

For photographic data obtained by Orbiter I, the Board awarded Boeing $1,995,312.

The prime objective of the Lunar Orbiter I mission was to obtain through detailed photography, information on various types of lunar surface terrain in order to assess their suitability as landing sites for Apollo and Surveyor spacecraft and to improve our scientific knowledge of the moon.

The performance award was based on the usefulness of the photographic data returned in meeting those objectives. The award of $1,995,312 compares with the maximum possible award of $2,573,333.

On its photographic mission, Lunar Orbiter I returned high quality pictures from its wide angle camera but its telephoto camera failed to return one-meter resolution pictures of the Apollo area of interest.

It returned a photographic data on 16,000 square miles of candidate Apollo sites. It also took a large number of secondary photographs including 1.9 million square miles of the hidden side of the Moon.

One historic photograph from Orbiter I showed the Earth as viewed from the distance of the Moon.

NASA signed the Orbiter contract with Boeing in May 1964, and Lunar Orbiter I was launched August 10, 1966, to become the first United States spacecraft to orbit the Moon.

Members of the NASA's Orbiter Incentive Evaluation Board are Dr. Bernhardt L. Dorman, Assistant Administrator for Industry Affairs; Dr. Homer E. Newell, Associate Administrator for Space Science and Applications; and Dr. Floyd L. Thompson, Director of Langley Research Center, which manages the Lunar Orbiter project.

PERFECT MACHINE

HEART? No pump as perfect if you treat it right.

EYES? No camera can touch them for efficiency.

NERVOUS SYSTEM? No telegraph system equal to it.

VOICE and EARS? Better than any radio built.

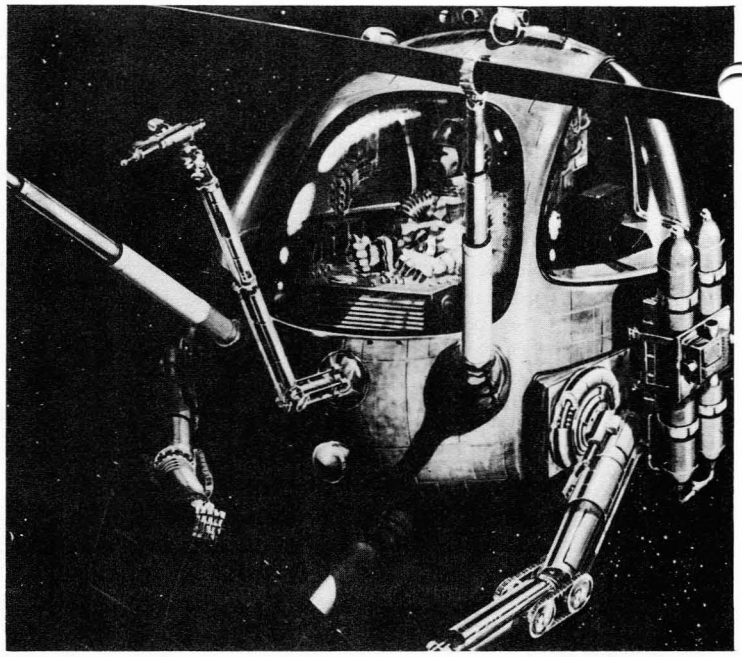
NOSE, LUNGS, SKIN? There isn't a ventilating plant as wonderful.

SPINAL CORD? Can't be beat by the most complete switchboard for giving instantaneous warnings and reactions.

Such a marvelous, complicated mechanism as you is worthy of your highest respect and best care.

Protect yourself today, tomorrow, all month, all year! You are your own best safety device.

FOR SALE: 4 6.70 x 14 tires with good tread. Boyle, PA 3-3400.



SPACE "TAXI." Among the concepts under study at Marshall Space Flight Center is this space "taxi" for possible use in maintenance work on orbiting spacecraft. Maneuverable, manned work platforms and service-type vehicles which can cling to a satellite in orbit could be used over a period of years in space operations and prove invaluable in repair, construction and rescue tasks.

SWING-WING PLANE STUDIES

An F-111A aircraft to be used for research on variable sweep wing flight characteristics and performance has been delivered to Flight Research Center. The airplane, the sixth built by the General Dynamics Corp., Fort Worth, Texas, is being loaned to NASA by the Air Force.

NASA will use the F-111 to obtain basic flight research data for the design and development of future advanced aircraft wings that move fore and aft along the fuselage. Aircraft of that type now under consideration include the Boeing 2707 supersonic transport (SST), Navy advanced fighter-attack (VFAX), and the advanced fighter (FX), advanced attack (AX), and advanced manned strategic aircraft (AMSA) for the Air Force.

The Air Force F-111A and the Navy F-111B, both variable sweep, are now in production, and a bomber version, FB-111A, is under consideration by the Air Force.

Research on variable sweep dates back to 1911. In 1960, NASA solved the basic instability problem by sweeping the wings simultaneously around separate pivot points located slightly outward from the wing roots, rather than from a single pivot inside the fuselage. Variation in the sweep serves to alleviate problems of stability, control and drag, and has important effects on the airplane's performance.

Factors to be studied by NASA include stability and control, handling qualities, flight loads and structural dynamic responses, inlet-engine integration, performance prediction, control systems, and operational characteristics. Data from the flight program will be used to validate theoretical and wind tunnel studies performed by the NASA Ames, Langley and Lewis Research Centers.

FOR SALE: Full-size box springs and mattress. Sullivan, 596-6104.

SPACE 'SPINOFFS' ARRIVE

New products and processes developed to meet the exacting requirements of space exploration are beginning to appear in American stores, factories and hospitals.

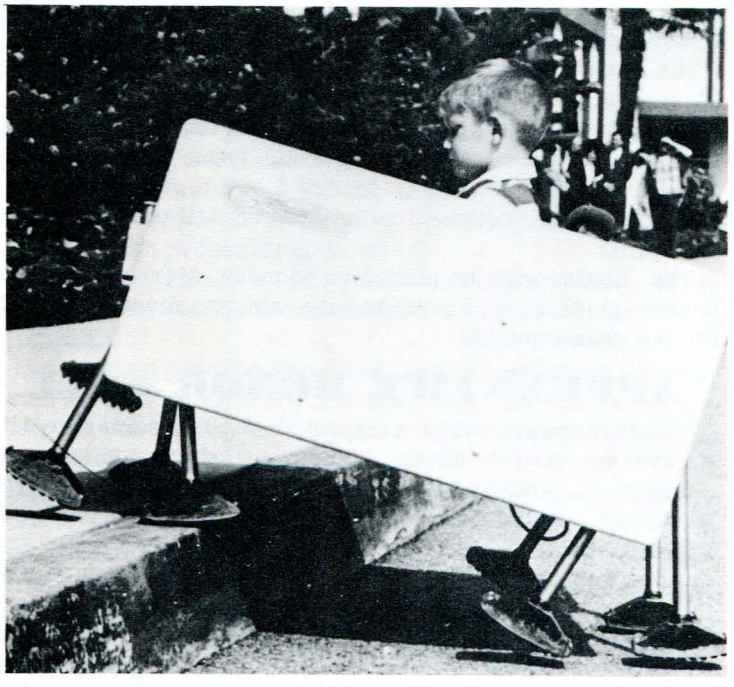
Here are a few "transfers" in the files of NASA's Office of Technology Utilization:

While studying airplane landing problems, engineers at Langley Research Center discovered that one reason a plane skids on a wet runway was hydroplaning - the same thing that happens when a speedboat skims over the water. At high speed, water is forced between runway and tires, traction is lost and brakes become ineffective. The same thing was found to happen with automobiles. Now results of the Langley study are being used in research to improve tires, in driver education films, and in modifying road surfaces where hydroplaning accidents have occurred.

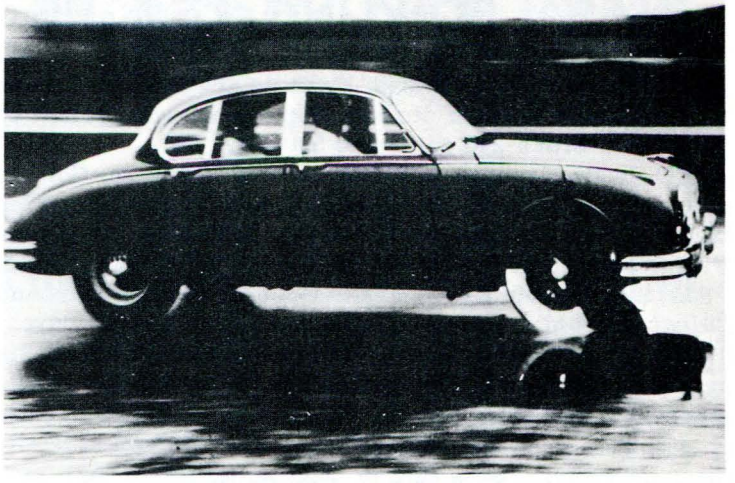
Medical equipment designers, prompted by NASA, have adapted the space helmet to a respirometer with which a patient's consumption of oxygen can be measured while he exercises. The helmet takes the place of a mouthpiece and tube that often were expelled by a puffing patient. Air is pumped into one side and the exhaled breath sucked out the other to an analyzer.

For coating the outside of spacecraft, the Goddard Space Flight Center invented a family of paints with great resistance to heat, cold, abrasion, and acids. NASA has granted licenses to 22 private companies to manufacture and market the new paints commercially.

A small company working under contract for NASA and the U.S. Atomic Energy Commission developed a way to form pyrolitic graphite into insulating spacer cups for use in nuclear-powered rockets. The technique is now used to machine the same material into liners for the bowls of tobacco pipes that, as a result, remain cool to the touch throughout the smoke. Retail sales of the pipes have passed $1 million.



NEW MOBILITY. A walking chair for invalids is based on a proposal to NASA for an unmanned vehicle to carry scientific instruments over the surface of the moon. It can surmount obstacles that would stop an ordinary wheelchair; it can maneuver over curbs, climb steps and operate in sand.



RIDING ON WATER. The right front tire (painted white) of this car has stopped rotating as it skims over a film of water. Research conducted at Langley Research Center into similar hydroplaning by aircraft on wet runways may lead to safer designs for tire treads and road surfaces.

An air-bearing devised to facilitate the handling of a huge liquid oxygen tank in coupling it to the thrust section of the Saturn V rocket has been adapted to a kitchen refrigerator. A household vacuum cleaner with a blower section provides the air stream that lifts the refrigerator off the floor, so that it can be moved about with the push of a finger.

Builders of giant rockets at Marshall Space Flight Center invented an electromatic hammer that smooths and shapes metal without weakening it. The new tool is now being tried in building ships and automobile bodies.

Engineers at Lewis Research Center rearranged the atoms in metallic crystals to create new low-friction-long wearing alloys for moving parts in space vehicles. They will also be useful in airplane bearings and seals - and, doctors say, perhaps in artificial hip and elbow joints for people.

A small, remote-sensing device designed to report extremes of temperature in the Orbiting Solar Observatory is now available on the commercial market for use in laboratories and industrial plants as a probe for obtaining accurate temperature measurements in inaccessible places.

A NASA contractor in Alabama has developed an electric switch that an astronaut could actuate to operate spacecraft controls by moving his eyes when he might not be able to move his arms or legs because of high gravity forces. The switch has been adapted for use by a paralyzed patient to operate a hospital call board and to control a wheel chair.

A California manufacturer is marketing (at $39.95) a coaxial cable cutter and stripper devised by an employee at Ames Research Center. One company estimates that the new hand-tool is saving it $5,000 a year in labor costs.

A dry lubricant compounded by Lewis Research Center to work in the extreme heat of space is now available commercially. Sprayed on ball bearings and heat-treated, it lubricates at temperatures up to 1,200 degrees F.

WANTED: Driving combination from Barron School, Fox Hill, to W.A. on 8 shift. Broskie, 4557.

NASA BOWLING LEAGUE

Flyers lead Group A in the NASA Tenpin League with 53.5 wins and 34.5 losses. Outlaws are in second place with 50 wins and 38 losses. Top scores were rolled by Bill Martz with a 244 game and 590 set.

ACD leads Group B with 58 wins and 30 losses. Golfers are in second with 55 wins and 33 losses. Top bowlers for the week were William Weaver with a 253 game, Ed Phelps with a 698 set and Ruth Pluta with a 223 game and 640 set.

Sad Sams are in first place in Group C with 50 wins and 28 losses. RPM's are in second with 55 wins and 33 losses. Top scores were rolled by George Gray with a 259 game and 668 set, Edith Moen with a 234 game, and Jane Oehman with a 607 set.

GROUP A

Flyers	53.5	34.5	Odd Balls	45	43
Outlaws	50	38	Unitary	44.5	43.5
Misfits	48.5	39.5	Alley Cats	39	49
Clean Ups	48	40	Phantoms	35	53
Hornets	48	40	Short Circuits	27.5	60.5

GROUP B			GROUP C		
ACD	58	30	Sad Sams	60	28
Golfers	55	33	RPM's	55	33
Wood Nickers	51	37	Hotshot Tunnel	54	34
Strike Outs	49	39	Gliders	53	35
Payloads	49	39	Bowling Belles	51	37
Flight Engineers	45	43	A-OK's	49	39
Pinwigglers	42	46	Mets	48	40
Flight	41	47	Wa-Hoppins	47	41
Getogethers	41	47	Sparkys	46	42
Cee Pees	39.5	48.5	Ten-Benders	45	43
HMS	38	50	Dillys	38	50
Galaxies	37	51	Class Kats	28	60
Greenhorns	35.5	52.5	Hits & Misses	27.5	60.5
Trackers	35	53	Gutter Jumpers	14.5	73.5

CAFETERIA MENU

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

Monday - Puree of bean soup, pepper steak, grilled pork steak, knockwurst, fish cakes and cole slaw.

Tuesday - Tomato-barley soup, roast beef, fried oysters, baked lasagna, Spanish omelette.

Wednesday - Vegetable-beef soup, grilled steak, barbecued spare ribs, broiled fish, macaroni and wieners.

Thursday - Chicken-vegetable soup, chopped sirloin, baked ham, fried chicken. cheese omelette.

Friday - Clam chowder, beef stroganoff over noodles, salmon cakes, fried fish, baked hash.

The menu for the week of March 6 is as follows:

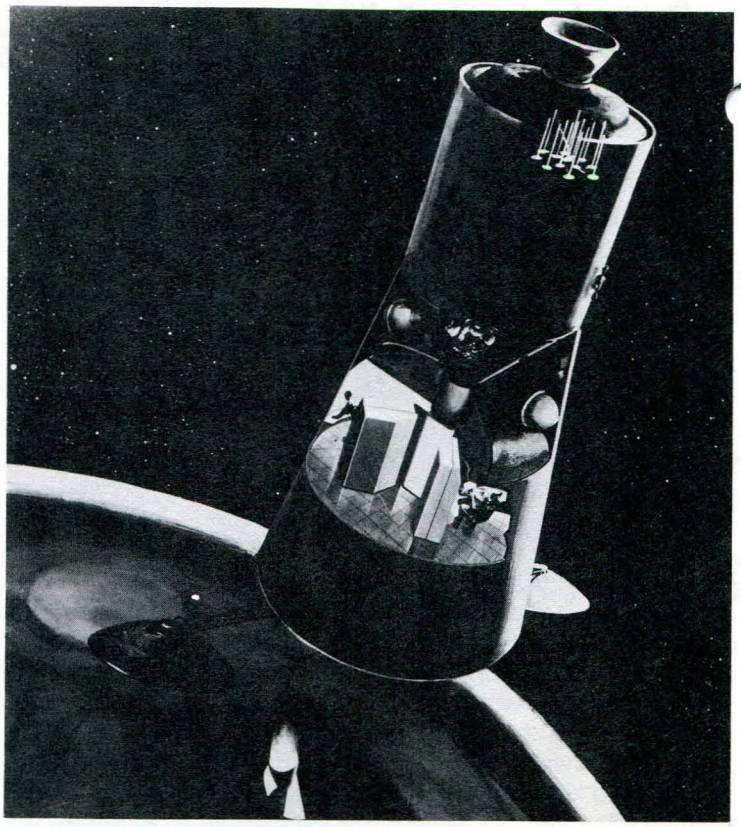
Monday - Cream of tomato soup, Swiss steak, broiled Canadian bacon, spaghetti and meat balls, grilled cheese sandwich.

Tuesday - French onion soup, roast veal, grilled pork chops, sauteed chicken livers on rice, deviled crab, macaroni and wieners.

Wednesday - Split green pea soup, pot roast, baked ham, stuffed flounder, grilled spiced luncheon meat.

Thursday - Chicken-noodle soup, grilled steak, shrimp Newburg, fried chicken, tamale pie.

Friday - Clam chowder, roast beef, chicken pie, broiled halibut steak, cheese omelette.



Astronauts arriving at Mars on an investigative flyby mission in 1975 could send down probes to help determine conditions for a later manned landing mission. Manned Mars landings could be accomplished by 1982, using technology gained from the Apollo/Saturn lunar landing program, according to space scientists at North American Aviation's Space and Information Systems Division.

NASA BASKETBALL TOURNEY

The NASA Basketball tournament will start on Saturday, March 4. Teams 1 and 2 receive a bye for the first round. Teams 4 and 5 will play at 11 a.m. and teams 3 and 6 will play at 12:30 p.m. The winner of the game between teams 4 and 5 will play team 1 on March 5 at 2 p.m. and the winner of the game between teams 3 and 6 will play team 2 at 3:30 p.m.

The finals will be played on Monday, March 6 with the losers playing at 7 p.m. and the winners meeting at 8:30 for the championship.

APPRENTICE HONOR ROLL

Thirteen apprentices completed the fall semester with an average of 97 or above. Members of the honor roll are:

Roger K. Amick, Instrument Construction Shop; George W. Askew, Arc Tunnel; Robert F. Berry, Material Processing and Development; Carl A. Bond and Stephen Irick, Dynamic Vehicles; John W. Cox, Electric Arc; James R. Davis and James J. Kiss, Structures Lab; Burt R. Emerson, Space Vacuum Lab; William W. Fernald, Spacecraft Structures; Virgil S. Laney, Electrical Flight Systems; Carter F. Lewis, Research Project and Models, and Dallas G. Summerfield, Model and Pliant Structures.

FOR SALE: 16-foot Fiberglassed sloop and trailer - $250. Garrett, 595-2876.

WANTED: Used piano. Ruhlin, 826-1574.

Langley Researcher

VOLUME 6, NUMBER 5 LANGLEY RESEARCH CENTER MARCH 10, 1967

WILLIAMS HEADS JOINT CAMPAIGN

William L. Williams

William L. Williams, Administrative Specialist, has been appointed chairman of the joint fund raising campaign for the National Health Agencies and the International Service Agencies.

The campaign will be conducted at the Center from March 15 through April 30.

Included in the campaign will be nine health agencies and four service agencies.

The health agencies in- United Cerebral Palsy Associations, American Cancer Society, The American Heart Association (Heart Fund), Muscular Dystrophy Associations of America, National Society for Crippled Children and Adults (Easter Seals), National Cystic Fibrosis Research Foundation, National Foundation - March of Dimes, and National Society for the Prevention of Blindness.

The service agencies include American-Korean Foundation, CARE, Radio Free Europe, and Project HOPE.

The campaign is conducted annually in compliance with an Executive Order establishing rules and regulations on Federal fund-raising.

The funds will be collected in the various sections and division by attendance clerks. All donations to both efforts should be turned in to attendance clerks who will send them to division monitors.

With a goal of better health for everyone, the National Health Agencies Campaign has been authorized by President Johnson. He called the voluntary agencies "strong allies of the government in the fight to improve health standards for all Americans."

"It is my hope that generous contributions, freely given to the National Health Agencies by Federal employees and Armed Forces members, will help chart a surer course toward the goal of better health for all," the President said.

Concerning the International Service Agencies the President stated, "We Americans are deeply concerned with the daily struggle for survival of millions of people around the world who are oppressed by hunger, sickness, ignorance and fear. The generosity of our people has made it possible to give material and spiritual aid to alleviate suffering and to sustain the faith and coverage of our fellow men.

"I urge all Federal employees and military personnel to share in this effort to advance the cause of human dignity and freedom by contributing generously to the International Service Agencies."

NASA ORGANIZES MANAGEMENT FOR VOYAGER FLIGHT PROJECT

Management responsibilities for the Voyager Planetary Flight program have been established within NASA. The move was made in order to proceed with the work funded in the 1967 Budget and to prepare for the expanded work recommended by President Johnson in his 1968 budget now before the Congress.

The announcement was made by NASA Administrator James E. Webb in an appearance before the House Committee on Science and Astronautics. "These arrangements," he said, "are designed to make the best possible utilization of the proved capabilities of the Jet Propulsion Laboratory and of our field centers and laboratories."

The Voyager program, which has been under the NASA Headquarters Division of Lunar and Planetary Programs since 1964, will be established as a separate division in the Office of Space Science and Applications (OSSA).

In addition, an interim project management office consisting of OSSA personnel will be established at Pasadena for project management.

Field center assignments for Voyager are:

Langley Research Center - Landing Capsule Bus System.

Jet Propulsion Laboratory - Surface Laboratory, Tracking, and Mission Operations Systems.

Marshall Space Flight Center - Orbiting Spacecraft System and Saturn V Launch Vehicle System.

Voyager is NASA's program for long-term exploration of the planets. It is planned that the first Voyager missions will be to Mars, starting in 1973. Two identical spacecraft will be launched by a single Saturn V to orbit Mars and make scientific studies. Each spacecraft will carry a surface laboratory to land on Mars and to study the surface, and to search for evidence of extra-terrestrial life.

The new management arrangements for Voyager are the result of NASA's desire to bring the full capabilities of the agency into the project. The tasks assigned to JPL permit the Laboratory to continue with the highly successful Mariner program as well as to carry out those parts of the Voyager which best match its strong technical capability. The assignments to Marshall and Langley likewise use the capabilities of those centers to the optimum degree.

Oran W. Nicks will be the Voyager Program Director at NASA Headquarters. He will continue as Acting Director of Lunar and Planetary Programs. Donald P. Hearth will be Deputy Director of the Voyager Program Office under Nicks and will serve as Acting Voyager Project Manager. The Voyager Project Office will draw upon the existing program management and project management teams as well as the NASA Pasadena Office for management support.

Nicks has been Director of Lunar and Planetary Pro-

(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 302, telephone 2575.

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 for a June 17 wedding are Douglas B. Price, Space Mechanics Division, and Lorraine Dyers, Hampton. . .Dan Cupid scored a victory when Jerry Hansbrough, Budget Office, became engaged to Patricia Caldwell, Hampton. Plans call for a July wedding. . . Making plans to desert the bachelor ranks is Joseph M. Drozdowski, Analysis and Computation Division. He is engaged to Kathryn Louise Kane, Gaithersburg, Maryland, and a summer wedding is planned.

SKI CLUB. . .Snow skiing enthusiasts are invited to attend the meeting of the Peninsula Ski Club on March 13 at 7:30 p.m. at Nachman's Community Room located in Warwick Shopping Center.

FIRST AID COURSE. . .A 12-hour basic first aid course will be given at the Red Cross Chapter House, 2614 West Ave., Newport News, on Thursday nights from 7 to 9 o'clock, starting March 16. Persons interested in taking the course are requested to call Sherman Clevenson, 3595.

AUTO TAGS. . .Virginia State and Hampton City auto tags will again be sold at the Phoebus Amoco Station, 201 E. Mellen St. in Phoebus. The office will be open from 8 a.m. to 6 p.m. from March 15 to April 16.

BASKETBALL. . .Misfits won the NASA Basketball Championship by defeating Bucket Brigade 48-37. ACD came in third by beating Boozers 65-53.

DIAPER LINE. . .Weighing in at seven pounds, ten ounces on February 20 was Sherri Kay, daughter of Freddie R. King, Mechanical Services Division. . .Announcing the birth of a son, Seth Allen, on February 19 are Harriette, ACD, and Richard Weinstein, Aero-Physics Division.

FOR SALE: White leather twin bed headboard, girl's 26-inch bicycle, 1-drawer maple student desk. Hennessy, 596-7535.

FOUND: Lady's beige gloves. Maiers, 3216.

FOR SALE: 8-foot Fiberglas dingy, motorcyclist's hard hat, Frigidaire refrigerator. Phaulp, 826-6941.

FOUND: Lady's light blue frame glasses. Security Office, 2507.

FOR SALE: Weathers-Townsend turntable - $20. Cain, 11 Troy Dr., Newport News.

A group of senior officials of the Department of Defense visited Langley Research Center on February 28. A chart on propulsion aerodynamics at the 16-foot Transonic Tunnel is the focus of this study in concentration. The viewers are (from left): Admiral N. A. M. Gayler, Assistant Chief of Naval Operations (Development); General Walter R. Hedrick, Assistant Deputy Chief of Staff, Air Force Systems Command; Admiral P. A. Holmberg, Assistant Commander of Research and Development, Naval Air Systems Command; Charles J. Donlan, Langley Associate Director; J. C. Long, Deputy Assistant Secretary of the Air Force (Research and Development; General Marvin C. Demler, Commander, Research and Technology Division, Air Force Systems Command, and Thomas I. Bell, Executive Assistant, Office of Defense Affairs.

CAFETERIA MENU

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

Monday - Puree of bean soup, roast fresh ham, Polish sausage, fried fish sticks, baked hash.

Tuesday - Cream of mushroom soup, baked Virginia ham, veal cutlet, liver and onions, cheese ravioli.

Wednesday - Vegetable-beef soup, grilled steak, lasagna, beef stew, western omelette.

Thursday - Chicken-noodle soup, chicken and dumplings, Salisbury steak, fish cakes.

Friday - Clam chowder, simmered corned beef, stuffed flounder, broiled fillet of perch, Spanish omelette.

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

Monday - Cream of tomato soup, Spanish pot roast, grilled pork chops, chicken chow mein, macaroni and wieners.

Tuesday - French onion soup, fried oysters, barbecued pork chunks, stuffed pepper, chili con carne.

Wednesday - Chicken-noodle soup, roast ribs of beef, spaghetti and meat sauce, fried chicken, Austrian ravioli.

Thursday - Vegetable-beef soup, grilled steak, crab cakes, knockwurst, baked hash.

Friday - Clam chowder, braised shortribs of beef, fried flounder, broiled halibut steak, hot dogs.

FOR SALE: 3-bedroom brick home in Nicewood. Miller, 877-3026.

FOR SALE: G.E. 12-cubic-foot refrigerator - best offer. McWithey, 877-2836.

FOR SALE: Mahogany Hammond organ - $700. Miller, 826-1626.

ROCKET-PROPELLED SIMULATED METEOR REENTERS ATMOSPHERE AT 38,000 MPH

A small man-made iron pellet has been propelled from a high-flying ground launched rocket into the Earth's atmosphere at a speed of more than 38,000 miles an hour.

The experiment conducted by Langley Research Center resulted in the creation of an artificial meteor of unprecedented velocity.

The one-gram pellet, about the size of a dime, was gun-fired from a shaped-charge accelerator - the final stage of a six-stage Trailblazer II rocket - on the downward leg of its ballistic trajectory in a flight from Wallops Station.

Trailblazer II was launched as part of a continuing flight program conducted by Langley scientists to study the luminous and ionization characteristics of simulated meteors to increase their knowledge of the mass, density, and composition of natural meteoroids.

Meteoroids are bits of matter that travel at high speed in space. When they enter the Earth's atmosphere, they flare and leave bright trails of light called meteors - or falling stars.

The pellet gave the appearance of a small flaming meteor as it reentered the atmosphere at a predetermined location - about 40 miles above the Atlantic Ocean and approximately 125 miles downrange from Wallops. It was tracked by three camera and five radar stations along the east coast, south of Wallops.

Analysis of the scientific photography and radar tracking data from the experiment which was launched from Wallops at 12:52 a.m. February 14 revealed the pellet traveled approximately 56,000 feet per second - 38,180 miles an hour - according to two Langley scientists, Andrew R. Wineman, Project Manager, and Clarence A. Brown Jr., Assistant Project Manager, of the NASA Meteor Simulation Project.

The Trailblazer II includes a Castor, with two Recruit rocket motors, as the first stage; TX77, second stage; X248, third stage; Cygnus 15-inch spherical rocket, fourth stage; Cygnus five-inch spherical rocket, fifth stage; and the shaped-charge accelerator, sixth stage.

The first two stages launched the vehicle to an altitude of about 190 miles. After a coasting period, the vehicle was propelled earthward by the next three stages firing in rapid succession to permit the shaped-charged sixth stage to gun-fire the research pellet into the atmosphere about six minutes after launch.

Scientists observed the artificial meteor for about two seconds before it was consumed by the friction heat of reentry.

The Meteor Simulation Project is a cooperative effort between Langley and the Smithsonian Astrophysical Observatory, Cambridge, Mass., under the cognizance of the NASA Office of Advanced Research and Technology.

LOST: Set of American Motor car keys. Clarke, 2631.

FOR RENT: Unfurnished 2-bedroom bungalow in Buckroe, 2 blocks from beach. Schuchert, 723-2458.

FOR SALE: Book on "Elementary Functions" - $4. Justice, 596-2743.

FOR SALE: 1959 Buick Factory Service Manual. Barfoot, 926-8139.

FOR SALE: Kitchen dining set - 4 chairs, 36 x 48 table with extension. McErlean, 723-3061 after 5 p.m.

ANNUAL MEETING WINNER. Credit Union president Robert L. Girouard presents Juanita Parker, Full-Scale Research Division, with the $50 Savings Bond she won by attending the meeting and having a Credit Union bumper decal properly affixed to her car. Fred W. Schmidt, chairman of the annual meeting committee, looks on with approval. (The regular Fly-the-Flag contest is now under way and the prize is currently $75.)

DO NOT REMOVE STAMPS FROM MAIL

According to NASA instructions, stamps shall not be removed from any mail received by NASA installations or component field activities.

The practice of removing stamps from mail, especially foreign mail, continues to cause problems. It is estimated that half of the foreign mail received in Headquarters, direct or from field installations, has been mutilated by removal of stamps.

Cutting or tearing of the stamps, especially from the single sheet, combined letter and envelope (form commonly used abroad) generally involves removal or defacing of the date stamp and/or return address and in some cases removal of part of the contents of the communication.

JAMES NAMED APOLLO DEPUTY

Lee B. James has been appointed Deputy Director of the Apollo Program, NASA Headquarters. James comes to the NASA Washington Office of Manned Space Flight from Huntsville where he has been manager of the Saturn I/Uprated Saturn I Program Office at the Marshall Space Flight Center since 1963.

He joined the U.S. Army rocket development team headed by Dr. Wernher von Braun in 1959. In 1960 he became director of the Army's Research and Development Division at Redstone Arsenal at Huntsville. In 1962, after a tour of army duty in Korea, he was transferred to the Marshall Center. He retired from the Army as a colonel in 1963.

James received NASA's medal for exceptional service in 1966 in recognition of his work on the Saturn Launch Vehicle Program.

He holds a bachelor's degree in military engineering from the United States Military Academy and a master of science degree in guided missiles and aeronautics from the University of Southern California.

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics was host at the AIAA Sounding Rocket Vehicle Technology Specialists Conference held February 27 - March 2 at the Williamsburg Conference Center. Approximately 420 persons participated including representatives from West Germany, Spain, Mexico, United Kingdom, Canada, France, India, Sweden, Japan, Australia, The Netherlands, and United States. Upper left photo - Co-chairmen of the Conference were front row (from left): Robert L. Krieger, Director of Wallops Island; Eugene C. Draley, Langley Assistant Director and General Chairman of the Conference; A. W. Fia, Bristol Aerospace Ltd., Canada, and Keith E. Rumbel, Atlantic Research Corp., Alexandria. Back row - Harry M. Graham, LTV in Dallas; Dr. John D. Nicolaides, University of Notre Dame; Jesse L. Mitchell, NASA Headquarters, and Kenneth F. Crowder, Sandia Corporation, Albuquerque, New Mexico. Missing from the photograph are Pierre A. Carriere, ONERA, Paris, France; Dr. Ramiya Nomura, University of Tokyo, and Dr. J. H. Crook, Rocket Propulsion Establishment, England. Upper right photo - Co-chairmen and members of the Planning Committee meet before the conference to receive last minute instructions from Draley. Center left photo - Discussing plans for the meeting are Mitchell, Graham, Draley, and Clarence A. Brown Jr. Center right photo - Attending the conference were John P. Mugler, Chairman of the AIAA Hampton Roads Section; Carl A. Sandahl, Chairman of Conference Steering Committee; Dr. Tamiya Nomura, Japan; W. T. Fisher, United Kingdom; P. Carriere, France; D. J. Brown, United Kingdom; P. J. Herbert, United Kingdom; D. J. Baines, Australia; J. F. Hazel, United Kingdom, Dr. J. H. Crook, United Kingdom; J. Lewak, Canada; L. Ohman, Canada; A. W. Fia, Canada; A. P. J. Abdul Kalam, India, J. L. Mitchell, NASA Headquarters; R. L. Krieger, Wallops, and H. A. Wilson, Chief of Applied Materials and Physics Division. Lower left photo - Shown at the head table during the banquet on February 28 are (from left): Robert L. Wright, Technical Coordinator; Mugler; Hartley A. Soule, Administrative Chairman; Dr. Homer E. Newell, NASA Headquarters and guest speaker; Draley; Brig. Gen. Joseph S. Bleymaier, Chairman of Launch Vehicle and Missiles Technical Committee which sponsored conference; Charles J. Donlan, Langley Associate Director, and Krieger. Lower right photo - Eugene Draley (left) greets Dr. Newell while Jesse L. Mitchell looks on.

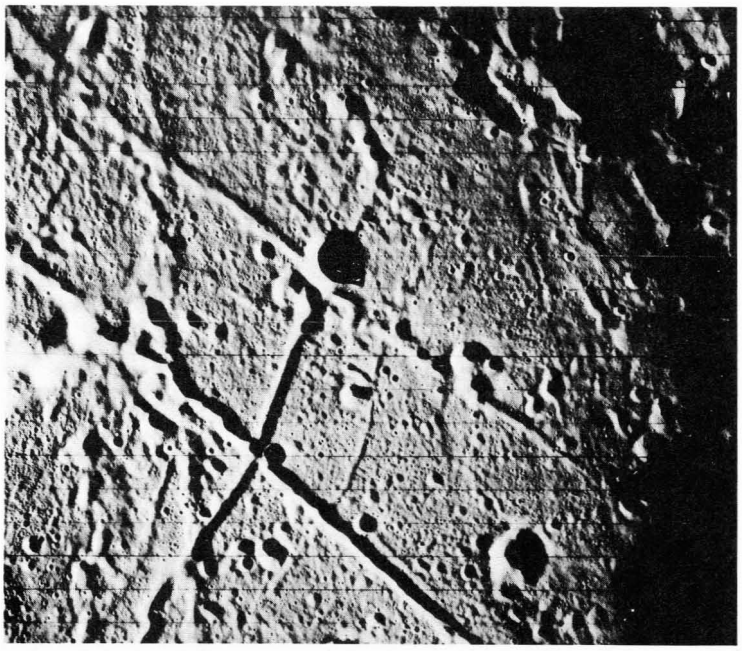
Approximately 80 women attended the AIAA Conference held in Williamsburg. Upper left photo - Jane S. Hess (center), Technical Library, describes the special program planned for the ladies. Shown with her are (from left), Mrs. N. D. Kemp, New Orleans; Mrs. Eugene C. Draley, Mrs. A. W. Fia, Canada; Mrs. Robert W. Boswinkle Jr., and Mrs. William H. Michael Jr. Upper right photo - Shown at the coffee held for the ladies on February 27 are Mrs. P. A. Carriere, France, Mrs. Fia, and Mrs. Herbert A. Wilson Jr., hostess. Center left photo - Fred Heuette, Superintendent of the Botanical Gardens in Norfolk, spoke to the ladies on "Flower Gardens Around the World." Shown with him are Mrs. E. M. Collins, Maryland; Mrs. W. L. Haney, Canada; Mrs. Fia, and Mrs. P. deL. Markham, Canada. Center right photo - Featured during the luncheon on February 28 was a fashion show sponsored by Miller and Rhoads. Shown at the head table are Mrs. Pat Sage and Mrs. Rosetta Short, models; Mrs. H. G. Richardson, fashion coordinator for Miller and Rhoads; Mrs. Robert L. Trimpi, Jane S. Hess, Mrs. Draley, Mrs. Sara Sue Hill, hat designer, and Mrs. Louise Weher and Mrs. Harris, models. Lower left photo - Paul J. Burr, Director of Technical Services, AIAA New York Headquarters, and Mrs. Burr chat with Mr. and Mrs. H. A. Soule. Lower right photo - Members of the local Planning Committee discuss plans for the four-day conference. They are front row (from left): James L. Raper, Carl A. Sandahl, and Clarence A. Brown Jr. Back row - Andrew G. Swanson, John P. Mugler, Robert L. Wright, and Gerald D. Walberg.

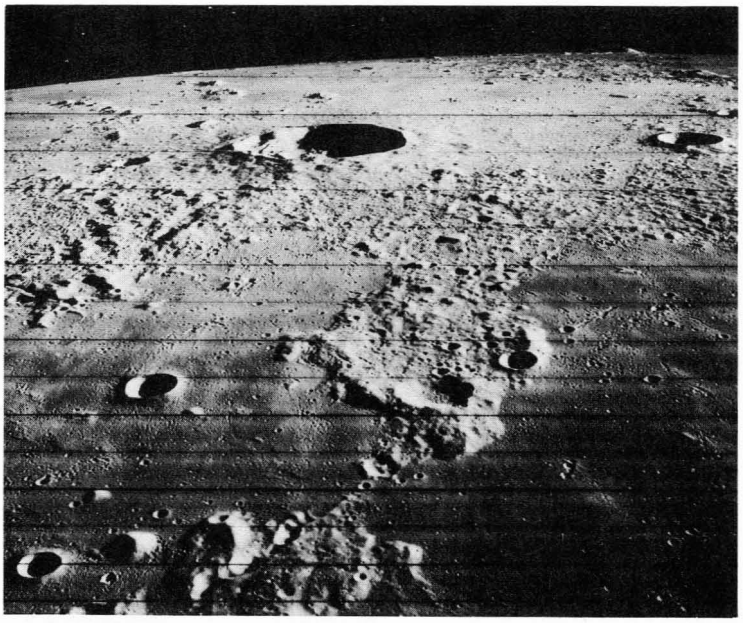
KNOW YOUR CREDIT UNION

The "Fly-the Flag" contest goes merrily on its way building up prize money and leaving sadder but wiser members behind it. Three, so far have had to go unrewarded. Member No. 14778 failed to meet the decal test at the annual meeting and so, instead of a $50 bond, won only sympathetic admiration for the forthright sincerity of his admission. Juanita Parker was the lucky one to benefit by his default. Since then, two others have failed to qualify in the regular contest. Their (almost) prize money goes to triple the reward for the period ending March 24. So put that decal on your rear bumper now and be ready. Show pride in your Credit Union and take the first step toward retiring the new cash prize of $75. The entire amount will be won if the first number drawn qualifies. If it doesn't and the odds, of course, are against it, the drawing this time will continue. The first member who qualifies wins $25; the next five, $10 each. Seven possible chances to win; worth a little effort, isn't if?

On another subject, the membership has elected the directors for the coming year and they, in turn, have elected officers among their number. The complete slate is as follows: Robert L. Girouard (NASA), president; Victor M. Harkavy (AF), 1st vice-president; James C. Tingle (NASA), 2nd vice-president; C. S. Hudgens (AF), treasurer; Bernard T. Deem (AF), secretary; Albert L. Braslow (NASA); Arthur W. Carter (NASA); Ben Ellis (NASA), and Col. Kenyon L. Knowles (AF).

Thirty persons representing 13 high schools of the Peninsula area and three of the community action programs visited Langley Center on February 28. The visit was arranged to provide an opportunity for school officials and community action officials to meet with representatives of management, personnel, and the research department of Langley, and to become better acquainted with the work which the Center is doing. During the visit J. Norwood Evans (right), Langley Employment Officer, chats with Jessie M. Rattley, Peninsula Coordinating Committee.



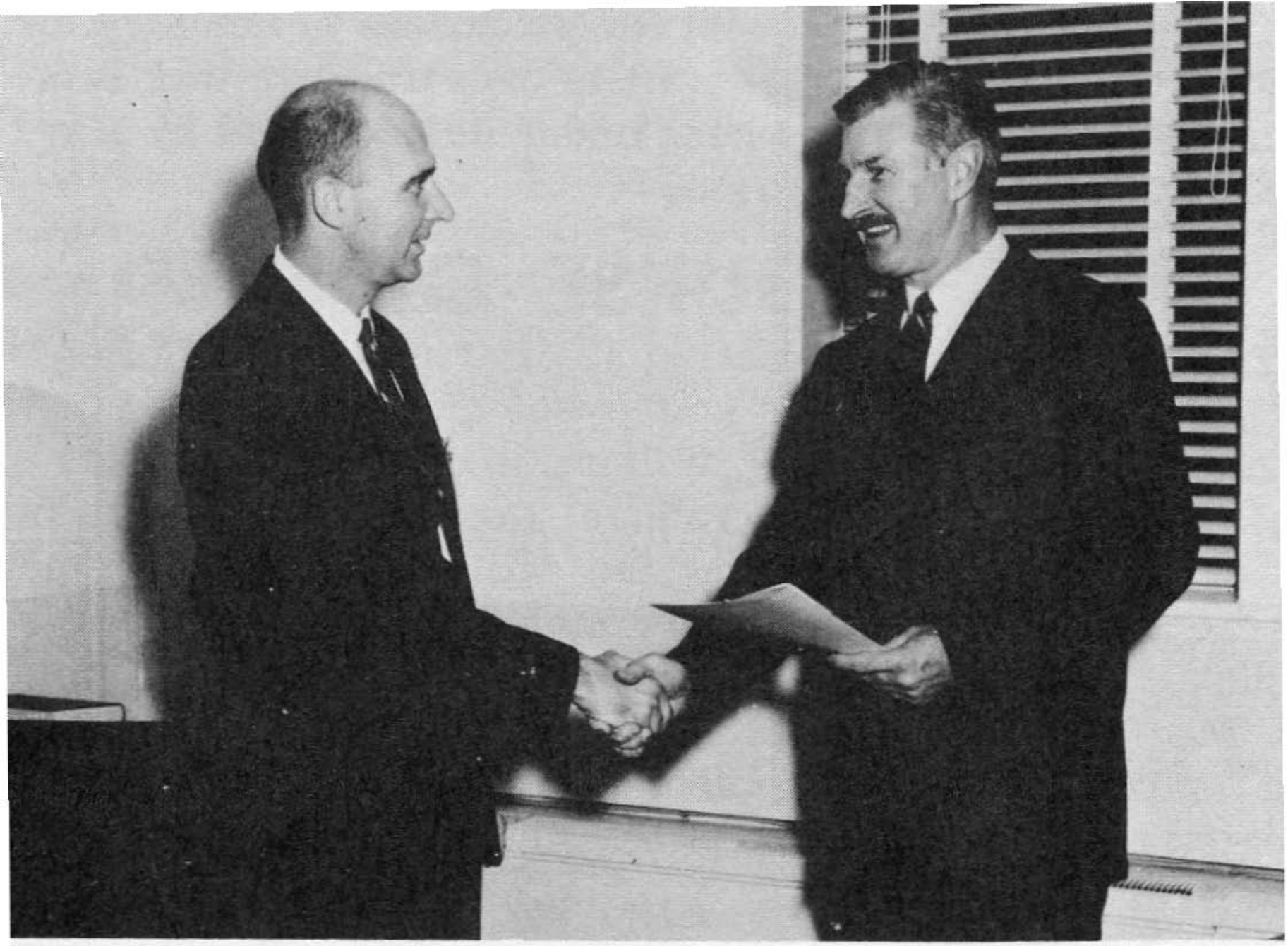


Top photo - This wide-angle photograph from Lunar Orbiter III shows part of the floor of the large crater Hevelius on the western edge of Oceanus Procellarum. Hevelius crater is about 60 miles in diameter and about 6,500 feet deep. Lower photo - This view of the moon was made through Orbiter III's wide-angle lens. The prominent crater in the center is Kepler. It is approximately 20 miles in diameter and more than one mile deep and is located near 8 degrees North Latitude and 38 degrees West Longitude in Oceanus Procellarum. The smaller, almost perfectly formed crater to the right is Kepler A, which measures nine miles in diameter and is about one-half mile deep. Efforts by NASA engineers conducting the flight of Lunar Orbiter III spacecraft failed to solve an operating problem which has caused interruption of the final picture readout sequence. On March 2 the readout was interrupted and four additional frames of photography were received from the spacecraft, but efforts to continue the readout beyond that point were futile. The final readout sequence was interrupted on Orbiter's 149th orbit because of a failure of the film to advance in the camera system.

Langley Research Center

ANALOG TO DIGITAL
TRANSCRIBER

Nine employees recently received cash awards for sug
gestions under the NASA Incentive Awards Program. To
left photo - Herbert A. Wilson (right), Chief of Applie
Materials and Physics Division, presents a check to Bruc
A. Conway. Top right photo - Paul F. Fuhrmeister (left
Chief of Analysis and Computation Division, presents
check to Ernest L. Greene. Center left photo - Josep
Getsug (right), Chief of Electrical Systems Division, con
gratulates Warner W. Smith for receiving an award fo



is suggestion. Center right photo - William B. Mayc
Chief of Mechanical Services Division, congratulates Her
nan E. Davis, Darrell A. Wood, and Charles D. Hubbarc
Lower left photo - Roger A. Anderson, Assistant Chief c
tructures Research Division, presents checks to Rodne
B. Peeks and Frances M. Arnn. Lower right photo - Georg
B. Graves (left), Chief of Flight Instrumentation Divisio
ongratulates John Thomson for winning a cash award fo
is suggestion.

NASA VOYAGER FLIGHT PROJECT

(Continued from page 1)

grams in OSSA since 1961. In 1964, he received the NASA Exceptional Service Medal for directing the Ranger lunar photography program and, in 1965, he received the NASA Outstanding Leadership Medal for his direction of the Mariner IV fly-by mission to Mars.

Nicks' office has been responsible for some of America's greatest achievements in the space program. These include the first closeup photographs of the moon, the first successful U.S. landing on the moon, the first successful lunar orbiting photography, and the world's first successful missions to the planets Venus and Mars.

To allow Nicks to concentrate on Voyager program management, an Assistant Director for Lunar Flight Programs will be named in the Lunar and Planetary Programs Office. Lee R. Scherer will assume this position and will oversee the Surveyor, Lunar Orbiter and other elements of the lunar exploration program.

The Langley Research Center, which will manage the Landing Capsule Bus System, is directed by Dr. Floyd L. Thompson. Langley has been conducting capsule feasibility studies in conjunction with JPL since 1965 and is engaged in extensive Voyager technology support in atmospheric entry and descent and in spacecraft sterilization.

The Jet Propulsion Laboratory, operated for NASA by the California Institute of Technology, is directed by Dr. William H. Pickering. JPL has managed the Voyager orbiting spacecraft preliminary design and landing capsule feasibility studies and will now manage the Surface Laboratory System. JPL also manages NASA's world-wide Deep Space Network.

Marshall Space Flight Center, which will manage the Voyager Orbiting Spacecraft and Lunar Vehicle Systems, is directed by Dr. Wernher von Braun. Feasibility studies and preliminary planning have been completed on the orbiting spacecraft; a request for proposals to industry for system design of the spacecraft is expected late this summer. The Saturn V has been under development by Marshall for the Apollo program.

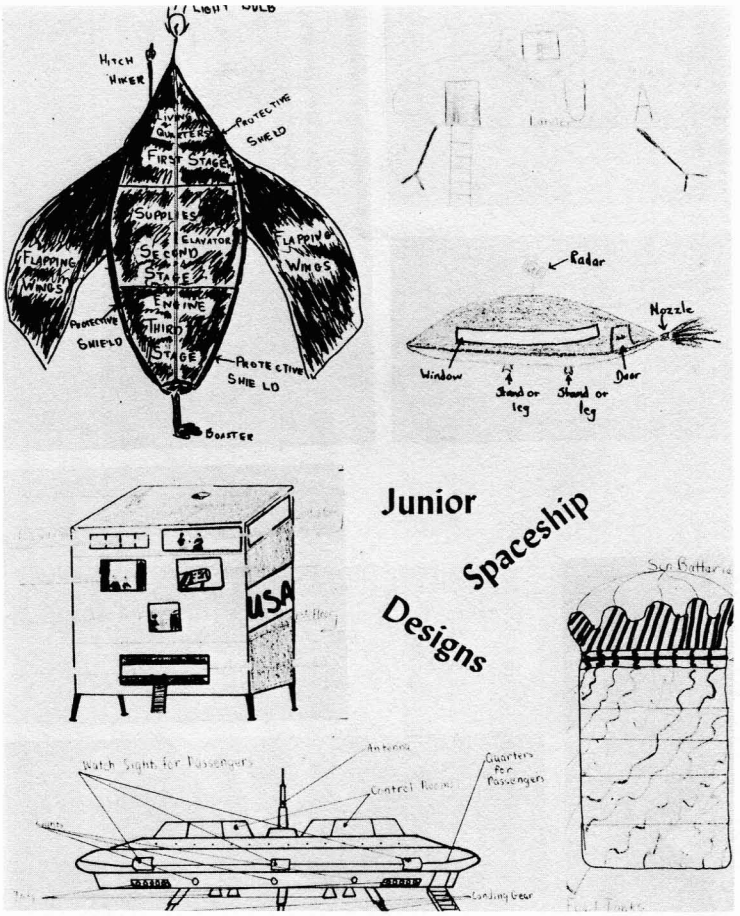
BRIDGE COURSE OFFERED

The Activities Association is offering a series of eight bridge lessons to Center employees and members of their families. Mrs. Ashby S. Wilson, who is a Life Master of the American Contract Bridge League, will be the instructor. The registration fee will be eight dollars per person. All who attend every meeting will receive a discount. The class will meet on Wednesdays at 7:30 p.m. at the Activities Building. The first meeting will be held on March 22. Persons planning to attend are requested to register and pay the fee at the Activities Building before the first class meeting.

FOR SALE: Amateur radio equipment. Limburg, 596-9167.

FOR SALE: LT-12 speaker and Aristocrat enclosure, also Garrard 8T6 turntable with hi-fi cartridge. Williams, 851-0675.

WANTED: Donations of used books, records, and sheet music for annual book sale of the Hampton Branch of the American Association of University Women. Mathauser, 596-0515.



HELPING HAND. For NASA spacecraft and rocket designers, there is plenty of help available. These designs were contributed to Kennedy Space Center by a sixth grade class at Pearl City, Hawaii. Where but from sixth graders could you get a rocket with wings (in case the booster stops working) or a rocket with legs (so you could use the same vehicle as a booster and a "lander")?

COIN CLUB MEETS MARCH 16

The Langley Research Center Coin Club will holds its second meeting at 7:30 p.m. on Thursday, March 16 at the Activities Building.

The first meeting was a big success and was attended by approximately 25 persons with 15 enrolling for memberships. The Constitution and By-Laws were approved and the following officers were elected: President, R. Thayer Sheets; Vice-President, William P. Henderson; Secretary-Treasurer, John T. Taylor; Sergeant-at-Arms, Samuel R. McAdams.

Refreshments were served after the business portion of the meeting and visiting centered around a very nice display of foreign coinage belonging to Duane McSmith. The meeting was resumed with a raffle consisting of five brilliant uncirculated Philadelphia mint silver dollars, dated 1885-1889, which was won by Gene Wagner. An auction of approximately 30 lots concluded the program and featured a wide variety of U.S.-type coins of the 1800's, and some crisp uncirculated silver certificates of Series 1935-G issues.

Highlighting this month's meeting will be the raffling of a brilliant uncirculated 1950-D Jefferson nickel and another interesting auction. Auction lists for the next meeting may be obtained by calling Bill Henderson, 3711.

Langley Researcher

VOLUME 6, NUMBER 6 LANGLEY RESEARCH CENTER MARCH 24, 1967

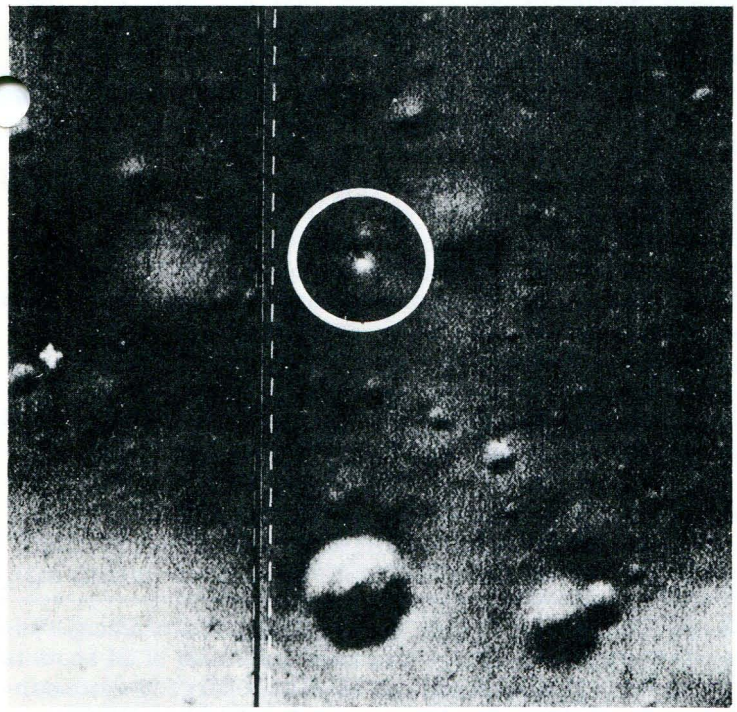
MONITORS NAMED FOR CAMPAIGN

The annual fund raising campaigns for the National Health Agencies and the International Service Agencies is being conducted at the Center through April 30. William L. Williams, Administrative Specialist, has been appointed chairman and he will be assisted by Joyce A. Gray, Personnel Division Office, and Ruth A. Verell, Langley Researcher.

Included in the campaign will be nine health agencies and four service agencies.

The health agencies include United Cerebral Palsy Associations, American Cancer Society, American Heart Association (Heart Fund), Muscular Dystrophy Associations of America, National Multiple Sclerosis Society (Hope Chest), National Society for Crippled Children and Adults (Easter Seals), National Cystic Fibrosis Research Foundation, National Foundation - March of Dimes, and National

(Continued on page 6)



Centered in the circle of this enlarged portion of a photograph made by Lunar Orbiter III on February 22 is the Surveyor I spacecraft which landed softly on the lunar surface on June 2, 1966. The site is in the Oceanus Procellarum on the front face of the moon at 43 degrees 12 minutes West longitude and 2 degrees 27 minutes South titude. Surveyor is the bright object casting a dark shadow about 30 feet long. The spacecraft image was located on the Lunar Orbiter photograph (Frame H-194) by triangulation of distant objects viewed through Surveyor's television camera. The photo covers an area 350 feet by 500 feet. The Lunar Orbiter project is managed for NASA by the Langley Research Center.

CENTER DIRECTOR TO RECEIVE CIVIL SERVICE LEAGUE AWARD

Dr. Floyd L. Thompson

Dr. Floyd L. Thompson, Director of Langley Research Center, has been honored for his outstanding contributions to excellence in government during a 45-year federal career.

The National Civil Service League announced it has selected Dr. Thompson as one of ten public servants to receive the organization's coveted Career Service Awards for his pioneering efforts as an engineer, scientist, and administrator in advancing the science of aeronautical and space flight in the United States.

The award will be presented to Dr. Thompson at the League's 13th annual Career Service Awards banquet at the Sheraton-Park Hotel in Washington, D.C., on April 21. Two thousand top federal officials, business, and community leaders will be invited to attend the ceremony.

The league cited Dr. Thompson for his dedicated public service in building and directing an outstanding team of engineers, scientists, and support personnel whose wind tunnel, laboratory, and flight research have advanced the science of aeronautics and increased man's knowledge of the universe.

Dr. Thompson was recognized for his vision in anticipating research requirements and his expert guidance in the establishment of advanced aerospace research facilities which have made it possible for Langley to contribute significantly to the success of a number of flight programs of world importance.

The Center's wind tunnels, specialized laboratories, and other facilities represent an investment of $250,000,000. Many of them were the first of their type anywhere and were designed and developed by members of Dr. Thompson's engineering and science staff at Langley.

Langley was established in 1917 and is celebrating its 50th year of service to the Nation throughout 1967. Dr. Thompson has been at Langley 41 of the Center's 50 years, and served four years as an aviation mechanic in the U.S. Navy during World War I - for a combined total of 45 years of federal service.

Dr. Thompson was born in Salem, Michigan, November 25, 1898. After his Navy service, he graduated from the University of Michigan with a B.S. degree in Aeronautical Engineering in June 1926, and joined the Langley staff the

(Continued on page 6)

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 302, telephone 2575.

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 for a June wedding is Nora Elizabeth Barrett, Procurement Division. She is engaged to Robert L. Ruehl, Poquoson, and the wedding will take place June 10. . .Lawrence D. Guy, Structures Research Division, is engaged to Shirley Mason, Newport News, and the wedding will be held May 10 at Hampton Baptist Church. . .Dan cupid scored a victory when Carol Sommers, Lunar Orbiter Project Office, became engaged to Donald Page, Poquoson. The wedding will be held June 24.

BUSINESS CARDS. . .A new order for NASA business cards is being assembled. If your supply is running low, please order now as a minimum of 10 orders is required. The price is $2.50 per 100. Send the orders to Charles Clarke, Mail Stop 359.

NEW ARRIVALS. . .Weighing in at eight pounds, seven ounces on March 8 was Kelly Yvonne, daughter of Jerry M. Nichols, Electrical Systems Division. . .Announcing the birth of a seven pound, thirteen ounce daughter, Kathleen Nanette, on March 9 if Leonard J. DeRyder, Lunar Orbiter Project Office.

NASA SLOWPITCH LEAGUE. . .Anyone interested in entering a team in the NASA Slowpitch League should send a representative to the organizational meeting at 4:45 p.m. on March 28 at the Activities Building. For further information contact Jim Ellison, 4861.

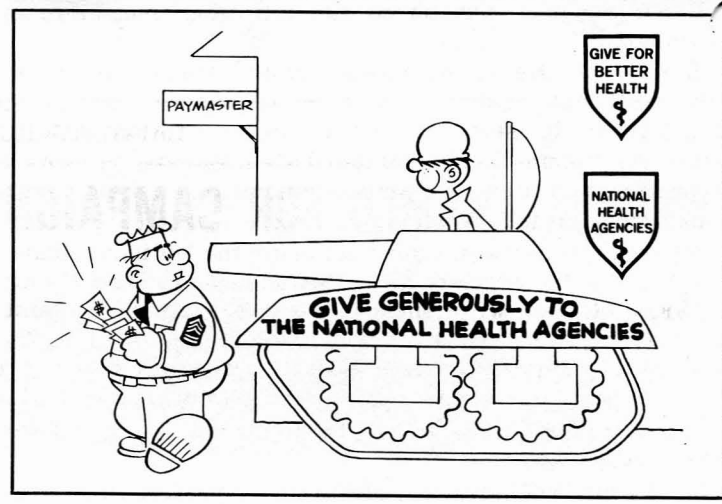
SKYWATCHERS. . .The Skywatchers Astronomy Club will hold a viewing session of some of the planets and other celestial objects on Thursday, March 30, beginning at 6:15 p.m. and lasting approximately four hours. The session will be held if the sky is clear or if only half clear with broken clouds. Viewing will be by use of both small and large telescopes in or near the Observatory Building which is located behind the Activities Building in West Area. All club members are urged to attend.

SKEET LEAGUE. . .A survey is being conducted to determine if there is enought interest to start a Skeet Shooting League for NASA employees and members of their families. The league would consist of 6 or 8 teams of 5 shooters each. The group would shoot at the Williamsburg-Winchester Public Shooting Center. Matches would be once a week starting at 7 p.m. and would be on a handicap system similar to bowling. The cost per round of 24 shots is $3.50 with guns available at no extra charge. Persons interested are requested to contact Joe Siefring, 3483.

FAREWELL PARTY. . .T. Cliff Hodge, Instrument Research Division, will end his government career on March 30 after 25 years of Federal service. Hodge started his career at Fort Eustis in 1942 and transferred to NASA in April 1944. A farewell dinner party will be given in his honor on April 10 at 6:30 p.m. in the Activities Building. Friends and their wives wishing to attend the affair are requested to contact Harry Paucker, 3492, before April 5.

FOR SALE: AKC registered Irish Setter pups - $50. Margason, 877 3694.

Beetle Bailey **By Mort Walker**



CAFETERIA MENU

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

Monday - Chicken-rice soup, roast veal, braised beef over noodles, Salisbury steak, fish cakes.

Tuesday - Beef broth, Swiss steak, roast pork, knockwurst, grilled cheese sandwich.

Wednesday - Puree of bean soup, chopped steak, broiled ham slice, fried chicken, tamale pie.

Thursday - Vegetable-beef soup, grilled steak, barbecued pork chunks, baked lasagna, deviled crab, cheese omelette.

Friday - Clam chowder, pot roast, fried shrimp, broiled fillet of perch, sea dog.

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

Monday - Cream of tomato soup, baked Virginia ham breaded veal cutlet, spaghetti and meat balls, Spanish omelette.

Tuesday - French onion soup, roast ribs of beef, grilled pork chops, chicken chow mein, baked hash.

Wednesday - Vegetable-beef soup, pepper steak, baked ham, sauteed chicken liver on rice, macaroni and wieners

Thursday - Cream of mushroom soup, barbecued spare ribs, meat loaf, fried chicken, chili con carne.

Friday - Clam chowder, fried oysters, beef pot pie, broiled halibut steak, western omelette.

STAFF CHANGES ANNOUNCED

NASA recently announced the following changes in assignments:

Breene M. Kerr, Assistant Administrator for Policy Analysis, has resigned to return to private industry. He has agreed to serve as a part-time consultant to NASA after the termination of official duties. He will be working approximately one-half time for the next few weeks while remaining in the Washington area to attend to personal matters.

Appointed to succeed Kerr is General Jacob M. Smart, UASF, Ret., who will continue to serve as Special Assistant to the Administrator in addition to his duties as Assistant Administrator for Policy Analysis. He has been relieved of his duties as Acting Assistant Administrator for Administration and has been replaced in that position by William Lilly who transferred from the Office of Manned Space Flight.

Col. L. W. Vogel, Corps of Engineers, U.S. Army, has completed his assignment as Executive Secretary and returned to his previous assignment as Executive Officer to NASA, effective March 15.

John Biggs, Deputy Executive Secretary will become Executive Secretary.

Kerr has served in his present position since January 1966 and prior to that time as Assistant Administrator for Technology Utilization.

General Smart joined NASA as a Special Assistant to the Administrator in November 1966, following his retirement from the Air Force. He was Deputy Commander-in-Chief of the U.S. European Command at the time of his retirement.

Lilly has been NASA's Director, Manned Space Flight Program Control since 1961. He joined NASA in February 1960 as Chief of Plans and Program Coordination, Office of Launch Vehicle Programs.

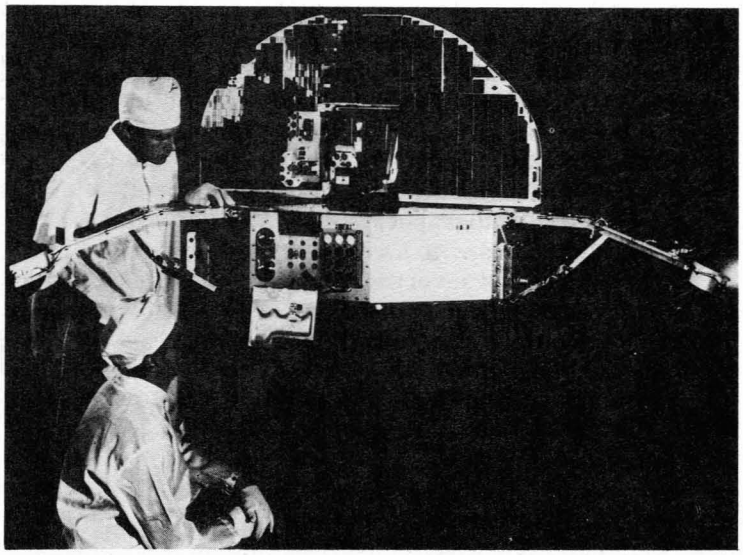
Biggs has been with NASA since 1959, serving first as a procurement and supply officer at Lewis Center. In 1962 he moved to the NASA Downey Office where he was concerned with contract administration and industry liaison with North American Aviation, Inc., prime contractor for the Apollo Saturn II programs.

Colonel Vogel has been with NASA on detail from the Army since July 1964. He first served as NASA's Executive Officer and then as Executive Secretary.

BOOK SALE: The Hampton Branch of AAUW will hold its annual sale of used books, records, and sheet music at Brittinghams Furniture Store West Queen St, Hampton, April 7-10. The hours are as follows: April 7 - 9 a.m. to 9 p.m.; April 8 - 9 a.m. to 5:30 p.m.; April 10 - 9 a.m. to 2:30 p.m. Proceeds from the sale are applied to the Fellowship Funds of the American Association of University Women.

FOR SALE: Eico wideband oscilloscope model 460 - $60, Eico signal tracer model 147 - $25, Eico signal generator model 322 - $25, Heath vacuum tube voltmeter - $25, Sencore TV horizontal and vertical sweep circuit analyzer model SS105 - $30, Sencore leakage checker model LC2 - $15, Hickor tube tester model 600A - $75. Kayton, 838-0540.

FOR SALE: 1967 Chevrolet Caprice with all accessories. Clair, 826-3756.



This is NASA's 622-pound Orbiting Solar Observatory III (OSO-III) which was launched by a three-stage Delta rocket from Cape Kennedy on March 8. The OSO-III carries nine experiments to study the sun and its influence on the Earth's atmosphere. It employs the OSO-III airframe which has been modified to accommodate a set of spare experiments designed for the OSO-C which failed to go into orbit on August 25, 1965.

SEVEN RECEIVE HONORARY AWARD

Seven employees recently received Honorary Suggestion Awards from the Incentive Awards Committee. Receiving certificates were the following:

George S. McConnell, Mechanical Services, "for developing a safety device which will detect invisible flames from hydrogen gas exhaust burn offs from hydrogen furnaces thus reducing injury and accidents caused by this source."

Nathan D. Watson, Flight Vehicles and Systems "for developing a payload-rocket motor separation system for reentry vehicles which will insure a clean and continued separation of the burned out last stage motor from the reentry payload."

Lloyd E. Smith, Mechanical Services, "for suggesting the spacing of additional support plates for the 11-inch Tunnel electric heater which would reduce the possibility of short circuiting due to sagging of the heating element in this facility."

William J. Nelson, Aero-Physics, "for developing a method which provides a protective coating in the throat section of the Continuous Flow Hypersonic Tunnel which will significantly increase tunnel operation."

Benjamin W. Lankford Sr., Mechanical Services, "for suggesting a method of adapting a 24 volt DC motor and actuator into an AC circuitry traversing mechanism for use in experimental investigations which will provide more tunnel time and data."

Gerald L. Gregory, Applied Materials and Physics, and Collis P. Moore Jr., Mechanical Services, received honorary awards for a joint suggesting "for developing an automatic liquid nitrogen change-over device which will provide for more efficient small ultrahigh vacuum systems by providing uninterrupted supplies of liquid nitrogen which will avoid possible trap thaw and associated vacuum system contamination."

COST-CONSCIOUS WORK FORCE

Following are excerpts from a presentation recently given by John W. Macy, Chairman, U.S. Civil Service Commission, speaking in behalf of the Federal Government's Cost Reduction Program. The ideas expressed are consistent with the philosophy of Langley management and they are commended to the staff for consideration:

"What is the role of the civilian employee in the Cost Reduction Program? This is a question I have been asked as Chairman of the U.S. Civil Service Commission.

"In considering the question, my thoughts immediately focus on the vast human resources involved in the critical business of safeguarding our national security: Over 1 million civilian employees - Over 2 billion civilian manhours expended annually.

"In brief, my reply to the question is that the civilian work force should be invited:

"- to apply the power of a million minds to finding ways to economize at a million work sites; and

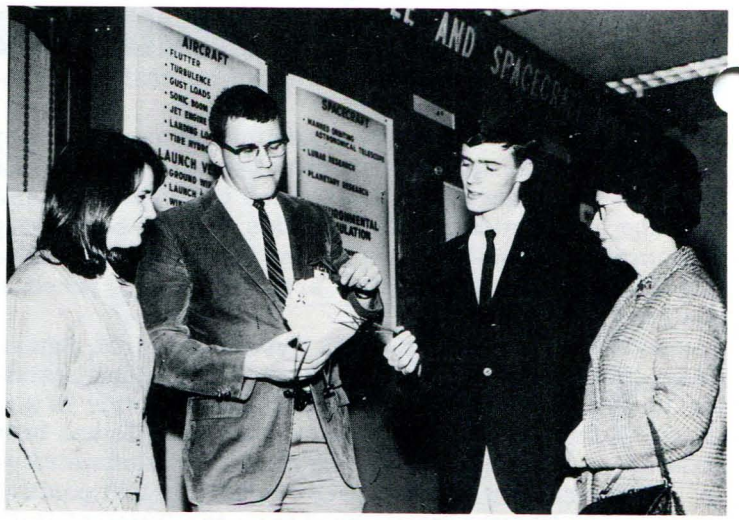
"- to generate a maximum amount of enthusiasm for carrying out day-to-day economies in the 2 billion manhours they collectively invest in their work each year.

"You will note that I have emphasized the word 'invited' in the paragraph above. The word 'assign' might be the first one to come to the minds of those of us in the management ranks whose day-to-day decisions are concerned with assigning resources of money, material, and manpower to various programs. But 'assign' does not convey the factors of motivation, stimulation, and encouragement that are needed if we are to gain the very best cost reduction results from our human resources. Instead, we want to invite each employee to search aggressively for operational economies. We want to challenge each employee to exert maximum economy in his day-to-day use of supplies, equipment, manpower, Etc. We want to inspire each employee to be alert to the dollar and cents aspects of his job and his organization.

"How does this all relate to the role of management in cost reduction? First of all, it is a basic responsibility of management to search for cost reduction. This is an inherent part of the job.

"The manager, with the aid of his top staff such as the comptroller, the director of management, the cost reduction coordinator, the management analysts, the personnel director, the value engineers, etc., is concerned with the big picture of cost reduction. In the search for economy he will be reviewing entire programs to determine whether they should be maintained, revised, or eliminated. He will be reviewing organizational structure and alignment to discover ways to improve cost reduction. He will ask for special management studies to identify new streamlined methods. He will be looking for techniques to save money on contracts. He will be looking for new equipment or technological advances that will account for a significant proportion of the cost reduction results of an organization. In military terms, he is dealing with the overall strategy of achieving cost reduction goals.

"On the other hand, civilian employees and their immediate supervisors are in a position to identify and recommend the tactical strategy - the improvements in operations at the work site that will aid in the total economy effort. They can serve as the necessary outposts - the lookouts and the patrols - that pinpoint where the enemy (waste and efficiency) is located and recommend the tactical steps that need to be taken on many fronts in order to gain full victory in the war on waste. These are the local battlefield improvements that the men and women on the job can develop that would not otherwise come to the attention of the commander or other top people who are conducting the overall strategy. While these local improvements are usually not dramatic or sweeping, they do add up in large organizations to thousands of dollars annually and have the additional value of maintaining and strengthening the cost-conscious climate for the whole work force."



Thirty members of the Astronomy Class at Rutherfordton-Spindale High School in Rutherfordton, North Carolina, visited the Center early this month and toured a number of research facilities. Shown above are Sandra Parton, Thomas J. Yager, Dynamic Loads Division; Regan Clark, and Mrs. Harry Boucher, instructor. The students financed the trip by sponsoring two dances, holding several bake sales and selling 860 dozen doughnuts.

PROFESSORS TO VISIT HERE

Dr. John W. Cell, Head of the Department of Mathematics, North Carolina State University at Raleigh, will visit the Center on Tuesday, April 18 to discuss graduate or prospective graduate studies with staff members. Persons wishing an appointment with Dr. Cell are requested to call the Training Office, 2611.

Dr. Cell will also present a lecture on "The Z Transform" in the East Area Projection Room, Building 587. Interested staff members are invited to attend.

Dr. Robert W. Truitt, Head of the Department of Mechanical and Aerospace Engineering, North Carolina State University, will visit the Center on Thursday, April 20 to discuss graduate or prospective graduate studies with staff members. Persons wishing an appointment with Dr. Truitt are requested to call Training Office, 2611.

WANTED: Home for pet dog 6 months old, male, part Cocker, has all shots and tag. Barnes, 868-2381.

FOR SALE: Beginner's golf clubs including 2 woods, 5 irons, bag- $10, also 20-inch portable fan - $10. Monteith, 877-0493.

FOR SALE: 1958 Taunus 4-cylinder station wagon, electric shift - $125. Swart, 723-7687 after 5 p.m.

WANTED: Ride from Northampton to W.A. on 8 shift. Peggy Lewis, 3334.

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House in Williams-
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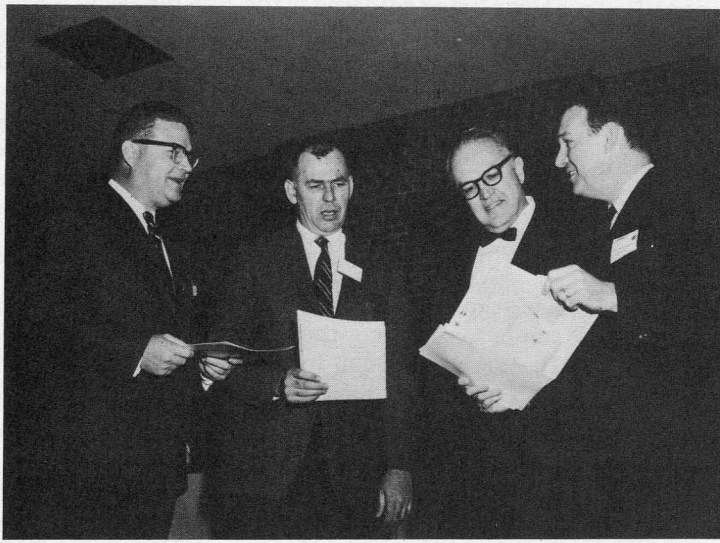
pper left photo - Dr.
irector and General
es the visitors. Top
) and Dr. Gordon N.

S. Barna (right), Old Dominion College. Upper right photo
Dr. Carol L. Herzenberg, Illinois Institute of Technology
chats with Dr. K. R. K. Sarma, Old Dominion College
Center left photo - A group of the visitors are shown re
laxing during a coffee break. Center right photo - Dr. Clay
ton Clark (left), National Science Foundation, talks wit
Dr. W. G. Worcester and Dr. James Eades, both of Vir
ginia Polytechnic Institute, and Ralph A. Lowry, Univer
sity of Virginia. Lower left - Dr. Duberg goes over pro
gram plans with Dr. William McFarlane, Director of VARC
and Dr. T. L. K. Smull and Jesse Mitchell, both of NAS
Headquarters. Lower right photo - The seminar was attend



The Hampton Roads Chapter of the American Institute o Aeronautics and Astronautics, NASA, and Virginia As sociated Research Center jointly sponsored a one-da seminar for University Research Using Sounding Rockets Balloons and Satellites at the Motor House in Williams burg on March 1. The objective of the seminar was t stimulate interest throughout the academic community i the use of sounding rockets, balloons and satellites fo atmospheric and space research. Upper left photo - Dr John E. Duberg, Langley Assistant Director and Genera Chairman for the Seminar, welcomes the visitors. To center photo - Dr. Wing T. Chu (left) and Dr. Gordon N Patterson, both of the University of Toronto, talk with P

CIVIL SERVICE LEAGUE AWARD

(Continued from page 1)

following month.

Dr. Thompson was an aeronautical engineer in Langley's flight research division in the early years, becoming chief of the division in July 1940. Three years later he was promoted to Assistant Chief of Research and from November 1945 to September 1952 was Chief of Research. He was appointed Associate Director in charge of all Langley research in September 1952, and continued in that capacity until May 23, 1960, when he became Director.

Dr. Thompson was elected in 1949 as a Fellow of the American Institute of Aeronautics and Astronautics, and is a member of the American Association for the Advancement of Science. He is Vice-President of the Federal Executives Association in the Hampton Roads area and a member of the executive committee of the Association.

In 1953 he was cited by the University of Michigan as a distinguished alumnus, and his alma mater honored him again in 1963 by awarding him the honorary degree of Doctor of Science. The College of William and Mary awarded him the honorary degree of Doctor of Science in 1963.

President Kennedy presented the NASA Medal for Outstanding Leadership to Dr. Thompson in May 1963 in ceremonies at the White House. The same year, he was given the Distinguished Service Award of the American Legion, Department of Virginia, and was selected for recognition as "Distinguished Virginian" in the field of aeronautics and space by the Virginia State Exchange Clubs.

MONITORS NAMED FOR CAMPAIGN

(Continued from page 1)

Society for the Prevention of Blindness.

The service agencies include American-Korean Foundation, CARE, Radio Free Europe, and Project HOPE.

Employees will be given contribution envelopes. All donations should be turned in to the attendance clerks who will send them to the following division monitors:

Connie Parker, Office of Director and Associate Director; Margaret Strickland, Research Reports; Edith Spritzer, Flight Reentry Programs Office; Anna Plott, Lunar Orbiter; Gloria Alto, MORL Studies Office; Nell Turpen, Scott Project Office; Ann Timberlake, Space Vehicle Design Criteria Office; Anges Dunkley, Applied Materials and Physics; Nancy Holt, Analysis and Computation; Pat Hurt, Flight Instrumentation; Pat Cramer, Instrument Research; Myrtle Wells, Space Mechanics; Doris Baynes, Dynamic Loads; Frances Arnn, Structures Research; Mary Catlett, Aero-Physics; Rosemary Neubaum, Flight Mechanics and Technology; Doris Vandeveer, Full-Scale.

Catherine Chamberlin, Office of Engineering and Technical Services; Polly Redmon, Electrical Systems; Virginia Vohringer, Flight Vehicles and Systems; Louise Griggs and Sarah O'Keefe, Mechanical Services; Thelma Jones, Research Models and Facilities; Barbara Hogge, Office of Assistant Director for Administration; Ruby Felker, Photographic; Carolyn Wilt, Administrative Services; Betty Shelton, Procurement; Joyce Gray, Personnel, and Elsie Olive, Fiscal.

FOR SALE: Golf clubs - complete set of McGregor Tourney irons - $50. Garrett, 898-6708.

FOR SALE: 1 957 Dodge convertible. Davidson, 826-7134.

IEEE TO HEAR BERGLUND

Olov Berglund

Olov Berglund, Executive Engineer, ASEA Electric Inc., North American Division, will be the speaker at a meeting of the Hampton Roads Section of the Institute of Electrical and Electronics Engineers on Friday, March 31 at Bennett's Creek Farm Restaurant, U.S. Route 17, 7 miles northwest of Portsmouth.

Berglund will speak on "High Voltage D.C., Its Characteristics and Implications." The high-voltage direct current transmission technique has recently attracted considerable attention in the power engineering field. In his presentation, Berglund will outline why HVDC has commanded this attention. He will discuss such factors as the reduced number of conductors necessary for power transmission, the reduced cost of insulation and also some rather unique properties of HVDC transmission.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30 and the meeting at 8:30. Reservations should be made by noon on March 30 with Frank Senft, 3461.

CREDIT UNION NOTICE

Of course, the odds are against the account number of a qualified member being selected in the Fly-the-Flag sweepstakes but, even so, it looks like three biweekly drawings should turn up a winner. Still, they haven't. Consequently, as reported in the last issue, the current prize has been split five ways. The lucky winner of $25 was Theresa R. Brennan, Space Mechanics. Consolation prizes of $10 each were awarded to Charles F. Spear, Mechanical Services; Harris B. Pate, General Photographic; Alfred Jefferson, Plant Maintenance, and Brady D. Wooddell, Mechanical Services.

With the decals now on automobiles, the remaining prizes should go much faster than the ones to date. Be sure you qualify. Call extension 3606 for the "flags" you and your asociates need and get them on your rear bumper. The April 7 prize will be $25.

LIGHTS INSTALLED ON CAB HOODS

For the convenience of Center employees using the taxicab service, blue lights have been installed on the hoods of the cabs to designate the cab's destination.

When the blue light is on, the cab is heading for East Area or will remain in East Area.

When the light is off, the cab is heading for West Area or will remain in West Area.

FOR SALE: Fender vibrolux-reverb guitar amplifier $200. Davey, 898-5664.

FOR SALE: 1957 Simca, 4-door. Lingle, 838-1528.

FOR SALE: 1965 Galaxie convertible - 46,000 miles - $1850. Gardner, 851-3711.

FOR SALE: 3-bedroom house with swimming pool in Newmarket. Lucento, 244-8293.

"AUTOMOBILE TIRE HYDROPLANING" FILM RESULT OF NASA RESEARCH

Results of research at the Landing Loads Track on the behavior of pneumatic tires on wet pavements have created widespread interest and a special effort is being made by Langley to make this information widely available. Two Technology Utilization films have been made highlighting these results - one, on applications in the aeronautical field, the other, in cooperation with the Bureau of Public Roads in the automotive field.

A Technology Utilization film report on "The Hazards of Penumatic Tire Hydroplaning to Aircraft Operations" was released in October 1963. The film received an international film award for technical films and stimulated great interest in the aeronautical and automotive fields. Since the film's release, over 500 loan requests for it have been handled by Langley's Technology Utilization Office and loan requests continue at a rate of over 10 per month.

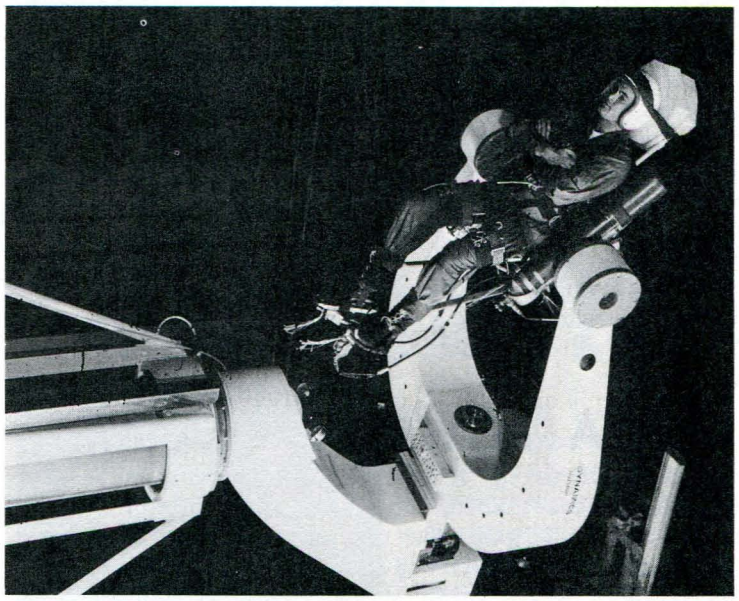
Twenty-two specific requests for permission to buy copies of the film last year, distribution of almost 20,000 copies of a leaflet on the film, and the several reprintings for technical note TN D-2056 on the "Phenomena of Pneumatic Tire Hydroplaning" indicate the interest in the film and research results. The Langley Technology Utilization Office noted that about one-third of the requests for loan copies or purchase copies of the films have come from sources in the automotive field.

More recently, as a result of cooperative efforts by NASA Headquarters, the Bureau of Public Roads and the Langley Research Center, a joint NASA/Bureau of Public Roads' film, "Automobile Tire Hydroplaning," has been produced and released. The LRC Technology Utilization Office was designated NASA's technical monitor on this effort with the Bureau of Public Roads.

The Bureau of Public Roads made arrangements to use a test site at Wallops Station and Langley personnel participated in all phases of the production of the film. The product is a 12-minute film. The technical data from a supplementary leaflet which provides information on purchasing or on obtaining loan copies of the film was used in a recent Mission Safety 70 news item.

Letters to Dr. Floyd L. Thompson, Center Director, from those who viewed the film have been highly complimentary. A state official concerned with highway safety has written, "While most drivers are aware that a wet roadway presents a driving hazard, your film tells them how much worse it is than is generally realized. It is the first realistic release to the public of the important facts that have recently come to light." The president of Peoples Cab Company in Pittsburgh has written, "The production of the film, 'Automobile Tire Hydroplaning - What Happens,' collaborating with the Bureau of Public Roads, is an outstanding achievement. This film will cause a decline in motor vehicle accidents, particularly on wet and snow sloshy highways."

Copies of the leaflet describing the film and loan copies of the film for viewing at Langley may be obtained by calling Betty Mundie, telephone 3281



JET SHOES - Astronauts may one day use jet propelled shoes to maneuver in space during extra-vehicular activity. Here test pilot Lee H. Person Jr., Langley Research Center, tests shoes while "riding" the six-degree-of-freedom weightlessness simulator at the Convair Division of General Dynamics. Four-pound thrust jets are mounted on the bottom of each shoe and are operated independently by downward flexing of toes. Streamers on the bottom of the shoes were used to check air flow. Tests at Convair were in a simulator in which the subject seemingly is weightless and which permits up and down, lateral, rolling, tumbling and spinning motions. Langley Research Center is conducting research into the possible use of jet shoes during activities outside a spacecraft which would free an astronaut's hands for other tasks.

SPEED MEASURING DEVICE

Center officials have been advised by Langley Air Force Base Air Police that they are now measuring the speed of vehicles by a new device called VASCAR. The device is a mechanical computer which allows the Air Policemen to accurately measure the distance between any two points along a highway and to time a vehicle as it travels between the two points. VASCAR is able to mechanically compute speed from the measured distance and time.

VASCAR will vastly increase the effectiveness of the Air Police because not only can they measure accurately and easily the speed of vehicles they are following, but also vehicles coming in the opposite direction, vehicles to the rear of the police car and vehicles crossing at any intersection. The patrolman does not have to travel at the same speed as the vehicle being clocked and the device can be operated while patrolling highways. It is unnecessary also for the patrolman to be close to the suspected speeder's car as clocks can be started up to a mile away.

The Air Force stated that VASCAR has been adopted to increase the efficiency of its patrolmen in their job of making Langley's roadways safer. In the future, voluntary compliance with all Langley AFB traffic regulations would be appreciated.

WANTED: Driving combination from Winchester Drive to W.A. on 7:30 shift. Bailey, 3556.

FOR SALE: Filter-Queen vacuum cleaner - $150. Whiteman, 723-8101.

FOR SALE: 1957 Buick Special - $125. Carter, 877-9025.

LOST: Simpson model 260 VOM with name D. Solomon on top. Solomon, 3373.

EASTER EGG HUNT TOMORROW

The Activities Association's Annual Easter Egg Hunt for children of Center employees will be held tomorrow 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 vicinity and let the children have the pleasure of finding the eggs.

The hunt will continue until the supply of eggs has been exhausted.

NASA BOWLING LEAGUE

Flyers lead Group A in the NASA Tenpin League with 59.5 wins and 44.5 losses. Top scores were rolled by Hollie Ozment with a 225 game and Leonard Mayo with a 569 set.

ACD continues to lead Group B with 69 wins and 35 losses. Top bowlers were Ralph Muraca with a 231 game, John Gustafson with a 660 set, and Mary Jim Joslin with a 237 game and 626 set.

RPM's lead Group C with 67 wins and 37 losses. Trailing in a close second are Sad Sams with 66 wins and 38 losses. High scores were rolled by Herman Schuchert with a 246 game, John Hollinger with a 625 set, Janice Phelps with a 247 game and Peggy Mayo with a 623 set.

GROUP A

Flyers	59.5	44.5	Unitary	56	48
Odd Balls	58	46	Hornets	55	49
Clean Ups	57	47	Alley Cats	45.5	58.5
Outlaws	57	47	Phantoms	42	62
Misfits	56.5	47.5	Short Circuits	32.5	71.5
GROUP B			GROUP C		
ACD	69	35	RPM's	67	37
Wood Nickers	62	42	Sad Sams	66	38
Golfers	62	42	Hotshot Tunnel	64	40
Payloads	58	46	A-OK	61	43
Strike Outs	54	50	Gliders	60	44
Pinwigglers	51	53	Bowling Belles	59	45
Flight Engineers	49	55	Sparkys	57	47
HMS	49	55	Wa-Hoppins	53	51
Getogethers	49	55	Mets	53	51
Galaxies	48	56	Ten-Benders	51	53
Flight	47	57	Dillys	49	55
Cee Pees	44.5	59.5	Class Kats	37	67
Greenhorns	44.5	59.5	Hits & Misses	32.5	71.5
Trackers	41	63	Gutter Jumpers	18.5	85.5

HELICOPTER GROUP MEETS MARCH 30

Robert L. Lichten, Board Chairman of the American Helicopter Society, will be the guest speaker at the meeting of the Hampton Roads Section of the American Helicopter Society on March 30 at the Fort Eustis Officers' Open Mess.

Lichten, who is Director of Advanced Engineering for the Bell Helicopter Company, will speak on "U.S. Army AH- G HueyCobra."

The meeting will be preceded by a social hour at 7 p.m., followed by dinner at 8 and the meeting at 9. Members and non-members are invited to attend. Reservations should be made by noon on March 29 with John Garren or Dan DiCarlo, extensions 4505 or 4584.

Misfits won the 1967 NASA Basketball League with a record of 14 wins and 2 losses and the NASA Tournament with a record of 2 wins and 0 losses. Members of the team are front row (from left): John Smith, James W. Gormsen, Otto Youngbluth, Jerry Creedon, Bill Woods, and Bill Debnam. Back row - Hugh Mahanes, Tom Davis, Ben Keeter, Ron Weber, and Bob Davis.

ACM GROUP MEETS MARCH 28

Dr. Douglas C. Engelbart, Stanford Research Institute, will be guest speaker at a meeting of the Virginia Peninsula Chapter of the Association for Computing Machinery on March 28 at Strawberry Banks Motel.

Dr. Engelbart will speak on "Text Manipulation." He will show a movie illustrating his work in text manipulation. An on-line computer, CRT display, typewriter, and an "Engelbart Bug" (a visual pointer which the computer can sense) are used to manipulate text. The text could be material such as a report, memorandum, or speech. Units of text from characters to pages can be added, deleted, moved, or modified. This is an example of Dr. Engelbart's well-known work in integrating the hunches, cut-and-try, and "feel for a situation" of humans with the rapid manipulative and organizational capabilities of computers.

Dr. Engelbart is one of the leaders in formulating the conceptual framework, computer and peripheral equipment, and realistic problem situations to demonstrate the possibility of improving human effectiveness through real-time computer aid.

The meeting will be preceded by a social hour at 6 p.m., followed by dinner at 7 and the program at 8. Reservations should be made by March 22 with John Petrick, 764-3156, or Floyd Shipman, 3544.

FOR SALE: Kelvinator refrigerator - $20. Young, 838-1632.

FOR SALE: 1954 Ford - 4-door sedan. Richards, 723-5427.

FOR SALE: Slingerland drum set - $135. Taquet, 838-0454.

FOR SALE: 15-foot Arrowhead camping trailer, sleeps 5- $735; 16-foot fiberglas boat with 100 hp Evinrude motor, trailer, skis and accessories - $1600. Pelton, 838-0074.

WANTED: Driving combination from Ivy Farms area to W.A. on 7:30 shift. Ashworth, 3737.

WANTED: Ride or driving combination from Fox Hill Rd. area near Barron School to W.A. on 8 shift. Johnson, 4788.

Langley Researcher

VOLUME 6, NUMBER 7 LANGLEY RESEARCH CENTER APRIL 7, 1967

SCIENTISTS RECEIVE AWARDS FOR HYDROPLANING RESEARCH

Four Center employees have received Certificates of Commendation in the Metropolitan Life Awards for Research in Accident Prevention competition. The certificates were presented to Walter B. Horne, Upshur T. Joyner, and Thomas J. Yager, all of Dynamic Loads Division, and Glenn R. Taylor, Lunar Orbiter Project Office, for their research work on hydroplaning.

Horne and Joyner received the award for their paper entitled "Pneumatic Tire Hydroplaning and Some Effects on Vehicle Performance" and Horne, Yager, and Taylor received the award for their paper on "Recent Research on Ways to Improve Tire Traction on Water, Slush or Ice."

The awards were presented by Marshall Lamison, vice-president for Group Insurance, Metropolitan Life Insurance Company, Atlanta, Georgia, at the General Meeting of the Southern Safety Conference held in Richmond on March 6.

The awards are made to give recognition to investigators for studying accident phenomena so as to encourage research workers in the various sciences to include this area in their studies. Because the field of accident prevention cuts across all scientific areas and is so broad and vast in its scope, research may come from any of the various disciplines, for example, biological, physical, psychological, or social, and can include interdisciplinary undertakings.

The awards are administered by the National Safety Council under a grant from the Metropolitan Life Insruance Company.

Four Center employees recently received Certificates of Commendation in the Metropolitan Life Awards for Research in Accident Prevention competition. Looking at one of the certificates are (from left): Thomas J. Yager, Glenn R. Taylor, Walter B. Horne, and Upshur T. Joyner.

LANGLEY MAKING NASA AWARDS AT 16 STUDENT SCIENCE FAIRS

Langley Research Center is presenting awards this spring in 16 regional and state science fairs in Virginia, North Carolina, South Carolina, and Kentucky as part of the annual participation of NASA in the National Science Fair-International.

Up to five certificates of outstanding achievement in aeronautics and space-related categories are being awarded by NASA in the participating science fairs, including five regional competitions in Virginia. The Virginia fairs include the Tidewater Science Congress to be held April 8 at Churchland Junior High School in Chesapeake, and the regional competitions in Arlington, Fairfax, Roanoke and Hopewell.

Five Langley staff members will serve as judges in the Tidewater Science Congress. Four of them - John P. Mugler Jr., James M. Bradford Jr., and Brian J. O'Hare, Applied Materials and Physics Division; and Ralph P. Bielat, Full-Scale Research Division - will represent Langley and the Hampton Roads Section of the American Institute of Aeronautics and Astronautics as part of the AIAA's educational activities in this area. S. Walter Hixon, Head of Langley's Educational Programs and Services, will represent NASA as a judge.

NASA awards are being presented by Langley at science fairs at Charlotte and Durham, North Carolina; Florence, Orangeburg, Greenville, Columbia, and Charleston, South Carolina; and Morehead, Jeffersontown, Williamsburg, and Campbellsville, Kentucky. Other NASA centers will take part in regional fairs in their geographical areas.

Dr. E. Carson Yates Jr., Dynamic Loads Division, will be a Langley judge in the NASA competition on April 8 at the North Carolina State Science Fair at Durham.

The 1967 National Science Fair-International will be held in San Francisco, California, May 10-13, where winners of regional and state fairs in the United States and Canada will compete for international honors. Axel T. Mattson, Langley's research specialist for manned spacecraft projects, has been named for the fifth successive year as a judge for the NASA awards program at NSF-1.

NASA awards at San Francisco will include certificates of merit to six student winners in aerospace categories. The prizes will be invitations to them to visit a NASA research center selected on the basis of the interests of the individual winners. Each student will be permitted to select a teacher to accompany him on the NASA tour, which will include visits to center research facilities and an opportunity to consult with staff scientists.

Last year the National Science Fair-International was held in Dallas, Texas. A total of 419 exhibits were viewed during the fair, including representation from the 50 states and a number of foreign countries.

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 302, telephone 2575.

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

BABY DERBY. . .Center families seem to be running far ahead in the Peninsula Baby Derby. Edgar Yarrington, Research Facilities and Systems, became the father of a son on March 18. . .Word has been received at the Center that Eva B. House, Fiscal, became the mother of a son on March 18. . .Helen, formerly of Dynamic Loads, and Walter Olstad, Aero-Physics, became parents of a daughter on March 23. . .Announcing the birth of a daughter on March 19 is John L. Allen Jr., Scout Project Office. . .Celebrating the arrival of a son on March 20 is Carter F. Lewis, Mechanical Services. . .Weighing in at nine pounds, nine ounces on February 28 was Mark Steven, son of John P. Decker, Full-Scale Research. . .A six-pound, six-ounce daughter, Shelby Lynn, arrived at the Richard N. Green household on March 22. The father works in Applied Materials and Physics. . .Robert J. McGhee, Full-Scale Research, became the father of an eight-pound son, David Barksdale on March 19. . .Frankie, formerly of Applied Materials and Physics, and George F. Lawrence, also of AMPD, became parents of an eight-pound, nine-ounce son, George Scott, on March 23. . .Thomas J. Yager, Dynamic Loads Division, became the father of a seven-pound, eight ounce daughter, Lisa Diane, on March 27.

CAMERA CLUB. . .The Langley Camera Club will meet on April 20 at 7:30 p.m. at the Langley Service Club. A color slide open category contest will be held.

RETIRED EMPLOYEE. . .Word has been received at the Center that Charlie Wolfe, who retired from the Center several years ago, recently suffered a stroke. Friends who wish to send him cards should address them to Upper Street, Turner, Maine 04282.

BLOODMOBILE. . .The Red Cross Bloodmobile will visit the Center on April 19. Additional donors are needed to help meet the Center's quota. Those who have not registered to donate blood and wish to do so may call East Dispensary, telephone 2243.

SHOOTING PARTY. . .Staff members have been invited to a free Shooting Party at the Williamsburg Winchester Public Shooting Center on April 14 at 7 p.m. This is a good opportunity for everyone to find out now much fun claybird shooting is. Those planning to attend are requested to contact Joe Siefring, 3483.

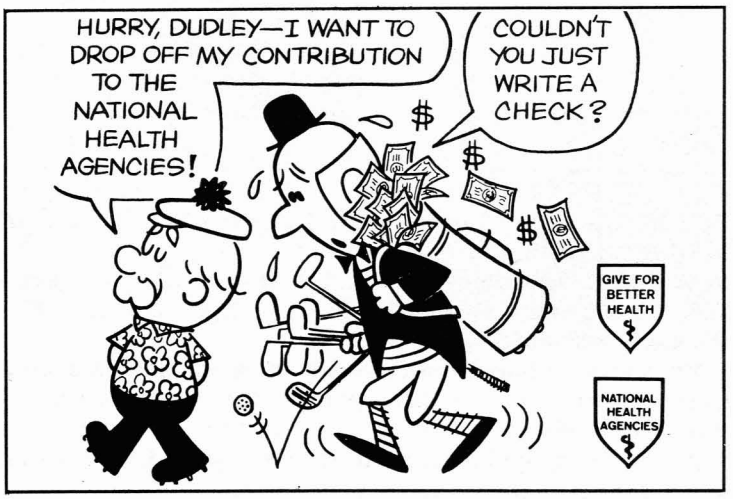
The choice to receive the first award as the Credit Union Employee of the Year and the $100 Savings Bond that goes with the honor is Jean Yokum. Jean receives the official commendation scroll from Robert L. Girouard, President of the Credit Union. Her citation reads in part "...she has consistently, over the years, demonstrated rare aptitude and ability as Chief Accountant and is now excelling her past efforts by the competent and highly successful manner in which members' accounts are being transferred to the new Burroughs E4000 accounting system and this despite the many difficulties encountered and the demanding nature of the work..."

LIGHTNING STRIKES. . .Finally there is a regular winner in the Credit Union's Fly-the-Flag contest. H. Wayne Leonard, Dynamic Loads, has retired the $25 prize for the two weeks just past. Another $25 prize is coming up, so be prepared. If you do not have a decal, get one now.

MARATHON. . .The City of Hampton Recreation Department is sponsoring the Third Annual Peninsula Square Dance Marathon on April 14 and 15 at Kecoughtan High School. The 27 hours of continuous dancing will start at 8 p.m. on Friday and end at 11 p.m. on Saturday. All proceeds from the marathon will go to the Sarah Hudgins Training Center for Retarded Children.

FOR SALE: 1959 Ford, 4-door, 6-passenger ranch wagon-$275. Dodgen, 596-7337.

Mr. Abernathy **By Jones & Ridgeway**



PRESIDENT DECLARES MAY 1 LAW DAY

President Johnson has issued the following proclamation declaring May 1 as Law Day, U.S.A.:

"May 1st is the tenth anniversary of Law Day, U.S.A. The theme of Law, 1967 is, in the words of Theodore Roosevelt: 'No man is above the law and no man is below it.'

"Again we remind ourselves that law, and respect for law, is central to the idea of American democracy. Free government could not exist, said Justice Taney, without ready obedience to the law.

"Thus all who cherish freedom should also cherish law. Liberty and law abide together. In that bond is the foundation of our liberties.

"I ask every American to take the law into his heart - not into his hands. I ask not blind obedience, but enlightened obedience. I ask patience too, for the law, like our times, will and must change. But America's fidelity to law must be eternal.

"I ask every American to respect the law, and to respect also the men who are pledged to its enforcement. And of those who wear the badge, I ask an equal respect both for the law and for the rights of the people they are sworn to protect.

"As your President, I can ask no less than the young lawyer Lincoln in 1939:

" 'Let every American, every lover of liberty...remember that to violate the law is to trample on the blood of his father, and to tear the charter of his own and his children's liberty.'

" 'Let reverence for the laws...be taught in schools, in seminaries, and in colleges; let it be written in primers, spelling books, and in almanacs; let it be preached from the pulpit, proclaimed in legislative halls, and enforced in courts of justice...'

" 'Let it become the political religion of the nation; and let the old and the young, the rich and the poor, the grave and the gay of all sexes, and tongues and colors and conditions, sacrifice unceasingly upon its altars.'

"Now, therefore, I, Lyndon B. Johnson, President of the United States of America, do hereby request the observance of Monday, May 1, 1967, as Law Day in the United States of America.

"I urge the people of the United States to observe Law Day with appropriate ceremonies and by reaffirming their commitment to freedom and the supremacy of law in our lives. I especially urge that the schools, civic and service organizations, public bodies, courts, the legal profession, and the media of information assist in sponsoring and participating in appropriate observances.

"I also call upon public officials to display the American flag on public buildings on that day as requested by the Congress."

FOR SALE: 1960 Chevrolet. Crockett, 898-6155.

FOR SALE: 8mm camera, Leitz Leicina 8SV - $150. Kim, 838-4056 after 5 p.m.

FOR SALE: 11-cubic-foot refrigerator with top freezer - $35, 20,000 btu air conditioner, 220 volts, 15 amp. - $75. Beckage, 596-3556.

FOR SALE: 32-foot cabin cruiser with marine engine, head and galley - $1200. Priddy, CH7-6623 daytime or PA3-5441 nights.

FOR SALE: Fiberglas sunfish sailboat with dacron sails- $375. Turner, 723-5455.

Dr. B. L. Dorman (center), NASA Assistant Administrator for Industry Affairs, examines a sonic-boom model at the Unitary Tunnels with Charles J. Donlan (left), Associate Director, and M. Leroy Spearman, Head of Large Supersonic Tunnels Branch.

DR. DORMAN VISITS CENTER

Dr. B. L. Dorman, NASA Assistant Administrator for Industry Affairs, visited the Langley Research Center on March 17. Dr. Dorman, a former vice-president of Aerojet General Corporation, is responsible for maintaining effective relations between NASA and industry and will direct NASA's activities in procurement, labor relations, reliability and quality assurance, and construction and will have charge of the staff of the Inventions and Contributions Board.

Dr. Dorman, a 1928 graduate of Purdue University, joined Aerojet in 1943 after 15 years as a mechanical engineer. He has been closely associated with Aerojet missile program, serving as Head Test Engineer, Manager of the Test and Field Service Division, and vice-president of Test Engineering.

His alma mater, Purdue, conferred upon him in 1960 an honorary degree of Doctor of Engineering. In 1964 he was named vice-president of Future Operations and in this capacity was responsible for corporate long-range planning.

JOINT MEETING PLANNED APRIL 15

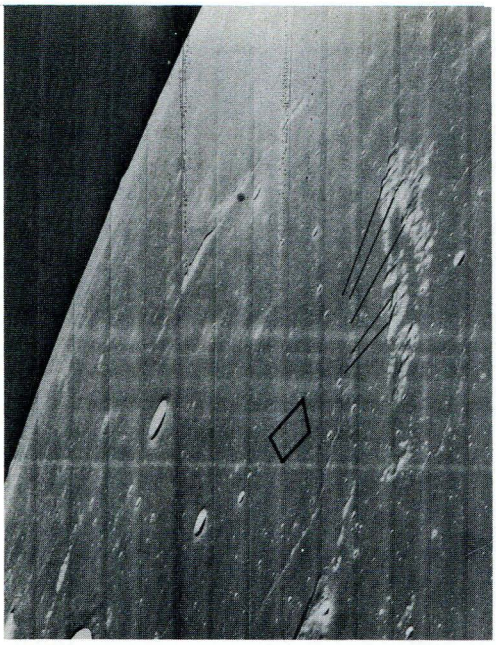
A joint meeting of the Virginia Section and the Hampton Roads Section of The American Chemical Society will be held in Williamsburg on April 15.

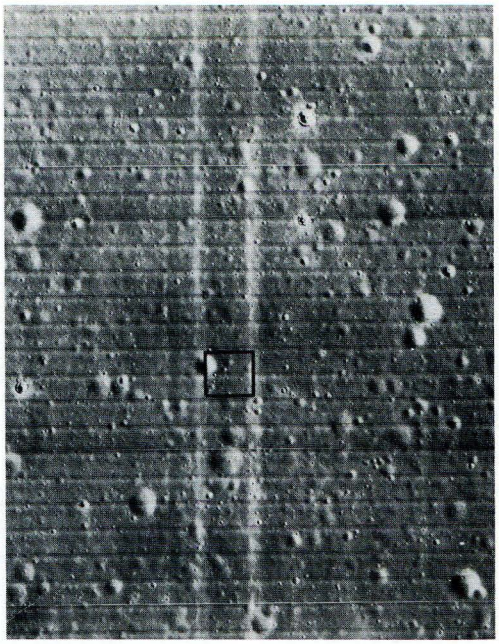
The meeting will be held at 4:15 p.m. in the William Small Physical Laboratory (Physics Building). Professor H. V. Malmstadt, University of Illinois, will lecture on "Electronic Instrumentation for Chemists."

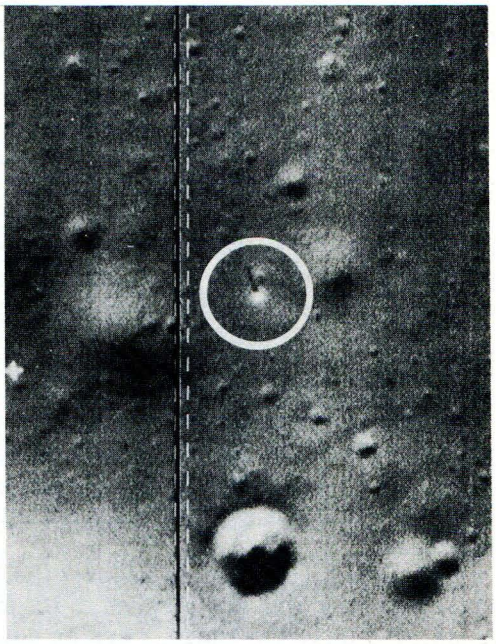
A social hour will be held at 6 p.m. in the Conference Center of the Williamsburg Lodge, followed by dinner at 7. D. A. Spalding, vice-president in charge of Fiber Manufacture of the Dow-Badische Company, will speak on "Activities of the Dow-Badische Company."

For further information call George Sands, 4420 or 3361.

WANTED: Alternate drivers from Wythe area to W.A. or 7:30 shift. Regone, 3681.







These photographs taken by Lunar Orbiter III spacecraft shows three views of the area on the moon where Surveyor I made a soft-landing on June 2, 1966. The pictures were taken on February 22, 1967. To the left is an oblique view taken by Orbiter's wide angle lens showing a partial ring structure in Oceanus Procellarum. The low mountains in the northeastern part of the ring were observed by the Surveyor television camera. The crater Flamsteed can be seen at the southern tip of the ring in the picture taken when Orbiter III was at an altitude of 30 miles and had a slant range of 82 miles to the center of the photo. The square identifies Surveyor's location. In the center is a picture taken by Orbiter's telephoto lens with the cameras tilted approximately 12 degrees off vertical in order to obtain coverage of the Surveyor I region. Surveyor is located within the square. To the right is a portion of the telephoto picture enlarged about eight times. Surveyor can be detected as a white object casting a shadow approximately 30 feet long. Surveyor was identified by triangulation of distant objects seen by Surveyor I's camera on its horizon. Lunar Orbiter is a project of the Langley Research Center and was built by The Boeing Co., Seattle, Washington.

BRAINBUSTERS HOLD CONTESTS

The NASA Brainbuster's Free Flight Model Club has been holding a series of indoor contests. In January and March local qualifications were held for the international FA 65cm (span) indoor contest which will be held in Rome, Italy. Six persons qualified for the quarter finals including Hewitt Phillips, Space Mechanics; Bob Champine, Flight Mechanics and Technology; Harold Crane, Flight Mechanics and Technology; Joe Boyle, Mechanical Services; Pat Gainer, Flight Mechanics and Technology, and Pat's son, Bob Gainer. The quarter finals will probably be held May 21 in Lakehurst, New Jersey.

At the February contest with a 20-foot ceiling Dave Robelen, Mechanical Services, won hand launch glider with a two-flight total of 43 seconds. A. D. Jessup, Flight Instrumentation, was second at 39.7 seconds. In the 18-inch span EZB event (a simple paper covered fun model) Harold Crane placed first with 6:33.8 and Pat Gainer was second with 4:08.

The big news was that Hewitt Phillips set a new national record for Class B (00-square-inch) indoor stick models for low ceiling flying (up to 35 feet). The old record was 14 minutes, 23 seconds and Phillips beat that twice. His best flight was 16 minutes, 59 seconds. He has received the AMA record certificate. His microfilm covered model has a wing area of 74 square inches and weighs 0.035 ounces.

WANTED: Ride or driving combination from West End on Armistead Ave. or Southampton Apartments to E.A. on 8 shift. Frank, 2537.

PUBLIC OPINION SURVEYS

A memorandum from the Assistant Administrator of Public Affairs, NASA Headquarters, has brought to the attention of other NASA facilities that a number of opinion samplings are being sent to NASA personnel. These ask for ratings of contractors and other opinions on NASA industry relations. Staff members are requested not to reply to these requests.

Two other papers are also making the rounds - one asking for buttons, wings, emblems, allegedly for the Smithsonian and another on magazine preferences. Staff members are also requested to ignore these inquiries.

LECTURE COURSE OFFERED

A two-day lecture course on Contamination Control is being offered to Center employees on May 22 and 23 in the East Area Projection Room, Building 587.

The instructor will be Philip R. Austin, Contamination Control Laboratories, Livonia, Michigan. The first day will cover the design of clean facilities and the topic for the second day will be operation of clean facilities.

Persons interested in attending the lectures are requestto call the Training Office, 2611.

FOR SALE: 13-foot boat with 40 hp motor and trailer. Poole, 596-4836.

NOTICE: Will the person who borrowed "Hypersonic Aerodynamics" by Truitt please call F. W. Gibson, 3437.

FOR SALE: 3-bedroom brick home on Sedgewood Dr., Newport News. Elliott, LY6-0397.

FOR SALE: Year old Beagle - $10. Regone, CH4-3642.

CHRISTOPHER NEWPORT COLLEGE SERVING PENINSULA AREA

H. Westcott Cunningham was appointed by the Board of Visitors as Director of Christopher Newport College.

One of the newest institutions of higher learning now serving the Peninsula area is Christopher Newport College of the College of William and Mary.

Christopher Newport College is a three-year, state supported, co-educational college. It was planned as an urban school attended by day and night students from commuting distances or such students as may take up residence in the area.

The college was established and duly authorized by the General Assembly of Virginia in its 1960 session. The college receives its support from the General Assembly, from the community, and from the fees paid by the students enrolled.

The affairs of the college are directed by the Board of Visitors of the College of William and Mary. The Board is appointed by the Governor of the Commonwealth of Virginia. The Director, H. Westcott Cunningham, was appointed by the Board of Visitors and is in charge of the actual administration and course of instruction at the college.

Christopher Newport College derives its name from that of Captain Christopher Newport, the illustrious English mariner and one of the most important mem connected with the permanent settling of Virginia. It was he who was in command of the small squadron of three vessels, the Discovery, the Godspeed, and the Susan Constant, which made the historic voyage culminating with the landing at Jamestown in 1607.

The purpose of the college is to provide a program of educational opportunities of an academic and terminal nature beyond the high school level to a geographical area of Virginia which has undergone one of the largest population explosions in the United States in the past decade. In addition, it is the purpose of the college to provide the first two years of college work and in some selected areas through three years for students desiring to enter senior institutions at the junior or senior levels. The two-year program leads to the degree of Associate in Arts. The college also offers a two-year program in preparation for engineering, medicine, dentistry, and public health service.

Christopher Newport College is covered under the accreditation of the College of William and Mary and holders of an Associate of Arts degree may use it for admission to the final two years of work at any four-year institution of higher learning.

In September 1962, the college initiated a program of evening classes designed to serve the needs of residents of Tidewater communities and military personnel stationed in the area, to enable them to obtain residence credits which might be applied toward a degree at Christopher Newport College or at other accredited institutions.

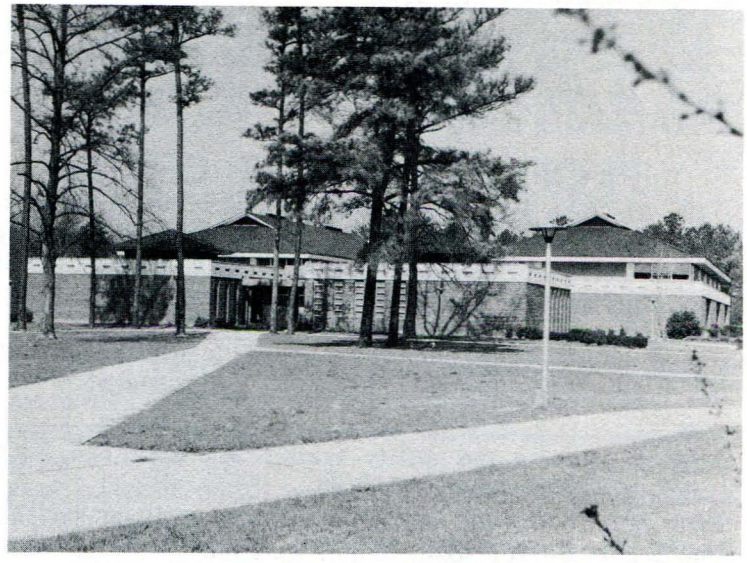
Community service programs are typified by the college's educational arrangement with the nursing school at Riverside Hospital and the summer session pre-college seminar which is offered on a non-credit basis to students who have finished the junior or senior year of high school and wish to obtain strong foundations in the areas of reading, literature, mathematics and psychology. Also in this particular aspect of community service the college has offered non-credit course work for the past two years on a contract basis with the National Aeronautics and Space Administration.

The college's first class of 209 students were enrolled in the summer of 1961 and after June, it will have graduated five classes. The total enrollment of the present student body is 1,050.

In 1960, a growth pattern was established with the approval of the Board of Visitors of the college. This projection includes enrollment in 1968 of 1,750 and in 1970 of 2,200.

Along with the increase in enrollment the faculty has grown to 40 full-time teaching members and 50 part-time members including the evening and summer sessions. All 90 professors hold master's degrees and 35 percent of the staff hold doctorates.

The college is located on a 75-acre tract of land located on Shoe Lane in Newport News. The physical plant consists of The Christopher Newport Hall, which is a 24,000-square-foot classroom and administration building, and Gosnold Hall, which is a 42,000-square-foot science facility adjacent to the present classroom building. A 33,000-square-foot physical education building and a 36,000-square-foot-library building will be completed this year. Projected plans call for the eventual construction of a total of 17 buildings. There are no plans to add dormitories.



Gosnold Hall houses the science facilities.

NASA TO MANAGE XB-70 PROGRAM

An agreement signed by NASA and the U.S. Air Force transfers to NASA program management responsibility for the supersonic XB-70A aircraft for continuation of the joint research program. The change was effective March 25.

Transfer of responsibility to NASA for management of the program and planned use of the 250-ton airplane at a reduced rate are the major changes from an agreement of May 1965. Research and test projects of the Department of Defense will continue under the new arrangement, as will DOD pilot participation and aircraft support.

The XB-70 research program, much of it related to supersonic flight - specifically to support the National Supersonic Transport Program - will be continued as a joint NASA-Air Force effort. Flight operations of the 2000 mph airplane will be directed by Flight Research Center. Mission support by the Air Force Flight Test Center (AFFTC) at Edwards will continue.

Major objectives of XB-70 research are to investigate dynamic loads imposed on the airplane and to further define and evaluate stability and control characteristics and handling qualities of large supersonic vehicles.

The builders of the airframe and engine, North American Aviation, Inc. and General Electric Co., are under contract for maintenance, parts replacement and repair and overhaul of the aircraft and engines respectively.

The $10 million requested by NASA for Fiscal Year 1968, together with Air Force and NASA FY 1967 funds will provide for certain systems and instrumentation changes, and continuance of the flight research program through 1968.

Basic airworthiness of the XB-70 airframe and engines was established during earlier flight tests by the Air Force and North American Aviation, concluded June 8, 1966. On that date one of the two existing XB-70's was destroyed in a flight collision.

Following modification, the remaining plane made a series of nine flights, from November 3 to January 17, 1967, to measure the magnitude and the effects of sonic booms produced by large aircraft in supersonic flight at various Mach numbers, altitudes, and gross weights. Two additional flights last January provided other data of interest to the national SST program.

The airplane has been undergoing maintenance, modification and the installation of additional instrumentation since January 31 in preparation for the new joint NASA-USAF research program.

PROFESSOR VISITS CENTER

Dr. Fa-Yueh Wu, Department of Physics, Virginia Polytechnic Institute, will present a lecture entitled "An Exactly Soluble Model of the Ferro Electric Phase Transitions in Two Dimensions" on Monday, April 10 at 10 a.m. in the Conference Room, Building 1247.

Staff members planning to attend the lecture should call the Training Branch, 2611, and leave their names.

FOR SALE: 3/4-ton utility trailer with steel bed, 5 x 9 body - $100. Crossley, 642-4133.

FOR SALE: 16-foot Barbour runabout with convertible top, 40 hp electric start Evinrude, Gator tilt-bed trailer. J. L. Hudgins, 642-2501 Hayes, Va.

Informal discussions, such as this one sponsored by Project HOPE in Nicaragua, help the people of developing nations learn the importance of nutrition, sanitation and personal hygiene. The Center's joint campaign for International Service Agencies and National Health Agencies will end on April 30.

COIN CLUB MEETS APRIL 11

This month's meeting of the Langley Research Center Coin Club will be held at the Activities Building on April 11 and doors will be open at 7 p.m.

The March meeting brought out 20 collectors who enjoyed a very exciting evening. Over 80 percent of the auction lots were sold and Bill Mayo, Mechanical Services, was the lucky winner of a brilliant uncirculated 1950-D.

The club took initial steps in building a numismatic libbary with the purchase of three books. Bob Wright, IRD, agreed to become the club's first librarian. The membership rolls continued to grow to 27 with the signing up of 12 new members.

This month's meeting will feature a program on foreign coins which will be presented by Duane McSmith, Langley's Safety Officer. The club will hold another auction and the raffle will consist of a brilliant uncirculated 1955 half-dollar.

BOOKS AVAILABLE IN LIBRARY

Langley Research Center recently placed orders for a number of textbooks to be placed in the Library to form the nucleus of a comprehensive library for Langley's Executive Development Program. The staff will be notified as the books are received. The following books have been received, catalogued, and are on the shelves:

Public Personnel Administration by Stahl, Management in Action; the Art of Getting Things Done Through people by Appley, New Patterns of Management by Likert, Developing Executive Skills; New Patterns for Management Growth by Merrill, Principles of Management; an Analysis of Managerial Functions by Koontz, Men, Money and Motivation; Executive Compensation as an Instrument of Leadership by Patton, Government Budgeting by Burkhead, Personnel Administration; a Point of View and a Method by Pigors, Personality and Organization; the Conflict Between System and the Individual by Argyris, The Principles of Organization by Mooney, The Language of Social Research; a Reader in the Methodology of Social Research by Lazarsfeld, and Basic Mathematics for Administration by Fowler.

110 SCIENTISTS CHOSEN TO CONDUCT EXPERIMENTS ON LUNAR SAMPLES

A group of 110 scientists from the United States and six other countries have been chosen to conduct experiments with the first samples of the moon's surface return to Earth by U.S. astronauts.

In all, the scientists will conduct 122 experiments with the lunar samples since some scientists will make more than one experiment. Thirty-three of the experiments will be carried out by 27 scientists in laboratories of other countries.

It is planned that the two astronauts who first land on the moon in the Apollo program will return approximately 50 pounds of lunar material to Earth. The samples will be studied by scientists of a variety of disciplines to determine the composition of the lunar surface and to search for evidence of its origin.

The four major investigative areas are mineralogy and petrology, chemical and isotope analysis, physical properties, and biochemical and organic analysis.

The U.S. principal investigators represent 21 universities, two industrial firms, three private institutions and 10 government laboratories.

In England, the principal investigators represent nine scientific institutions. In Germany, three are represented and in Canada, Japan, Finland and Switzerland, one each.

Most of the investigations will be made by scientists in their own laboratories but time-critical experiments will be conducted in the Lunar Receiving Laboratory at Manned Spacecraft Center in the period of quarantine which is anticipated to last about 30 days.

The Lunar Receiving Laboratory, now nearing completion, will be a central complex where lunar surface materials will be received, quarantined and processed for distribution to principal investigators.

Fifty pounds of samples will arrive at the Laboratory in two vacuum-sealed containers weighing a total of 80 pounds.

The samples will be stored under vacuum and most of the operations with the samples in the laboratory will be performed under vacuum in order to keep the collected material in an environment similar to the moon's. All of the operations with the samples in the laboratory will be performed behind biological barriers to eliminate organic and inorganic contamination and to insure that Earth quarantine is not violated.

Some 130 proposals for scientific studies of the lunar samples involving more than 400 scientists were received by the June 15, 1966, deadline.

Selection of the investigators was made by NASA's Associate Administrator for Space Science and Applications, Dr. Homer E. Newell, upon the recommendation of the Space Science Steering Committee.

Edward T. Maher (left), Langley Deputy Equal Employment Opportunity Officer, presents citation certificates to Lawrence W. Brown and Freida Walker in behalf of the Newport News Office of Economic Opportunity. John Cox, Personnel Division, who serves as the Center's Equal Employment Opportunity Coordinator, observes the presentation.

CENTER EMPLOYEES HONORED

Two employees of Langley Research Center were recently honored with the receipt of citation certificates for their efforts in behalf of the Neighborhood Youth Corps. The certificates were awarded by the Newport News Office of Economic Opportunity to Lawrence W. Brown, Space Mechanics Division, and Freida Walker, Personnel Division.

In an accompanying letter to Dr. Floyd L. Thompson, Center Director, Noel S. Marston, Director of the Neighborhood Youth Corps, stated, "The generosity and unselfishness exemplified by Mr. Brown and Mrs. Walker had a great impact upon the lives of the seventy youth with whom they worked. Their presence during the evening sessions eased the minds of the students in their preparation for the Civil Service examination, in addition to the information gained from discussions they led."

Brown and Mrs. Walker served the Neighborhood Youth Corps as volunteers on their own time to assist in preparing underprivileged youths for Civil Service examinations. They used teaching aids designed to acquaint those who have not been exposed to examination processes with what to expect, including emphasis on word meaning and association.

Brown serves as a member of the Center's Equal Opportunity Committee and he stated that much of his interest in community action programs of this type has been renewed as a result of this membership.

FOR SALE: 1951 Buick, 2-door - $125. Ferrell, 851-0466.

FOR SALE: Black leatherette sofa, opens into bed - $25. Wells, 596-3707.

FOR SALE: Hot Point portable dishwasher. Belle, 244-7040.

FOR SALE: 1963 Americana Encyclopedia - 30 volumes and 10-volume Popular Science, Evans, 868-3921.

FOR SALE: AKC registered German Shepherd - male, 9 months old, has shots and tag - $45. Maddalon, 838-2821.

FOR SALE: Garrard turntable with dust cover and base - $35. Mauldin, 3530.

FOR SALE: Small dinette table with 4 chairs - $15. Swofford, 826-4472.

FOR SALE: 1 964 Corvair Monza convertible, r/h, w/w, 4-speed floor shift. Fry, 838-2189 after 5 p.m.

FOR SALE: Two mouton jackets - $35 each. Johnson, 722-6628.

FOR SALE: 1964 15-foot fiberglas boat, 45 hp motor, and trailer. Rossman, 838-1758.

FOR SALE: Halicrafter S-120 shortwave radio. Berry, 642-2298.

ELECTION PLANNED APRIL 25

The Activities Association's annual election for District Representatives to the General Assembly will be held at the Center on Tuesday, April 25. No primary election will be held and representatives elected to the General Assembly will serve from July 1, 1967 to June 30, 1968.

The Center is divided into districts of approximately 70 to 100 employees and representatives will be elected by and from each district.

Voting shall be by secret ballot. Each employee may vote for one candidate from his district. Ballots will be placed in sealed ballot boxes and each employee shall sign a register upon casting his ballot. There will be no voting by proxy and persons on leave lose their opportunity to vote.

NASA BOWLING LEAGUE

ACD leads Group B in the Tenpin League with 73 wins and 39 losses. Golfers are in second with 70 wins and 42 losses. Top scores were rolled by Warren Kelliher with a 264 game, Gilbert Walker with a 676 set, Jackie Andrada with a 209 game and Ruth Pluta with a 584 set.

RPM's lead Group C with 75 wins and 37 losses. Sad Sams and Hotshot Tunnel are tied for second with 68 wins and 44 losses each. Taking top bowling honors were Donald Velsor with a 256 game, Clayton Rodgers with a 638 set, Marie Henley with a 239 game and Edith Moen with a 626 set.

GROUP B

ACD	73	39
Golfers	70	42
Wood Nickers	66	46
Payloads	62	50
Strike Outs	57	55
Pinwigglers	55	57
Flight Engineers	54	58
HMS	54	58
Getogethers	53	59
Galaxies	51	61
Cee Pees	49.5	62.5
Flight	49	63
Greenhorns	47.5	64.5
Trackers	43	69

GROUP C

RPM's	75	37
Sad Sams	68	44
Hotshot Tunnel	68	44
A-OK's	67	45
Bowling Belles	63	49
Gliders	62	50
Mets	58	54
Ten Benders	57	55
Sparkys	57	55
Wa-Hoppins	56	56
Dillys	53	59
Hits & Misses	39.5	72.5
Class Kats	39	73
Gutter Jumpers	21.5	90.5

GRAY RETIRES FROM CENTER

Sheridan G. Gray, Research Facilities Service Section A, Mechanical Services Division, retired from the Center on March 31 after more than 30 years of Federal service.

Gray was born March 26, 1911 in Chattanooga, Tennessee. He served in the U.S. Navy from 1929 to 1933 and from 1939 to 1955. He joined the Center staff on September 22, 1955 as an Aeronautical Laboratory Mechanic.

WANTED: Driving combination from Shore Park to W.A. on 8 shift. Gillespie, 4817.

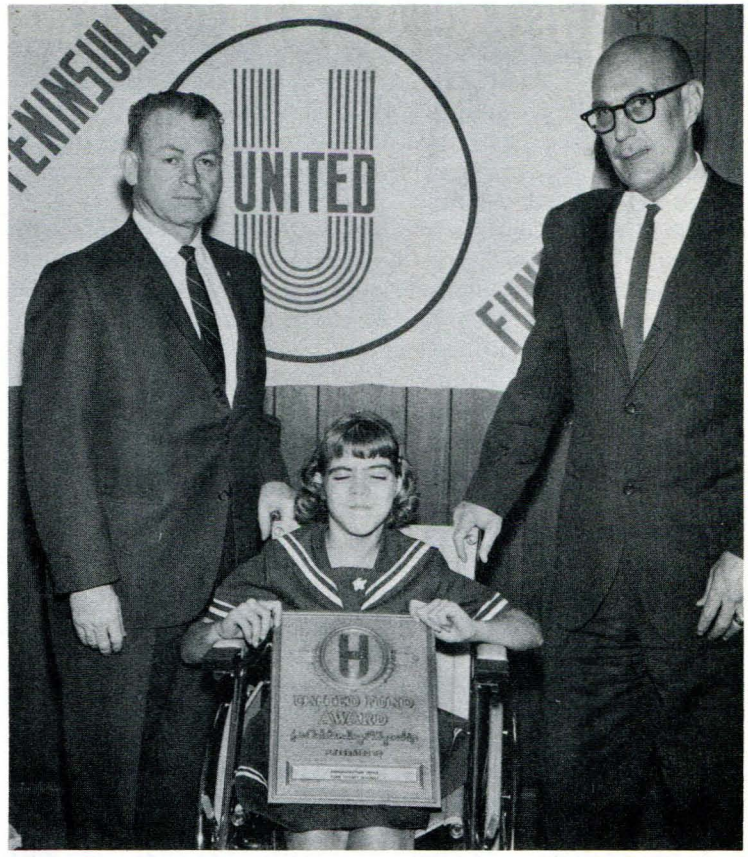
FOR SALE: 1955 Oldsmobile - $75. Gibson, 826-2678.

FOR SALE: 1966 Ford Fairlane 2-door hardtop. Nuthall, 596-7194.

WANTED: To rent furnished air conditioned home. Stroud, 723-4333.

FOR SALE: Heath MM-1 Volt-OHM-Milliameter. Robeson, 877-3250.

FOR SALE: Dropleaf kitchen set - 29 by 51-inch table and 4 chairs. Illg, 898-5003.



Charles J. Donlan (left), Associate Director, and Robert W. Boswinkle Jr., Chairman of the Langley Center's United Fund Campaign, pose with Joanne Carlton who holds the Outstanding Citizenship Award which was presented to Center employees at the annual meeting of the Peninsula United Fund.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of April 17:

Monday - Tomato-barley soup, corned beef brisket, stuffed shrimp, smoked pork sausage, Austrian ravioli.

Tuesday - Chicken-vegetable soup, roast veal, chicken shortcake, liver and onions, Irish omelette.

Wednesday - Vegetable-beef soup, grilled steak, shrimp Newburg, stuffed pepper, deviled crab, franks and beans.

Thursday - Consomme julienne, Spanish pot roast, ham and macaroni, fried chicken, spiced luncheon meat.

Friday - Clam chowder, baked ham, stuffed flounder, broiled perch, wieners and sauerkraut, beef ravioli.

The following menu will be served during the week of April 17:

Monday - Chicken-rice soup, chicken and dumplings, grilled pork steak, beef stew, fish cakes.

Tuesday - Puree of bean soup, roast beef, barbecued pork chunks over rice, fried fish sticks, western omelette.

Wednesday - French onion soup, roast turkey, crab cakes, spaghetti and meat balls, grilled cheese sandwich.

Thursday - Vegetable-beef soup, grilled steak, chicken pie, pork chow mein, baked hash.

Friday - Clam chowder, beef stroganoff, fried oysters, broiled fish, tamale pie.

FOR SALE: 1964 Falcon, 2-door, 6 cylinders, best offer. Champine, 877-1761.

Langley Researcher

VOLUME 6, NUMBER 8 LANGLEY RESEARCH CENTER APRIL 21, 1967

MRS. JOYNER APPOINTED HEAD OF SAVINGS BOND CAMPAIGN

Kitty O'B. Joyner, Head of Cost Engineering Staff, has been appointed Chairman of the Center's 1967 U.S. Savings Bond Campaign. The drive will be conducted during the month of May and each employee will be contacted by a representative from his division.

Kitty O'B. Joyner

One of the new features of the Savings Bond program are Freedom Shares or U.S. Savings Notes which may be purchased in conjunction with the Series E Bonds.

In seeking the support of staff members during this drive Mrs. Joyner stated, "Participation in the Government Savings Bond program is both prudent and patriotic. Regular investment in Savings Bonds through the payroll deduction plan provides the owner with an automatic method of accumulating a readily redeemable source of money for emergencies or for long range plans. The bond program is an important part of the Government's financial program; it helps prevent inflation, and supports our fighting men in Vietnam."

Mrs. Joyner is a native of Charlottesville. She attended Sweet Briar College and received her bachelor of science degree in electrical engineering from the University of Virginia. She joined the Center staff on September 6, 1939 as a junior computer.

The Secretary of the Treasury has announced the offer for sale of U.S. Savings Notes only with the simultaneous purchase of Series E Bonds under payroll savings plans or through the bond-a-month plan. This offer is effective with the biweekly pay period beginning May 7. The denominations and purchases prices of the new Savings Notes are:

Demonination (Face Amount)	Purchase Price
$25.00	$20.25
$50.00	$40.50
$75.00	$60.75
$100.00	$81.00

Savings Notes may not be purchased separately, but only with the simultaneous purchase of Series E Bonds under the payroll savings plan, and the registration of the note must be identical to that of the companion Series E Bond.

(Continued on page 4)

ROBERT H. KIRBY RECEIVES SLOAN FELLOWSHIP AWARD

Robert H. Kirby, Aerospace Technologist in Dynamic Stability Branch of Flight Mechanics and Technology Division, has been awarded an Alfred P. Sloan Fellowship for a full year of graduate study at the Massachusetts Institute of Technology.

Robert H. Kirby

Kirby is one of 45 recipients of grants which supply work leading to a master's degree in business management. Ten men from other nations are included in the group. The recipients will begin their study in June. Sloan Fellowships are considered among the highest honors which can come to young men in management. The Fellows were carefully selected by MIT from a group of executives whose organizations nominated them for the program to accelerate their development in positions of major executive responsibilities in the future.

Kirby was born July 22, 1927 in Kenly, North Carolina, and served in the U.S. Army from October 1945 to December 1946. He joined NASA in 1951 after graduation from the University of Virginia where he received a bachelor of science degree in mechanical engineering.

He was assistant project engineer for the Free-Flight Tunnel Section on projects dealing with stability and control of vertically rising airplane models for six years. Then until 1966 he was lead project engineer and then group leader for V/STOL research in the Dynamic Stability Branch and represented NASA in various capacities to outside organizations in the V/STOL field.

Since March 1966, Kirby has been in the Flight Mechanics and Technology Division office directing two contractor design feasibility studies which could lead to a possible $20 million follow-on research aircraft procurement.

He has published 17 NASA papers on his research work in the V/STOL field and has authored or co-authored seven conference papers which were presented at the following meetings: NASA Conference on V/STOL Aircraft; American Institute of Aeronautics and Astronautics National Conference; American Helicopter Society National Conference; New York Academy of Sciences, and Department of Defense Symposium on V/STOL aircraft.

In addition he has been a consultant for a number of outside organizations in this field.

Kirby resides with his wife, Virginia, and two children at 9 Riverdale Drive, Hampton.

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 302, telephone 2575.

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

DECAL NOTICE...A recent survey by Air Police revealed that a large number of NASA employees are not attaching the decals properly to the windshields. The decal should be applied on the inside of the windshield behind the rear view mirror according to instructions - do not tape the decal to the windshield.

DIAPER LINE. . .Announcing the adoption of a daughter, Lori Ann, are Carol and Owen E. Schrader. The proud father works in Research Models and Facilities Division.. Celebrating the birth of a seven-pound, four-ounce son, Charles Glenn, on April 16 is Charles V. Woerner, Applied Materials and Physics Division.

IAM MEETING NOTICE. . .The NASA Lodge No. 892, International Association of Machinists, will hold its monthly meeting on Tuesday, May 2 at 7 p.m. at the Central Labor Union Hall, Newport News.

ALUMNI ASSOCIATION. . .The Apprentice Alumni Association of the Newport News Shipbuilding and Dry Dock Company is planning a dance and golf tournament. The dance will be held April 28 from 9 p.m. to 1 a.m. at the Stoneybrook Country Club. Admission will be $5 a couple. The golf tournament will be held at the Newport News Municipal Golf Course. The $5.50 entrance fee will also include the banquet. Thomas R. McGrath is the association's representative at the Center. Persons interested may contact him at 3231.

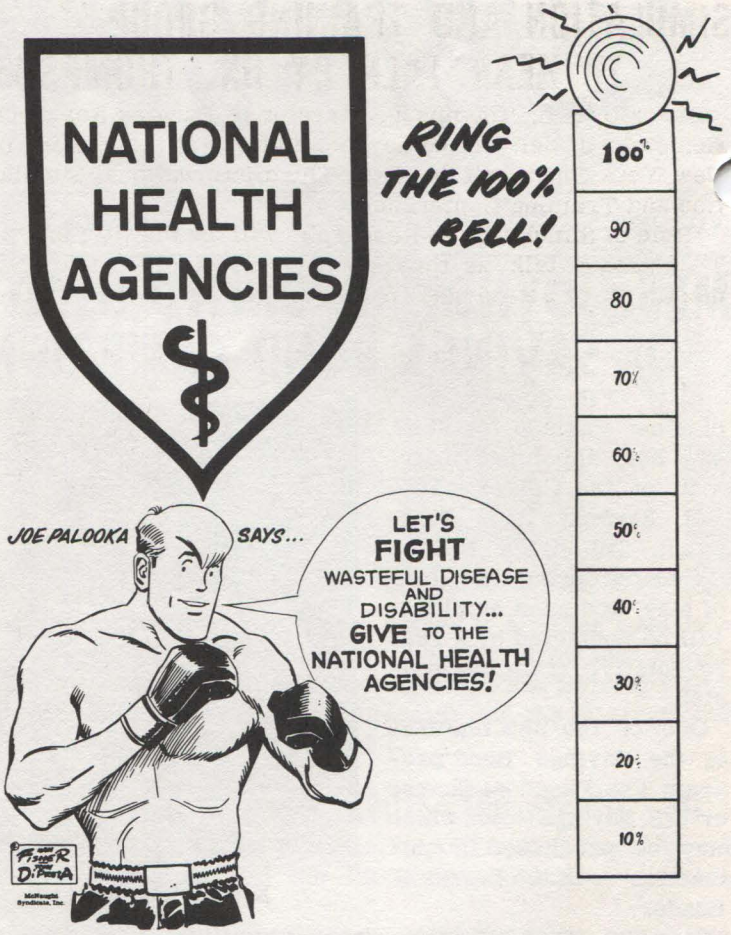
APPRENTICE SCHOOL HONOR ROLL

Ten members of the Apprentice School completed the Spring Semester with an average of 96 or better. Members of the honor roll are as follows:

John W. Cox, Electric Arc; Burt Emerson, Space Vacuum Lab; William Fernald, Spacecraft Structures; John Fogle and Dallas Summerfield, Model and Pliant Structures; Kenneth Hall, Material Processing and Development; Stephen Irick, Dynamic Vehicles; Edgar Reeves, Electrical Service Section; Homer Rush, 8-foot High Temperature Structures, and Ceylon Short, Fabrication Shop.

FOR SALE: 1962 Ford Galaxie - 2-door. Arrington, 596-7358.

FOR SALE:3-bedroom rancher with fenced backyard - pay equity and assume $71 a month payments. Jones, 723-0467.



CAFETERIA MENU

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

Monday - Cream of tomato soup, braised short ribs of beef, broiled ham slice, fried fish, Spanish omelette.

Tuesday - Cream of potato soup, roast veal, fried shrimp, liver and onions, Austrian ravioli.

Wednesday - Chicken-vegetable soup, roast beef, broiled Canadian bacon, fried chicken, franks and beans.

Thursday - Vegetable-beef soup, grilled steak, braised beef over rice, chicken cutlet, cheese omelette.

Friday - Clam chowder, corned brisket of beef, fried scallops, broiled fish, western omelette.

The menu for the week of May 1 is as follows:

Monday - Puree of bean soup, Swiss steak, grilled pork chops, Polish sausage, fish cakes.

Tuesday - Consomme julienne, baked Virginia ham, breaded veal cutlet, spaghetti and meat sauce, baked hash.

Wednesday - Chicken-rice soup, pot roast of beef, smoked pork sausage, fried chicken, tamale pie.

Thursday -Vegetable-beef soup, grilled steak, hot turkey sandwich, knockwurst, stuffed pepper, macaroni and wieners.

Friday - Clam chowder, fried clams, boiled ham, broiled fish, Salisbury steak, chili-mac.

FOR SALE: Share in Riverdale Recreation Association - $175. Verell, 838-1024.

WANTED: Fifth driver from Gloucester Point to W.A. 8 shift. Hudgins, 4826.

FOR RENT: Large split-level house in Riverdale - avialable middle of June. Kirby, 9 Riverdale Dr., 838-0646.

SIMULATION AND TRAINING GROUP TO HEAR TALK BY DR. THOMPSON

Dr. Floyd L. Thompson, Director of Langley Research Center, will deliver the keynote address at the opening in New York City April 24 of the Third International Simulation and Training Conference.

"Role of Simulation in Research" will be the title of Dr. Thompson's talk at the opening session of the four-day meeting to be attended by engineers from the United States and several foreign countries.

Dr. Thompson will discuss a number of Langley simulation facilities which are operated by scientists, research pilots, and astronauts to provide new technology useful in the design of flight vehicles and in the development of techniques for operating them.

At the April 26 morning session on development and accomplishment of the simulation training program, Roy F. Brissenden, aerospace engineer in Langley's Space Mechanics Division, will give a paper on "Using Simulation for Research and Using Research to Develop Valid Simulation Techniques."

Charles W. Harper, Director of Aeronautics in the NASA Office of Advanced Research and Technology, Washington, D.C., will participate in a panel discussion at the April 27 afternoon session on the overall management and coordination problems existing between the various agencies relating to simulation and training equipment and programs.

The conference is sponsored by the Society of Automotive Engineers.

CONTRACTOR BIDS INVITED ON NEW RESEARCH FACILITY

Langley Research Center has issued invitations to contractors to bid on the building of the tunnel structure and foundations for the V/STOL Transition Research Tunnel. Bids will be accepted by Langley's Procurement Division until 3 p.m. EDT May 9.

The new facility is scheduled to go into operation in late 1969 in West Area for use in studying the problems of designing and operating aircraft capable of vertical or short takeoff and landing.

A test section 15 by 21.5 feet will permit Langley scientists to use large V/STOL models in investigating an aircraft's characteristics in transition from vertical to forward flight, and in takeoff and landing.

The specialized research facility will be built adjacent to one end of the 7 by 10-foot wind tunnels building, which now houses a low and a high-speed test section. The low-speed test section will be modified for use as a model preparation area for the new tunnel.

Congress authorized $5,011,000 in fiscal 1966 for construction of the V/STOL Transition Wind Tunnel. The current invitation to bid, calling for services and materials to furnish and install the tunnel structure and foundations, involves only a part of this fund. Not included are the fan drive system, fan blades and hub, test section with associated appurtenances and controls, and utility services.

FOR SALE: 18-foot runabout with convertible top, 35 hp electric start outboard, tilt trailer, skis, etc. Kelly, 851-1470.

Three employees and a former employee recently received cash awards for applications that might result in the granting of patents. Top photo - Robert L. Trimpi (right), Head of Reentry Physics Branch, Aero-Physics Division, presents a check for $100 to Edward F. Manestar for his invention entitled "Calibrating Device." Center photo - LaVern E. Winn (right) receives a $400 check from William B. Mayo, Chief of Mechanical Services Division, for his invention on "Ellipsograph." Bottom photo - Dr. George W. Brooks (right), Assistant Chief of Dynamic Loads Division, congratulates Eugene C. Naumann for his invention entitled "Automatic Fatigue Test Temperature Programmer." Naumann shared a $200 award with Patrick L. Corbin, formerly of Full-Scale Research Division.

NEW UNITED STATES SAVINGS NOTE ANNOUNCED

(Continued from page 1)

This combined purchase of Savings Note and Savings Bond may be authorized in addition to an employee's present purchase of Series E Bond, or an employee may replace the existing Series E Bond authorization with the new combination. Present bond authorizations (SF 1192) will continue in effect for those participants who wish to continue to purchase Savings Bonds only. Allotments for Savings Notes will be authorized on the new Standard Form 1192A, Authorization for Purchase or Request for Change, U.S. Savings Bonds and Savings Notes (Freedom Shares) Combination. These forms may be obtained from Time and Attendance Clerks or from the Payroll Office, Mail Stop 323, extension 2246.

The minimum deduction for the combination purchase of bonds and notes for each biweekly pay period will be $3.90. Allotments will be in aliquot parts so that when deductions accumulate to the purchase price of a Savings Bond, they will have also accumulated to the purchase price of a Savings Note with no remaining balance, as shown on the table below. Although the table does not include allotments for Savings Bond denominations larger than $100, it is not intended to imply that combinations are restricted to Savings Bonds of $100 denomination or less. A deduction for Savings Notes purchased by one person in any one calendar year and held by that person is limited to $1,350.

Savings Bonds and Savings Notes will be dated as of the first of the month in which one-half of the purchase price accumulates to the credit of the employee when $50 or higher denomination bonds are purchased. That is, when bonds of $50 or higher denominations are purchased, both the Savings Bonds and Notes will be dated as of the first of the month in which one-half of the purchase price accumulates to the credit of the employee. For example, average-dating applies to a $25 note when the companion bond is at least $50; however, a $25 note with a companion $25 bond would be dated as of the first day of the month in which payment of the full purchase price of both is made.

The Savings Note will mature and be payable at its maturity value four years and six months from the issue date. The note may not be called for redemption by the Secretary of the Treasury prior to maturity, and is not redeemable during the first year from issue date. Thereafter, the note may be redeemed at fixed redemption values at the option and request of the owner. If held to maturity, the investment yield on the notes will be approximately 4.74 percent per annum, compounded semi-annually. The difference between the purchase price and the redemption value received for a Savings Note, as for Series E Bonds, will be considered as interest subject to all taxes imposed by the Internal Revenue Code of 1954. The notes and bonds are subject to estate, inheritance, gift, or other excise taxes, whether Federal or State, but are exempt from all taxation added later by any state or possession of the United States, or by any local taxing authority. Reporting of interest on Savings Notes is handled in the same manner as currently used for Series E Bonds for Federal income tax purposes.

Savings Notes will be mailed in the same manner as is currently used for Series E Bonds.

TABLE OF ALIQUOT PARTS OF TOTAL PURCHASE PRICE OF COMBINATIONS OF UNITED STATES SAVINGS BONDS AND SAVINGS NOTES

Required Number of Biweekly Deductions	$25 Bond and * $25 Note	$50 Bond and $25 Note	$75 Bond and $25 Note	$100 Bond and $25 Note	$50 Bond and $50 Note	$75 Bond and $50 Note	$100 Bond and $50 Note	$75 Bond and $75 Note	$100 Bond and $75 Note	$100 Bond and $100 Note
1	$39.00	$57.75	$76.50	$95.25	$78.00	$96.75	$115.50	-	-	-
2	19.50	-	38.25	-	39.00	-	57.75	$58.50	-	$78.00
3	13.00	19.25	25.50	31.75	26.00	32.25	38.50	39.00	$45.25	52.00
4	9.75	-	-	-	19.50	-	-	-	-	39.00
5	7.80	11.55	15.30	19.05	15.60	19.35	23.10	23.40	27.15	31.20
6	6.50	-	12.75	-	13.00	-	19.25	19.50	-	26.00
8	-	-	-	-	-	-	-	-	-	19.50
9	-	-	-	-	-	10.75	-	13.00	-	-
10	3.90	-	7.65	-	7.80	-	11.55	11.70	-	15.60
11	-	5.25	-	-	-	-	10.50	-	-	-
12	-	-	-	-	6.50	-	-	9.75	-	13.00
13	-	-	-	-	6.00	-	-	9.00	-	12.00
14	-	-	-	-	-	-	8.25	-	-	-
15	-	-	5.10	6.35	5.20	6.45	7.70	7.80	9.05	10.40
16	-	-	-	-	-	-	-	-	-	9.75
17	-	-	4.50	-	-	-	-	-	-	-
18	-	-	4.25	-	-	-	-	6.50	-	-
20	-	-	-	-	3.90	-	-	5.85	-	7.80

The combinations included herein are confined to $25, $50, $75 and $100 denomination Savings Bonds. Other denomination Savings Bonds may be purchased in conjunction with Savings Notes, observing the limitation of a maximum biweekly allotment of $40.50 for the Savings Note portion of the allotment. For example: the maximum biweekly allotment for a $500 Savings Bond/$100 Savings Note combination is $228 ($187.50 plus $40.40) whereas for a $500 Savings Bond/$25 Savings Note combination the maximum biweekly allotment is $395.25 ($375 plus $20.25).

* These Bonds and Notes are not subject to average-dating. For all other combinations, where the bond denomination is at least $50, both the Bond and the Note are subject to average dating.

EXHIBITS TO FEATURE WIND TUNNEL NO. 1 MODEL

One of the outstanding displays which will be featured at the Langley Research Center's Fiftieth Anniversary Exhibit in October will be a one-sixth scale model of Wind Tunnel No. 1. The model will make its initial debut at the Langley Air Force Base's Fiftieth Anniversary celebration on May 13.

The model of the Center's first wind tunnel was built in the Model and Pliant Structures Shop, Mechanical Services Division, by a group of employees headed by Oce W. Johnson, Engineering Technician.

No photographs or blueprints of the first wind tunnel were available and the specifications had to be obtained from two reports written in the early 1920's. The reports used were "Standardization Tests of NACA No. 1 Wind Tunnel," Report No. 195 by Elliott G. Reid, and "National Advisory Committee's 5-Foot Wind Tunnel" by F. H. Norton.

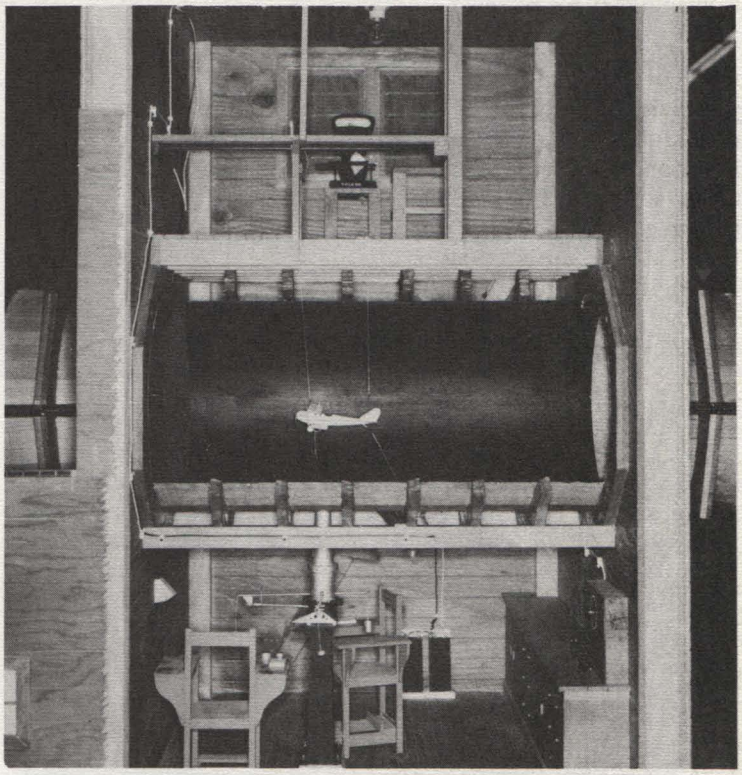
The model is 14 feet long by 4 feet wide and is operated by a gasoline engine hooked up to a generator. A scale model of the Jenny, which was a 1919 World War I airplane, is mounted in the test section.

Assisting Johnson in the construction of the model were the following employees: L. Stewart Burgess, Experimental Machine Shop; Gene M. Rollins, Russell F. Parr and Ronald B. Amole, Fabrication Shop; Richard B. Geissinger, Walter W. Friend, Dale B. Lively, William R. Page, Dallas G. Summerfield, and Everette L. Davis, Model Pliant Structures Shop; L. Banks Holt, Environmental Testing Support Section, and John H. Haverstock, Electrical Systems Division. Martin A. Weiner, Research Models and Facilities Division, served as Technical Coordinator.

In his report published in The Journal of the Society of Automotive Engineers in May 1921 Norton made the following statements concerning Wind Tunnel No. 1.

"In the spring of 1919 work was started on a 5-foot wind tunnel for the National Advisory Committee for Aeronautics at Langley Field, Va., and in the spring of 1920 the tunnel was completed and ready for calibration and for conducting tests. . .While the tunnel is not as large as some that are now in use, it has, it is believed, the highest useful speed of any wind tunnel in the world, that is, it maintains a high velocity flow which is steady in speed and direction, and it possesses satisfactory means for measuring the forces on models at the highest velocities.

Oce W. Johnson adds a panel to NASA Wind Tunnel Number 1



A model of the Jenny is mounted in Wind Tunnel Number 1

At present, useful speeds up to 120 mph can be attained; but, as the propeller was originally designed for other conditions, it is estimated that with a new higher-pitch propeller a maximum speed of 140 mph can be reached...

"The tunnel is of the venturi type with a continuous throat of circular section, and there is an air-tight experimental chamber built about the working section in order that small holes may be opened into the tunnel while it is running, without disturbing the airflow; and this chamber has proved of great convenience in much of the work. The tunnel expands from the 5-foot diameter working section to a diameter of 10 feet at the mouth of the entrance and the exit cones. . .

"The experimental chamber, which is about 10 feet long, 14 feet wide, and 23 feet high, is built around four concrete columns of very massive construction to withstand the heavy pressures, in some cases as much as 80 pounds per square foot, that arise during the high-speed runs. . .

"The driving motor consists of a 200hp direct-current, adjustable speed motor, with a speed range of from 1 to 1000 rpm. At present power is supplied to this motor at 250 volts from a dynamo driven by a Liberty engine in an adjacent building, but as this powerplant is expensive and inconvenient it is hoped that a more suitable source of supply will soon be available. The propeller is directly connected to the motor by a 3-inch shaft supported on a steel framework and mounted in three ball bearings, while the propeller itself is 10 feet in diameter and has four blades. As this propeller was designed to be driven by a Liberty engine at 1400 rpm it does not at present absorb all the power which the electric motor can deliver and a new propeller with a larger number of blades and a higher pitch is soon to be used which will increase the air speed obtainable in the tunnel to a considerable extent. . ."

MISTAKES BUG YOU? TRY THIS

Do you fear making a mistake?

We pay a heavy price for fear of failure. It is a powerful obstacle to growth. It assures the progressive narrowing of the personality and prevents exploration and experimentation. There is no learning without some difficulty and some fumbling. If you want to keep learning, you must keep risking failure - all your life.

Fear of failure breeds timidity. It makes employees hestitate. It encourages them to turn their backs on challenge and innovation.

The issue at stake is not failure itself. It is a question of attitude. An employee's attitude can strengthen or destroy him.

If he regards each mistake as a setback in his struggles for achievement, this is exactly what it will become - a setback. If he looks on mistakes as building blocks instead of fumbling blocks, his failures will strengthen him.

The successful employee appreciates the fact that failure is nothing more than a state of mind. He believes that the way to greet failure is not with fear, but with curiosity. Why did the mistake happen? How can I best avoid it again?

Mistakes for this employee are guideposts, direction finders in the endless search for the most elusive of all goals - perfection.

The sobering truth is that there is more to be feared in not making mistakes than in making them. Sound paradoxical? It's not.

The employee who fears making mistakes too much to risk making them, obviously won't make any. But neither will he learn or grow. He will stand still, or slide backward. the status of the employee who plays it too safe will be in greater jeopardy than his more venturesome counterpart.

Theodore Roosevelt said, "Show me a man who makes no mistakes and I will show you a man who doesn't do things."

Man will always make mistakes so long as he continues to strive for some goal.

SCHOOL FOR HOME BUYERS

The Second Annual School for Home Buyers, sponsored by the Home Builders Association of the Virginia Peninsula, will be held at Christopher Newport College in Room C-110.

Five sessions will be held and classes will meet from 6:30 p.m. until 9:30 p.m. on May 2, May 9, May 16, May 23 and May 31. All sessions will be conducted by experts in their respective fields.

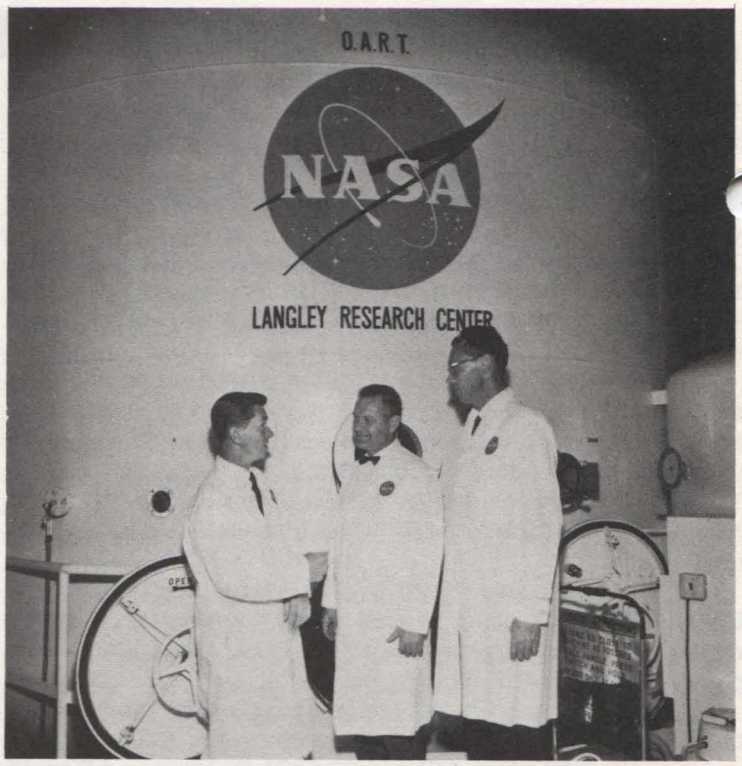
Tuition is $5 per couple for all five evenings. The same tuition will apply to single enrollees. Proceeds of tuition will be donated to the Library Fund of Christopher Newport College.

Students will be admitted by advance registration only. Registration forms and a brochure giving the program for the five sessions may be obtained from the Training Office, telephone 2517.

FOR SALE: 10 x 16-foot utility building, frame construction, double doors, 4 windows - $250. Bowman, 898-5650.

FOR SALE: Formula Vee racer manufactured by Beech, ready to race - $1200. Segall, 722-7779 after 5 p.m.

NOTICE: Women interested in playing in a NASA softball league are requested to call Sharon Haythorne, 4867.



Dr. Orr. E. Reynolds, Director of Bioscience Programs, OSSA, and Dr. George F. Pieper, Assistant Director for Space Sciences, Goddard Space Flight Center, are briefed by Albin O. Pearson, Spacecraft Systems Branch, Applied Materials and Physics Division, prior to entering the Integrated Life Support Facility during their visit to Langley on April 3. Drs. Reynolds and Pieper presented at Langley's April Technical Symposium the physics, astronomy and bioscience portions of the Administrator's Review of the NASA Space Science Program.

SOCIETY SEEKS NEW MEMBERS

Interested staff members have been invited to join the Hampton Roads Chapter of the Society of Aeronautical Weight Engineers, Incorporated (SAWE). The group generally meets every other month at the Gourmet Inn in Newport News.

The Society was organized in 1939 and incorporated under the corporation laws of the State of California on April 2, 1941. The purposes of the Society are as follows:

1. To promote recognition of weight control as a specialized branch of aeronautical engineering.
2. To exchange weight information for mutual benefit.
3. To combine efforts to reduce the weight of purchased equipment.
4. To promote a better understanding among weight engineers, thereby fostering a higher degree of efficiency in weight control procedure and a better informed and more cooperative personnel.
5. To promote and enhance the professional status of weight engineers and to encourage study of weight engineering problems in institutions of higher learning.

Anyone desiring further information or membership applications should contact Gerald B. Bridges, 851-3182.

FOR SALE: 1962 Ford Fairlaine 500. Cooper, 877-1480.

FOR SALE: 1956 Plymouth V-8, 2-door hardtop. Gilliland, 826-4148.

Ten staff members recently received cash awards for suggestions under the NASA Incentive Awards Program. Top left photo - Howard B. Edwards (left), Chief of Instrument Research Division, congratulates Mark C. Harvey and Johnny E. Jordan. Top center photo - Mitchell H. Bertram, (left), Head of Hypersonic Fluid Mechanics Branch, Aero-Physics Division, presents awards to Daniel I. Sebacher and Richard W. Harmen. Top right photo -Charles A. Clarke (right), receives a check from Mark R. Nichols, Chief of Full-Scale Research Division. Lower left photo - William B. Mayo (left), Chief of Mechanical Services Division, congratulates George F. Lemke, Max B. Bryan, Charles W. Whitehead, and Arthur J. Lambiotte. Absent when the picture was taken was Clell W. Chandler. Lower right photo - Earl L. Councill (right) receives a check from Edwin C. Kilgore, Chief of Flight Vehicles and Systems.

COURSES OFFERED STAFF

Old Dominion College will offer a graduate course in Physics 524 - Solid State Physics starting June 21. The class will meet from 1 p.m. to 3:45 p.m. on Mondays and Thursdays for eight weeks. Dr. Wenton M. Pritchard will be the instructor.

George Washington University Tidewater Center will offer the following graduate courses in Personnel Administration starting May 1: Human Factors in Administration, The Personnel Manager, Unionism-Collective Bargaining and Labor Economics, Seminar: Personnel Management, and Survey of Data Processing. The final day for registration is today from 9 a.m. to 5 p.m. and 7 p.m. to 9 p.m. at Building T-181, Fort Monroe.

For additional information call the Training Office, 2611.

WANTED: Fifth driver from Riverdale to W.A. on 8 shift. Ed Howe, 4724.

FOR SALE: Speed Queen washing machine - 1-month old. Webster, 838-0833 after 5:30 p.m.

FOR SALE: 1960 Plymouth Dragster with 1964 model 426 wedge engine. Thompson, 838-4763 after 5:30 p.m.

FOR SALE: Cemetery plot with 4 lots in Parklawn - $100 below cost. Arrington, 723-1444 after 6 p.m.

WETMORE DIES AT AGE 57

Joseph W. Wetmore, Technical Assistant, Flight Mechanics and Technology Division, died April 10 after a lenghy illness.

Wetmore was born May 1, 1909 in Everett, Massachusetts. He received his B.S. degee in Aeronautical Engineering from Massachusetts Institute of Technology in 1931 and joined the Center staff as a Junior Aeronautical Engineer on September 30, 1931. He was well known for his work on flight safety aircraft performance. In his 35 years with NASA he wrote numerous technical papers and had several inventions to his credit. In 1964 he received a Special Service Award for his contributions to the supersonic transport research program.

Survivors include his wife, Mrs. Ethel Nelson Wetmore; two daughters, Mrs. Christopher Naab of New London, Conn., and Miss Pamela Constance Wetmore, a student at Chowan College; two sons, Warren Charles Wetmore of Geneva, Switzerland, and Jonathan Nelson Wetmore, Hampton.

FOR SALE: Kitchen table with white formica top and six matching chairs - $25. Will negotiate for indian head cents. Carter. 838-3373.

STAFF MEMBERS ATTEND SEMINAR

A four-session Professional Development Seminar, sponsored by the Peninsula Chapter of the National Secretaries Association (International) in conjunction with the Newport News and Hampton Public School Distributive Education and Vocational Office Training Services, was attended by six Center secretaries at Christopher Newport College. More than 100 Peninsula area secretaries attended the seminar.

The four seminar sessions were: "The Price of Communism," presented by Dr. G. William Whitehurst of Old Dominion College; "Psychology for the Career Woman" was explored by Dr. Ruth K. Mulliken, Assistant Professor of Psychology at Christopher Newport College; Lee Montgomery, art resource teacher with the Newport News school system, and Harold Chapman of Hampton, musician, conductor and composer, presented the third session, and Mrs. Edwin C. Kilgore, Mayor of Hampton, spoke at the last session on "The Power of One."

Certificates were presented to all attendees who completed the seminar. Those in attendance from Langley were Agnes Dunkley and Pauline Firman, Applied Materials and Physics Division; Evelyn Martin, Flight Instrumentation Division; Barbara Hixon and Katherine Smith, Analysis and Computation Division, and Gloria R. Alto, MORL Studies Office and President of the Peninsula Chapter, National Secretaries Association (International).

ELECTION PLANNED APRIL 25

Staff members are reminded that the Activities Association's annual election for District Representatives to the General Assembly will be held at the Center on Tuesday, April 25. No primary election will be held and representatives elected to the General Assembly will serve from July 1, 1967 to June 30, 1968. Members of the Executive Board will be elected from the General Assembly.

The Center is divided into districts of approximately 70 to 100 employees and representatives and alternates will be elected by and from each district.

Voting shall be by secret ballot. Each employee may vote for one candidate from his district. Ballots will be placed in sealed ballot boxes and each employee shall sign a register upon casting his ballot. There will be no voting by proxy and persons on leave lose their opportunity to vote.

APPRENTICE EXAM NOTICE

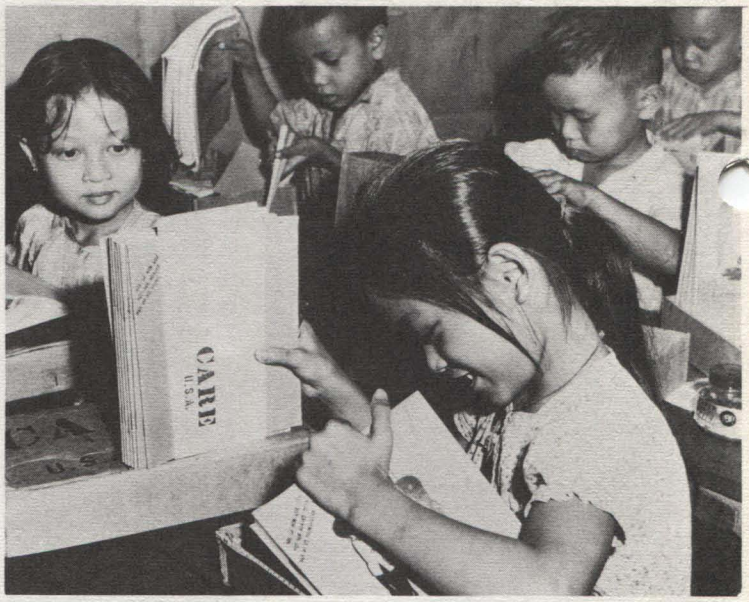
The Apprentice Examination for this year is now open on a continuous basis. The announcement was issued by the Interagency Board of U.S. Civil Service Examiners, Rotunda Building, 415 St. Paul Boulevard, Norfolk, Virginia 23510, and covers all apprentice programs in the state including NASA.

Peninsula residents must file their applications with the Interagency Board but may take the examination in Newport News and specify the agencies with which they wish to work. Further information and the forms to make application may be obtained from the Employment Office.

WANTED: Camper that sleeps at least 5. Anastasio, 723-8367.

FOR SALE: 5000 btu Westinghouse Mobilaire air conditioner - 110 volts - $85. Swofford, 826-4472.

FOR SALE: 1967 Ford 289 engine and automatic transmission. C. Rowland, 851-1586.



South Vietnamese children are helped to a better education by these school kits - gifts from the American people through CARE. The Center's Joint Fund Raising Campaign for the National Health Agencies and the International Service Agencies ends April 30.

JOINT CAMPAIGN ENDS ON APRIL 30

The Center's Joint Fund Raising Campaign for National Health Agencies and the International Service Agencies ends April 30.

William L. Williams, chairman of the drive, urged that employees give their contributions to the attendance clerks who in turn will send them to the division monitors. Monitors may turn in the collected money to Joyce Gray, Personnel Division Office, Building 1219; Ruth Verell, Langley Researcher, Building 587, or Williams, Building 1219.

Included in the campaign will be nine health agencies and four service agencies.

The health agencies include United Cerebral Palsy Associations, American Cancer Society, American Heart Association (Heart Fund), Muscular Dystrophy Associations of America, National Multiple Sclerosis Society (Hope Chest), National Society for Crippled Children and Adults (Easter Seals), National Cystic Fibrosis Research Foundtion, National Foundation - March of Dimes, and National Society for the Prevention of Blindness.

The service agencies include American-Korean Foundation, CARE, Radio Free Europe, and Project HOPE.

DAYLIGHT TIME EFFECTIVE APRIL 30

In accordance with the Daylight Saving Time bill signed last year by President Johnson, all clocks in Virginia will be moved forward one hour at 2 a.m. on Sunday, April 30. Daylight Saving Time will be observed for a period of six months.

FOR SALE: New set of Melmac dinner wear in Yellow Rose pattern - service for 8 - $15. Mulac, 596-0666.

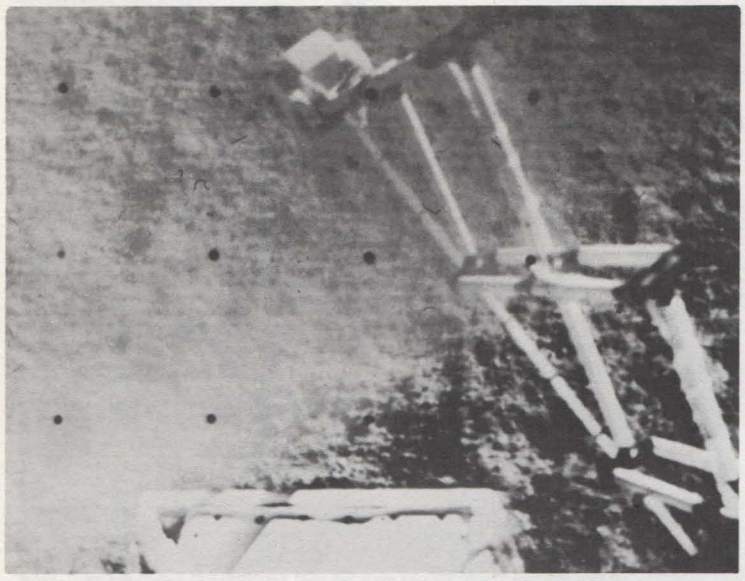
FOR SALE: .93-acre wooded waterfront lot in Kingspoint. Hatfield, 723-2184.

FOR SALE: 54-inch porcelain-top sink complete with cabinet and fixtures - $25. Jones, 596-1667.

FOR SALE: 1965 Honda 50-C110 with accessories, less than 4000 miles - $150. Wineman, 595-1046.

Langley Researcher

VOLUME 6, NUMBER 9 LANGLEY RESEARCH CENTER MAY 5, 1967



This Surveyor III photograph shows the spacecraft's surface sampler partially extended from the spacecraft after initial tests of the instrument to determine that it was operable two days after Surveyor III soft landed on the lunar surface. The sampler's scoop is seen toward the top of the photo extended about 40 inches from the Surveyor spaceframe. The spacecraft's auxiliary battery is shown at bottom. The picture was taken by Surveyor at 2:45 a.m. PST, April 21 and is a wide-angle, 600-line photograph. The surface sampler is designed to dig into the lunar surface to determine bearing strength and other characteristics of the lunar soil.

ANNIVERSARY OPEN HOUSE

Langley Research Center will participate in Langley Air Force Base's 50th Anniversary Open House scheduled for Saturday, May 13. Gates will open to the public at 10 a.m.

Langley Center will have the largest single display set up by any one organization. The exhibit will be in Hangar 754-B which is the building which houses the main control tower. Included in the display will be a model of Lunar Orbiter, transparent boxes showing pictures of the moon, 41 scale models of various aircraft, an authentic wind tunnel model, several models of present day research facilities, World War I aircraft engines as well as present day models, sets of old photographs dating back to 1917 showing the Center's growth during five decades, and many other models and displays.

The Air Force will have a display of aircraft on view throughout the day's events.

At 11 a.m. there will be a parade of marching bands featuring bands from the local high schools as well as the 564th USAF Band.

At 1:30 p.m. the Bagpipe Band, another division of the

(Continued on page 3)

KICK-OFF MEETING LAUNCHES ANNUAL SAVINGS BOND DRIVE

At a kick-off meeting held Tuesday, Kitty O'B. Joyner, Chairman of the Center's 1967 Savings Bond Campaign, met with division chairman and mapped out plans for the Center's drive which will be conducted through June 19.

Dr. Floyd L. Thompson, Director, pointed out that Langley, which led other NASA installations for years in the percentage of employees participating in the payroll allotment plan, has dropped to sixth place with 71.3 percentage participation. He stated that he would like to see the staff reach the 90 percent mark and thereby win the Treasury Department's Minuteman Flag.

The theme of this year's campaign is "Join the Star-Spangled Freedom Plan." A new feature of the campaign is the introduction of "Freedom Shares," new U.S. Treasury savings notes that pay 4.74 percent interest when held to maturity - only four and a half years after issue.

The Activities Association will award two $25 Savings Bonds to winners who will be picked in a U.S. Federal Savings Bond Sweepstakes - one to a new subscriber and one to a person who increases his present allotment.

Another new attraction to bonds this year is that employees may take out more than one a pay period and they may have them issued in another person's name. There may also be a tax advantage in investing in U.S. Savings Bonds for your children's college education. This is discussed on Page 6 of this issue.

The present standings by divisions will be found on Page 8.

Kitty O'B. Joyner, Chairman of the Center's 1967 Savings Bonds Campaign, met recently with her Advisory Committee to discuss plans for this year's effort. Shown above are (from left): Edward A. Howe, Vera Huckel, Mrs. Joyner, Ruth Verell, H. E. Rockey, and J. Norwood Evans. Absent when the picture was make were T. Aubrey Harris and William L. Williams.

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 302, telephone 2575.

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

GIRLS' SOFTBALL LEAGUE. . .Women interested in playing in a NASA Softball league are requested to call Sharon Haythorne, 4861.

TELEPHONE REMINDER. . .Staff members are reminder to dial "9" when making a call in the Peninsula Area, wait for the dial tone, and then dial the number. The digit "4" is no longer required for local outside calls.

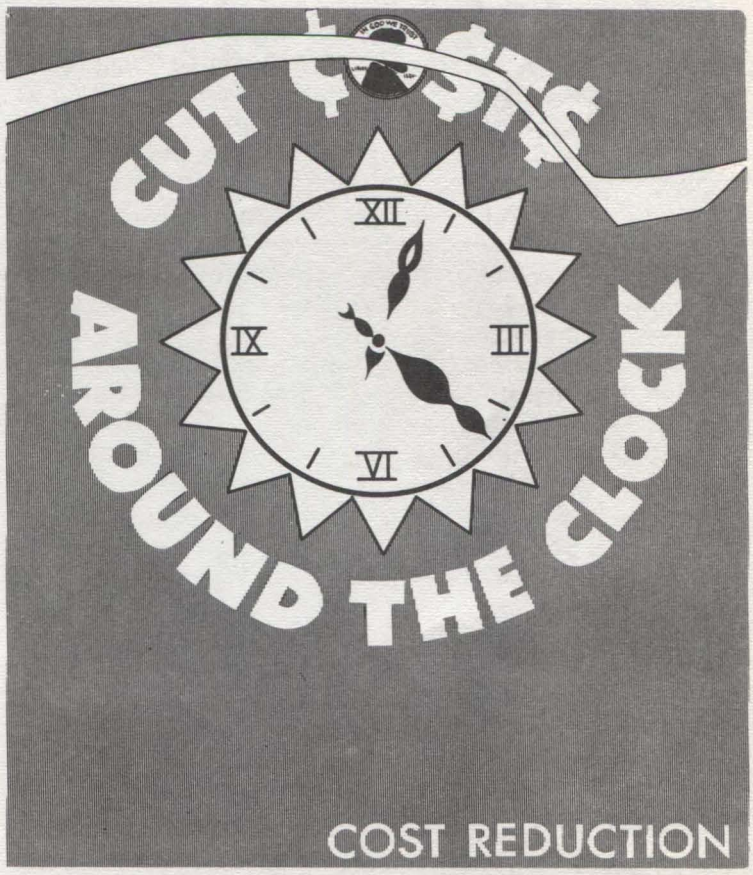
NEW HEIR. . .Announcing the birth of a son, Frederick Allan, on April 15 is Frederick L. Staggs, Flight Instrumentation Division.

REPRESENTATIVES TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on May 9 from 3 p.m. until 4 p.m. Beverly Beale, Government-wide Service Plan representative, will be here on May 17 from 2 p.m. until 3 p.m. Employees having problems or questions concerning either plan may call Lois Taylor, 2605, for an appointment.

LECTURE COURSE. . .The two-day lecture course on Contamination Control which was scheduled for May 22 and 23 has been changed to May 11 and 12 in the Activities Building. The instructor will be Philip R. Austin, Contamination Control Laboratories, Livonia, Michigan. The first day will cover the design of clean facilities and the topic for the second day will be operation of clean facilities. For additional information call the Training Office, 2611.

CHORAL SOCIETY. . .A number of Center staff members will take part in the Peninsula Choral Society's spring concert on May 13 at 8:15 p.m. at Thomas Eaton Junior High School in Hampton. The group will present "The Seasons" by Joseph Haydn. The performance will be conducted by George Bayley with orchestra, organ, and harpsichord accompaniment. Singing with the group will be Natalie Johnson, Public Affairs Office; Mary Catlett, Aero-Physics Division; Stanley Pearson, Instrument Research Division, and Donald E. Hewes, Space Mechanics Division. Tickets are $1.50 for adults and 50 cents for students. They may be purchased from choral society members.

FOR SALE: 25-foot runabout with mahogany decks, red upholstery and fiberglas over wood sides and bottom, 185 hp Chris Craft motor and trailer. Priddy, 723-5148.



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of May 8:

Monday - French onion soup, roast ribs of beef, crab cake, ham and noodle casserole, grilled cheese sandwich.

Tuesday - Cream of celery soup, chopped sirloin, roast pork, sauteed chicken livers over rice, wieners and sauerkraut.

Wednesday - Vegetable-beef soup, grilled steak, fried shrimp, chicken chow mein, broiled spiced luncheon meat.

Thursday - Chicken-noodle soup, roast chicken with dressing, barbecued pork chunks over rice, sea dog, liver and onions.

Friday - Clam chowder, beef stroganoff, fried flounder, broiled fillet of perch, Spanish omelette.

The menu for the week of May 15 is as follows:

Monday - Puree of bean soup, pot roast, broiled ham slice, stuffed cabbage, baked hash.

Tuesday - Cream of tomato soup, fried scallops, meat loaf, Polish sausage, western omelette.

Wednesday - Chicken-rice soup, pepper steak, broiled Canadian bacon, fried chicken, Austrian ravioli.

Thursday - Vegetable-beef soup, grilled steak, stuffed shrimp, baked lasagna, macaroni and wieners.

Friday - Clam chowder, roast beef, hot turkey sandwich, fried flounder, deviled crab, chili con carne.

FOR SALE: Lot in Merrimac Shores. Yates, 723-9324.

FOR SALE: Two 1966 long shaft 40 hp Evinrude motors, manual start. Saunders, 484-1528.

FOR SALE: 1959 Ford Custom 300, V-8, standard transmission, overdrive - $165. Redman, 247-5028.

FOR RENT: 4-bedroom frame house in Wythe - $120 per month. Reynolds, 245-8137.

KNOW YOUR CREDIT UNION

What are your vacation plans? Will you be going to the mountains...to the coast...or are you heading for EXPO 67 in Montreal? Maybe a nearby spot suits you; a place of peace and quiet. Whatever your choice, a little planning can add a lot to your summer's fun.

If you are going to travel, begin by putting your trip plan on paper. Figure out how many days you'll be gone. Then estimate the amount needed each day for food, lodging, transportation, and special expenses (admissions, tolls, souvenirs, tips and possible auto repairs). If your savings cover the total, fine. If not, you'll know how much to cut down on your projected trip. Or how much you will need from your Credit Union to get you there...and back.

If you decide on a stay-at-home vacation (often the very best kind), plan some of those fix-up, paint-over, or add-on projects you've been putting off. An FHA Home Improvement loan to $3500 can solve most financial problems and send you back to work with a real feeling of accomplishment.

Incidentally, one member who is $50 closer to her summer goal is Frances Arnn, Structures Research. Free and clear from the Credit Union, the $50 is her reward for being proud to be a member and "flying" that bumper decal. The contest ends soon so check your car today. No decal? Call extension 3606 and ask that one be sent you. You will be glad you did if Lady Luck should smile on you.

FOR SALE: Hampton One Design sailboat. Mrs. Gilman, PA 2-5847.

FOR SALE: Used refrigerator - $10. McCracken, 898-5253.

FOR SALE: 9-cubic-foot Philco refrigerator - $40. Johnson, 722-6628.

WANTED: Home for kittens. Conway, 826-7730.

FOR SALE: 14-foot flat-bottom plywood boat - $25, also louvered French doors 36 inches by 8 feet - $10. Collier, 838-4925.

FOR SALE: 1949/50 Studebaker. Nayadley, 851-3192.

FOR SALE: 1955 Buick - $150. Weinstein, 596-6113.

Examining Lunar Orbiter III photo enlargements are Wilburn Wollenhaupt, John M. Eggleston, Donald C. Cheatham, John W. Dietrich, James H. Sasser, and Norman W. Naugle, all of Manned Spacecraft Center. The MSC representatives and Robert E. Hutton, Thompson Ramo Wooldridge, visited the Center April 17 to present a briefing on various aspects of lunar site selection for the Apollo program.

Leading the veteran donors during the recent visit of the Bloodmobile were three employees of the Fabrication Shop Section. George Veneris (left) completed his quota for five gallons and Ronald Amole reached the four-gallon mark. Walter Jernigan who was absent when the picture was taken also received a four-gallon pin.

BLOOD DONORS PASS QUOTA

The Red Cross Bloodmobile visited the Center on April 19 and employees donated a total of 214 pints of blood. This was 64 pints over the 150-pint quota.

Leading the veteran donors was George Veneris, Fabrication Shop Section, who reached the five-gallon mark. Ronald Amole and Walter Jernigan, also of Fabrication Shop, completed their quota for a four-gallon pin.

Three-gallon donors were Marvin Leffel, Gregory Hill, Sue Wilder, and Robert L. Goodrich. Reaching the two-gallon mark were Odis Newton, Elmo Mottard, Harold V. Stanley, F. J. Hines, and James Howell.

One-gallon pins were presented to Thomas Lusby, Hugh Mohanes, John McGehee, Davis Wright, Marion Tuck, Sidney Powell, Henry Glaude, John Lamar, and Albert Schy.

Mottard, who received a two-gallon pin, is Head of the High-Speed Phenomena Division, David Taylor Model Basin, U.S. Navy. Mottard and several Model Basin employees are regular participants in the program.

Mrs. Tuck, who received a one-gallon pin, is employed by the AFSC Office. The NASA Exchange was represented by Manager Tracy Phelps. A number of contractors also furnished donors for the visit.

Seventy-eight of the donors stipulated that their blood be used to replace supplies prescribed for local patients and 24 designated their donations for out-of-town patients.

Throughout the day 21 volunteer Red Cross workers served a total of 137 hours. Assisting during the visit were Dr. A. T. Scott, and Dr. Franklin C. Wilson.

ANNIVERSARY OPEN HOUSE

(Continued from page 1)

USAF Band, will present a 30-minute show.

The air show will start at 2 p.m. immediately following the Bagpipers. The aircraft will be spaced at about two-minute intervals to permit the commentator to briefly describe each airplane.

The gates will close to the public at 4 p.m.

LIFE MAY EXIST ON JUPITER

Many of the building blocks of life, and possibly life itself, may exist on the Planet Jupiter, two NASA scientists suggest.

In a paper given at the American Chemical Society meeting at Miami, Dr. Cyril Ponnamperuma, Chief of the Chemical Evolution Branch at Ames Research Center, and Fritz Woeller, also of Ames, described laboratory experiments with a simulated Jupiter atmosphere.

Their work suggests that energy transfer and resulting chemical processes in the turbulent atmosphere of the huge planet may produce organic chemicals such as the forerunner compounds of amino acids and of the living cell nucleus.

These processes are similar to those believed to have produced life on Earth.

The researchers used electrical discharges, "lightning" as an energy source. They found that by simulating the activity of the top of Jupiter's atmosphere, which is believed to contain large amounts of ammonia and methane, they could produce numerous building blocks of living cells. Only water was needed to turn these building blocks into even more complex organic molecules.

Simulation of a lower layer of the Jupiter atmosphere, believed to contain large amounts of ammonia and methane, plus liquid water, also produced complex building blocks of living cells.

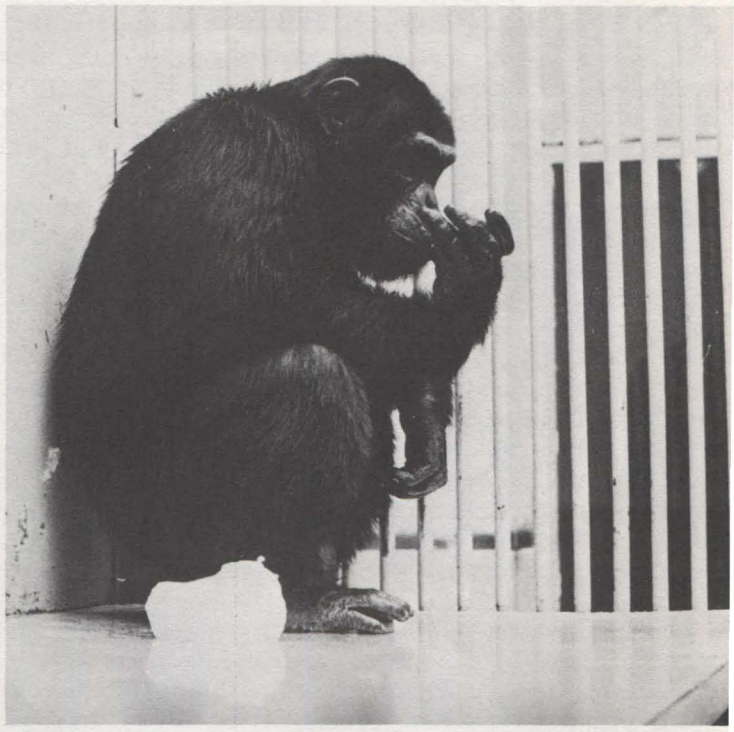
This layer is believed to be about 1,800 miles below the visible top of Jupiter's 2,500-mile-deep atmosphere, and to have Earth-like temperatures (0-212 degrees F), allowing existence of liquid water.

The extreme low temperatures of the top of Jupiter's atmosphere (minus 356 degrees F) were duplicated and did not interfere with production of complex organic molecules. The researchers used a wide enough range of pressures to determine that organic material would be produced even at the extreme atmospheric pressures of Jupiter.

Much evidence suggests that the Earth also had an atmosphere of ammonia, methane, and water 4.5 billion years ago.

Complex organic molecules are believed to have linked themselves continuously in millions of combinations in the Earth's primordial oceans. Eventually, a long-chain molecule, able to reproduce itself, appeared marking the origin of life.

A similar series of events is a possibility on Jupiter, the two scientists believe.



SENIOR CITIZEN. Astrochimp "Ham," 70-pound space pioneer (top photo) who rode into space aboard a Mercury Redstone rocket six years ago, has retired to a life of leisure at the Washington National Zoo. Instead of newsreel cameras, Ham now faces crowds of zoo visitors as he munches and meditates. His reward after his January 21, 1961 flight was an apple (bottom picture). He has reached an altitude of 157 miles, traveled 5,857 miles an hour and was weightless for 6.6 minutes. His mission, successfully accomplished, was to validate the environmental control system of the Mercury spacecraft.

WANTED: Gentleman to share 2-bedroom apartment in Hilton. Wallace Etheridge, 595-4830 after 5:30 p.m.

FOR SALE: Partial set of Franciscan Apple china, extra serving pieces. Donely, 877-1931.

WANTED: Alternate drivers from Glendale to W.A. on 8 shift. Fournier, 3611.

FOR SALE: Crib and mattress, blankets, walker, balance scales, potty, bath bathrub, Infanseat, etc. Foss, 838-1019.

FOR SALE: Complete component stereo system includes Scott amplifier and FM turner, two AR2-AX speakers, and Dual 1009 changer. Ellison, 838-4133.

FOR SALE: 1956 Oldsmobile, good transportation, No 10 sticker - $125. Woody Hoffman, 244-1128.

FOR SALE: 10-foot Lincoln Skate fiberglas sailboat, dacron sails - $100. Wade. 898-6736.

WANTED: Girl to share apartment with three other girls. Cheryl, 838-4406.

WANTED: Ride from Warwick Gardens to W.A. on 8 shift. Sprecker, 3398.

FOR SALE: Regency custom-made sofa, green brocade - $175; Britannica Encyclopedia (1959 or 1966) - $100. Lichtenstein, 596-8484.

"SWING WING" RESEARCH SET

An F-111A aircraft to be used for research on variable-sweep wing flight characteristics and performance has been delivered to Flight Research Center.

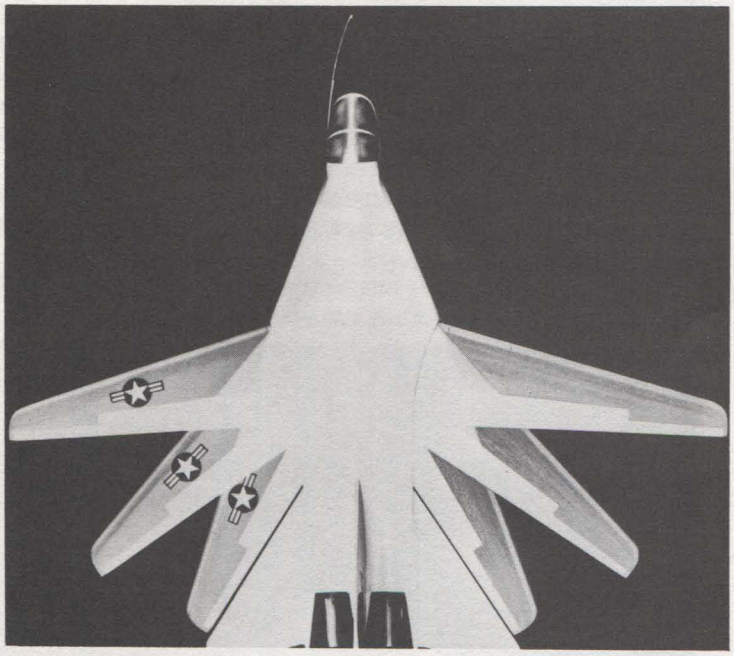
The airplane, the sixth built by the General Dynamics Corp., Fort Worth, is being loaned to NASA by the Air Force.

NASA will use the F-111 to obtain basic flight research and development of future advanced aircraft wings that move fore and aft along the fuselage. Aircraft of that type now under consideration include the Boeing 2707 supersonic transport (SST), Navy advanced fighter-attack (VFAX), and the advanced attack (AX), and advanced fighter (FX), advanced manned strategic aircraft (ASMSA) for the Air Force.

Research on variable sweep dates back over a period of years. In 1960, NASA solved the basic instability problem by sweeping the wings simultaneously around separate pivot points located slightly outward from the wing roots, rather than from a single pivot inside the fuselage. Variation in the sweep serves to alleviate problems of stability, control and drag and has important effects on the airplane's performance.

Factors to be studied by NASA include stability and control, handling qualities, flight leads and structural dynamic responses, inlet-engine integration, performance prediction, control systems, and operational characteristics. Data from the flight program will be used to validate theoretical and wind tunnel studies performed by the Langley, Ames and Lewis Research Centers.

The flight operations are part of NASA's extensive effort in variable sweep research. Flight research with the operational F-111A will allow the disclosure and investigation of problems that cannot be predicted by other means.



On loan from the Air Force to NASA's Flight Research Center is an F-111 variable-sweep wing aircraft on which NASA will conduct extensive research. This artist's view of the F-111 illustrates how the wings move fore and aft on the plane's fuselage. Variable sweep wings are under consideration in the design and development of future advanced aircraft.

A group of high school students from Virginia, North Carolina, South Carolina and Kentucky were guest of the Center recently at a NASA-NSTA Youth Science Congress. Shown above are front row (from left): Franklin D. Kiser, Virginia State Science Supervisor; D. Gayle Loftis and Renee S. Johnston, participating students; Estelle McClees, outstanding science teacher from N.C.; R. Lane Trantham, South Carolina State Science Supervisor, and Paul H. Taylor, North Carolina State Science Supervisor. Back row - Sam H. Baily, student; Cholton Brasington, outstanding science teacher from S.C.; James V. Miracle, NSTA representative; Dr. Aaron Seamster, NASA Headquarters; Robert A. Bodle, student; Thomas W. Simmons, outstanding science teacher from Virginia, and William Wright, outstanding science teacher from Kentucky.

SCIENCE CONGRESS HELD AT CENTER

Fifteen high school students from Virginia, North Carolina, South Carolina and Kentucky were guests of the Langley Research Center on April 13, 14, and 15 at a NASA NSTA Youth Science Congress.

Written reports prepared by the 15 students on science projects which they carried out at their respective schools were presented. No awards were granted at the congress, but each selected student received a certificate of participation. The certificates were presented by Eugene C. Draley, Assistant Director.

The students were taken on a tour of a number of research facilities and met with Langley advisors concerning the areas of student interests and plans for future scientific work which the students may pursue.

The National Science Teachers Association in cooperation with NASA offers a series of nine regional youth science congresses during March and April at NASA installations. The purpose of each congress is to give students an opportunity to understand what practicing scientists do by bringing them into close communication situations with NASA scientists, science teachers, and other professionals in the field.

FOR SALE: Barbour boat and 30 hp Mercury engine - $75. Barritt, 877-9429.

FOR SALE: Philco air conditioner, 115 volts - $50. Taback, 596-8128.

FOR RENT: 3-bedroom brick rancher. Hood, 826-8760.

SAVING FOR EDUCATION WITH U.S. SAVINGS BONDS

Higher education grows more important - and more costly - year by year. When your child is ready for college will you be ready for the bills? Thousands of families have found U.S. Savings Bonds a dependable way to prepare for that important time.

LOOKING AHEAD

Is the prospect of paying for your son's or daughter's college education already beginning to worry you - 5, 10, or even 15 years in advance? You have plenty of company, if that's any consolation. For families with two or more children, education could prove even a larger investment than home ownership.

But you can also have confidence if you have a plan of action - a plan in which systematic saving is the central ingredient. Even if you can't do the whole job yourself, you can at least make it attainable by saving part of the cost. Self-help, tuition grants, or student loans can help you take it from there.

Too many parents hope for miracles to happen. The wiser course is to anticipate the problem - measure it realistically - then set up an action program which will meet and solve it.

WHY SAVINGS BONDS?

Deciding to save, and save regularly, is the most important thing you have to do. Having done that, you may select any good savings method, or a combination of them, to reach the desired goal.

Series E Savings Bonds have certain qualities which particularly lend themselves to the building of an education fund. In fact, the collective features of E Bonds make them uniquely suitable for this special purpose.

First, they are safe - a prime consideration for any thing as important as an education fund. Savings Bonds are backed by the full faith and credit of the United States.

Second, principal and interest are fully guaranteed. There is no risk of market fluctuation and they are always worth what you paid, plus accumulated interest. The rate of return is assured to maturity.

Third, they offer an attractive rate - 4.15%, compounded semiannually, when held to maturity of 7 years. Also, they have an automatic 10-year extension privilege - so that a Bond bought on a child's first birthday could be reaching final maturity at about the time he enters college.

Fourth, there is never the danger of loss. The Treasury will replace free any Bond which is lost, stolen, or destroyed.

Fifth, they are flexible - adaptable to any long-range goal, yet quickly convertible to cash when needed.

Sixth - and this is extremely important in insuring regular saving - E Bonds may be purchased automatically through the Payroll Savings Plan.

THE TAX FACTOR

Savings Bonds have an additional advantage from a tax standpoint - an advantage which gives maximum earning power to every dollar of your investment, right up to the time you actually use the Bonds for education bills.

The Bonds, while subject to estate, inheritance, gift, or other excise taxes, are exempt from all other taxation imposed on the principal or interest by any state or local taxing authority.

And, although interest on E Bonds is subject to Federal income tax, this tax may be deferred until the Bonds are redeemed or reach final maturity. Meantime the value of your savings has steadily grown, undiminished by tax until redemption.

In a 10-year savings plan, for example, you might invest $37.50 each month for a $50 Bond. Cash value of these Bonds after 10 years would be $5,497, of which $997 is accrued interest on which no tax has been paid as it was building up. If all the Bonds were cashed at that point, tax would of course be due in full; but if the Bonds were cashed on a gradual basis to pay expenses currently, the remaining Bonds would keep on earning with tax on their interest continuing to be deferred.

A "TAX-FREE" IDEA

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.

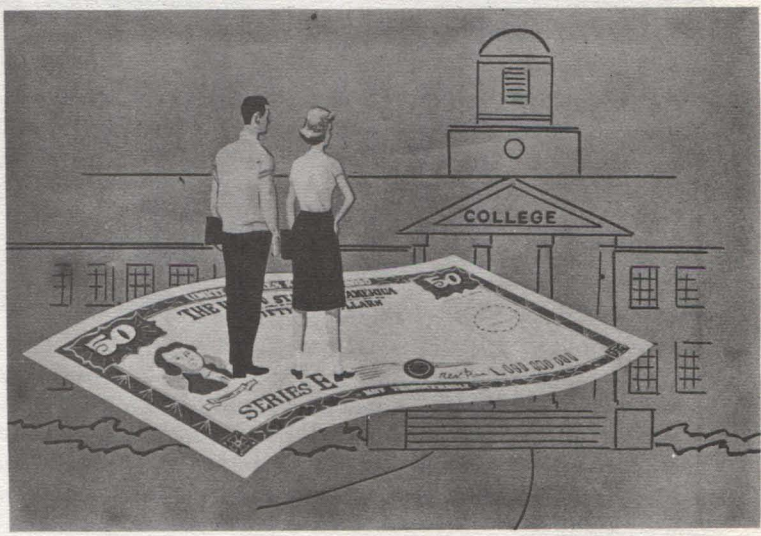
As protection for the taxpayer, a copy of the initial return, establishing the intent, should be retained for possible proof in later years that the interest has been reported.

TO SUM IT UP

A college education for your child is one of the most important investments you can make. It is a costly one, and growing more so each year. But it is manageable, if taken in easy stages through systematic savings. TODAY is not too soon to start.

U.S. Savings Bonds, purchased systematically, can help you reach your goal. They are safe, sure, and offer a guaranteed return.

Above all else, they are shares in America, and in the bright tomorrow you want for your children.



NASA BOWLING LEAGUE

Clean Ups lead Group A in the NASA Tenpin League with a record of 76 wins and 52 losses. Flyers are in second with 73.5 wins and 54.5 losses. Top scores were rolled by Tom Bonner with a 233 game and Henry Lee with a 626 set.

ACD leads Group B with 83 wins and 45 losses. Wood Nickers and Golfers are tied for second with 79 wins and 49 losses each. Top bowlers for the week were William Carmines with a 290 game, Bill Goodwin with a 696 set, and Ruth Pluta with a 216 game and 611 set.

RPM's lead Group C with 89 wins and 39 losses. Hotshot Tunnel is in second with 82 wins and 46 losses. High scores were rolled by Charlie Spear with a 274 game and 661 set, Marie Henley with a 232 game and Doris Hodge with a 632 set.

GROUP A

Clean Ups	76	52	Outlaws	68	60
Flyers	73.5	54.5	Unitary	64	64
Odd Balls	72	56	Alley Cats	58	70
Hornets	71	57	Phantoms	51	77
Misfits	69.5	58.5	Short Circuits	37	91

GROUP B			GROUP C		
ACD	83	45	RPM's	89	39
Wood Nickers	79	49	Hotshot Tunnel	82	46
Golfers	79	49	Sad Sams	74	54
Payloads	71	57	Sparkys	72	56
Strike Outs	65	63	A-OK's	70	58
Pinwigglers	64	64	Bowling Belles	69	59
HMS	63	65	Ten Benders	68.5	59.5
Flight Engineers	61	67	Gliders	67	61
Galaxies	58	70	Mets	66	62
Getogethers	58	70	Wa-Hoppins	65	63
Greenhorns	55.5	72.5	Dillys	61.6	66.5
Flight	55	73	Hits & Misses	47.5	80.5
Cee Pees	52.5	75.5	Class Kats	41	87
Trackers	52	76	Gutter Jumpers	23.5	104.5

PROFESSOR VISITS CENTER

Dr. Fred R. DeJarnette, Department of Aerospace Engineering, Virginia Polytechnic Institute, will visit the Langley Research Center on Monday, May 8 to discuss the graduate program in Aerospace Engineering with interested students.

Persons interested in talking with Dr. DeJarnette are requested to call Training Branch, 2611, for an appointment.

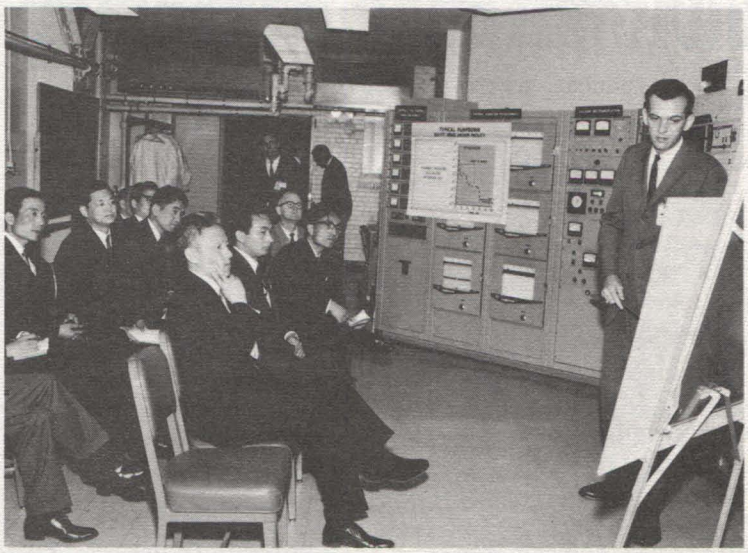
NOTICE: Will the person who borrowed the following from Marvin G. Torrence, Aero-Physics Division, approximately two years ago, please return same to Mail Stop 168: "Conduction of Heat in Solids" by Carlslaw and Jaeger, No. 536.2 C23C 1959 copy 3.

FOR SALE: Electro-Voice LT-12 hi-fi speaker in Aristocrat enclosure - $35. M. D. Williams, 851-0675.

FOR SALE: 1965 Honda Super Hawk 305CC. Miller, 244-3603.

FOR SALE: 17-foot Shasta travel trailer, self contained, sleeps 8. Hall, LY6-1373 after 5 p.m.

FOR RENT: Spend a leisure vacation or honeymoon in a deluxe cabin in the beautiful mountains of Bath County, Va. Ideal for hiking, fishing, swimming, golfing, etc. Located 13 miles from Warm Springs. Yates, PA2-7753.



A group of Japanese scientists who are members of the U.S.-Japan Cooperative Program of Meteorological Rocket Sounding visited the Langley Research Center last month and visited a number of research facilities. They are shown above during a tour of the new Space Vacuum Facility. Explaining the facility to the visitors is Lawrence R. Greenwood, Applied Materials and Physics Division.

Photograph by Richard P. Kennedy

LTV SELECTED FOR NEGOTIATIONS

Langley Research Center has selected Ling-Temco-Vought Corporation for negotiations which will lead to a contract for technical support services for flight projects and systems integration.

The contract to be negotiated is expected to be valued at about $2.8 million. It will cover a two-year period of performance and carry an option for renewal for one additional year, bringing the three-year total value to just over $4 million.

NASA will negotiate a cost-plus award fee contract with LTV, under which evaluation of the award fee will be made each calendar quarter.

Technical services in four major areas of work are included in the contract to be negotiated. They are instrumentation, mechanical design, analog and digital programming and aerodynamics.

The contractor will be required to furnish the technical services at a local facility near Langley. Four Langley divisions are expected to issue task descriptions and work orders specifying particular items of technical support required for a variety of flight projects and systems integration needs as they arise.

They include the Flight Instrumentation Division, which will monitor the contract; the Flight Vehicles and Systems Division; the Analysis and Computation Division, and the Applied Materials and Physics Division.

WANTED: Ride from Norfolk to W.A. on 7:30 shift. Bain, 838-1010.

FOR SALE: Gas stove, refrigerator, and 312-cubic-inch Mercury engine. Moore, 826-2589.

FOR SALE: 16-foot fiberglas boat with convertible top, 40 hp outboard motor, tilt trailer and extras. Coffey, 244-6817 after 4:30 p.m.

FOR SALE: 9-piece cherry dining room suite. Ashe, 826-1014.

DIVISION BOND STANDINGS

Division	Chairmen	Percentage
Office of Director	A. I. Neihouse	87
Research Reports	Margaret Strickland	82
Office, Asst. Dir. Flight Proj.	Andrew Swanson	62
	L. R. Foster (Scout)	
	T. H. Elder (LOPO)	
AMPD	P. M. Lovell	57
ACD	Eugene Gribble	65
IRD	E. L. Bryant	63
Space Mechanics	Tom O'Bryan	64
Flight Instrumentation	Albert Lindler	63
Dynamic Loads	Joseph Martin	64
Structures Research	Bill Wilson	72
Aero-Physics	Jim Jones	58
FMTD	Joseph Jewell	69
Full-Scale Research	Arthur Carter	67
Office, Eng. & Tech. Ser.	Benjamin Bland	85
Electrical Systems	Robert Wells	78
FVSD	David Spence	73
Mechanical Services	Robert Turner	73
Plant Maintenance	R. S. Holloway	77
RMFD	J. A. Zitzelberger	71
Office, Asst. Dir. for Adm.	E. T. Maher	69
Administrative Services	Jess G. Ross	58
Fiscal	Abner Askew	71
Personnel	J. Norwood Evans	81
Photographic	Wayne Williams	76
Procurement	J. E. Carter	81

GROUP TO HEAR BRISSENDEN

The Hampton Roads Chapter of the Society of Aeronautical Weight Engineers, Inc., will hold its Annual Meeting and Ladies' Night on May 16 at the King James Motel. Guest speaker will be Roy F. Brissenden, Guidance and Control Branch, Space Mechanics Division.

Brissenden will describe the simulation work at Langley, explain how the simulators are designed to provide realism to the control task being performed by the pilot or astronaut, and how the research studies conducted with these facilities support the nation's space and aircraft programs. Slides and movies will be shown to illustrate these simulators for Gemini and Apollo, and for the supersonic aircraft. Of particular interest will be a color movie of the Gemini 11 flight using a tether between the vehicles in space, supplemented by a movie of how Langley simulated the tethered maneuver prior to the flight. Also of interest will be a movie showing a new low-visibility supersonic transport landing simulator in operation at Langley.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30. For reservations call J. C. Taylor, 247-1211 extenstion 2694 or 851-0512.

FOR SALE: 17-foot Mobjack sailboat with trailer - all fiberglas. Peterson, 838-1485.

WANTED: Driving combination from Windsor Great Park to W.A. on 8 shift. Cooper, 4840.

WANTED: Driving combination from Beechwood to E.A. on 8 shift. Abel, 2661.

FOR SALE: 1966 Volkswagon, model 1300 with Mark IV air conditioner. Reid, 898-5623.

FOR SALE: 1965 Honda 300 Super Hawk with extra set of sprockets. Jones, 596-6971.

Major General Lewis A. Curtis, Chairman of the Air Reserve Forces Policy Committee, and his committee visited the Center recently and toured a number of research facilities. General Curtis and Eugene C. Draley, Assistant Director, are shown here looking at a moon photograph which was taken by Lunar Orbiter.

COIN CLUB MEETS MAY 11

The Langley Research Center Coin Club will meet on Thursday, May 11 at 7:30 p.m. in the Activities Building.

Some of the highlights at last month's meeting were the luck winners of the raffle - Bobby Berrier, Full-Scale Research, won the top prize of a brilliant uncirculated 1955 Philadelphia half dollar. The second prize, an uncirculated 1886 silver dollar, was carted off by Bob Wright, Flight Instrumentation. Joined with this event was a spirited auction in which all but one of the 28 auction lots were sold. The membership rolls continued to grow with eight new members which brings the club's total to 35.

The highlight of the entire evening was a presentation on foreign coins by Langley's Safety Officer, Duane McSmith. McSmith presented an interesting background on the collecting of foreign coins and emphasized the importance of appropriate literature and knowledge in this area of numismatics. For a touch of flavor, he gave an enjoyable account of some of his personal experiences through the years which helped to make a very interesting evening.

The May meeting will feature the raffling of a brilliant uncirculated U.S. $5 gold piece and another well rounded auction of 40 lots. So, set aside May 11 for an enjoyable evening with the Langley Coin Club.

DR. REYNOLDS TO VISIT HERE

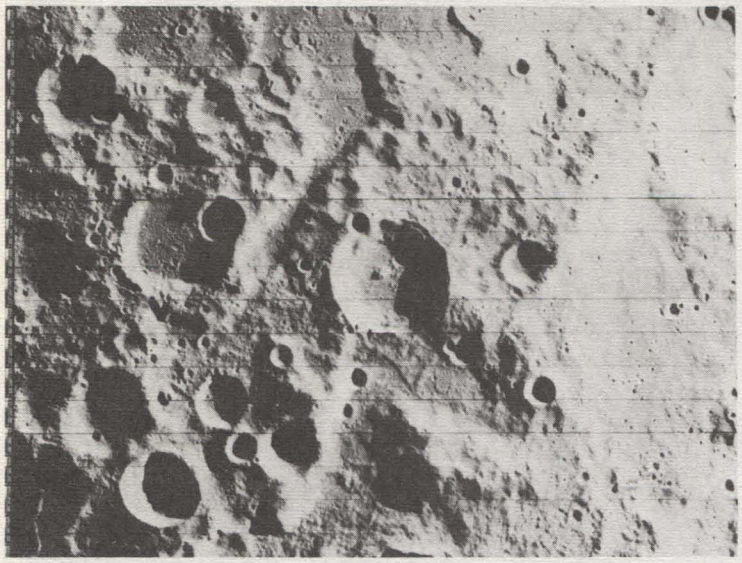
Dr. Thomas L. Reynolds, Head of the Department of Mathematics, College of William and Mary, will visit the Center on May 11 to discuss courses to be offered during the 1967 fall semester, course requirements for advanced degrees, and new faculty members.

Employees planning to do advanced work in Mathematics at William and Mary this fall and those interested in further information are requested to call Training Office, 2611, for an appointment.

FOR SALE: 12-foot fiberglas sailboat and trailer. Rhinehart, 898-6596.

Langley Researcher

VOLUME 6, NUMBER 10 LANGLEY RESEARCH CENTER MAY 19, 1967



This segment of the first telephoto picture taken by the camera of Lunar Orbiter IV spacecraft on May 11 covers part of a region near the moon's south pole never before viewed from directly above. When the photo was made, the spacecraft was 2,180 miles above the lunar surface. The large crater with a central peak located at the bottom is Hale, named for an American astronomer George E. Hale.

NASA SCIENTISTS HOPE TO CONTROL LUNAR ORBITER'S CAMERA PROBLEM

Lunar Orbiter IV was launched by an Atlas-Agena D vehicle from Cape Kennedy on a flight to the vicinity of the moon on May 4 and started taking its first lunar photographs on May 11.

The first three Lunar Orbiter missions were in direct support of the Apollo and Surveyor lunar landing programs; they identified eight areas in which potential manned landing locations exist.

The fourth Orbiter mission is a broad photographic survey of the entire front side of the moon, with additional photography of hidden side areas scheduled as well.

Early in the mission Lunar Orbiter IV developed a balky mermal door covering the lenses and it was decided to fly the spacecraft with the door fully open. It now seems likely that sunlight leaked inside the camera system through the open door and caused light strike or over-exposure of some film frames previously exposed over the lunar scene. When these light-struck frames were read back to NASA Deep Space Net Tracking Stations the resulting degradation in quality was apparent and project officials began an immediate series of steps to develop a solution.

Scientists have been only partially successful in their attempts to clear up the bleary-eyed vision of Orbiter. A spokesman said that although useful data have been received on ground equipment, some pictures of the lunar surface still lack the sharp detail project officials require.

RALLY OFFICALLY LAUNCHES CENTER'S 1967 BOND DRIVE

The Center's U.S. Savings Bond Drive was officially launched last week with a kick-off meeting of over 300 workers.

Dr. Floyd L. Thompson, Director, welcomed the group and stated that the Center's goal this year is 90 percent participation or better. If the staff reaches the 90 percent mark, the Center will receive the Treasury Department's coveted Minuteman Flag.

Kitty O'B. Joyner, Chairman of the Center's 1967 effort, announced that the Activities Association has agreed to award three $25 Savings Bonds to winners who will be picked in a U.S. Federal Savings Bond Sweepstakes - one to a new bond subscriber, one to a new bond and freedom share subscriber, and one to a person who increases his present allotment.

Guests speaking at the rally included Lt. Walter J. Marm Jr., a Vietnam veteran who has been awarded the Congressional Medal of Honor; Oscar Stevenson, Virginia Director of the U.S. Savings Bond Division of the Treasury Department, and Noel Bride, National Office of Savings Bonds Division, Washington, D.C. Music was furnished by the Air Force Band.

Lt. Marm told the group that 82.5 percent of the servicemen in Vietnam are participating in the bond program.

Lt. Marm was born November 20, 1941 in Washington,

(Continued on page 4)

Dr. Floyd L. Thompson (left), Director, greets Lt. Walter J. Marm Jr., a Vietnam veteran who has been awarded the Congressional Medal of Honor. Lt. Marm was guest speaker at the Center's bond rally held last week.

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 302, telephone 2575.

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 William S. Small, Electrical Systems Division. He is engaged to Mary Charlene Rainier, Mathews, and plans call for a September wedding. . .Dan Cupid scored a victory when Mary W. Suit, Flight Mechanics and Technology Division, announced her engagement to Donald E. Adams, Hampton. The big event will take place in July.

BABY DERBY. . .Announcing the birth of a son, Andrew Joseph, on April 11 is Joseph Struhar, Fiscal Division. . . Weighing in at eight pounds, four ounces on May 8 was Amy Elizabeth, new daughter of W. Frank Stewart, Instrument Research Division.

TENNIS CLUB. . .An organizational meeting of the NASA Tennis Club will be held Monday, May 22 at 7:30 p.m. in the Activities Building. Included on the agenda will be the discussion of a spring tennis tournament and the formation of women's singles and mixed doubles. For additional information call A. W. Mueller, 3691.

ANNIVERSARY OF SHEPARD FLIGHT. . .Six years ago on May 5, 1961, the Redstone rocket carried the first American into space. Alan Shepard was the pilot of the Mercury spacecraft. His 15-minute suborbital flight provided about five minutes of weightlessness, the first such experience for a U.S. flier.

NEWLYWEDS. . .Gayle J. Routten, Personnel Division, and Sammie D. Joplin, Flight Vehicles and Systems Division, took their final vows on Saturday, May 6 in the Fox Hill Central Methodist Church. Linda Johnson, Personnel, and Kay Voglewede, Research Reports Division, served as bridesmaids. Ushers were Thomas Rhyne, Analysis and Computations; William L. Terrill, Program Schedules and Analysis Unit, and Reginald M. Holloway, Flight Instrumentation Division. . .Lawrence D. Guy, Structures Research Division, was married to Shirley Lee Mason, Newport News, on May 13 at Hampton Baptist Church. Groomsmen were Jules M. Miller, Research Staff Office; D. William Conner, Dynamic Loads Division, and Robert W. Leonard, Structures Research.

FOUND: Lady's gold wrist watch in ACD parking lot. Kern, 4842.

FOR SALE: 1961 Oldsmobile Super 88. Adams, 723-8682.

Britain's Miss Ocean Princess asked to see the Langley Research Center "the place where the astronauts came from" during her weekend visit to Williamsburg and Jamestown. Vivien Grundy of Chelsea, London, England, was selected by the British shipping interests to represent them in the "Discover United States of America" program sponsored by the U.S. Department of Commerce to encourage Europeans to visit the U.S.A. She visited Langley on Sunday, May 14, with her mother and two representatives of the Sheraton Motor Inn of Williamsburg.

IEEE GROUP MEETS MAY 23

The Hampton Roads Section of the Institute of Electrical and Electronics Engineers will meet on Tuesday, May 23 at Eli's Restaurant in Hampton. Guest speaker will be Edward E. Ellwood, Development Project Director, Product Development Division, Reynolds Metals Company.

Ellwood will discuss the Aluminaut submergence vehicle. The Aluminaut is a well equipped scientific laboratory capable of working 15,000 feet under the sea and with excellent maneuverability.

Ellwood received his B.S. degree in Metallurgical Engineering from Rensselaer Polytechnic Institute. He joined Reynolds Metals Company in 1951 as an Industrial Sales Representative in St. Louis. From 1952 to 1955 he served as Industrial Sales Representative in Houston and from 1955 to 1958 he was Industrial Sales Representative in Kansas City. He has served in his present position since 1958.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30 and the meeting at 8:30. Reservations may be made with Frank Senft, 3461.

LANGLEY TESTS PARACHUTE DESIGN AS PRELUDE TO MARS EXPLORATION

The fifth in a series of ten planned rocket-launched flight experiments to test parachute designs and techniques which might be useful in future attempts to soft-land instrumented capsules on Mars has been conducted successfully by NASA.

A two-stage Honest John-Nike rocket launched May 9 from the White Sands Missile Range, New Mexico, lofted an experimental payload to an altitude of about 130,000 feet - where the Earth atmosphere compares with that of Mars - and a parachute was deployed in a study of its flight characteristics in that environment.

The ringsail parachute was folded inside a spacecraft five feet long and 13-1/2 inches in diameter. After separation from the rocket booster, the parachute was deployed and descended with a 200 pound payload - simulating an unmanned instrumented Mars lander - suspended from it. Cameras and instruments were installed in the payload to record the deployment of the parachute and its characteristics in flight.

The parachute and payload, including the cameras and instruments, were recovered from the range and are being used by NASA scientists in analyzing results of the flight.

Conditions at test altitude closely resemble those which NASA scientists expect the Voyager capsule to encounter during terminal descent through the Mars atmosphere. The velocity of the coasting capsule just before parachute deployment - together with the density of Earth atmosphere at the test altitude - produce the proper combination of factors for accurate simulation.

The ringsail and two other types of parachutes - the cross and the disc-gap-band - are being investigated in a 15-flight Planetary Entry Parachute Program managed by the Langley Research Center. In addition to the 10 rocket launches, five balloon-launched flights are scheduled, the first of which was conducted in August 1966.

The balloon-launched flights utilize a 26,000,000 cubic foot volume balloon which carries a 15-foot diameter conical shape payload to the desired altitude for deployment of an 84-foot diameter test parachute.

Langley scientists are evaluating the parachutes for possible use as decelerators in soft-landing unmanned instrumented capsules such as those envisioned in the Mars Voyager concept.

Clarence L. Gillis, Head of the Aerospace Mechanics Branch, Applied Materials and Physics Division, is PEPP Program Manager. Harold N. Murrow, Dynamic Loads Division, served as Mission Director for the rocket flight.

Langley personnel who participated with Murrow in the field operations for the May 9 flight included Henry Elksnin, Flight Vehicles and Systems Division, Systems Manager; Woodrow Johnson, Mechanical Services Division; Titus Harrison, Electrical Systems Division; William Gaster, AMPD; Charles Laird, S. J. Kubalak, and Michael A. Wilson, FID; and Clinton Eckstrom and John Preisser, DLD.

The 40-foot diameter ringsail parachute - a two-thirds scale test model - was the third investigation of a ringsail parachute in the flight program. Previously, 84-foot and 30-foot diameter ringsail systems were tested.

In addition to the difference in size, the test parachute was modified on the basis of information obtained in previous flights. The upper third of the ringsail canopy consisted of concentric rings with slots between the rings; the remainder of the canopy was of sails, with gaps between the sails.

Martin Marietta Corporation, Denver Division, assembled the spacecraft and was responsible for integrating it with the booster and parachute package. The parachute was manufactured by the Pioneer Parachute Company, Manchester, Connecticut. Air Force crews from Holloman Air Force Base, New Mexico, launched the rocket; tracking and recovery operations were by airborne and ground crews from the U.S. Army units at Holloman and White Sands.

Lt. General Yang Shao-Pien, Chief of Staff of the Chinese Air Force, visited Langley Research Center on May 2. Shown looking at a model of a supersonic transport airplane are (from left): Francis F. McLean, Full-Scale Research Division, Major General Szutu Fu, Major General Chang Jefferson, Lt. General Shao-Lien, and Colonel Shing Shih.

NEW PROFESSORS ANNOUNCED

The Department of Mathematics at the College of William and Mary has further strengthened its graduate teaching staff with the addition of three new members. The new professors and their fields of interest are Dr. Lionel Rentel, fluid dynamics; Dr. Peter V. O'Neil, applications of topology to analysis and applied problems, and David Stanford, analysis.

The addition of these new members will enable a stronger program to be offered at both the graduate and undergraduate level. The schedule for September includes senior graduate courses in probability, matrix theory, complex variables and numerical analysis. Graduate courses offered include full year sequences in modern algebra, real analysis, topology and two courses in applied mathematics. All of these will be offered on Tuesday and Thursday afternoons at 12:30.

Dr. T. L. Reynolds, Head of the Department, is available for consultation to anyone interested. Further information, catalogues and application blanks are available in the Training Office.

WANTED: Alternate drivers from vicinity of Logan Place, Newport News, to W.A. on 8 shift. Cooper, 4860.

WANTED: Ride from Riverdale Plaza Apartments to W.A. on 8 shift. Holquin, 3349.

ANNUAL SAVINGS BOND DRIVE

(Continued from page 1)

Pennsylvania. He received his B.S. degree in Business Administration from Duquesne University in 1964 and enlisted in the U.S. Army June 5, 1964. He received the Congressional Medal of Honor on December 19, 1966. His citation reads as follows:

"Second Lieutenant Walter J. Marm, Infantry, distinguished himself by conspicuous gallantry and intrepidity at the risk of his own life above and beyond the call of duty while engaged in action against a hostile force in the vicinity of the Ia Drang Valley, Republic of Vietnam, on November 14, 1965. As a Platoon Leader in the 1st Cavalry Division (Airmobile), Lieutenant Marm demonstrated indomitable courage during a combat operation in the Ia Drang Valley. His company was moving through the valley to relieve a friendly unit surrounded by an enemy force of estimated regimental size. Lieutenant Marm led his platoon through withering fire until they were finally forced to take cover. Realizing that his platoon could not hold very long, and seeing four enemy moving into his position, he moved quickly under heavy fire and annihilated all four. Then, seeing that his platoon was receiving intense fire from a concealed machine gun, he deliberately exposed himself to draw its fire. Thus locating its position, he attempted to destroy it with an anti-tank weapon. Although he inflicted casualties, the weapon did not silence the enemy fire. Quickly, disregarding the intense fire directed on him and his platoon, he charged 30 meters across open ground, and hurled grenades into the enemy position, killing some of the eight insurgents manning it. Although severely wounded, when his grenades were expended, armed with only a rifle, he continued the momentum of his assault on the position and killed the remainder of the enemy. Lieutenant Marm's selfless action reduced the fire on his platoon, broke the enemy assault and rallied his unit to continue toward the accomplishment of their mission. Lientenant Marm's conspicuous gallantry on the battlefield and his extraordinary intrepidity at the risk of his life above and beyond the call of duty are in the highest traditions of the United States Army and reflect great credit upon himself and the armed forces of his country."

Fourteen servicemen have received the Congressional Medal of Honor as a result of the Vietnam conflict. Of the 14 recipients only seven are living.

The division canvassers for the Center's bond effort are as follows:

Office of Director - A. I. Neihouse, chairman.

Research Reports - Margaret Strickland, chairman, P. E. Weatherwax, Catherine Hart, Jeane Pendleton.

Office of Assistant Director for Flight Projects - A. G. Swanson, chairman, L. R. Foster, T. H. Elder

AMPD - P. M. Lovell, chairman, C. L. Gillis, W. D. Erickson, G. F. Pezdirtz, C. A. Sandahl, R. L. Swain, R. S. Osborne, W. E. Bressette.

Analysis and Computation - A. E. Gribble, chairman, L. E. Barker, S. W. Farmer, W. M. Kahlbaum, C. P. Pracht, J. I. Pitts, M. A. Ridenhour, Beverly Latimer, D. D. Dillion, C. H. LeDuc, L. E. Taylor, and J. D. Nolan.

IRD - E. L. Bryant, chairman, J. H. Harrell, C. E. Scott, S. T. Walters, R. B. Lewis, A. M. Tankersley, F. T. Hart, O. Youngbluth, C. T. Haley, E. F. Germain, M. L. Emory, J. D. Grissett, W. F. Presson.

Lt. Walter J. Marm Jr., Congressional Medal of Honor winner, was guest speaker at the Center's bond rally held last week. Shown on the stage with him are Kitty O'B. Joyner, Chairman of the Center's effort; Oscar Stevenson, Virginia Director of the U.S. Savings Bond Division; T. Melvin Butler, Assistant Director for Administration, and Noel Bride, National Office of Savings Bonds Division.

Space Mechanics - T. C. O'Bryan, chairman, Gail Day, J. A. White, R. F. Brissenden.

Flight Instrumentation - A. H. Lindler, chairman, M. D. Aldridge, F. O. Huck, C. G. Saunders, R. W. Lovelady, W. E. Ellis, H. R. Kowitz, R. H. Jacobs, Virginia Shuler, W. S. Haywood, S. J. Bavuso, Mary Ella Kopia.

Dynamic Loads - D. J. Martin, chairman, D. J. Maglieri, A. J. Rainey, S. C. Donadio, Marjorie Graham, H. W. Leonard, Sara Hellbaum, K. Margolis, Vera Huckel.

Structures Research - B. M. Wilson, chairman, Carol Majette, G. F. Klich, Cornelia Dexter, T. T. Bales, Pauline Pyle, S. S. Tompkins, C. B. Castle.

Aero-Physics - J. J. Jones, chairman, R. J. Moberg, M. A. Emmons, J. P. Arrington, R. W. Guy, P. B. McLean, C. J. Pereira, W. D. Harvey, Betty Clem.

Flight Mechanics - J. W. Jewel, chairman, J. D. Haigler, J. W. Paulson, G. L. Elliott, R. A. Champine, R. J. Tapscott, N. S. Silsby.

Full-Scale - A. E. Carter, chairman, R. L. Weirich, C. A. Clarke, Helen Willey, B. L. Schilling, Nellie Medaris, M. M. Carmel, A. W. Robins, P. F. Brown, R. A. Kilgore, W. P. Henderson.

Office of Engineering and Technical Service - H. B. Bland, chairman, Catherine Chamberlin, W. M. Johnson, Anne Dudley, W. M. Johnson, Joan Wade, Anne Armistead.

Electrical Systems - R. C. Wells, chairman, J. A. Maloney, Ben Ellis, M. J. Menges, A. L. O'Kelley, F. L. Plotz, J. H. Haverstock.

Flight Vehicles - Dave Spence, chairman, R. B. Davis, R. J. Guillotte, R. F. Greene, C. H. Collins, R. L. Kurtz, E. E. Mason.

Mechanical Services - R. H. Turner, chairman, J. R. Denton, T. C. Meador, R. Holloway, W. E. Holloway, F. M. Plott, R. D. Burris, D. R. Coombs, J. N. Shipp, C. R. Lewis, Sarah O'Keefe, J. W. McNamara, C. E. Johnson, R. F. Machlin, W. E. Stoops, R. B. Amole, F. L. Lawrence, R. F. Parr, M. L. Laughlin, F. Dvorak, S. C. Hall, W. T. Borchers, R. N. Barnes, D. R. Brooks, E. J. Cheno-

(Continued on page 5)

The first Center group to achieve 100 percent participation in the 1967 Savings Bond Drive was Electronic Fabrication Development Section. Frank L. Plotz, third from right, was credited with enrolling the 10 non-subscribers. The first division to report 100 percent was Personnel.

SAVINGS BOND CAMPAIGN

(Continued from page 4)

weth, D. W. Bridges, O. E. Shortt, E. P. Humphrey, A. V. Norton, O. L. Hayes, R. C. Brogden, E. H. Rowell, D. G. McSmith, O. R. Moss, H. L. Bloxom, L. S. Powell, J. W. Cox, W. T. Lucy, J. S. Denn, L. E. Perry, K. E. Singleton, H. L. Freeman.

Plant Maintenance - R. S. Holloway, chairman, M. W. Ballard, G. E. Corker, J. T. Harper, B. E. Miller, W. F. Scott.

Research Models - J. A. Zitzelberger, chairman, R. W. H. Noell, L. A. Brunner, L. D. Parker, R. M. Palmer, G. D. Ware, J. L. Hudson, C. E. Heath, J. G. Hudson, D. B. Chambliss.

Office of Assistant Director for Administration - E. T. Maher, chairman.

Administrative Services - J. G. Ross, chairman, W. F. Lawson, G. C. Ford, R. L. Huffman, W. L. Simkins.

Fiscal - A. M. Askew, chairman, Judy Evans, M. C. Garula, Margaret Lail, Norma Evans.

Personnel - J. N. Evans, chairman, Margaret Simonton, M. P. Clark, Ethel Horton, Grace Gardner.

Photographic - C. W. Williams, chairman.

Procurement - J. E. Carter, chairman, J. F. Braig, J. M. Hughes, D. H. Carson, Evangeline Fox, W. A. Porter, R. R. Krodel.

FOR SALE: 1960 Pontiac Ventura. Stewart, 898-6640.

FOR SALE: Breakfast set with formica table and 4 chairs-$25. Barritt, 877-9429.

FOR SALE: 3-bedroom brick rancher in Poquoson. McLean, 868-6138.

WANTED: Ride from Cay St., Toddsberry, to W.A. on 8 shift. Deans, 3606 or 826-8416 after 5 p.m.

FOR SALE: Set of 7-foot oars and oar locks, grapnel hook, used wire boat rigging, portable sewing machine in case; also 1966 Westinghouse air conditioner - $80, Stereophonic portable stereo and glass top table with large record cabinet - both for $65. Mrs. Gilman, PA2-5847.

SHELL

PRESENTS

THE NEW 1967 NATIONAL DRIVERS TEST

TUESDAY, MAY 23RD, 10-11 P.M., EDT ON THE CBS TELEVISION NETWORK

Nearly 80 million viewers have watched the National Drivers Test the past two years — making it the most popular public service program ever carried on a single TV network.

It won the Peabody Award; the Alfred P. Sloan Radio & TV Award; and the National Safety Council Public Service Award.

Now an all-new National Drivers Test for 1967, timed for the week before Memorial Day, will provide one more hour in your life to check your ability at the defensive driving we face today.

Compare your answers with those of a studio audience of motorists, with friends' and family scores, and with correct answers provided by expert drivers.

Note the date on your calendar *now;* check the local time and channel number in your newspaper or weekly TV guide.

Fill in blanks with T or F (True or False), Y or N (Yes or No), A, B, C or D (multiple choice), or appropriate word. Opinion questions are not scored.

1. ☐ 4. ☐
2. ☐ 5. ☐
3. ☐ 6. ☐
7. ☐ 21. ☐
8. ☐ 22. ☐
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15. ☐ 29. ☐
16. ☐ 30. ☐
17. ☐ 31. ☐
18. ☐ 32. ☐
19. ☐ 33. ☐
20. ☐ 34. ☐
35. ☐

OPINION (NO SCORE)

1.
2.
3.

TOTAL SCORE ☐

The new 1967 National Drivers Test is produced by CBS News, with the cooperation of the National Safety Council, under sponsorship of Shell Oil Company.

SERVICE TO THE PUBLIC AWARDS

To stimulate and encourage employees' contributions to NASA's part of the President's Program for Improvement of Service to the Public, it is pointed out that the NASA Incentive Awards Program is applicable to such contributions.

Under the Incentive Awards Program cash awards and honorary recognition may be given to employees for contributions which are beyond job requirements and contribute to the efficiency, economy and effective execution of government operations. Such awards also may be granted for performance of special acts or services which are in the public interest and related to official employment.

Approved employee contributions having intangible benefits are eligible for cash awards ranging from $15 to $1,000. Suggestions and contributions under this program should be sent to the Awards Office, Mail Stop 306, for consideration.

In establishing the program for Improvement of Service to the Public President Johnson stated:

"The task of government is to serve the public. It has been my deep and continuing concern to assure that each American receives from his government the fastest, most efficient and most courteous service. The time for action is now. . .I regard this as a vital undertaking."

FOR SALE: Kenmore window fan, used one summer - $25; Kenmore vacuum cleaner - $35. Deans, 826-8416 after 5.

FOR SALE: Boy's 26-inch bicycle with basket - $20; 8-foot dinghy - $25; baby stroller - $10. Phillips, PA3-5382.

FOR SALE: Tonneau cover for 1956-50 Corvette, black, $17.50. Barritt, 877-9429.

FOR SALE: Emerson air conditioner, 8500 btu, 115-volt, used one summer. Van Sciver, 826-1521.

WANTED: Driving combination from Whealton Heights - Northampton area to E.A. on 8 shift. Ruhlin, 2661.

THIRD UK SATELLITE LAUNCHED

The United Kingdom satellite, UK-E, third of a series of US-UK cooperative projects, was launched for the UK Science Research Council (SRC) by NASA from the Western Test Range, Lompoc, Cal., on May 5.

UK-E was placed in an approximately 342-mile, circular polar orbit by a four-stage Scout rocket. On attaining orbit UK-E was called Ariel III.

Objectives of the UK-E project are to supplement and extend investigations in the atmosphere and the ionosphere conducted by Ariel I and Ariel II, which were launched in April 1962 and March 1964.

Design and fabrication of the spacecraft, as well as its five experiments, was accomplished in the United Kingdom, based on experience derived from Ariel I and II. SRC will be responsible for reduction and analysis of experiment data.

Langley Research Center was responsible for the four-stage Scout rocket. Western Test Range provided pre-launch and launch operations support

Roland D. English heads the Scout Project Office at Langley. Robert A. Schmitz serves as Scout Payload Coordinator for the UK-E project; James D. Church as Scout Field Operations director; Thomas C. Moore, Scout Quality and Reliability engineer; Leo C. Forrest, Scout Systems engineer, and Angelo Guastaferro, Langley Vehicle Test Director at Western Test Range. Other members of the LRC Mission Support Office at Western Test Range are William D. Hinshaw, Azusa Yamamoto, Jon L. Vancleave, and Ruth A. Zane, secretary.

INCENTIVE AWARD GIVEN BOEING

The Lunar Orbiter Incentive Evaluation Board of NASA gave the Boeing Co., Seattle, a net award of $1,918,725 for the Lunar Orbiter II mission.

The Lunar Orbiter incentive contract between NASA and Boeing, the prime contractor, contains provisions under which the contractor could incur a fee reduction for late delivery of Orbiter spacecraft, and earn a reward on the basis of photographic data returned by the mission.

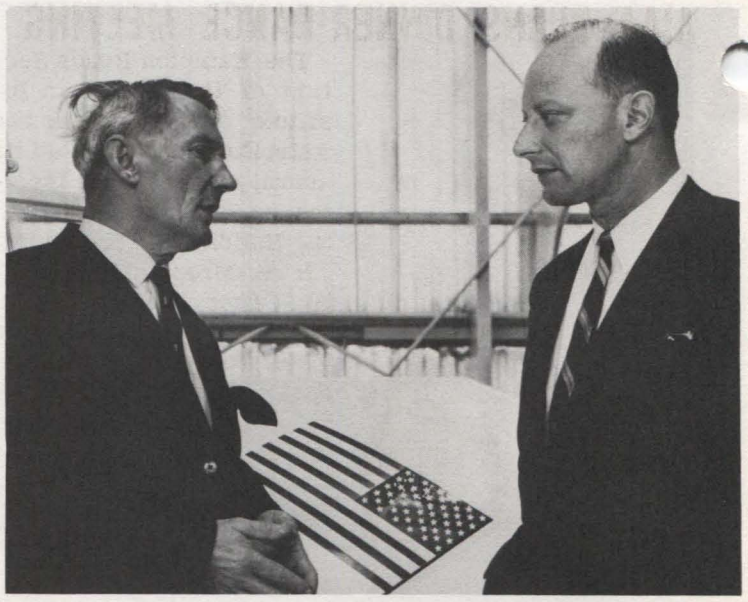
Prime objective of the Lunar Orbiter II mission was to obtain from lunar orbit detailed photographic information of various lunar areas to assess their suitability as landing sites for Apollo and Surveyor spacecraft and to improve U.S. scientific knowledge of the Moon.

The performance award was based on the usefulness of the photographic data returned in meeting those objectives. It was the decision of the board that the mission results merited the maximum possible award.

On its photographic mission, Lunar Orbiter II returned high quality photographic data of 14,000 square miles of 13 separate candidate Apollo areas. Approximately 98 per cent of the planned prime site photography was obtained. An equipment failure late in the mission resulted in the loss of 2 per cent of these data.

In addition to the prime Apollo support information, however, Lunar Orbiter II took a number of secondary photographs including two million square miles of the hidden side of the Moon.

It was the opinion of the Board that the usefulness of the bonus secondary photographs compensated for the minor losses in quantity and quality of the prime photography and the full performance award was warranted.



Standing along side the four-stage Scout launch vehicle which placed into orbit the British-built UK-E spacecraft on May 5 the Rt. Honorable Goronwy Roberts (left), Minister of State for Education and Science, talks with NASA's Assistant Administrator for Office of International Affairs during tour of Scout facilities prior to launch. The tour group arrived at Vandenberg Air Force Base May 4 and were briefed on the United Kingdom/NASA launch by Angelo Guastaferro, Head of Langley's Mission Support Office, Western Test Range. Other United Kingdom persons touring the facilities were Prof. P. A. Sheppard, Chairman, British Space Policy and Grants Committee; J. F. Hosie, Director, Astronomy, Space and Radio, Divisions of Science Research Council; Reginald G. Voysey, Counselor (Scientific) British Embassy; Albert A. E. Franklin, British Consul General, Los Angeles; Janet Alexander, private secretary to Roberts, and Lloyd Jones, Cooperative Projects Division, NASA Office of International Affairs.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of May 22:

Monday - Split green pea soup, Swiss steak, grilled pork chops, knockwurst, fish cakes.

Tuesday - Chicken-vegetable soup, Spanish pot roast, chicken pan pie, fried fish, franks and beans.

Wednesday - French onion soup, fried clams, baked ham, liver and onions, cheese omelette.

Thursday - Vegetable-beef soup, grilled steak, spaghetti and meat sauce, fried chicken, baked hash.

Friday - Clam chowder, roast beef, stuffed flounder, broiled fish, hot dog.

The menu for the week of May 29 is as follows:

Monday - Puree of bean soup, braised short ribs, grilled ham slice, baked lasagna, Spanish omelette.

Tuesday - H O L I D A Y

Wednesday - Cream of tomato soup, simmered corned beef, roast pork, ham and noodle casserole, grilled spiced luncheon meat.

Thursday - Chicken-vegetable soup, grilled steak, beef stew, fried chicken, Austrian ravioli.

Friday - Clam chowder, beef stroganoff, boiled ham, fried fish, deviled crab, Irish omelette.

--Buy U.S. Freedom Shares--

AIAA PLANS DINNER-DANCE MEETING

R. V. Mrozinski

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will hold its annual dinner-dance meeting on Saturday, May 27 at the Holiday Inn, Hampton.

R. V. Mrozinski, Executive Office of the President, National Aeronautics and Space Council, will be guest speaker. He will speak on "The Benefits of the National Space Program." A key ingredient of international prestige in the 20th century is the national determination to persevere in the tough assignment of exploring space. Mrozinski will discuss actual benefits which our country has gained from out national space activity.

Mrozinski graduated from the Naval Academy with a B.S. degree in 1939 and received his M.S. degree from Georgetown University in 1954. He was with the CIA from 1948-1956 and on the staff of the National Security Council from 1956-59. In 1959 he joined industry as executive officer in the government relations office of the International Telephone and Telegraph Corporation. Since 1962 he has been a staff member of the National Aeronautics and Space Council.

A social hour will be held at 6 p.m., followed by dinner at 7, the meeting at 8, and dancing from 9:30 to 1 a.m. to the music of Charley Johnson.

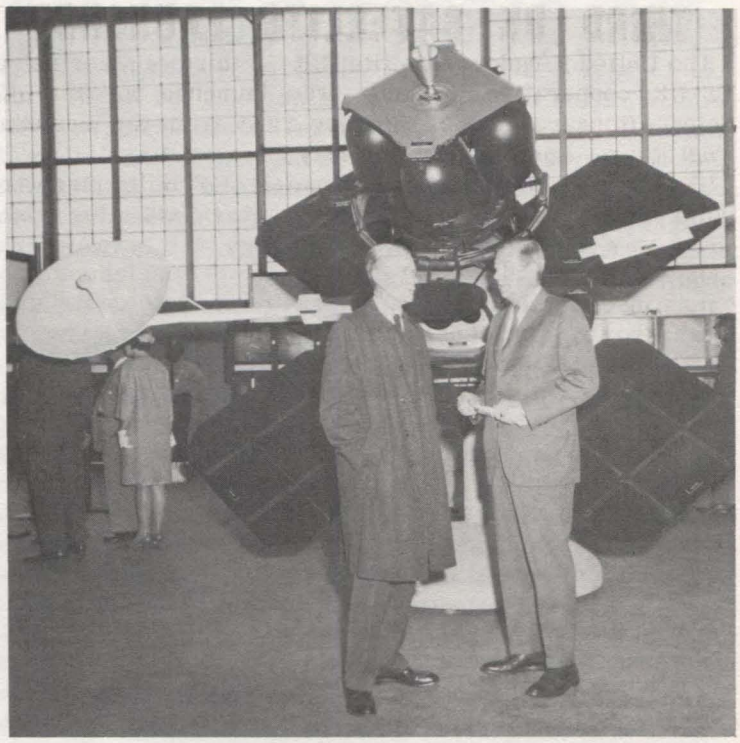
Reservations may be made by calling Bob Keynton, 826-5549; Tom Foughner, 722-1587, or Ron Greenwood, Norfolk 853-4851.

COUNTDOWN

SKEET LEAGUE. May 5 marked the concluding sheet shooting party held at the Williamsburg Shooting Center. As a result of the party a NASA Skeet League is being formed. For complete information contact Warren Kelliher, Mail Stop 407, telephone 3361. Participation does not mean that all shooting has to take place on a specific night. For persons on odd work shifts, league competition can be accomplished anytime with the provision the club is notified before shooting that it will be for league scoring. There are no membership dues and competition will be on a handicap basis. Membership is open to men, women, and children over 9 years of age. The cost per round of 25 shots is $2 per box of ammunition and $1.50 to shoot on the range.

AUTO RACES. Arrangements are underway with the Langley Speedway to sponsor an NASA recognition night in June. The management will admit NASA families and friends with tickets for half-price on that night. Full details will be announced in a future issue of Langley Researcher.

BASEBALL GAME. The Activities Association has made arrangements with the Peninsula Grays Baseball Team to sponsor a NASA night at the Peninsula Memorial Stadium on May 30 at 7 p.m. Tickets are available at half-price from District Representatives. All NASA employees and their families and friends are invited. The team facing the Grays will be the Tidewater Tides. Tickets purchased at the gate will be full price.



Top Photograph - Dr. Floyd L. Thompson (left), Director, and Representative Thomas N. Downing of the first district of Virginia, stand in front of a model of the Lunar Orbiter at the Center's display shown during Langley Air Force Base's 50th Anniversary Open House last Saturday. Bottom photograph - Shown here is a general view of the Center's exhibit during the anniversary celebration.

EMPLOYEE DIES IN ACCIDENT

Ronald C. Kibler, Electrical Systems Division, was killed in an accident last Tuesday while visiting in Chapin, South Carolina.

Kibler was born April 20, 1944 in Macon, Georgia. He graduated from Chapin High School and attended the University of South Carolina. He joined the Center staff on July 2, 1964 as a student trainee and received his B.S. degree in Electrical Engineering in 1965.

His brother, Kemper S. Kibler, is employed in Analysis and Computation Division.

FORMER EMPLOYEE HAS VARIED CAREER

In Langley Researcher of April 21 a quotation was made from a report by F. H. Norton describing the NACA Wind Tunnel No. 1, constructed in 1919-1920. In this year of the 50th anniversary celebration of the NACA-NASA, it is of interest to recall the accomplishments of Dr. Norton who came to Langley in 1918 directly after graduation from Massachusetts Institute of Technology and in two years acquired the title of Chief Physicist.

He worked for NACA until 1923, and in that period was author or coauthor of over 39 technical reports and articles. These reports covered such varied topics as "The Aerodynamic Properties of Thick Airfoils Suitable for Internal Bracing" and "The Measurement of the Dumping in Roll on a HN4H in Flight." In addition, he wrote a booklet entitled "The Art of Writing Scientific Reports" which is still of value to NASA engineers.

Dr. Norton's career is summarized in a recent article in the class notes of the MIT alumni magazine, "Technology Review," as follows:

"Frederick Norton first girded up his loins after graduation as a physicist for the National Advisory Committee for Aeronautics (now NASA). After that he directed research for refractories with Babcock and Wilcox who were seriously interested in seeing how far they could overheat water in a boiler. Then for thirty-three years he headed the Ceramics Division of the Department of Metallurgy at the Institute, retiring in 1962.

"Last May he was made an honorary member of the American Ceramic Society in recognition of his professional eminence and achievements. He joined the Society in 1923, was made a Fellow in 1937, vice-president in 1960, and served as a trustee of the Ceramic Educational Council 1950-53. In 1961 he received the Design Division Award which is given annually in recognition of a major contribution to ceramic art and design in America. He was named the recipient of the 17th Albert Bleininger Memorial Medal and Scroll in 1964.

"Honorary doctorates were conferred upon him by Alfred University in 1949 and by the University of Toledo in 1954. In 1958 he was made an honorary member of the British Ceramic Society. He is a member of the National Institute of Ceramic Engineers, a Fellow of the American Physical Society, and a member of Sigma Xi. That, we submit, is doing a lot of authentic girding."

Dr. Norton is presently residing in Gloucester, Mass.

PROFESSOR VISITS CENTER

Dr. John W. Cell, Head of the Department of Mathematics, North Carolina State University at Raleigh, will visit the Center on Tuesday, May 23 to discuss graduate or prospective graduate studies with staff members. Persons wishing an appointment with Dr. Cell are requested to call the Training Office, 2611.

Dr. Cell will also present a lecture on "The Z Transform" at 9 a.m. in the East Area Projection Room, Building 587. Interested staff members are invited to attend.

FOR SALE: 1963 28-foot Owens, 80 hours on engine, 40-watt radio. Van Landingham, 596-7842.

WANTED: To rent utility trailer for first two weeks in July, Coward, 877-4696.

FOR SALE: 1957 Chris Craft 27-foot cabin cruiser - $2100. Carson, 838-1731.

Walter M. Schirra

Donn F. Eisele

Walter Cunningham

3-MAN APOLLO CREW NAMED

The first three-man Apollo orbit of the Earth has been rescheduled for early next years, NASA Administrator James E. Webb said last week at a meeting with the Senate Space Committee, but late 1969 is still the goal of a manned lunar landing despite the year's delay.

At the same time, Webb announced that the crew will be the backup trio for the astronauts killed in the spacecraft fire last January. They are Walter M. Schirra, 44, a veteran of the Mercury and Gemini programs, and two who have never been in space - Donn F. Eisele, 36, and Walter Cunningham 35, a civilian.

Webb told the committee of numerous steps taken to fireproof both the spacecraft and the astronauts' suits and to provide speedier escape in an emergency.

George E. Mueller, Associate Administrator for Manned Space Flight, said that in redesigning the spacecraft and the space suits, all the recommendations of the Apollo investigating board were followed carefully.

The astronauts' suits are being made virtually fireproof, he said, plumbing and wiring has been provided with fireproof covering, materials such as food which could catch fire will be put in fireproof containers and a special pressurized water system will be used to put out any fire in the spacecraft. The new escape hatch can be opened from the inside or outside.

Schirra, who was one of the original seven astronauts named by NASA in April 1959, will become the first astronaut to orbit in all three programs - Mercury, Gemini and Apollo.

On October 3, 1962, he flew a six-orbit mission in his "Sigma 7" Mercury spacecraft. The flight lasted 9 hours and 13 minutes from liftoff through landing and he attained a velocity of 17,557 miles per hour, a maximum orbital altitude of 175 statute miles and a total range of almost 144,000 statute miles. The impact point was in the Pacific Ocean, about 275 miles northeast of Midway Island.

In addition to the continuing astronaut training program, he was command pilot of the backup crew for the first manned Gemini flight and, on December 15-16, 1965, he was command pilot of the history-making Gemini 6 flight which established another space "first" by performing the first rendezvous of two manned maneuverable spacecraft with the orbiting Gemini 7.

FOR SALE: 36-inch Frigidaire electric range - $25; 36-inch hot water convector - $5; white cast iron sink - $10. Hudgens, LY6-1997.

WANTED: Home for kittens. Shideler, 826-5955.

Langley Researcher

VOLUME 6, NUMBER 11 LANGLEY RESEARCH CENTER JUNE 2, 1967

Charles J. Donlan, Langley's Associate Director, is shown in the Von Karman Building, NASA's Jet Propulsion Laboratory, during the Lunar Orbiter IV mission. Here Donlan checks out the sites scheduled to be photographed dur- Lunar Orbiter's flight.

CLARKE HEADS ASSOCIATION

Charles A. Clarke, Full-Scale Research Division, was elected President of the Activities Association at a meeting of the newly elected General Assembly. Clarke will start his two-year term of office on July 1.

Other board members who were elected to two-year terms were: Arnold W. Mueller, Dynamic Loads Division, treasurer; Herbert E. Boulter, Instrument Research Division, chairman of buildings and grounds committee; Joseph A. Siefring, Instrument Research, chairman of activities committee, and Patricia McLean, Aero-Physics Division, chairman of children's committee.

The following were elected to serve a one year term: Thomas L. Pressley, Flight Vehicles and Systems Division, vice-president; Winifred B. Bragg, Security Office, secretary; Ernest L. Greene, Analysis and Computation Division, chairman of the social committee, and Ann Bell, Full-Scale Research Division, chairman of arts and crafts committee.

WEBB MAIN SPEAKER AT PRELUDE TO INDEPENDENCE IN WILLIAMSBURG

James E. Webb, Administrator of the National Aeronautics and Space Administration, was the main speaker at Colonial Williamsburg's Prelude to Independence observance held last Saturday. The observance commemorates the legislative activity by Virginia Burgesses in 1776 which led directly to the signing of the American Declaration of Independence.

Speaking from the steps of Virginia's Colonial Capitol Webb said that Americans must now master philosophical dilemmas similar to those which faced Thomas Jefferson and others two centuries ago.

"Today's frontier is limited only by our ability to maintain individual freedom and yet join many minds in concerted action," Webb said.

In his address Webb pointed out that the next space venture of the United States, after the Mars and Venus probes, may be to land a man on Ganymede, a distant moon of Jupiter. No one, he said, has been able to figure out how to land on Jupiter itself.

Among those attending the program were members of the House Science and Astronautics Committee and the Senate Aeronautical and Space Committee.

Webb arrived at Langley last Friday afternoon and toured a number of Center research facilities before going to Williamsburg.

Shown during a visit to Langley Research Center to inspect facilities and see demonstrations of research are (from left) James E. Webb, NASA Administrator; Dr. Elmer B. Staats, Comptroller General of the United States, and United States Senator John L. McClellan of Arkansas. Greeting them upon their arrival are Dr. Floyd L. Thompson (second from right), Langley Director, and Charles J. Donlan, Association Director. Additional pictures are shown 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 302, telephone 2575.

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

MODEL SHOW. . .The NASA Model Clubs - Brainbusters, SEV/RCG, and Piston Poppers - will hold a model show on Sunday, June 11 from 1 to 5 p.m. in the Activities Building. All types of models will be on display. Admission is free and the public is invited.

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

REPRESENTATIVE TO VISIT. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on June 13 from 3 to 4 p.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

WINS SWEEPSTAKES. . .Grace Shackelford, Technical Editing Section, attended the Richmond Rose Society's show on May 22 and was adjudged winner in the sweepstakes competition among non-Richmond exhibitors. The award was based on the number of blue ribbon winning roses exhibited.

FREE CONCERT. . .The Peninsula Symphony Orchestra will be featured in a free outdoor concert at the Victory Arch Plaza in Newport News on Sunday, June 4 at 7:30 p.m. The program, entitled "Hits of the Season," will include popular favorites from the orchestra's 1966-67 season. Cary McMurran will conduct the concert, which is being patterned after the famous Watergate Concerts given by the National Symphony near the Lincoln Memorial in Washington and the summer Esplanade Concerts by the Boston Symphony on the banks of the Charles River in Boston. The concert on the Peninsula is financed and sponsored by the City of Newport News, the Music Performance Trust Fund of the American Federation of Musicians (AF of M) and the Hampton Roads Jaycees. The Jaycees are handling all physical arrangements.

SPEED READING. . .Speed Reading is being offered by the Industrial Management Club on Mondays and Thursdays from 7 to 9 p.m. starting June 12 and ending July 20. The classes will be held at the YMCA and interested persons may call the YMCA, 245-0047. The fee is $18.

WANTED TO TRADE: Full-size Hollywood bed with headboard for rollaway bed. Wagner, 723-7536.

Pat Edmondson, a part-time employee under the President's Youth Opportunity Campaign, signs up to purchase U.S. Savings Bonds during the Center's bond drive. Solicitor is M. P. Clark, Personnel Division. Pat, who is completing her freshman year at Christopher Newport College, works sixteen hours a week in the Employee Services Branch of Personnel Division. Her subscription was not necessary for Personnel Division to reach the 100 percent mark but she wanted to purchase bonds because she said, "I think it's the patriotic thing to do." The Center's effort will end June 19 and the goal this year is 90 percent participation.
--Photo by Fred Jones

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of June 5:

Monday - Vegetable-beef soup, roast ribs of beef, breaded veal cutlet, Polish sausage, fish cakes.

Tuesday - Split green pea soup, baked stuffed pork chop, fried fantail shrimp, Salisbury steak, western omelette.

Wednesday - Chicken-noodle soup, chicken and dumplings, fried scallops, chicken fried beef steakette, franks and beans.

Thursday - French onion soup, half-pound chopped steak, baked ham, sauteed chicken livers over rice, baked hash.

Friday - Clam chowder, pot roast of beef, fried oysters, broiled fish, grilled cheese sandwich.

The menu for the week of June 12 is as follows:

Monday - Puree of bean soup, broiled Canadian bacon, baked salmon loaf, chicken chow mein, chili con carne.

Tuesday - Cream of tomato soup, roast veal with dressing, grilled ham slice, beef stew, cheese omelette.

Wednesday - Vegetable-beef soup, grilled steak, stuffed pepper, fried chicken, tamale pie.

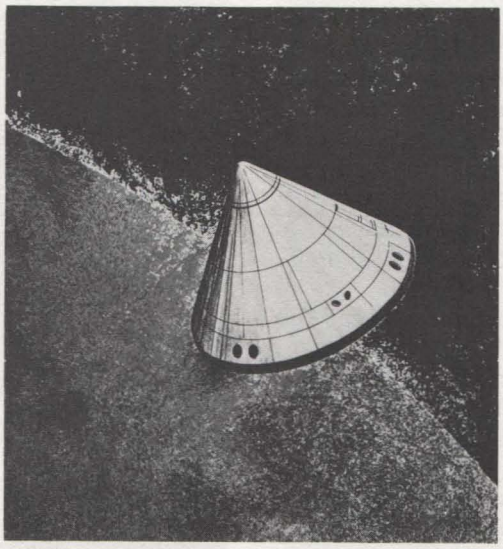
Thursday - Consomme julienne, roast beef, barbecued pork chunks over rice, liver and onions, macaroni and wieners.

Friday - Clam chowder, Swiss steak, fried fish, broiled fish, Austrian ravioli.

FOR SALE: 1957 Packard 4-door sedan, motor in good running condition. Buchanan, 838-3671.

To
Dr. Floyd L. Thompson
Chairman
Apollo 204 Review Board

Proceed with orderly haste
no glitches, no anomalies
Best wishes and thanks
from
Members of the Board
and Staff
April 1967



The Apollo 204 Review Board Members and staff presented Dr. Thompson, Chairman of the Board, the above memento at the time the Board recessed at Kennedy Space Center. Dr. Thompson headed the Apollo 204 Review Board's investigation of the tragic accident at Cape Kennedy on January 27 which destroyed an Apollo spacecraft and resulted in the loss of Astronauts Grissom, White, and Chaffee. The activities of the Review Board have continued since that time and are now concluded. We welcome Dr. Thompson back to Langley and note with pride his outstanding leadership and scientific contributions during this difficult assignment.

CONSTRUCTION GROUP HEARS MESSICK

J. Cabell Messick, Assistant Chief of Engineering and Technical Services, presented a paper on "The Technical Challenge" at the annual convention of The Construction Specifications Institute at Miami Beach on Monday, May 29.

Messick, a native of Hampton and a member of the Langley staff for 39 years, is responsible for the design and construction of research facilities and equipment at the Center.

In his paper, Messick discussed facility design and specifications - with one section being devoted to "SpeCSIntact," a new method under development at Langley to simplify writing, storing, retrieving and printing of construction specifications.

This system will provide a standard specification catalog to be stored on tape, computerized and made easily available for reproduction as required by the utilization of a computerized print-out system. The pioneering system is intended to provide better service, improve performance, and reduce costs in the construction of facilities and equipment.

Messick illustrated his presentation with slides and motion pictures of specialized laboratories operated by Langley in the conduct of a variety of aeronautical and space research.

Messick is a charter member of the American Registered Architects, associate professional member of the American Institute of Architects, and member of the board of trustees and chairman of the building committee of Dixie Hospital. He is listed in "Who's-Who in the South and Southwest," and in "Virginia Lives."

VOYAGER STUDIES UNDERWAY

NASA will begin negotiation of contracts with two industrial firms for feasibility and preliminary design studies (Phase B) of planetary entry capsules for its Voyager Project.

The Martin-Marietta Corporation, Denver Division, and McDonnell Aircraft, Astronautics Company, St. Louis, were chosen from among four proposers for $500,000 fixed price, three-month contracts.

NASA plans the launch of two Voyager planetary vehicles to Mars in 1973, aboard a single Saturn V rocket. Upon reaching the planet, each planetary vehicle will separate into a landing capsule and an orbiting spacecraft which will operate as a team, providing reconnaissance from orbit and simultaneously making scientific measurements on the surface.

The entry capsule will contain a surface laboratory to conduct scientific experiments on the surface of the planet. Phase B contractor efforts will be the responsibility of the Jet Propulsion Laboratory in conjunction with Langley Research Center.

Subsequent system design and hardware development responsibilities following the Phase B activities will be divided between the Jet Propulsion Laboratory and Langley Center, with JPL responsible for the surface laboratory and Langley responsible for the capsule bus system which includes the entry and landing equipment.

Estimates for the gross weight of the entire landing capsule and surface laboratory systems for the 1973 Mars mission range from 5,000 to 7,000 pounds.

The Voyager Program is managed by NASA's Office of Space Science and Applications.

FOR SALE: 3-bedroom house in Boulevard area. Drummond, 722-0710.

FOR SALE: Oldes cornet with case - $100. Stegall, Portsmouth 397-2154.

FOR SALE: AKC registered Golden Retriever pups - 10 weeks old. Martin, 898-5644.

FOR SALE: AF S-gauge train layout, two Penn rod and reel combinations, 60-pound lemon wood bow with quiver. Cox, 723-7782.

FOR SALE: Model 80 Polaroid camera with leather carrying case and wink light - $25. Walker, 826-3352.

ARCHITECT-ENGINEER BOARD

The Architect-Engineer Selection Board with J. Cabell Messick as chairman is one of several committees that operate at the Center. The board is composed of seven other members who have experience in engineering, construction, and procurement matters. The members are: Louis A. Brunner, secretary, Harold I. Maxwell, Sherwood L. Butler, Kitty O'B. Joyner, John D. Knemeyer, John L. Hudson and Edward M. Gregory.

The Architect-Engineer Selection Board performs the following functions:

Collects and maintains data on architect-engineer firms, including information on the qualifications of their members and key employees, past experience on various types of construction projects, and standing in the profession.

When procurement by contract of architect-engineer services for a particular project is contemplated, they review the qualifications of an adequate number of architect-engineer firms and evaluate the architect-engineer firms.

The committee prepares a report for submission to Dr. Thompson, recommending in the order of preference, a minimum of three firms which, after careful evaluation, are considered the best qualified to perform the required service.

In evaluating architect-engineer firms, the board considers the following factors:

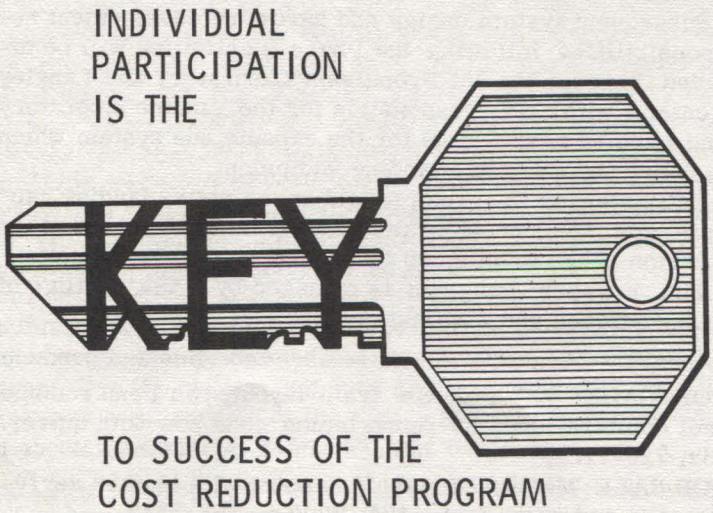
Specialized experience of the firm in the field or fields required; capacity of the firm to perform the work within the required time; past record of performance on contracts with NASA, other Government agencies, and private industry, including such factors as control of costs, quality of work, and ability to meet schedules; and geographic location of the firm and its familiarity with the area in which the project is located.

FOR SALE: Solid cedar wardrobe - $20. Huggett, 596-9583.

WANTED: Alternate driver from Norfolk to W.A. on 7:30 shift. Hudgins, 4851.

FOR SALE: 3-bedroom brick rancher with attached garage, 100 x 300-foot lot, located in Shore Park. Pezdirtz, 877-1800.

WANTED: Alternate driver from Bethel Park-Glen Gardens Apartments area to W.A. on 8 shift. Dickens, 3784.



Members of the Architect-Engineer Selection Board are (from left): Harold I. Maxwell, Louis A. Brunner, secretary, Sherwood L. Butler, Kitty O'B. Joyner, John E. Knemeyer, John L. Hudson, J. Cabell Messick, chairman, and Edward M. Gregory.

EMPLOYEE DIES AFTER LONG ILLNESS

Myrtle S. Buchanan, Equipment Dispatcher in Building Equipment Service Section, Plant Maintenance Division, died May 18 in Dixie Hospital after a long illness.

Mrs. Buchanan was born October 4, 1914 in Paintsville, Kentucky, and had been a Peninsula resident for the past 28 years. She joined the Center staff on April 16, 1942.

Survivors include a son, Paul Sparks of Louisville, Kentucky; a daughter, Mrs. John L. Lee of Tampa, Fla.; three sisters and four brothers.

BOOKS FOR SALE

The following books are for sale in the NASA Exchange, Building 586:

Practical Mathematics by Palmer and Bibb.

Gregg Shorthand Dictionary - Diamond Jubilee Series by Gregg and others.

Introduction to Mathematical Statistics by Hoel.

First Year Mathematics for Colleges by Paul R. Rider.

Mathematical Tables by Dwight - paperback.

Statik und Dynamik der Schalen by W. Flugge.

College Calculus with Analytic Geometry by Protter and Morrey.

Switching Theory - Volume I by Miller.

Vacuum Science and Engineering by Van Atta.

Numerical Integration of Differential Equations by Bennett, Milne and Bateman - paperback.

Foundation Course in German by Homberger and Ebelke.

Fundamental Concepts of Geometry by Meserve.

Modern Mathematical Analysis by Protter and Morrey.

Advanced Calculus for Applications by Hildebrand.

Strength of Materials by W. A. Nash - paperback - Schaum Outline Series.

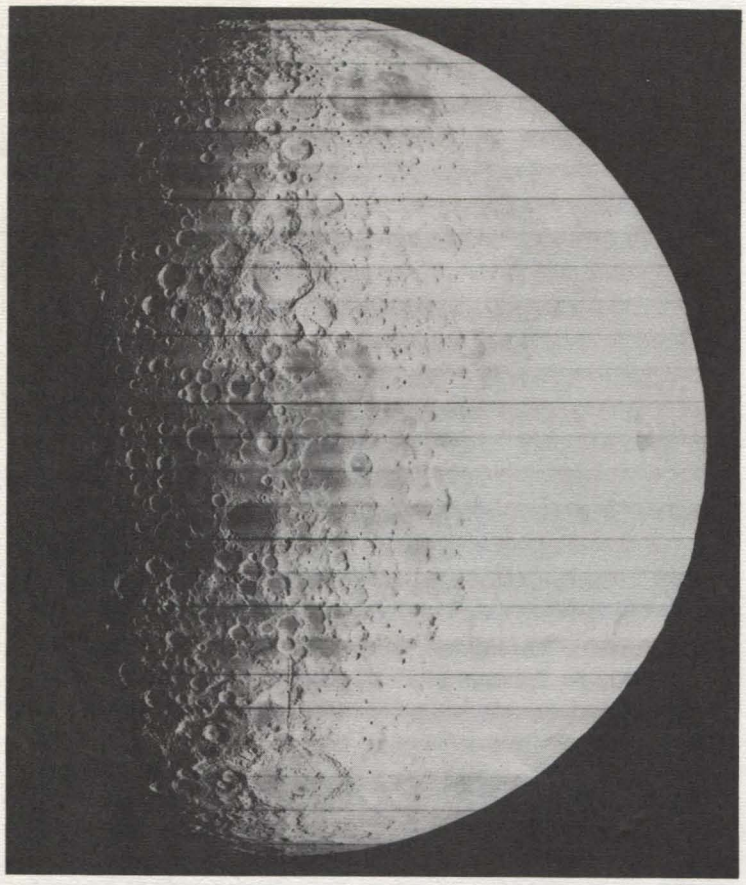
Elementary Structural Mechanics by Au.

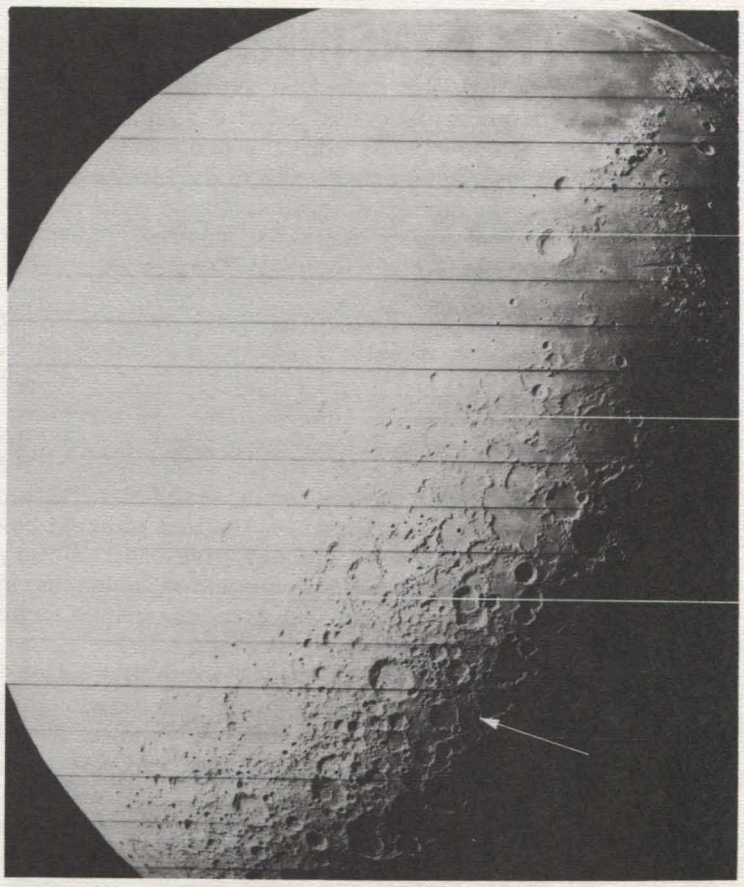
Mathematical Methods for Digital Computers by Ralston and Wilf.

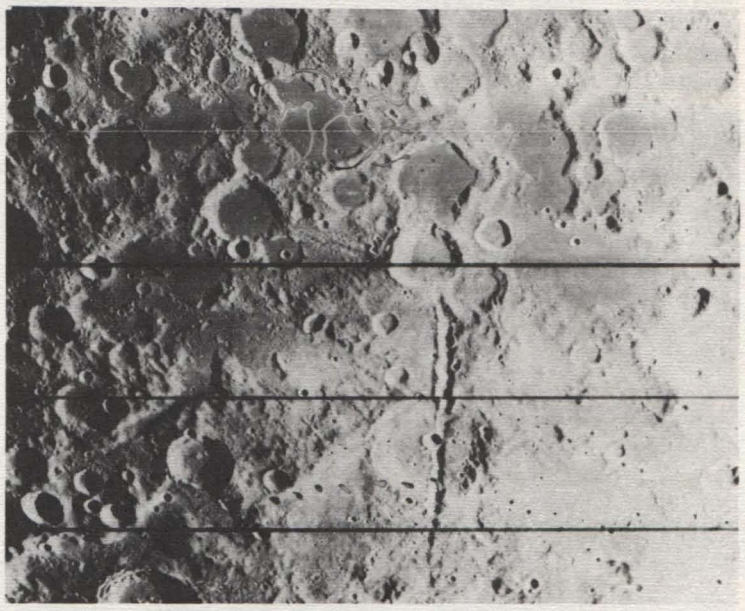
FOR SALE: 1960 set of Encyclopedia Brittanica, 3 year books and Atlas - $150. Jaquet, 838-0454.

WANTED: Alternate drivers from Glendale to W.A. on 8 shift. Fournier, 3611.

FOR SALE: Stereophonic portable stereo and glass top table with large record cabinet - both for $65. Mrs. Gilman, PA2-5847.







This wide angle photograph (above) was taken by Lunar Orbiter IV on May 11. The spacecraft was 1850 miles above the lunar surface at the time of photography. The photograph is centered on the eastern limb approximately half way between the equator and the South Pole. The terminator is seen falling across the lunar surface to the left and the horizon is at the right. A large portion of the eastern limb and far side is shown including the South Polar region at the bottom. Upper right photo - This wide angle photograph was taken May 17. At the time of the photography, the spacecraft was about 2,150 miles above the lunar surface, over a point at 72 degrees North latitude and 27-1/2 degrees East longitude. The arrow points to the approximate location of the moon's North Pole. The terminator follows a line from North to South along a line at 7 degrees West longitude. The large mare area near the bottom of the picture is one of the major features seen on the moon, the Mare Serenitatis (Sea of Serenity), which is centered at approximately 20 degrees East latitude and 28 degrees North longitude. The long valley near the terminator and above Mare Serenitatis is called the Alpine Valley and is approximately 75 miles long and up to 10 miles wide. Lower right photo - The existence of the large trough seen in this enlargement of a portion of a photograph made May 11 was not known until the flight of NASA's fourth orbiting photographic spacecraft. The trough with raised rims, about 150 miles long and 5 miles wide at some places, is located on the hidden side of the moon near the South Pole, about 65 degrees South and 105 degrees East. The trough cuts through several older craters and its freshness indicates that it is relatively young. It is, however, older than the small crater which straddles one ri The trough is larger and appears fresher than most of the similar features which have been observed on the front face of the moon, and may, therefore, furnish geologists important clues about the nature of such troughs. It extends radially outward from a large crater outside the picture and may have been induced by shock from the impact which created the crater. Volcanic material erupting along the fracture may have added to rims and produced the crater-like widenings.

U.S. SAVINGS BONDS are safe and indestructible. Replaced if lost, stolen or destroyed. Guaranteed interest rate. Privilege of holding beyond maturity.

TAX ADVANTAGES - Interest on U.S. Savings Bonds is exempt from state and local taxes. Federal income tax may be deferred until E Bonds are redeemed.

SAN MARCO B LAUNCHED

An Italian satellite, the first of any nation to be launched into orbit from a platform at sea, was recently launched from Formosa Bay off the coast of Kenya, Africa.

The satellite, San Marco-B, has been designed and prepared by the Italian Commission for Space Research (CRS). CRS has also been responsible for the entire launch complex. The launch vehicle itself was a four-stage solid propellant Scout rocket furnished by the United States.

San Marco-B, like San Marco I which was launched by an Italian crew from Wallops Station in December 1964, is a cooperative CRS-NASA project under an agreement concluded May 31, 1962.

Primary objective of the project is to obtain continuous equatorial air density measurements at satellite height by monitoring the drag forces on a spacecraft. These measurements are of particular scientific interest because two currently-used techniques give contradictory results. A second experiment investigated ionospheric characteristics causing interference with long-range radio transmissions.

The launching platform which looks much like an offshore oil drilling platform, is also called San Marco. It is stationed three miles off the coast of Kenya about 2-1/3 degrees south of the equator. A smaller platform, the Santa Rita, located about 500 yards from the San Marco platform, contains the control and operations center, range equipment and test rooms. The two platforms are connected by submarine control and power cables.

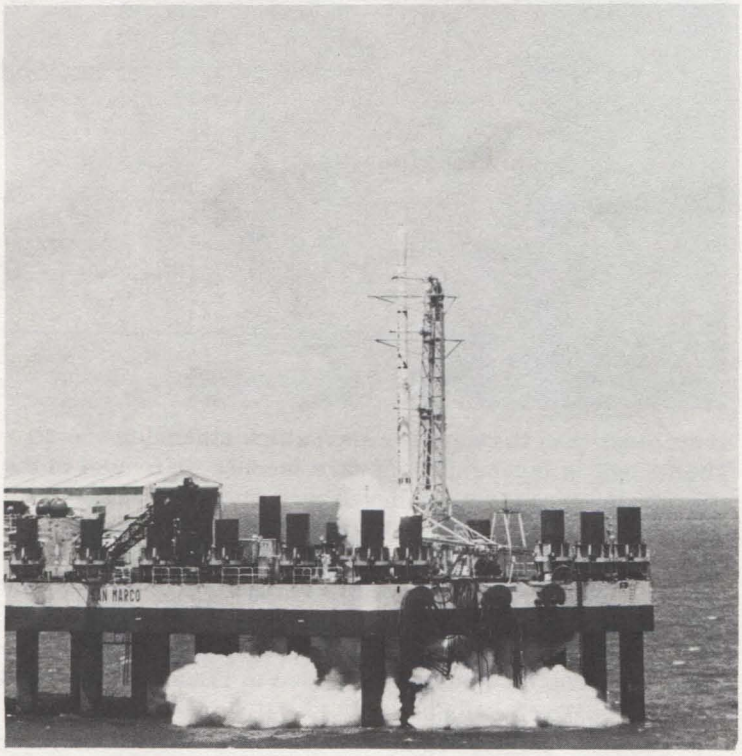
Under the 1962 agreement, NASA is providing the launch vehicles, use of its facilities and training for Italian personnel.

The Italian group is responsible for design, fabrication and testing of all payloads and experiments as well as the launching of the Scout. The Italian team established the range, including the mobile platforms, and, with some support from NASA, tracking and data acquisition facilities necessary to the project.

No exchange of funds between the two countries is involved. Scientific data resulting from the program will be made available to the world scientific community.

About 75 members of the Italian San Marco project team have been in training at intervals for the past few years at Wallops Station and other NASA facilities.

The project manager at Langley is Roland D. English and Louis P. Tosti is Langley operations director.



The Italian San Marco B spacecraft was recently launched from a platform at sea off the coast of Kenya, Africa, with a four-stage Scout rocket supplied by NASA.

Dr. Floyd L. Thompson (left), Director, presents a check for $3,000 to Vernon L. Bell, Applied Materials and Physics Division, for his invention suggestion entitled "Ladder Polymers and their Preparation."

CHEMISTRY COURSE OFFERED

The Extension Division of the College of William and Mary is offering a non-credit course in Introduction to Organic Chemistry. Dr. Thomas A. Gosink, Department of Chemistry, Old Dominion College, will be the instructor.

The class will meet on Mondays and Thursdays from 2:30 to 4:30 p.m. for a total of 32 hours in IRD Classroom No. 1, Building 1230.

Persons interested in taking the course are requested to call Training Branch, 2611.

FOR SALE: 1961 Volkswagon sedan, engine recently overhauled, good tires. Shaw, 826-7277 after 5 p.m.

FOR SALE: 1965 Honda Model CB160. Williams, 898-5789.

FOR SALE: 505 Sailboat - $900. Shipp, 596-4192.

WANTED: Young gentleman to share 2-bedroom apartment. Hawkins, 596-5665.

WANTED: Home for kittens. Yeager, 877-9063.

FOR SALE: 8-foot, 5-section wood garage door - $30, 8.2 cubic foot G.E. refrigerator - $30. Nicholas, 596-2705.

WANTED: Alternate driver from Dwight Rd., Newport News to W.A. on 8 shift. Ely, 4568.

WANTED: Home for kittens. Platt, 898-5639.

FOR SALE: 100-foot indoor clothes line - $8, 40-inch Kenmore electric range - $20, 12-inch wood lathe - $20, saw sharpening machine - $35. Wagner, 723-7536.

NEW NASA POSITIONS ANNOUNCED

Charles W. Harper has been appointed to the new position of Deputy Associate Administrator for Aeronautics of NASA.

The appointment was announced by James E. Webb, NASA Administrator, who said Harper will report to Dr. Mac C. Adams, Associate Administrator for Advanced Research and Technology.

Harper will coordinate and manage the aeronautics research and technology development activities conducted in the various divisions of the Office of Advanced Research and Technology.

The Aeronautics Division of the OART is being renamed the Aeronautical Vehicles Division and A. J. Evans has been appointed to succeed Harper as division director.

Evans has been deputy director since October 11, 1964, the same day that Harper was named director.

Before that Harper, 53, was Chief of the Full-Scale and Systems Research Division at Ames Research Center. A native of Winnipeg, Manitoba, Canada, Harper joined the Ames staff in 1941, the same year in which he became a United States citizen and received his B.S. degree in Mechanical Engineering at the University of California, Berkeley.

Evans, 48, is a native of Pawtucket, Rhode Island. He received his B.S. degree in Mechanical Engineering from the University of Rhode Island in 1942. Later that year he joined the staff of the Langley Research Center.

NASA has also established an Office of University Affairs reporting to the Office of the Associate Administrator for Organization and Management.

Francis B. Smith, formerly Assistant Director of Langley Research Center, has been appointed to head the new office as Assistant Administrator for University Affairs.

The office will be responsible for integrating, coordinating, and providing guidance for NASA's relationships with colleges and universities, for NASA's Sustaining University Program, and for other activities previously assigned to the Office of Grants and Research Contracts, in the Office of Space Science and Applications.

JOINT MEETING PLANNED JUNE 15-17

The 43rd Annual Meeting of Virginia Engineering and Technical Societies will be held June 15, 16, and 17 at the Hotel Chamberlin.

Speakers will include Senator William B. Spong Jr. who will speak at the luncheon on Friday, and Israel Taback, Lunar Orbiter Project Office, who will present a talk on the Lunar Orbiter at the Saturday morning technical session.

A hospitality hour will be held at 8:30 p.m. on Thursday in the Old Point Club and there will be dancing on Friday and Saturday nights on the Roof Garden.

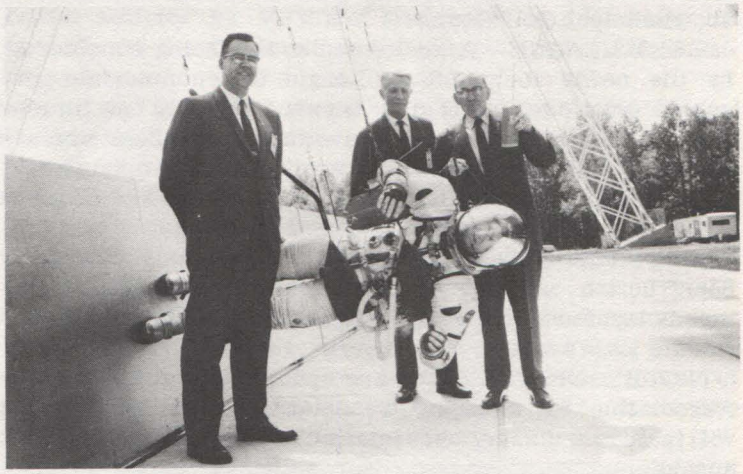
FOR SALE: 2 double beds with box springs and mattresses. Veryzer, PA3-5340.

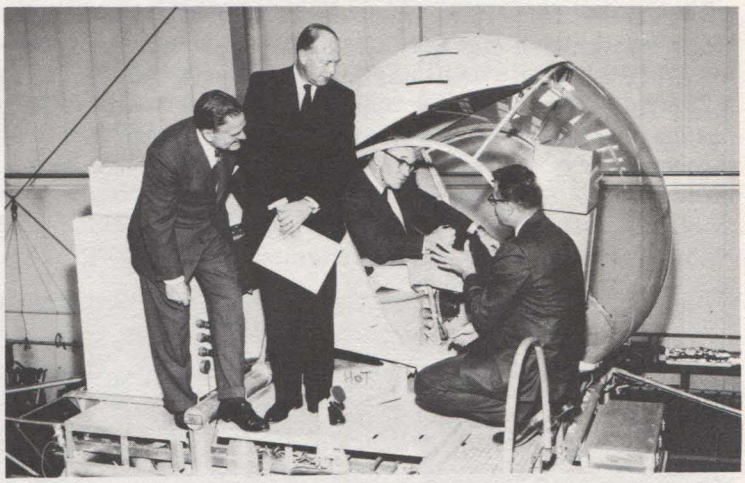
WANTED: Home for kittens, choice of orange or gray. Gainer, 596-7300.

FREE: Firewood - you cut and haul it. Mulqueen, 898-6327.

WANTED: Driving combination from Marlbank Farm to E.A. on 8 shift. Miller, 2569.

FOR SALE: 14-foot fiberglas boat, 35 hp Evinrude motor, Cox trailer, high windshield and controls. Spear, 595-3068.





Top photo - Charles J. Donlan (right), Associate Director, discusses aeronautical research in Langley's 16-Foot Transonic Wind Tunnel with (from left) Blake W. Corson Jr., head of the tunnel; James E. Webb, NASA Administrator; United States Senator John L. McClellan of Arkansas, and Dr. Elmer B. Staats, Comptroller General of the United States. Center photo - Space-suited Amos A. Spady is shown during study of problems that will be encountered by man walking on the lunar surface. Senator McClellan communicates with Spady while Dr. Floyd L. Thompson (center), Langley Director, and Donald E. Hewes, Space Mechanics Division, observe. Lower photo - Webb, Dr. Staats, Senator McClellan, and Hewes inspect the research vehicle flown at the Lunar Landing Research Facility to develop techniques for landing on the lunar surface.

COUNTDOWN

GOLF LEAGUE - In its first match in the Peninsula Industrial Golf League NASA beat the Shipyard Employees Team 17-13. The match was held at the Hampton Country Club. Bob Turner, Electronic Fabrication and Development Section, won low net trophy with a 68 and Bernie Garrett, Fluid Mechanics Section, won low gross runner-up trophy with 79.

The tentative schedule for future matches is as follows: NASA-VEPCO - June 17, Hampton Country Club; NASA-Newport News Business Forms - July 16, Municipal Golf Course; NASA-Daily Press - September 24, Municipal Golf Course; League Medal Play Tournament - October 15, Municipal Golf Course.

SKEET LEAGUE - Arrangements are being considered by the newly formed Skeet League to accommodate personnel who are interested in shooting only one time or twice a month in conjunction with the members who are shooting once a week at the present time. An open invitation is extended to all employees. The rates are $2 a box for ammunition and $1.50 for use of the range.

BASEBALL - The two new softball diamonds now under construction are not completed and two temporary diamonds located in the vicinity of Building 1230 will be used for the 1967 season.

TROPHY NIGHT - Plans are underway by the Activities Association for a Trophy Presentation Night. The evening will include a dinner, presentation of trophies, and a guest speaker.

RACES - Final arrangements have been completed for NASA recognition night at the Langley Speedway on Saturday, June 24. Races will start at 8 p.m. with time trials at 7:30. Admission will be one-half price ($1) with tickets purchased from District Representatives. Tickets sold at the Speedway will be regular price. Children will be admitted free. Rain date for the event will be July 8. The program will consist of hobby class, cadet class, and NASCAR featured modified sportsman race.

Henry Klich (left), Manager and Promotor of the Langley Speedway, met with Joe Siefring, newly elected Chairman of the Activities Committee, and new members of the General Assembly to discuss plans for an NASA recognition night at the Langley Speedway. The event will be held on Saturday, June 24.

Austin D. McHatton Louis A. Teichman Otto F. Trout

THREE RECEIVE CASH AWARDS

Three staff members recently received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Receiving the awards were Austin D. McHatton, Flight Vehicles and Systems Division, and Louis A. Teichman and Otto F. Trout, both of Applied Materials and Physics Division.

The citations read as follows:

McHatton - "For his outstanding performance and contributions in development of the inflatable sphere which substantially contributed to the successful accomplishment of the PAGEOS mission."

Teichman - "For his outstanding performance on and contributions to the PAGEOS Project which substantially and materially aided the successful and timely accomplishment of all mission objectives."

Trout - "For the development of underwater simulation techniques for extravehicular activities in space and for his valuable assistance in applying them to the training of Astronaut E. E. Aldrin for the Gemini 12 flight."

ROD AND GUN CLUB - All NASA employees are eligible to join the Langley Rod and Gun Club. The membership fee will be $10 per year on an associate basis. An additional fee of 75 cents will be charged for each time the skeet range is used - there will be no cost for use of the small arms range. Persons may also use the indoor and outdoor rifle ranges. Members must furnish their own firearms and the facilities will be open from 1 to 5 p.m. on Saturdays and Sundays. Although non-members are invited to use the ranges, they must pay a fee of $1.25 as opposed to the 75 cents paid by members. Ammunition can be purchased at the range office for all arms. For additional information contact Joe Siefring, 3297.

BUILDING AND GROUNDS OPEN - Throughout the rest of the summer the Activities Building and grounds will be open for the use of employees and members of their families on Saturdays and Sundays from 1 to 7 p.m.

WANTED: Port-a-crib. Sorrells, 838-3769.

LOST: "Experimental Statics" by Natrella, NBS-91. Ocheltree, 4766.

WANTED: Driving combination from Shore Park to E.A. on 8 shift. Batten, 2691.

FOR SALE: Complete movie camera outfit including 8 mm F1.8 Zoom lens camera, Keystone projector, Zoom lens radiant screen, Kodak splicer - $100. Salake, 723-5525.

Langley Researcher

VOLUME 6, NUMBER 12 LANGLEY RESEARCH CENTER JUNE 16, 1967

LUNAR ORBITER PHOTOGRAPHIC MISSION HIGHLY SUCCESSFUL

Lunar Orbiter IV has completed its photographic survey mission by returning telephoto pictures of 99 percent of the moon's front face.

The pictures provide scientists ten times finer resolution than best existing telescope views. For most of the area covered, this is a hundredfold increase in discernible detail.

NASA's spacecraft acquired high resolution photographs of the moon's polar areas never before viewed from a near-vertical position, disclosing geological details previously unknown.

By its telephoto coverage of the eastern limb areas, it provided the basis for extending the cartographic grid system established for front-face mapping around the hidden side, so that features there can be precisely located for future mission planning and operations.

In conjunction with its three predecessors, Lunar Orbiter IV raised to more than 75 percent the total coverage of hidden side features.

The photographic mission of Lunar Orbiter IV was completed June 1 with readout of the last of the 163 frames of photography taken and processed. Final readout had been underway since May 26 when the last pictures were taken.

Analysis and interpretation of the wealth of photographic detail returned by Lunar Orbiter IV will occupy scientists, mapmakers, and planners of future missions for months to come, and the picture survey is likely to stand as the definitive source of lunar surface information for many years.

A study of the Lunar Orbiter IV photography is being made to support and confirm the selection of front face scientific sites to be photographed from lower altitudes during the fifth Lunar Orbiter mission, now scheduled for the third quarter of this year.

In preparation for that mission Langley engineers, controlling the flight of Lunar Orbiter IV, adjusted its orbit last week to one similar to that planned for Mission Five. The adjustment lowered the perilune or low point of the orbit to about 60 miles and reduced the apolune to about 2,000 miles. Tracking the spacecraft in the lower orbit will provide knowledge of the moon's gravity as applied to the high inclination, low altitude orbit planned for the fifth Orbiter mission.

During its mission, the spacecraft has performed 670 maneuvers and has executed 7,067 commands. It has recorded two micrometeoroid punctures on its sensors.

Lunar Orbiter IV is managed for NASA by Langley Research Center. The spacecraft is operated by engineers from Langley and from the prime spacecraft contractor, The Boeing Co., of Seattle. Tracking is provided by NASA's Deep Space Network operated by the NASA Jet Propulsion Laboratory.

NEW FATIGUE LABORATORY PLACED IN OPERATION AT LANGLEY CENTER

A new science laboratory to greatly extend the capability and capacity of NASA to investigate the problems of fatigue in aircraft structures and space vehicles is being placed in operation at Langley Research Center.

Langley, the principal NASA center concerned with pioneering research in aerospace structures and materials, has been studying the fatigue problem both in the laboratory and in flight for the past several years to provide new technology aimed at increasing flight safety and economy of operations.

Fatigue is a mechanism by which materials fail due to the application of many cycles of load - any one of which usually causes no measurable damage. It is responsible for much of the cost of maintaining civil and military aircraft, and can become a threat to safety, if undetected.

As one example of the subtle process known as fatigue of metals, NASA scientists explain that each time the wings of an airplane deflect due to flight loads or gusts, very minute amounts of metal throughout the structure get a little more tired. When the structure becomes overtired, it begins to crack.

The new laboratory, staffed by a group of experts who have published over 100 technical documents on the sub-

(Continued on page 5)

Harold I. Maxwell (center), Chief of Research Models and Facilities Division, presents the key to the new Fatigue Laboratory to Richard R. Heldenfels, Chief of Structures Research Division. Looking on is Roger W. Peters, Technical Assistant of Structures Research. The new facility will greatly extend NASA's capability and capacity to investigate problems of fatigue in aircraft structures and space vehicles.

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 302, telephone 2575.

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

BABY DERBY. . .Weighing in at eight pounds, six ounces on May 31 was Karen Suzanne, daughter of Richard D. Samuels, Full-Scale Research Division. . .Announcing the birth of a six-pound, thirteen ounce daughter, Virginia Gayle, on June 5 is Ruthella Rozier, Procurement Division. The father, Sgt. Vernon Rozier, is stationed in Vietnam.

DONATION. . .The local representative of the McDonnell-Douglas Corporation recently presented Robert W. Boswinkle, Chairman of the Center's United Fund drive, with a check for $100. The contribution comes from the corporation employees fund. The company has three employees in its local office and the new contribution is in addition to previous individual contributions of those employees.

REPRESENTATIVE TO VISIT. . .Beverly Beale, Government-wide Service Plan representative, will be here on June 21 from 2 p.m. until 3 p.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

ENGAGEMENTS. . .Making plans to desert the bachelor ranks is Phillip D. Waller, Personnel Division. He is engaged to Donna Karen Addison, Glen Burnie, Maryland, and plans call for a November wedding. . .Donald R. Bennington, Analysis and Computation Division, recently became engaged to Daphne Ann Hill, Newport News. The wedding will take place in August.

WANTED: Passengers or drivers going South to Gainesville, Florida, June 30 and returning July 8. Karen Rackley, 3741.

WANTED: Driving combination or ride from Norfolk or Portsmouth to W.A. on 8 shift. Sandra Watkins, 4835.

WANTED: Girl to share Riverdale Apartment. Barbara Hixon, 3741 or 838-0213.

FOR SALE: 1962 Nimrod camper trailer. Holleman, PA3-7763.

FOR SALE: 7 acres of high land on mouth of North River in Gloucester, excellent residential location - $20,000; 7-room brick home on 3-acre wooded land on 98-acre stocked pond in Gloucester - $32,500. Horsley, 693-3826.

FOR SALE: 110 x 200 corner lot in Edgehill, York County. Wood, 596-3445.

WANTED: Home for part Shepherd dog - spayed and has all shots. Boswell, 838-3235.

Edward A. Howe, Chief of Fiscal Division, congratulates (from left), Jeanne D. Covington, Jeannette George, and Grace Rodman for receiving suggestion awards under the Center's Incentive Awards Program. The three submitted a joint suggestion concerning "combining the separate Obligation and Payment forms in an Obligation and Payment sheet which will be used for all obligations and payments and result in a material and labor savings."

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of June 19:

Monday - Turkey rice soup, roast turkey with dressing, braised beef tips over noodles, chicken fried beef steakette, franks and beans.

Tuesday - Cream of mushroom soup, barbecued spare ribs, breaded veal steak, meat loaf, chili-mac.

Wednesday - Vegetable-beef soup, roast beef, fried scallops, knockwurst, Spanish omelette.

Thursday - Chicken-vegetable soup, grilled steak, spaghetti with meat sauce, fried chicken, baked hash.

Friday - Clam chowder, Spanish pot roast, fried fantail shrimp, broiled ham, broiled perch, grilled cheese sandwich.

The menu for the week of June 26 is as follows:

Monday - Puree of bean soup, braised short ribs of beef over rice, grilled pork chops, Polish sausage, fish cakes.

Tuesday - French onion soup, roast beef, stuffed shrimp, liver and onions, macaroni and wieners.

Wednesday - Chicken-rice soup, grilled steak, barbecued beef over rice, fried chicken, chili con carne.

Thursday - Cream of tomato soup, baked Virginia ham, Salisbury steak, sauteed chicken livers over rice, grilled spiced luncheon meat.

Friday - Clam chowder, Swiss steak, stuffed flounder, broiled fish, western omelette.

WANTED: Ride to VPI during summer - will share expenses. Morgan, 3731.

WANTED: Alternate drivers or join driving combination from Edgehill to W.A. on 8 shift. Summerfield, 4817.

FOR SALE: 1961 Volkswagon sedan - $545. Kyle, 595-3923.

FOR RENT: Deluxe cabin in mountains of Bath County. Located 13 miles from Warm Springs. Yates, PA2-7753, or Hunsecker, 838-0924.

PARAWING TEST PROGRAM

NASA has selected the Northrop Ventura Company, Newbury Park, California, for negotiations of a contract to conduct a research flight test program using an all-flexible parawing.

Experiments will be performed at various scales with remotely controlled unmanned vehicles to establish a body of parawing technology which could be potentially adapted to manned spacecraft recovery systems.

Total value of the contract is expected to be about $3 million. The project will be managed by Langley Research Center.

The goal of this research project is to establish the suittability of the parawing for providing manned spacecraft with a capability for controlled descent in a shallow glide, thereby allowing a wide latitude for selection of a touchdown point on land or water. It is NASA's goal to extend recovery capabilities for the Apollo Applications Command Module to include land landings in the early 1970's.

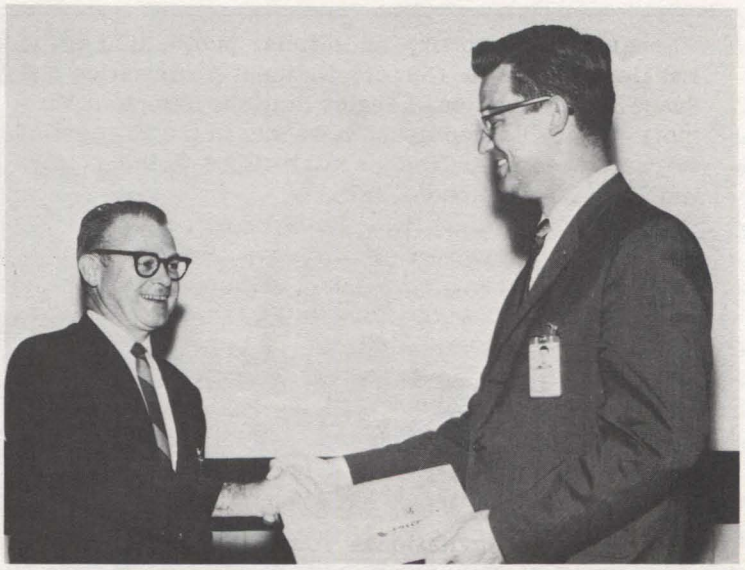
The contractor will be required to develop all technical knowledge needed for the final design of a recovery system capable of handling a 15,000-pound spacecraft. This will include technology for materials, fabrication techniques, folding and packaging, deployment, aerodynamic performance and reliability.

Based on technical knowledge developed in earlier phases of research at Langley, Northrop will evaluate parawings in small size with 200 to 600-pound payload capacity and intermediate sizes of 5,000-pound capacity. Following test flights of these two versions, the contractor will design a large scale 15,000-pound payload system.

In scaling the design of the different sizes, the contractor will follow the "single keel" and "twin keel" configurations developed in the parawing research program conducted through the years by Langley.

The flight tests will be made at two locations - the Joint Parachute Test Facility, El Centro, California, and Manned Spacecraft Center, Houston.

Eleven members of the Army Materiel Command Study Group, Washington, D.C., and seven representatives of AVLABS, Ft. Eustis, visited the Center last month. Shown in the Full-Scale Tunnel are (from left): Colonel W. B. Dyer, AMC Study Group; Colonel H. L. Bush, Commanding Officer, AVLABS; Larry M. Hewins, Technical Director, U.S. Army Aviation Material Laboratories; Ft. Eustis; Laurence K. Loftin Jr., Langley Assistant Director, and Brig. General W. M. Mantz, Chairman, AMC Study Group.



Dewey L. Clemmons , Applied Materials and Physics Division, receives a check and congratulations from Charles J. Donlan, Associate Director, for winning a Special Service Award for Exceptional Service. Clemmons won the award "for outstanding contributions in skillful and effective management of the PAGEOS Project which resulted in the successful launch of a 100-foot geodetic satellite on June 23, 1966, with all objectives attained as planned."

KNOW YOUR CREDIT UNION

A few short years ago it was not at all uncommon to hear someone say "I didn't know the Credit Union made automobile loans." That is a thing of the past and terms are easier than ever.

Beginning June 1 the board authorized new car loans up to 85 percent of the list price for a period of 48 months. Interest rate remains 3/4 of 1 percent of the unpaid balance (or less than 5 percent) and the loan is insured at no out-of-pocket cost to the borrower.

This action is a tribute to the extremely business-like manner in which car loans have been repaid over the years and recognizes their continuing importance. To the Credit Union they are big business. Car loans constitute some 40 percent of all loan balances outstanding. Despite this volume, however, only 1 in 7 NASA members has a car loan.

Probably, the urge to close the deal on the spot is the reason so many members are not taking advantage of what the Credit Union offers. But is it worth one more payment.. or one less item of optional equipment? Shop around, make your selection, get an invoice, and be back with a Credit Union check before your car can be undercoated or otherwise made ready to drive away. No time lost and dollars saved.

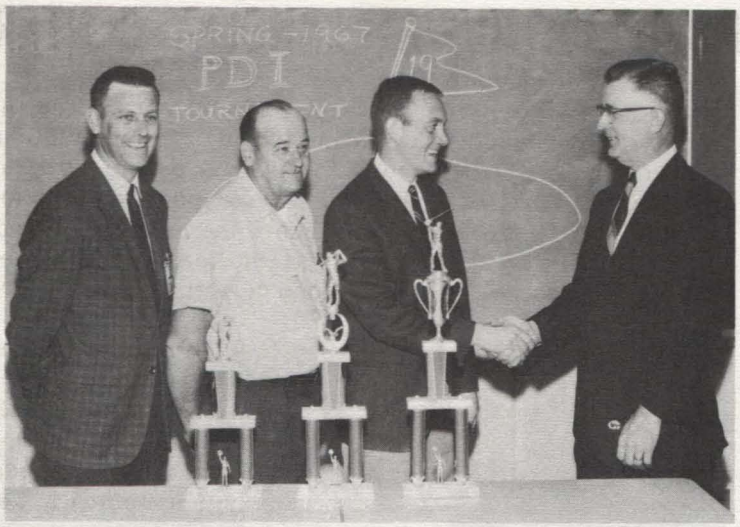
WANTED: Driving combination from Kecoughtan Rd. and LaSalle Ave. to W.A. on 8 shift. Watson, 3346, or Davenport, 3711.

FOR SALE: Singer featherweight portable sewing machine with carrying case - $65. Cubbage, 838-0993.

WANTED: Boy's 20 or 24-inch bicycle. Smith, 595-3562.

FOR SALE: 1963 Falcon club wagon equipped for camping. Schrader, 596-4963.

FOR RENT: 2-bedroom duplex at Virginia Beach, by week or month - air conditioned, completely furnished, 4 blocks from ocean. Freire, 937 Goodview Dr., Virginia Beach.



The Procurement Invitational Tournament was played at the Langley Golf Course on May 24, 25, and 26. The 19 participating golfers also included members from the Office of Chief Counsel. Trophies were presented to the winners by Sherwood L. Butler (right), Chief of Procurement Division. Low net winners were (from left): Greg Hill, third place with 78; Stan Gula, second place with 74, and Jim Taylor, first place with 72. Because of the enthisiasm generated by this tournament, efforts have commenced to conduct another PDI in the fall.

SUMMER CONCERT PROGRAM

The Hampton Recreation Department invites staff members to a summer of free entertainment in the air-conditioned Kecoughtan High School auditorium on Woodland Road.

The summer program is as follows:

June 21 - United States Continental Army Stage Band under the direction of Sergeant Robert Arledge. The 22-piece stage unit is an integral part of the 50th U.S. CONARC Band.

June 28 - Richmond Choral Society directed by Alton L. Howell. The group will present "An Evening with Lerner and Loewe" featuring popular selections from Gigi, Brigadoon, Paint Your Wagon, and My Fair Lady.

July 5 - S.P.E.B.S.Q.S.A., Inc. directed by Tom Jacquette. The local chapter of the nationally known Society for the Preservation and Encouragement of Barbershop Quartet Singing in America is non-profit and performs regularly for civic, church and charitable organizations.

July 12 - Organ concert directed by Charles Hulcher and featuring Bene Hammel and Kitty Rayle Hutchinson.

July 19 - Variety concert featuring Peninsula talent. Such a wide potpourri of entertainment if seldom offered during any Festival of Fun program.

July 26 - Hampton Lions Jug Band directed by James Bridgers. The Jug Band is fast becoming one of the most popular entertainment groups of its kind in America.

August 2 - Senior High School Talent Night sponsored by Rose Hill, Phenix; Ruth Hill, Kecoughtan, and Stanley Mitchem, Hampton. The program will feature the 12 best acts from Hampton's three senior high schools.

August 9 - The Crusaders directed by Charles Flax. For the fourth consecutive year the Hampton Crusaders will ring down the Festival of Fun curtain.

FOR SALE: Airline 21-inch TV - $50. Langford, 826-4249.

LOCKHEED SELECTED FOR RESEARCH ON HYPERSONIC CRUISE VEHICLE WING

NASA has selected the Lockheed California Company, a division of the Lockheed Aircraft Corporation, Burbank, California, to conduct a research and development program leading to the design of a hypersonic cruise vehicle wing structure.

Langley Research Center, which has been investigating the development of structural concepts for a hypersonic cruise aircraft for the past two years, will negotiate a contract with Lockheed for an estimated $750,000. The research and development program will require 19 months to complete.

Lockheed will assess the validity of several wing structural concepts for a hypersonic cruise vehicle and provide the technology required for NASA to determine which combination of concepts is best for the design and fabrication of future flight hardware.

Principal objective of the research and development program covered under the contract with Lockheed will be the selection and validation of an optimum combination of structural design concepts for a lightweight wing structure including the leading edges capable of sustained operation at Mach 8 - about 5,300 miles an hour at cruise altitude - and dynamic pressures up to 2,200 psf.

The Lockheed research and development effort will make use of the analytical and experimental investigations carried out at Langley. These studies have produced a number of new and promising concepts having good potential application for design of hypersonic airplane structures.

In a planned future NASA procurement, the concept selected as the result of the Lockheed research and development program will be incorporated into the design and fabrication of two identical wing sections. One wing section will undergo static load and heating tests and wind tunnel investigations in Langley's 8-Foot High Temperature Structures Tunnel. The other wing section will be proof-tested by Lockheed to establish the airworthiness for future flight testing by NASA on the right wing of the X-15-2 airplane.

APPRENTICE EXAM NOTICE

The Apprentice Examination for this year is now open on a continuous basis. The register was established by the Interagency Board of U.S. Civil Service Examiners for the purpose of recruiting eligibles to fill apprentice positions in various Federal agencies in the State of Virginia.

At the present time there is an insufficient number of qualified applicants to fill anticipated vacancies in the Langley Research Center Apprentice School. Interested applicants should contact the Employment Office, 2581, for copies of the examination announcement and additional information.

NOTICE: Anyone knowing of furnished or unfurnished apartments or houses which will be available for the summer months or for permanent occupancy are requested to list them with Linda Sutherland, 2581.

FOR SALE: 1955 Chevrolet engine, standard transmission, and impeller shaft. Lawson, 851-1500 after 5 p.m.

WANTED: Portable typewriter. Carmines, 826-2894.

WANTED: Driving combination from Beechwood to E.A. on 8 shift. Abel, 2661.

NEW FATIGUE LABORATORY PLACED IN OPERATION AT LANGLEY CENTER

(Continued from page 1)

ject during the past several years, will be utilized in a continuing full-scale attack to scientifically determine the when, where, and why of the phenomenon of structural fatigue.

The $1.3 million Fatigue Laboratory is a 30-foot high steel-framed building providing 100 by 200 feet of floor area. The laboratory section includes 5,000 square feet of heavy duty floor made of four-foot-thick reinforced concrete. There is a two-story brick office portion 98 by 40 feet.

The building was constructed by the Wise Contracting Company, Richmond, Virginia.

The laboratory, located in the heart of Langley's West Area, houses a large variety of research apparatus ranging from breadbox size plate-bending fatigue machines to 20-foot high, million-pound tensile machines. Fifty testing devices will be used in the laboratory to simulate loads, temperatures and other environmental conditions encountered by the materials in the structures of aircraft and space vehicles.

Some of the devices can apply a complex history of loading to a specimen at rates up to 400 cycles per second. Others are capable of loads up to 1,000,000 pounds at high speeds.

Temperatures up to 3,000 degrees F. are used to simulate conditions that will be encountered in future hypersonic aircraft - those capable of flight in excess of five times the speed of sound.

Space environment is simulated in the laboratory through the use of vacuum chambers.

An outdoor test device evaluates the effects of environment on fatigue behavior of representative materials. The deterioration in fatigue strength brought about by the natural elements is compared with artificially altered lives in the laboratory - thus forging a link between laboratory results and real life.

Since previous extensive research indicates that variations in atmospheric conditions in a laboratory can influence test results, most of the new facility is air conditioned to provide controlled temperature and humidity in areas where scientific investigations of specimens representing basic aerospace materials will be conducted.

Another portion of the building, not air conditioned, utilizes an existing 10,000,000-watt power supply for radiant heating equipment in tests of structural components at elevated temperatures.

Present design procedures force airplane and space vehicle designers to conduct many lengthy and costly fatigue tests of portions of a structure to discover potential fatigue problems. Even then, aircraft in service must be inspected regularly and thoroughly to insure the integrity of each unit. Such inspections usually avert disaster, but sometimes lead to costly modifications on entire fleets of aircraft.

The staff of the Fatigue Laboratory is called upon frequently to advise other NASA centers, the Federal Aviation Agency, the Department of Defense, and other organizations on the solution to such fatigue problems, including those critical to the success of major national programs.

Typical among these is the current national effort to develop a supersonic transport - a subject of basic research by Langley scientists and engineers for the past decade.

Langley researchers have conducted thousands of tests to help demonstrate the feasibility of building an SST and to discover some of the problems that must be solved to make the aircraft safe and successful.

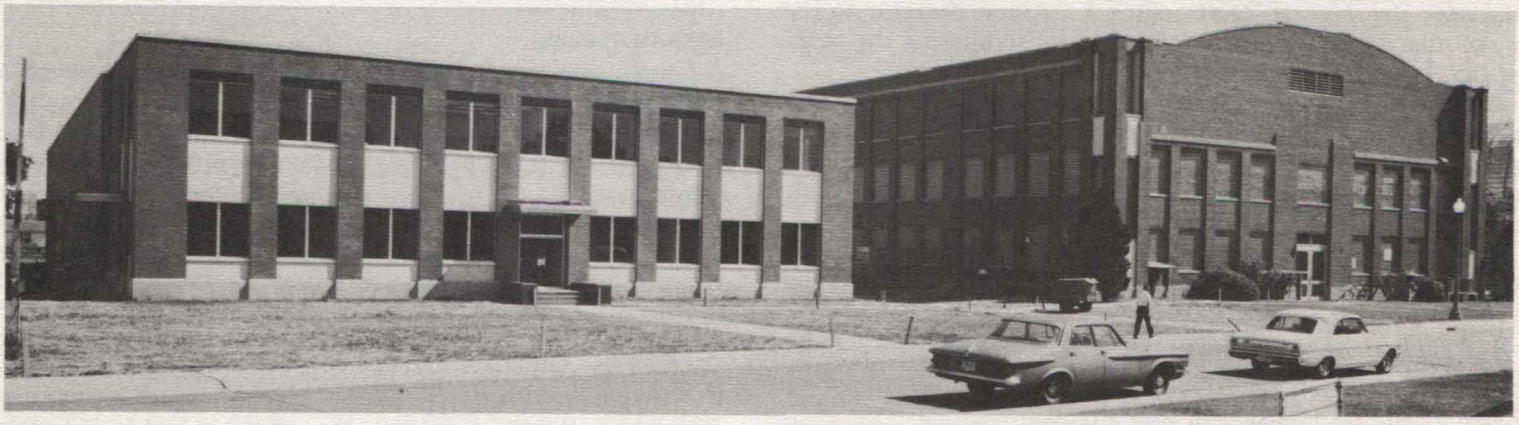
A current Langley project is devoted to the development of a method for reducing the time required to demonstrate the adequacy of the SST structure in fatigue.

Under present procedures, the aircraft should be tested on a schedule simulating loads and temperatures on a realistic time scale - taking into consideration such factors as 50,000 hours of flying time and allowing for variations in behavior and inevitable delays in test for breakdowns, inspections, and repairs.

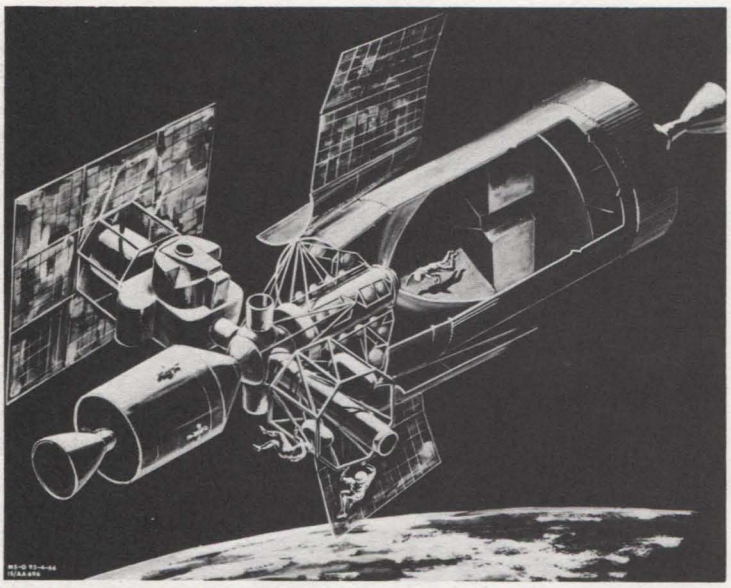
With all the structures and materials problems posed by the SST, a realistic ground test would consume an estimated six to ten years. The Fatigue Laboratory staff will develop methods for reducing fatigue testing time to within satisfactory limits. A variety of techniques are seen for accomplishing this goal:

1. Identification of those elements in the SST environment which will not influence fatigue life and can safely be eliminated from the test schedule.
2. Substitution of many cycles of one type of load by a few cycles of another.
3. Increase test temperature to speed up metallurgical changes in a controlled manner.

In other programs, efforts are under way at Langley to develop concepts which will help designers make structures that are tolerant to fatigue or accidental damage.



The new Fatigue Laboratory (left), located in the heart of West Area, is connected to the Structures Research Laboratory by a 10 megawatt power supply control room. The Structures Laboratory has been in operation since 1940.



SPACECRAFT TERMINAL. As many as five spacecraft can dock at one time into the Multiple Docking Adapter which Marshall Space Flight Center will design and build. In this concept the MDA is attached to the S-IVB spent-stage orbital workshop, and docked to MDA docking tunnels are Apollo Command and Service Modules (left), and the Apollo Telescope Mount (upper left) and the mapping and survey system module. Between the MDA and the orbital workshop is an airlock, now under development.

NINE RECEIVE HONORARY AWARDS

Nine staff members recently received Honorary Suggestion Awards from the Incentive Awards Committee. Receiving certificates were the following:

Chisman Booker, Procurement, "For devising a floor plan which would result in a better storage handling system and provide more useable storage space without any increase in facilities."

Kenneth W. Brown, Procurement, "For improving organizational objectives in the Construction Contracts Section of the Procurement Division by reducing various administrative convenience records."

Francis W. Charles, Mechanical Services, "For the development of a universal fixture which will accurately machine straight and bent stings, reduce previous machine time by approximately 50 percent and result in an increased savings in material."

Wilfred D. Hesketh, Flight Instrumentation, "For the development of a technique for monitoring liquid helium transfer by means of attaching a 1 Kohm resistor to the inner tube of the gas transfer line thus indicating the level of the liquid helium in a dewar."

Charles E. Johnson, Mechanical Services, "For the improvement of janitorial service in Building 1267-A in which a plan was implemented to coordinate the janitorial instructions between the contractor, the janitorial personnel, and the facility coordinator."

Edgar B. Kastelberg, Mechanical Services, "For formulation and application of a new method for controlling the density and erosion for carbon dioxide molding sand."

A. Wayne Richardson, Security, "For establishing a means of easily lubricating locks by using Florocarbon Dry Release Lubricant Agent which is quicker, more convenient and more effective than older methods of freeing the lock cylinders and inner components which become sticky and hard to operate.

John Samos, Research Staff Office, "For the placement of telephone extensions and mail stop numbers on memorandums and internal correspondence which will result in time savings, unnecessary telephone use, and better communications."

Joseph R. Struhar, Fiscal, "For implementing a system within the Fiscal Division which obligates orders whose monthly estimate is less than $1000 for the full amount of the order thus resulting in a substantial man-hour savings."

MULTIPLE DOCKING ADAPTER ADDED TO APOLLO APPLICATIONS HARDWARE

Marshall Space Flight Center will design and build a Multiple Docking Adapter (MDA), a new piece of space hardware which will allow five payloads to be joined together in orbit.

NASA plans to launch four Uprated Saturn I payloads - a mapping and survey system, the orbital workshop, a resupply mission and the Apollo telescope mount - in the initial Apollo Applications missions.

These payloads will be locked on the MDA's docking ports to form a "clustered" embryonic space station. In addition to performing several scientific experiments, NASA will study man's reactions to long term weightless space flight in this "cluster."

The MDA, now in the preliminary design stage, will be a cylindrical tube approximately 10 feet in diameter and 11 feet long with a conical section on the forward end, bringing the total length to approximately 15 feet.

Located around the cylindrical section, near the conical front end will be four 36-inch diameter tunnels.

A fifth tunnel is located at the apex of the conical forward end. Each tunnel is about one-foot long and contains a docking collar and a sealing hatch to permit orbital docking of the various vehicles and experiment carriers.

The lower end of the MDA's main section will be rigidly attached to the forward end of the Orbital Workshop's airlock module. The MDA will be carried aloft in the S-IVB spent stage and airlock combination.

The objective of the Apollo/Uprated Saturn I "workshop" flights is to gather information and experience in orbital docking and working in space. Another objective is to confirm that man can function in this type of space environment for longer than two weeks. This information is needed for planning lunar and planetary space flights.

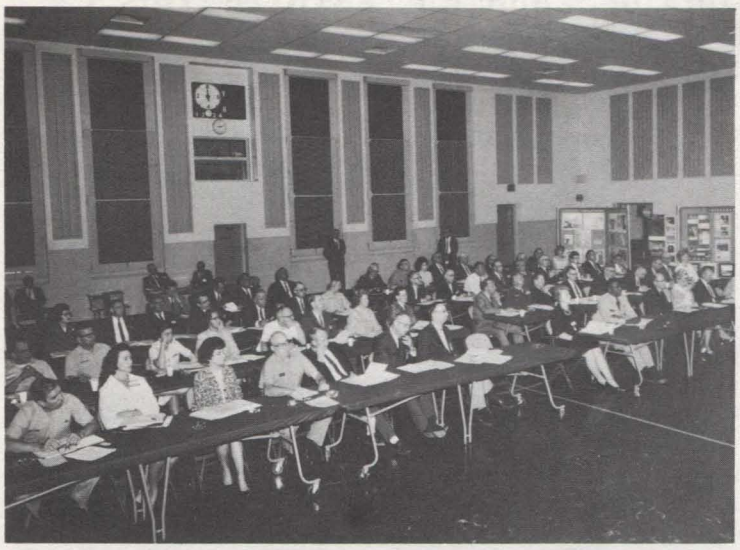
Another major new piece of equipment that is needed for the missions is a large airlock which can allow the space travelers to go in and out of the stage's pressurized hydrogen tank, which is 21.7 feet in diameter and 29 feet in length.

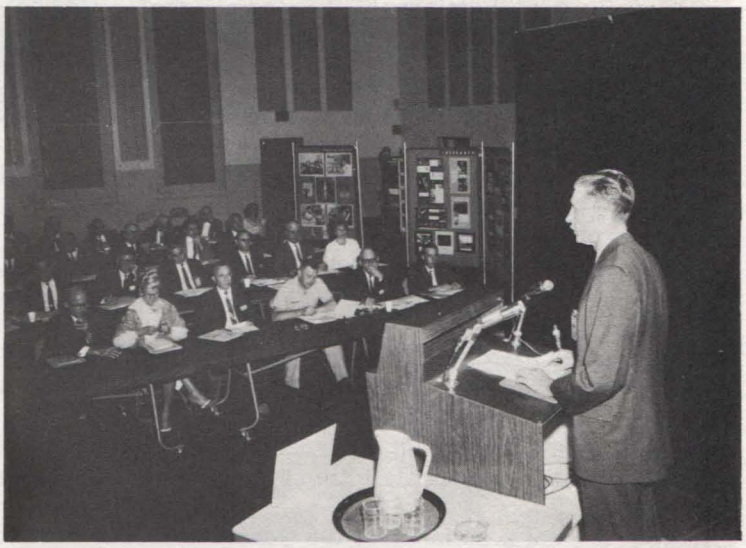
The airlock unit will also contain all the additional equipment - life support devices and experiments - needed for the mission.

The airlock, which is to be about 15-1/2 feet long and 65 inches in diameter, will lock onto the top of the upper rocket stage where the lunar module is located on Apollo missions.

WANTED: Alternate drivers from Shore Pk. or Nicewood to E.A. on 8 shift. Klich, 2635.

FOR SALE: Heath DX-20 and DX-100 - $25 and $60. Evans, 898-5004.





A three-day conference on The Federal Manager's Role in Equal Employment Opportunity was held at the Center last month. Upper left photo - The conference was attended by 65 representatives of the Federal agencies in the Tidewater area including 15 from NASA. Upper right photo- Dr. Floyd L. Thompson, Director, welcomed the group and delivered the keynote address on "What Top Management Expects of the Federal Manager." Lower left photo - Dr. Thompson and T. Melvin Butler (right), Assistant Director for Administration, talk with James O. Gibson, Staff Associate, The Potomac Institute. Lower right photo - Shown here is one of the four discussion groups which were conducted during the meeting. The four groups were headed by Donald J. McMullen, Paul I. Miller, and Dean A. Roper, U.S. Civil Service Commission, Norfolk, and Jimie G. Ramirez, U.S. Civil Service Commission, Philadelphia.

LANGLEY CAMERA CLUB

At the June meeting of the Langley Camera Club new officers for the coming season were elected. Russell Parr, Fabrication Shop, was elected president of the group. Other officers are Captain Norma Black, USAF, vice-president; Abraham Leiss, Scout Project Office, secretary, and Sidney Hall, Research Facilities Service Section, treasurer.

William Conkling, Model and Pliant Structures Shop, was named to head the civilian membership drive. The military membership drive will be organized by A/3C Bob Faix, who will also handle publicity.

The color slide contest was dominated by Parr and Conkling. Parr took both first and third place while Conkling won second place.

WANTED: Home for kitttens. Crawford. 838-1746.
WANTED: Ride from corner of Kecoughtan Rd. and Alleghany Rd. to W.A. on 8 shift. Cronin, 4788.

ALLNUTT NAMED TO NEW JOB

Robert F. Allnutt, Assistant General Counsel of NASA and former Langley staff member, has been named NASA's Assistant Administrator for Legislative Affairs.

He succeeds Richard L. Callaghan, who is joining the Western Union Telegraph Company as Vice-President for Government Affairs.

Allnutt, 32, first joined NASA in 1960 as patent attorney at Langley but was transferred to NASA Headquarters in 1961. He served as Patent Counsel for Communications Satellite Corporation from January to September 1965 when he returned to NASA.

A native of Richmond, Allnutt graduated from Virginia Polytechnic Institute with a degree in engineering and received his Juris Doctor and Master of Laws degrees from George Washington University Law School.

--Buy U.S. Savings Bonds and Freedom Shares--

COUNTDOWN

TENNIS TOURNAMENT. . .A summer Tennis Tournament has been scheduled by members of the Tennis Club for July 14, 15, and 16. In order to win the match a pro set will be played with the first to win 10 games the victor. The tournament will be used to provide a basis for setting up ladder competition and at the end of the tennis season a tournament will be held and a trophy given to the winner.

The winner of the season's end tournament will also receive recognition at a Trophies Night to be held in honor of all the clubs in the Activities Association.

Bob Bolton is tournament chairman and entrance notices should be sent to him at Mail Stop 234. Notices must be in by July 7.

If you are not a member of the Tennis Club and wish to join contact Bryce Kepley, 3461, or Arnold Mueller, 3691.

NASA NIGHT. . .Personnel who came early to the Peninsula Grays Game on NASA Recognition Night on Memorial Day received an extra treat. The business manager of the Grays presented two excellent trampoline acts. The name of the act was the Game of Space Ball.

Although there were 1422 persons at the game the sale of tickets by the Activities Association indicated only 384 NASA staff members attended. Another game date, August 10, was decided on for later in the season. This will again be NASA Night and the Gray's meet Burlington. Tickets will be made available well in advance and they may be purchased from District Representatives. Rain date for that event will be August 11.

SKEET LEAGUE. . .The newly formed Skeet League, with Warren Kelliher at the helm, is again offering an opportunity for interested persons to shoot in competition once a month. The shooting center at Williamsburg will make available the trap or sheet ranges to the NASA League on any night that will be convenient to the league.

ROD AND GUN CLUB. . .A number of employees have already expressed an interest in joing the group. Most are interested in small arms. The group is seeking enough members to make a listing for recognition of this group as an official NASA club. For additional information contact Joe Siefring, 3483.

LANGLEY SPEEDWAY. . .Tickets for NASA Recognition Night at the Langley Speedway on June 24 have been distributed to District Representatives and from glance at the response, it appears there will be many NASA employees at the races so get your tickets early. Races will start at 8 p.m. with time trials at 7:30 p.m. Admission is half price if the ticket is purchased from your representative. Tickets purchased at the gate will be full price. Children under 12 will be admitted free. The program will consist of hobby, cadet class, and NASCAR modified sportsman class.

CHORAL GROUP. . .Staff members interested in joining a Choral Group which will be organized in the near future are requested to contact Marvin Leffel, 4766, Building 1230, Mail Stop 234.

CARNIVAL. . .One of the main topics to be covered at the first meeting of the newly elected Executive Board will be plans for a summer carnival. The dates of August 25 and 26 have already been set for the big event. Committees are being organized and volunteers are needed to make the carnival a success. If you are willing to work please contract your representative. The carnival will feature games, food, and prizes galore. A grand prize will be drawn on the last day of the event and the carnival will close on August 26 with a Grand Ball.

SLOWPITCH LEAGUE. . .KNADS lead the league with a perfect record of 2 wins. Ballbusters are second with 4 wins and 1 loss and ACD and Structures are tied for third with 3 wins and 1 loss each. Other standings are as follows: Sluggers 2-2, Al's Owls 1-3, Marauders 0 3, Swingers 0-4.

The Center's U.S. Savings Bond campaign ends Monday, June 19. As of press time on Wednesday, the percentage of participation had reached the 80.5 mark. The goal is 90 percent participation which will entitle the Center to receive the coveted Minute Man Flag. Kitty Joyner, Chairman of the Bond Drive, requested division chairman to make one last canvass of their staff in an effort to bring the standings up to the 90 percent goal.

WANTED: Ride from Randolph Apts. to W.A. on 8 shift. Cheryl Nuttall, 3221.

FOR SALE: Remington Model 11 12-gauge skeet gun with Cutts compensator and all tubes. Buckley, 877-3619.

FOR SALE: Boat trailer for 14-foot boat - $25. Hagood, 596-2672 after 5 p.m.

FOR SALE: One acre wooded lakefront lot in Kingspoint, Williamsburg, Hatfield, 723-2184.

FOR SALE: 9 x 12 braided rug, 12 x 15 rug and pad, fire screen, 20 x 20-inch mirror. Harris, 898-7086.

FOUND: Prescription sunglasses with black plastic frame, spatula temples. Langley Researcher, 2575.

Langley Researcher

VOLUME 6, NUMBER 13 LANGLEY RESEARCH CENTER JUNE 30, 1967

SUCCESS RECORDED IN PARACHUTE TEST FOR USE ON MARS MISSION

NASA successfully passed the halfway mark on June 20 in its program of rocket-launched flight experiments to test parachute designs and techniques in support of future attempts to soft-land unmanned instrumented capsules on Mars.

The launch of a two-stage Honest John-Nike rocket from the White Sands Missle Range, New Mexico, was the sixth of ten planned rocket-propelled research flights to study under simulated conditions the problems of decelerating a spacecraft to assure a soft landing on Mars.

A 40-foot cross type parachute, one of three designs being studied in the NASA Planetary Entry Parachute Program, was deployed at an altitude of 130,000 feet - where the Earth atmosphere compares with that of Mars - to investigate its flight characteristics in that environment.

At the time of deployment, the parachute was traveling at a speed of about 1,100 miles an hour. It descended with a 200-pound payload, simulating an unmanned instrumented Mars lander, suspended from it.

Cameras and instruments, installed in the payload to record the deployment and descent of the parachute, were recovered from the range. They will be used by NASA scientists in analyzing test results. The information will supplement data collected in other flights in evaluating

(Continued on page 5)

BOND DRIVE FALLS SHORT OF GOAL

Kitty O'B. Joyner, Chairman of the Center's U.S. Savings Bond Campaign, announced that staff members are participating in payroll bond deductions at the rate of 85.6 percent. This is an increase of 14 percent since the start of the drive.

Mrs. Joyner expressed her regret that the Center did not reach the 90 percent participation mark but she stated her appreciation for the general spirit of cooperation and the effort expended by the advisory committee, the division chairmen and solicitors.

She pointed out that we can fly the U.S. Treasury Department's Minute Man Flag anytime we reach the 90 percent mark. Since the Center is only 4.4 percent from the 90 percent goal, she urged reconsideration on the part of non-subscribers to help Langley once again take the lead in NASA for bond participation.

During the drive Dynamic Loads had the greatest percentage of increase with 36 percent and Mechanical Services had the most new subscribers with 119.

Statistics show that there were 395 new bond buyers and 157 new bond and freedom share buyers for a total of 552 new subscribers. Of the 593 bond/share buyers 436 were old participants who took the freedom shares. A total of 125 bond buyers increased their allotments.

A final standing by divisions is shown on Page 2.

LANGLEY BUDGET ANALYST SELECTED TO RECEIVE CAREER EDUCATION AWARD

Arthur R. Friend

Arthur R. Friend, Budget Analyst at the Langley Research Center, has been selected for a year's graduate study at Indiana 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.

Friend, a member of the staff of the Program Control Analysis and Budget Office, has been at Langley since his graduation from the College of William and Mary in 1958 with a B.A. degree in Business Administration. He has taken graduate courses in business administration at William and Mary under Langley's training program. He will report to Indiana in September for the full academic year and has been assigned to study under Professor Lynton K. Caldwell.

The 35-year-old award recipient is active in civic affairs in Williamsburg, where he makes his home at 101 Richards Road with Mrs. Friend and their four-year-old daughter. He is vice-president of the Colonial Toastmasters Club and has served as a member of the Williamsburg Jaycees which selected him to receive the 1957 Key Man Award; he managed the Jaycees entry in the Williamsburg Midget Baseball League for seven years. He has served as an assistant Scoutmaster; is on the membership and evangelism committee of the Williamsburg Methodist Church, and is the Williamsburg area chairmen for the William and Mary Educational Foundation.

Carl F. Stover, president of the non-profit NIPA, describes the awards as "an investment in the Nation's future and democracy's success. We ask our government to do many things in this complex and rapidly changing world. If they are to be done well, its leaders must be exceptional men, qualified for their weighty duties by high orders of intelligence, knowledge, skill, character, and dedication to public good. These are the qualities the awards recognize and the year of study will cultivate."

The awards permit the recipient to study at one of eight universities. In addition to Indiana, these include Virginia, Cornell, Harvard, Princeton, Stanford, Southern California, and Washington.

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 302, telephone 2575.

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. . .James Richardson, Structures Research Division, was married to Carol White, Newport News, on May 26 in Elizabeth City, N.C.

NEW HEIR. . .Celebrating the birth of an eight-pound, one-ounce son, Jeffrey Clark, on June 19 is G. Clark Collie Jr., Electrical Systems Division.

IAM MEETING. . .THE NASA Lodge No. 892, International Association of Machinists, will hold its monthly meeting on Wednesday, July 12 at 7 p.m. at the Central Labor Union Hall, Newport News.

ENGAGEMENT. . .Making plans for a September wedding are Kathleen Oakes, Instrument Research Division, and Irby W. Jones, Dynamic Vehicle Section.

LANGLEY INFLUENCE IN FLORIDA. . .George H. Smith, head of Langley's Mission Support Office at Kennedy Space Center, has been elected president of the Parkchester Civic Association. The association represents a new subdivision north of the City of Cocoa and has as its primary purpose the initiation, planning, and follow-through of civic improvements such as road modifications and repairs, area beautification projects, street lighting, school bussing facilities, etc. Smith will work with the Brevard County Board of Commissioners, the State Highway Department, commercial agencies such as Florida Power and Light Co. as well as coordinate the efforts of the Parkchester Association with those of other incorporated and unincorporated civic groups for their mutual benefit. Smith had this typical comment concerning his election, "It just proves Langley hires the eager beavers who wear only white hats!"

PURCHASE REQUEST FORMS. . .The regular purchase request form (7530-F19-1073) and the C of F purchase request form (7530-F19-1074) have been revised and supplies are available from stock. Since the fiscal copy of these forms has been changed to provide for a new accounting procedure, the old forms should no longer be used and existing supplies should be destroyed. The new forms can be identified by the date 4/14/67 which is printed after the stock number. A continuation sheet (7530-F19-1230) is also available from stock.

FOR SALE: Deluxe Norge air conditioner, 1110 btu, 115-volt. Caldwell, 826-6484.

DIVISION BOND STANDINGS

ORGANIZATIONAL TITLE	% PARTICIPATION
Dynamic Loads	100
MORL	100
Personnel	100
Fiscal	98
Electrical Systems	97
Photographic	95
Office of Director	94
Office, Engineering and Technical Services	93
Research Models and Facilities	92
Procurement	91
Structures Research	91
Flight Mechanics and Technology	90
Office, Asst. Director for Administration	90
Mechanical Services	86
Research Reports	86
Administrative Services	84
Office, Asst. Director for Flight Projects	84
Flight Vehicles and Systems	83
Plant Maintenance	83
Full-Scale Research	80
Instrument Research	78
Aero-Physics	76
Flight Instrumentation	76
Space Mechanics	76
Scout Project Office	74
Analysis and Computation	72
Flight Reentry	71
Lunar Orbiter	69
Applied Materials and Physics	68

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 3:

Monday - Consomme julienne, fried clams, breaded veal chop, meat loaf, beef ravioli.

Tuesday - H O L I D A Y

Wednesday - Cream of celery soup, pepper steak, baked ham, spaghetti with meat sauce, cheese omelette.

Thursday - Chicken-noodle soup, chicken and dumplings, grilled pork steak, fried fish, baked hash.

Friday - Clam chowder, Spanish pot roast, fried scallops, broiled fish, hot dog.

The menu for the week of July 10 is as follows:

Monday - Puree of bean soup, broiled Canadian bacon, salmon loaf, chicken fried beef steakette, Austrian ravioli.

Tuesday - Cream of mushroom soup, roast beef, breaded veal cutlet, beef stew, Spanish omelette.

Wednesday - Vegetable-beef soup, grilled steak, fried fantail shrimp, stuffed pepper, tamale pie.

Thursday - Chicken-rice soup, barbecued pork chunks, liver and onions, fried chicken, wieners and sauerkraut.

Friday - Clam chowder, hot roast beef sandwich, fried fish, broiled fish, western omelette.

FOR SALE: Heavy duty trailer hitch for mobile home, camper or boat trailer - rear axle loading type - $35. Jordan, 826-6821.

FOR SALE: 1959 Opel station wagon - $150. Harris, 826-2081.

WANTED: Ride from North End, Newport News, to E.A. on 8 shift. Pat Edmondson, 2605.

PROFESSORS ASSIGNED TO LANGLEY UNDER ASEE-NASA PROGRAM

Thirty-one outstanding engineering and science educators from 21 colleges and universities have been assigned to Langley Research Center for a 10-week summer faculty fellowship program of cooperative research and study.

Dr. Floyd L. Thompson, Langley Director, welcomed the group at an orientation program in the auditorium of the 7 by 10-foot wind tunnel building.

Dr. John E. Duberg, Langley Assistant Director, is co-director of research for the fellowship program - sponsored by NASA and the American Society of Engineering Education. Dr. Edward C. Stevenson, University of Virginia, serves in the program as co-director of education.

The educators, who are the faculty fellows of the Virginia Associated Research Center during their service at Langley, were selected from a large group of applicants and awarded fellowships for the period June 12 through August 18.

The program's objective is to further the professional knowledge of the teachers and to stimulate an exchange of ideas between the participants and NASA.

About 80 percent of the participants' time will be devoted to research in wind tunnels and specialized laboratories and the remainder to seminar sessions and tours. Twenty speakers from outside NASA have been scheduled for seminars.

Eleven of the professors represent state schools, including Virginia Polytechnic Institute, Old Dominion College, University of Virginia, and the College of William and Mary.

Similar programs are being conducted by the University of Houston and Manned Spacecraft Center; University of Maryland and Catholic University of America and Goddard Space Flight Center; Stanford University and Ames Research Center; the University of Alabama and Marshall Space Flight Center, and Case Institute of Technology and Lewis Research Center.

Thirty-one engineering and science educators have been assigned to Langley Research Center for a 10-week summer faculty fellowship program. Dr. Floyd L. Thompson, Director, welcomed the group at an orientation program.
--Photo by Richard P. Kennedy

EARTH PHOTOS PUBLISHED

An atlas containing reproductions of 244 high-quality color photographs of the Earth taken by astronauts during early flights of the two-man Gemini spacecraft has been published by NASA to make the pictures available to scientists for study.

The book is entitled "Earth Photographs from Gemini III, IV, and V" and is on sale for $7 as NASA SP-129 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The photos were taken with hand-held cameras from heights of 100 to 215 miles as scientific weather and terrain experiments. They show major natural features, and some man-made ones, in 50 countries around the world.

Clearly visible details include shorelines, river courses, valleys, geologic fault zones, glaciers, sand dunes, storm cloud formations, highways, canals, areas of recent rainfall, and smoke from forest fires and industrial plants.

The pictures were selected for their interest to geologists, geographers, meteorologists, oceanographers, hydrographers, hydrologists, and mapmakers; and for their potential importance to agriculture, forestry, water and marine resources, mining, petroleum prospecting, and the study of air pollution.

FOR SALE: Bunk bed. Goodman, 838-1342.

FORMER CENTER TEST PILOT DIES

Word has been received at the Center that William E. Gray, former Langley Center Test Pilot, died unexpectedly last Saturday at his home in California.

Gray was born May 24, 1920 in Sweickley, Pennsylvania. He received his B.S. degree in Mechanical Engineering from the University of Pittsburgh and joined the Center staff on May 4, 1942 as a junior aeronautical engineer in the Flight Research Division. He became an engineering test pilot in 1943 and transferred to the Civil Aeronautics Administration in 1947.

In lieu of flowers the family has requested that contributions be sent to The Society for Experimental Test Pilots Scholarship Fund, P.O. Box 986, Lancaster, California 93534.

The family is at home at 44551 North Third St., East, Lancaster, Calif.

COURSES OFFERED STAFF

A graduate credit course in Mathematics 613 - Principles and Techniques of Applied Mathematics - is being offered at the Center under the Virginia Polytechnic Institute Extension. William R. Wells will be the instructor. If there is sufficient interest the course will start July 10 and end August 31.

If a sufficient number of staff members are interested, Dr. Hans J. C. Blume will teach a course in Scientific German.

Persons interested in the above courses are requested to call Training Branch, 2611.

FOR SALE: 20-inch upright fan with wheels, variable speed and reversible motor with switches - $30, hassock type fan with 3 speeds - $18. Yamaki, 595-1688.

WANTED: Ride from Presidential Apts. or Ivy Farms to W.A. on 8 shift. Stevie Gordon, 3675.

WANTED: Driving combination from Denbigh area to E.A. on 8 shift. Abel, 2661.

WANTED: Ride from Virginia Beach or Ocean View to E.A. mornings only. Will pay tunnel fare. Eanes, 4416.

PROJECT VOYAGER: FUTURE SPACE EXPLORATION CHALLENGE

Space explorers are not likely ever to echo Alexander the Great's classic complaint about no more world to conquer. In the boundless oceans of space, the supply of worlds is inexhaustible.

With a flight to the moon by U.S. astronauts still at least two years off, NASA is setting its sights on Mars and Venus. Plans for exploring the surface of the two terrestrial planets call for several unmanned probes in Project Voyager, which will be dispatched in the early mid-1970's.

The Langley Research Center, with a tradition of half a century of leadership in advancing the science of aeronautics and space, has been given a key role in the Voyager Planetary Flight Program established within the NASA.

Langley, which has been conducting capsule feasibility studies since 1965 and is engaged in extensive Voyager technology support in atmospheric entry and descent and in spacecraft sterilization, has been assigned to manage the Voyager Landing Capsule Bus System.

Other NASA center assignments under the Office of Space Science and Applications include the Jet Propulsion Laboratory, Pasadena, California - surface laboratory, tracking, and mission operations system; and the Marshall Space Flight Center, Huntsville, Alabama - orbiting spacecraft system and Saturn V launch vehicle system.

What is Project Voyager and what are its goals? How does this mission for an automated interplanetary spacecraft stack up in importance alongside the more dramatic Project Apollo, in which man himself plays the central role of intrepid Moon explorer?

"Voyager could well be the means by which man first learns of extraterrestrial life," says Dr. Homer E. Newell, NASA Associate Administrator. He refers to the fact that Voyager's prime target - Mars - is considered the most likely abode of life in our solar system.

The Space Science Board of the National Academy of Sciences recommends planetary exploration as "the most rewarding scientific objective for the 1970-1985 period."

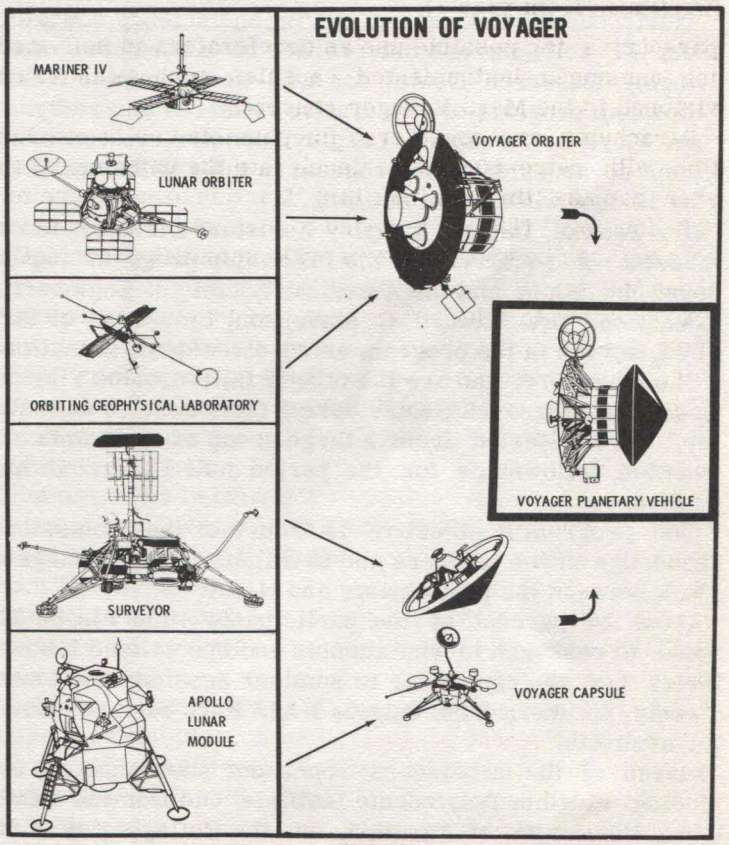
Edgar M. Cortright, another NASA official, puts it like this: "Voyager represents both the challenge and promise of the future in space exploration."

Voyager will take off on its months-long, multi-million-mile interplanetary cruise to Mars in 1973 - 15 years after NASA's founding and 55 years after Langley first began its pioneering research into the problems of flight-with a view to their practical solution. All of the scientific and technological expertise gained during those historic years will be sharpened to a focus in the Voyager mission.

The Mars-bound spacecraft will inherit the technical know-how gained from previous flight systems, including the successful Langley-managed Lunar Orbiter - which pioneered in orbiting a distant celestial body.

Other ancestors contributing to the heritage of Voyager are Mariner, history's first successful planetary spaceship; and Surveyor, which pioneered the technique for soft-landing on the moon through automatic, closed-loop guidance.

In addition, Project Apollo will contribute the launch vehicle - the mammoth Saturn V booster specially designed to take three U.S. astronauts to the moon and back. Blast-off will be from "Moonport, USA," Launch Complex 39 at Cape Kennedy.



VOYAGER's FAMILY TREE: Even a spacecraft has ancestors. The Voyager unmanned planetary program planned for the mid-1970's is soundly based on technical knowledge gained from previous flight systems. Technological features of Mariner IV, Lunar Orbiter, Orbiting Geophysical Laboratory, Surveyor and Apollo all have contributed to the Voyager Spacecraft.

Not one, but two of the planetary vehicles will ride into space atop the Saturn V on that day in 1973 when the countdown reaches zero. Mounted in tandem, each 12-ton vehicle will have two basic units - an orbiter and a lander.

Although the vehicles will break free from the Saturn third stage in close sequence, their expected times of arrival at Mars may be as much as 10 days apart, due to midcourse maneuvers designed to keep them on target as well as space their times of arrival.

When the first vehicle nears Mars after a trip of about nine months, earth-based scientists will command its large rocket motor to fire so the craft can be inserted into a highly elliptical Martian orbit. The spacecraft may orbit several weeks before the landing capsule is given the order to detach itself. In this period it will survey possible landing sites.

On separation from the orbiter, the capsule will enter the Martian atmosphere, first discarding its sterilization canister and other preentry equipment. During entry, the lander will transmit observations on the atmosphere and television pictures of the Martian surface. After landing, the surface laboratory - the bulk of the lander's payload - will be switched on to take pictures and perform scientific experiments.

(Continued on page 5)

PARACHUTE TEST SUCCESSFUL

(Continued from page 1)

parachutes for possible use as decelerators in soft-landing unmanned instrumented capsules such as those envisioned in the Mars Voyager concept.

Parachutes are considered for possible use in conjunction with retro-rockets to decelerate the unmanned Voyager capsule through the thin Martian atmosphere to a soft landing. This is intended to protect the instruments so they can be operated to provide scientific information about Mars.

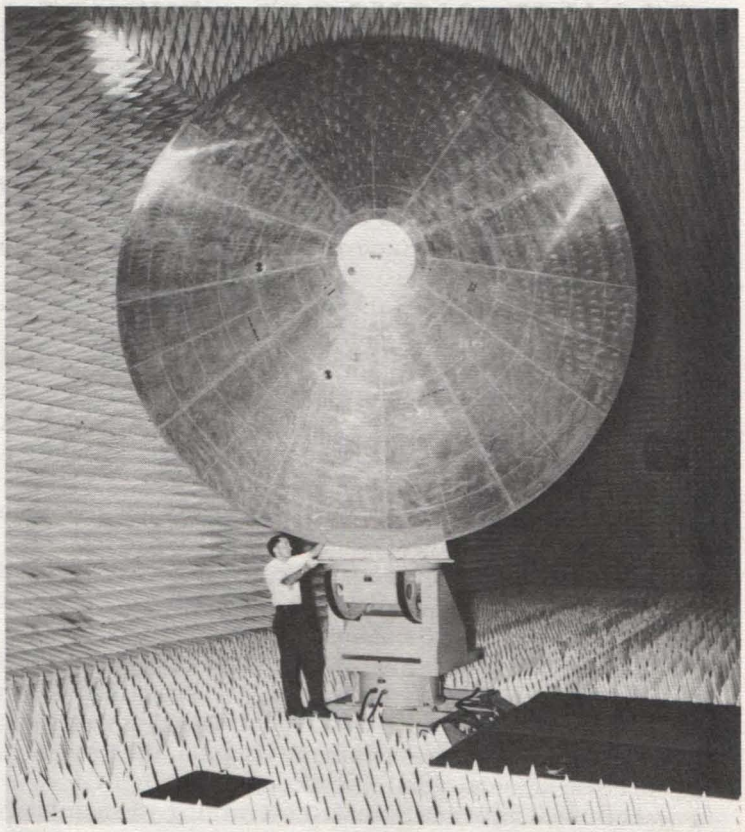
In addition to the cross type, the two other parachute designs - the disc-gap-band and the ringsail - are being scientifically investigated in the Planetary Entry Parachute Program managed by Langley Research Center. The program includes ten rocket launches and five balloon-launched flights.

Clarence L. Gillis, Applied Materials and Physics Division, is Program Manager; Harold N. Murrow, Dynamic Loads Division, was Project Engineer for the rocket flight.

The parachute used in the test included a reinforced Dacron canopy which consisted of two rectangular panels-each with a length-to-width ratio of nearly four to one and joined at the center to form a cross. Suspension lines were attached to the four outer ends of the panels.

This was the second cross-type design studied in the flight program and incorporated structural and dimensional changes based on information obtained in earlier tests.

Since all components used on any Mars lander of the future will be sterilized to prevent Earth organisms from contaminating the planet, parachutes used as decelerators must be able to survive the heat treatment in good working order. The cross-type parachute, packed in launch condition in a spacecraft five feet long and 13-1/2 inches in diameter, was subjected to a sterilization heat cycle of 248 degrees F. for 90 hours. The recovered parachute will be studied to determine the effects of the heat treatment on the fabrication materials and flight characteristics.



The second in a series of five balloon-launched flights of parachutes which may be useful as decelerators in soft-landing unmanned instrumented capsules on Mars will be conducted over the White Sands Missile Range, New Mexico, in the next quarter. As part of the Planetary Entry Parachute Program, a disc-shaped space capsule similar to one installed in the Anechoic Chamber of the Flight Instrumentation Division will be carried to high altitude by a huge helium-filled balloon. It will contain a packaged test parachute and instrumented payload, which will be deployed under conditions which simulate the terminal descent of a spacecraft in a Martian atmosphere.

NASA'S PROJECT VOYAGER

(Continued from page 4)

The orbiter is designed to transmit observations for as long as two years, making possible a study of seasonal effects and a large-scale survey of the planet's physical characteristics.

Heart of the Voyager mission lies in the rich trove of scientific lore which the Mars surface laboratory is expected to turn up. Intricate and elaborate instrumentation will:

1. Explore the biological environment of Mars, searching for metabolic or chemical processes which may testify to past or present life.

2. Search for water or evidence of its past existence and analyze the chemical composition and structure of the Martian surface.

3. Examine the chemical composition of the atmosphere, temperature, wind velocity and direction, dust flux and surface pressure.

It seems certain that Project Voyager will impart an impetus of unprecedented proportions to the still nascent discipline of exobiology - the study of living organisms existing on celestial bodies other than Earth.

WHY MARS GOT MISSION PRIORITY

Why was Mars picked first in the schedule of NASA's Voyager missions? After all, Venus - the Morning Star - Earth's "sister planet," is approximately as accessible as Mars and has its partisans in the ranks of scientists and spacemen.

One reason of assigning the priority to Mars is that the prospects of life on Venus seem dim. This is because of the very high surface temperatures reported by Mariner II in 1962 - ranging up to 800 degrees, far too high to support life forms as known to us. However, some scientists point out that Mariner II's temperature readings were taken from a distance of 20,000 miles and that they probably refer to the tops of clouds rather than the planet's surface.

Other reasons are that the normally transparent Martian atmosphere permits detailed scanning of surface features from orbit. Experience gained in the Mars mission will be helpful in subsequent exploration of Venus and more remote planets, like Jupiter.

But the overriding reason seems to be the nagging conviction among spacemen that if extraterrestrial life exists it will be found on Mars.

UNIVERSITY APPROVES NEW OPTION

Robert C. Sedwick, Director of the Tidewater Center, George Washington University, has informed Center officials that the university has approved the Management Engineering option for the Master of Science in Administration. Sedwick will visit the Center on July 13 to discuss plans for the 1967 fall term with interested persons. Staff members are invited to meet with Sedwick at 10 a.m. in the East Projection Room, Building 587.

The Master of Science in Administration will now consist of the following curriculum:

Core Courses: BPA 201 - Advanced Administrative Management; BPA 204 - Quantitative Factors in Administration; BPA 207 - Human Behaviors in Organizations; BPA-263 - Organization and Management; BPA 287 - Relations of Government to Business.

Management Engineering option courses consist of the following: BA 250 - Procurement in Contracting; BA 261 - Business Economics; BA 291 - Seminar: Business Management; BPA 228 - Applications of Operations Research; BPA 268 - Management Engineering.

Six additional hours are required to complete the 36-hour program. These hours may be earned by completing a master thesis or taking 2 three-hour elective courses in some other area of business administration, data processing, or governmental administration.

For additional information call the Training Branch, 2611.

RETURN RETURNABLE CONTAINERS

As a part of the Center's cost reduction program, the Stores Branch on June 1 started tagging all returnable containers such as gas cylinders.

On all returnable containers the Center pays a deposit plus a demurrage of a certain rate per day. In many cases the containers have been needlessly retained in the sections until the demurrage was higher than the actual cost of the gas.

The tags are brilliantly colored and state that the container is returnable. The card lists the order number, deposit, expiration date, demurrage rate, and date demurrage begins. The tag also requests that the container be returned when empty or when no longer in use to Building 1206 via Center transportation. For further information call Stores Branch, telephone 4580.

CHAFFIN DIES AT AGE 59

Howard L. Chaffin, Head of Research Facilities Service Section C, Mechanical Services Division, died June 18 in Dixie Hospital after a short illness.

Chaffin was born January 9, 1908 in Wise County. He served in the U.S. Army from July 6, 1926 to January 19, 1929. He joined the Center staff on May 13, 1942 as a senior aircraft mechanic.

Surviving are his wife, Mrs. Dorothy Chaffin, two daughters, Mrs. Carole Bracalente of Williamsburg, and Miss Merle Chaffin of Yorktown, and a stepson, L. Gene Waldon of Houston, Texas.

LOST: Siamese female cat, seal point, answers to name of Sam - reward. LeBel, 596-5520.

WANTED: Gentleman to share furnished 2-bedroom apartment. Hawkins, 596-5665.

WANTED TO TRADE: Full-size Hollywood bed for full-size rollaway bed. Wagner, 723-7536.

Shown above are high school and college students who have been appointed for summer employment at the Center under the President's Youth Opportunity Campaign. Top photo - Front row (from left): Esther J. Brown, Euphemia A. Coles, Gene H. Burke, Edna E. Bazemore, Judith L. Washington. Gertrude G. Blizzard, Connie L. Collins, George M. Kemp, and Marcella C. Threatt. Back row - Patrick M. Linkous, Benjamin A. Hogan, Richard L. Beale, Naomi L. Carr, Jackie D. Strong, S. Diane Gwaltney, Brenda D. Frasier, and Walter H. Redmond. Bottom photo - Front row: Renee E. Catling, Lynne M. Dannelly, Helen D. Tillery, Natalie C. Siegel, Linda J. Putman, Nancy L. Willis, Patricia A. Larrow, and C. Don Wong. Back row - Raymond C. Robinson, Linda J. Brigman, Vernell Owens, Leroy Roach, Linda S. Clark, Rodney E. Stallings, Dianne C. Elleson, and Janet B. Vaughan. -Photos by R. P. Kennedy

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WANTED: Ride from Hunt Club Terrace to W.A. on 8 shift. Chaney, 826-0202.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Kennedy, 4557.

WANTED: Ride or driving combination from Hidenwood to W.A. on 8 shift. McBride, 4830.

WANTED: Driving combination from Nelson Dr., Hilton, to E.A. on 8 shift. Goble, 2675.

JULY FOURTH CELEBRATION

NASA employees and members of their families have been invited to attend the 1967 July Fourth Celebration at Langley Air Force Base. A complete day of entertainment has been planned for all age groups and prizes galore will be awarded throughout the day.

An invitational tennis tournament will be held at Wimsatt Park at 9:30 a.m. and an invitational bowling tournament will be held at the bowling lanes at 10 a.m. NASA staff members will participate in both events.

The program for the day will include the following events: 9 a.m. - horse show for children and adults; 10 a.m. - bike races for girls and boys 7-15 years old; 11 a.m. - model airplane contest for children and adults; 12 noon - sailboat races for children under 16 years; 2 p.m. - sailboat races for adults; 4 p.m. - tug-of-war for adults with NCO's vs. airmen and NASA vs. base civilians; 4:30 p.m.- pie eating contest for 12 to 18-year olds; 4:45 p.m. - spike driving contest for husband and wife; 5 p.m. - egg throwing contest for husband and wife; 5:15 p.m. - walk marathon for 18-year olds and over; 5:45 p.m. - baby beauty contest for 2 years and under; 7 p.m. - bathing beauty contest for 16 years and over; 8:15 p.m. - band concert; 9 p.m. - fireworks.

The events will close at 9:30 p.m. with a street dance at the LTA pool.

Food and drink stands will be open throughout the day.

PROFESSORS TO VISIT HERE

Dr. Lawrence R. Quarles, Dean of School of Engineering and Applied Science, and Dr. A. Robert Kuhthau, Associate Provost for Research, University of Virginia, will visit the Center on Friday, July 7 to discuss the university's fall residence program for Master's Degrees in Engineering.

Arrangements may be made for students to complete the full requirements for degrees without leaving this area for extended periods. Instructors for these courses will be members of the University of Virginia faculty who are located at the Virginia Associated Research Center.

The meeting with the two professors will be held at 10 a.m. in the East Projection Room, Building 587. Interested staff members are invited to attend.

Students wishing to discuss individual problems with either professor may call the Training Branch, 2611, for appointments.

APPRENTICE HONOR ROLL

Ten apprentices completed the spring semester with an average of 97 or above. Members of the honor roll are as follows:

Joseph P. Budik and Kenneth W. Hall, Materials Processing and Development; James R. Clair, Model and Pliant Structures; Phillip M. Davidson, Instrument Construction Shop; Burt R. Emerson, Space Vacuum Lab; William W. Fernald, Spacecraft Structures; Stephen C. Irick, Dynamic Vehicles; Virgil S. Laney, Electrical Flight Systems; Edgar T. Reeves, Electrical Services, and Ceylon C. Short, Fabrication Shop.

WANTED: Alternate drivers from Norfolk to W.A. on 7:30 shift. Stermer, 3535.

FOR SALE: 1/4 hp Century electric motor, 1725 rpm - $10, Westinghouse Mobilair fan - $15. Clark, 877-4592.

The Committee on Toxicology of the National Research Council visited Langley on June 7 to become acquainted with the Integrated Life Support System. Seated in the front row are Ralph C. Wands, Director, Advisory Center on Toxicology of NRC; and committee members Seymour L. Friess, Acting Director, Physiology Sciences Department, Naval Medical Research Institute; Herbert E. Stokinger, Chief, Toxicology Section, Occupational Health Research and Training Facility, U.S. Public Health Service; Bertram D. Dinman, Professor of Industrial Health, University of Michigan; Verald K. Rowe, Director, Biochemical Laboratories, Dow Chemical Company, and Chairman Arnold J. Lehman, Director, Division of Pharmacology, Bureau of Scientific Research, Food and Drug Administration, Department of Health, Education, and Welfare. Shown in the back row are (from left): Axel T. Mattson, Office of Associate Director; Ronald M. Howard, NASA Headquarters; Eugene C. Draley, Assistant Director; William D. Mace, Office of Assistant Director; Charles J. Donlan, Associate Director; Dan C. Popma, Flight Instrumentation Division; Herbert A. Wilson, Chief of Applied Materials and Physics Division, and Dr. Thomas O. Wilson and Robert S. Osborne, both of AMPD. Vice-chairman William L. Sutton, Assistant Medical Director, Eastman Kodak Company, joined the group after the photo was taken. Donlan, Osborne, and Dr. Wilson spoke to the group on Langley's program for the ILSS. Later the group visited the facility and observed a four-man, five-day, closed-door test then in progress.

BASE COMMANDER THANKS STAFF

Dr. Floyd L. Thompson, Center Director, has received the following letter of appreciation from Colonel Harry G. Sanders, Commander of Langley Air Force Base:

"On behalf of all the men and women stationed at Langley Air Force Base, I wish to express our appreciation for NASA's Participation in the base's 50th Anniversary Celebration on May 13.

"In spite of inclement weather, I thought the entire program was outstanding. This would not have been the case without the unstinting efforts of your personnel.

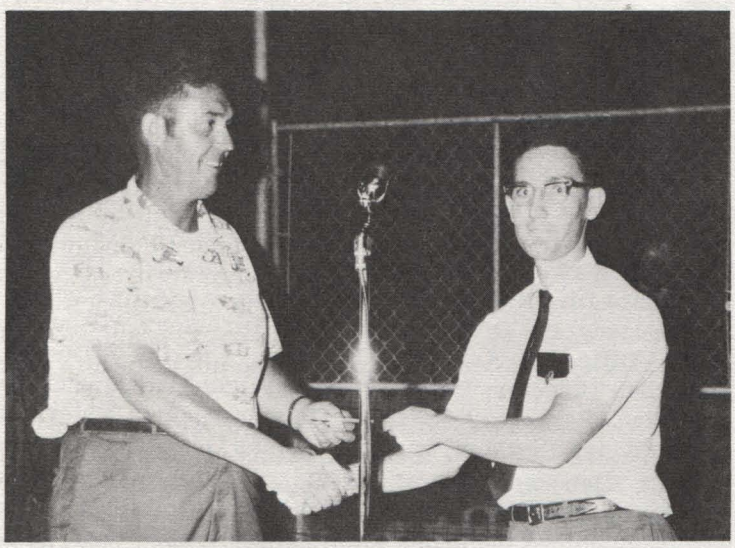
"Please express to all your people my sincere thanks for a job well done."

WANTED: Driving combination from Runnymede area to W.A. on 7:30 shift. Lambiotte, 3644.

COUNTDOWN

CARNIVAL. . .A Carnival Committee has been appointed to formulate plans for a real summer festival. A lot of ground work has already been completed by the group and a report will be presented to the Executive Board next week for approval. The big event will be held on August 25 and 26. There will be plenty of games, food and prizes with rides provided for the children. A grand prize will be drawn on Saturday at the close of the carnival and prior to the Grand Ball. You must be present to win all prizes except the grand prize. Many workers will be needed to make the event a success so sign up with your representative now as a volunteer worker.

NASA NIGHT. . .A large crowd of NASA employees turned out at Langley Speedway last Saturday for NASA Recognition Night and many were indoctrinated in the thrills of auto racing on a dirt track. Because it was the first visit to the tracks for many, the manager took time to explain to the crowd the many colored flags, their uses, the classes of races and the many hours of work and costs involved in producing a car for competition.

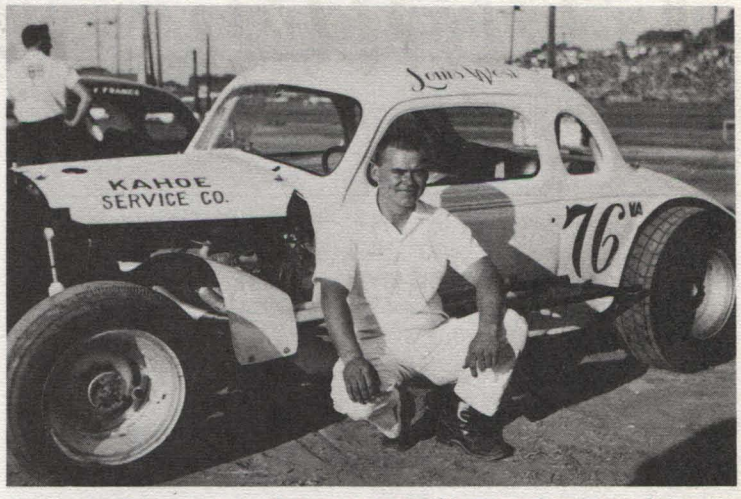


A highlight of NASA Recognition Night at the Langley Speedway was the presentation of a $25 U.S. Savings Bond to Tom Pressley (right) by Henry Klich, manager of the Speedway. Pressley won the bond for being the representative who sold the most tickets to the event.

PLAYING CARDS. . .A number of boxes of plastic playing cards are on sale at the Activities Building. Each box contains two decks of cards with full color pictures of a missile launching and the NASA insignia. You may purchase them from Bruce Amole, Building 1222.

ROD AND GUN CLUB. . .Due to official duty by Air Force personnel concerned with the operation of the Rod and Gun Club, there will be a slight delay in permitting NASA personnel to sign up as members. The year starts July 1 and ends June 30. Members may sign up after July 1.

LEAGUE RECOGNITION NIGHT. . .September 30 has been set as League Recognition Night. All leagues will be represented and plans call for a dinner, speaker, and presentation of awards. A sports film will also be shown later in the evening.



One of the cars in the races at the Langley Speedway on NASA Recognition Night was Car No. 76, sponsored by Kahoe Service Company and drived by Louis West. Louis is the husband of Bonnie who works at the Center as a Kahoe contract employee. After successfully finishing second place in the Hobby Division in 1965, West was promoted by NASCAR to the Modified and Sporstman Division, Currently he is in fourth place in the points division with just 38 points separating the second, third and fourth place cars. The car is a 1936 Chevrolet coupe with a 283-cubic-inch engine. Chief Mechanic is Henry Taylor, supervisor for Kahoe, and mechanics are Lawrence West and Charles Miller.

TENNIS TOURNAMENT. . .A number of persons have registered for the Tennis Tournament scheduled for July 15 and 16. The deadline for registration is July 7. Enter the tournament now by contacting Bob Bolton, MS 234.

MIXED CHORAL GROUP. . .A meeting will be held on August 14 at 7:30 p.m. in the Activities Building to form a Mixed Choral Group. Persons interested in participating are requested to contact Marvin Leffel, 4766.

CALENDAR OF EVENTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		JUNE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1 Building Open 1 - 8 p.m.
2 Building Open 1 - 8 p.m.	3	4 Building Open 1 - midnight INDEPENDENCE DAY	5 Bloodmobile	6	7 Maintenance Party	8 SDS Party Building Open 1 - 8 p.m.
9 Building Open 1 - 8 p.m.	10	11 Bridge Club	12	13 Payday Game Night 8 p.m.	14 FID Group	15 Building Open Tennis Tournament 8 a.m.-5 p.m.
16 Building Open Tennis Tournament 1 - 5 p.m.	17	18 Bridge Club	19	20 GSRS Party	21	22 Building Open Tennis Class Group Party
23 30 Building Open	24 31	25 Bridge Club	26	27 Payday Game Night 8 p.m.	28	29 Building Open

1967 JULY 1967

FOR SALE: 7 x 7 umbrella tent - $12, 110-pound barbell set - $10, 30 x 76 rollaway folding bed - $25. Armstrong, 877-2082.

WANTED: Driving combination from Williamsburg to E.A. on 8 shift. Wells, 2537.

WANTED: Ride from Bellwood Rd. to W.A. on 8 shift. Cheryl Nuttall, 3221.

Langley Researcher

VOLUME 6, NUMBER 14 LANGLEY RESEARCH CENTER JULY 14, 1967

LARGE BALLOON TO LAUNCH LANGLEY PARACHUTE TEST

A high-altitude experiment to study parachute designs and techniques for possible use in the proposed Voyager program will be conducted by NASA no earlier than July 18.

The test will be the second of five balloon-launched flights to study the characteristics of a variety of parachutes and to determine their effectiveness as decelerators in soft-landing unmanned instrumented capsules on Mars.

Voyager is the proposed program to explore the planets and possibly land a spacecraft on Mars. The launch will take place at Walker Air Force Base, New Mexico, and the experiment will be conducted after the NASA flight unit arrives over the White Sands Missile Range and is separated from the balloon system.

A disc-shaped flight unit will be carried by the balloon system to an altitude of about 130,000 feet - where the thin atmosphere compares with that of Mars.

A ground command will trigger release of the experimental flight unit from the balloon. A few seconds later, eight rocket engines in the flight unit will propel it upward into an arching trajectory to a speed of about 1,100 miles an hour.

At an altitude of 140,000 feet, a 65-foot diameter disc-gap-band parachute will be deployed and a 500-pound payload will be released from the flight unit and descend to Earth beneath the open parachute.

The flight is planned so that conditions at parachute deployment combine to make the test environment closely correspond to that expected in the rarefied atmosphere of Mars.

The parachute-payload combination and the disc-shaped

(Continued on page 6)

ONE-MAN POGO FLYING DEVICE STUDIED IN LUNAR LANDING RESEARCH FACILITY

A one-man flying device called a Pogo vehicle has been tested at Langley Research Center to study its effectiveness in operation in the relatively slight gravitational environment of the moon.

The device, so named because of its physical resemblance to a pogo stick - although it does not bounce up and down - was subjected to 30 simulated flights during June at Langley's Lunar Landing Research Facility.

Primary object of the manned flights, each of which lasted about a minute, was to determine how the control features of the vehicle may differ in the gravitational pull of the moon as compared with that of Earth.

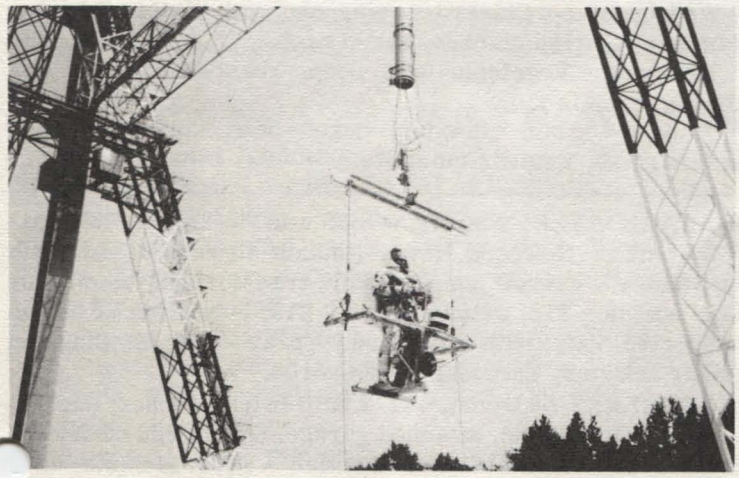
The moon has a gravitational pull only one-sixth that of Earth, and the LLRF is designed to simulate the lunar environment.

The three-phase research program included flights with the operator in ordinary dress to learn how the vehicle can be controlled by a man wearing no space equipment. These were followed by progressively more complex tests with a man in a pressurized soft spacesuit, and then by flights in a pressurized hard suit.

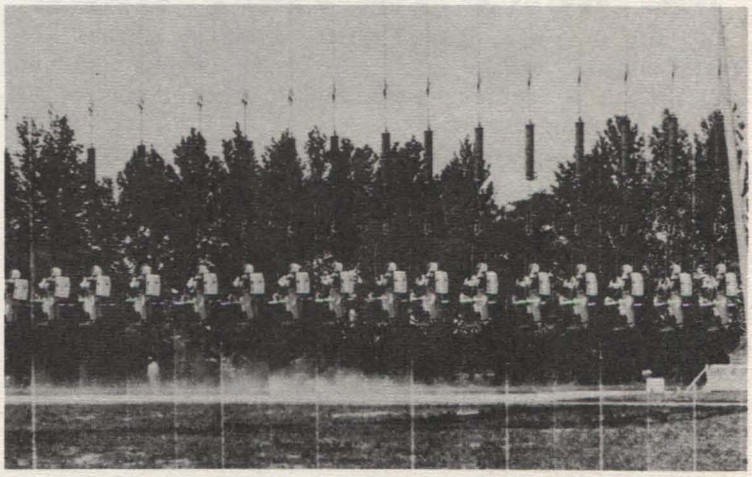
Pogo's propulsion system utilizing hydrogen peroxide was modified so it had one-sixth the thrust of its terrestrial configuration. Maximum flight time under normal Earth conditions was 20 seconds, but engineers tripled the time to a minute for the Langley tests.

The lightweight Pogo can move rapidly and may prove to be a practical auxiliary vehicle for lunar surface travel.

It was built by the Bell Aerosystems Co., Niagara Falls, N.Y., and was tested for the Marshall Space Flight Center. The space suits used in the flights were developed and supplied by Manned Spacecraft Center.



Langley Research Center is studying the concept of a one-man flying device for possible lunar operations. The use of these flying devices will enable the lunar explorer to extend his radius of exploration. The program utilizes



Langley's Lunar Landing Research Facility and the Bell Aerosystems Company's "POGO" vehicle appropriately modified for lunar gravity simulation. Operating the device in the sequence photo (left) is Lee H. Person, Center pilot.

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 302, telephone 2575.

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. . .Dan Cupid scored a victory when Linda Edwards, Flight Vehicles and Systems Division, became engaged to Francis P. Edmundson, San Francisco, California. No date has been accounced for the wedding.

STOCK NOTICE. . .The stock of the revised C of F purchase request form has been temporarily exhausted. Organizations having a supply in excess of a month's requirements are requested to return the excess to the Stockroom.

NEW ARRIVALS. . .Announcing the birth of a son on June 28 is James M. Howell, Aero-Physics Division. . .Word has been received at the Center that Joan Hudgins, Aero-Physics Division, became the mother of a seven pound, eleven ounce son, Clark Burnley, on June 1. . .Robert A. Bruce, Flight Vehicles and Systems Division, became the father of a ten pound, two ounce son on July 6. . .Weighing in at eight pounds, six ounces on June 28 was Margaret Leslie, daughter of H. Harris Hamilton, Aero-Physics Division.

AFGE MEETING. . .The NASA Lodge No. 2755, American Federation of Government Employees, will hold its monthly meeting on Wednesday, July 26 at 7:30 p.m. at the Central Labor Union Hall, 1600 25th St., Newport News.

DR. GURA TO VISIT HERE

Dr. Ira A. Gura, Space Systems Division, Hughes Aircraft Company, will be at Langley for two weeks beginning July 24 as a lecturer-consultant on modern control and optimal filtering theory.

During this period he will present a series of daily lectures from 10 a.m. to 12 noon in Room 205, Building 1232. The lecture on July 24 will be from 1 p.m. to 3. Dr. Gura will describe work that has been done at Hughes Aircraft to develop efficient algebraic methods for solving problems on control and filtering in linear dynamic systems. The required mathematical background material in matrix theory, calculus of variations, and state-vector theory of differential equations will also be discussed.

These lectures are open to all interested staff members. For further information contact Albert A. Schy, 4472.

FOR SALE: 1961 Volkswagon, engine just overhauled. Can be seen at Rivermont Esso, 9917 Warwick Blvd, or call Shaw, 826-7277 after 5 p.m.

Clean-Ups were winners of League A in the NASA Tenpin League. Members of the team are (from left): Dona Cauchon, John Mulqueen, Al Moore, Wayne Williams and Irving Weinstein. Absent when the picture was taken was James Henry, team captain. --Photo by Bill Frazier

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 17:

Monday - Corn chowder, beef stroganoff, grilled pork chops, chicken pattie, baked hash.

Tuesday - Consomme julienne, roast ribs of beef, grilled ham slice, sauteed chicken livers over rice, cheese ravioli.

Wednesday - French onion soup, simmered corned beef brisket, chicken pie, pork chopette, grilled cheese sandwich.

Thursday - Vegetable-beef soup, grilled rib eye steak, sliced turkey with dressing, ham and noodle casserole, fish cakes.

Friday - Clam chowder, Swiss steak, fried flounder, broiled fish, deviled crab, franks and beans.

The menu for the week of July 24 is as follows:

Monday - Cream of tomato soup, pot roast, fried scallops, stuffed pepper, Spanish omelette.

Tuesday - Puree of bean soup, braised beef tips over rice, grilled ham slice, chicken fried beef steakette, tuna-noodle casserole.

Wednesday - Chicken broth, chopped sirloin, shrimp jambalaya, fried chicken, baked hash.

Thursday - Vegetable-beef soup, roast beef, liver and onions, tamale pie.

Friday - Clam chowder, baked ham, stuffed flounder, broiled fish, western omelette.

GARAGE SALE: Tomorrow 8:30 a.m. to 2 p.m., 43 Stratford Rd., Newport News. Radiant oil burner, complete assembly - new oil pump, motor, transformer, electrodes and nozzle - $75; antique stove - $15; lady's wig of human imported hair with stand and spray - $39; clothing and other articles. Barricklow, 596-5108.

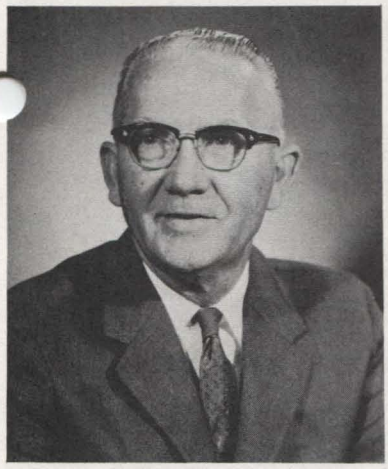
FOR SALE: 3-bedroom, 1-1/2 bath brick rancher, paneled den, eat-in kitchen, attached garage. Quinn, 838-2529.

FOR SALE: 1959 4-door Pontiac - $185. McMath, 853-2303 Norfolk.

FOR SALE: 14-foot fiberglas sail boat with dacron sails - $800. Fedors, 642-2018.

FOR SALE: 1966 Yamaha motorcycle. Bowling, 723-4109.

EARLY RETIRES FROM CENTER



Reuben I. Early

Reuben I. Early, Experimental Machinist in the Experimental Machine Shop Section, Mechanical Services Division, retired from the Center on June 19 with over seventeen years of Government service.

Early was born December 10, 1910 in Cliffside, North Carolina. He attended high school in Mooresville, N.C. and Knoxville Vocational School, Knoxville, Tenn.

He served in the U.S. Navy from September 13, 1943 to October 29, 1945 and worked for the Marine Corps Air Station, Cherry Point, N.C. before joining the Center staff on January 21, 1955 as an Aeronautical Laboratory Mechanic.

--Photo by Fred Jones

CHAMPINE IN FAI INDOOR FINALS

Bob Champine, Flight Mechanics and Technology Division, has qualified to enter the final elemination contest to pick a three-man team to represent the United States at the FAI world indoor model championships. Champine qualified with flights of 25. minutes, 42 seconds and 23 minutes, 46 seconds. The finals will be held in Indiana on August 3 and 4.

The 15 finalists will include Joe Bilgri, Ames Research Center. Bilgri was the top man on the U.S. team in 1966. The world contest is expected to be held in Rome, Italy.

Six members of the Brainbusters Model Club qualified locally in the first round of the elimination contest. Champine, Harold Crane, FMTD, and Hewitt Phillips, Space Mechanics, went to Lakehurst on May 21 for the second round but Phillips decided not to enter officially.

Champine qualified for the third round with flights of 19 minutes, 40 seconds and 20 minutes, 46 seconds. Crane qualified with flights of 18:42 and 19:11. Phillips made a test flight of 21 minutes. Crane also flew an experimental biplane which made flights of 17:28 and 17:42. Models for the FAI world contest are now restricted to a wingspan of 25.5 inches.

EMPLOYEES DONATE BLOOD

The Red Cross Bloodmobile visited the Center on July 5 and staff members donated a total of 153 pints of blood.

Andrew R. Wineman, Applied Materials and Physics Division, reached the five-gallon mark and John Householder, Flight Mechanics and Technology Division, completed his quota for a three-gallon pin.

Jim Jones, Aero-Physics Division, and Perry W. Hanson, Dynamic Loads Division, received two-gallon pins. Marcella Hogge, Administrative Services Division, was presented a one gallon pin.

Assisting during the visit were Dr. A. W. E. Bassette and Dr. T. W. Caldroney.

FOR SALE: Collapsible indoor clothes line - $8, 40-inch Kenmore electric range - $25, electric saw sharpening machine - $36. Wagner, 723-7536.

Nine staff members recently received cash awards for suggestions under the NASA Incentive Awards Program. Top photo - William B. Mayo (standing at left), Chief of Mechanical Services Division, presented awards to front row (from left): Sidney L. Powell, James S. Harvey, and Robert M. Ely. Back row: LaVern E. Winn, Hollie M. Ozment, F. E. Hodgson, and Edward J. Roberts. Not pictured is Randolph M. Smith. Bottom photo - Bertie S. Armistead (left) receives congratulations from Kitty O'B. Joyner, Head of Cost Engineering Staff.

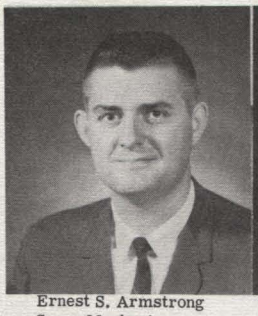
JOINT CAMPAIGN REPORT

William L. Williams, Chairman of the Center's 1967 Joint Campaign for National Health Agencies and International Service Agencies, announced that a final report shows that employees set a new record with their contributions to the organizations. Staff members donated a total of $5,216.09 to the Health Agencies and $2,042.25 to the International Service agencies for a grand total of $7258.34.

Williams expressed his thanks to the contributors and to the many campaign workers who helped to make effort another Center success.

FOR SALE: Shoup runabout, 16 feet long, 6-foot beam, 30 inches deep, seats six, sleeps two, convertible top, 50 hp Johnson motor and trailer - $1200. Pease, PA3-4553.

LANGLEY STAFF MEMBERS RECEIVE ADVANCED DEGREES



Ernest S. Armstrong
Space Mechanics
Ph.D., Applied Math.
North Carolina State

Edmund C. Conway
AMPD
Ph.D., Physics
Georgetown

Sidney C. Dixon
Structures Research
Ph.D., Eng. Mechanics
V.P.I.

Edwin C. Foudriat
Flight Instrumentation
Ph.D., Electrical Eng.
Ohio State University

Clifford L. Fricke
Aero-Physics
Ph.D., Physics
V.P.I.

Frederick C. Grant
Aero-Physics
Ph.D., Physics
V.P.I.

Lawrence R. Greenwood
AMPD
Ph.D., Mechanical Eng.
V.P.I.

Frank Hohl
Aero-Physics
Ph.D., Physics
William and Mary

Richard Madden
Structures Research
Ph.D., Eng. Mechanics
V.P.I.

Charles R. Manning
Structures Research
Ph.D., Ceramic Eng.
North Carolina State

William H. Michael
Space Mechanics
Ph.D., Aerospace Eng.
Princeton

Joseph Norwood
Aero-Physics
Ph.D., Physics
Stevens Institute

Walter B. Olstad
Aero-Physics
Ph.D., Applied Math.
Harvard University

Harry G. Schaeffer
Structures Research
Ph.D., Eng. Mechanics
V.P.I.

James C. Smith
Analysis and Computation
Ph.D., Mathematics
Duke University

William J. Stroud
Structures Research
Ph.D., Eng. Mechanics
V.P.I.

George E. Weeks
Structures Research
Ph.D., Eng. Mechanics
V.P.I.

Jerry M. Allen
Full-Scale Research
Master of Aerospace Eng.
University of Virginia

James P. Arrington
Aero-Physics
M.S., Aerospace Eng.
V.P.I.

Marion C. Bailey
Flight Instrumentation
Master of Electrical Eng.
University of Virginia

Constantine A. Balanis
Flight Instrumentation
Master of Electrical Eng.
University of Virginia

Lawrence E. Barker
Analysis and Computation
M.S., Applied Math.
North Carolina State

James A. Blackwell
Full-Scale Research
Master of Aerospace Eng.
University of Virginia

Cuyler W. Brooks
Full-Scale Research
Master of Aerospace Eng.
University of Virginia

Dennis M. Bushnell
Aero-Physics
Master of Mechanical Eng.
University of Virginia

Thomas G. Campbell
Flight Instrumentation
M.S., Electrical Eng.
V.P.I.

George C. Canavos
Analysis and Computation
M.S., Statistics
V.P.I.

Jerry W. Deaton
Structures Research
M.S., Eng. Mechanics
V.P.I.

H. Benson Dexter
Structures Research
M.S., Eng. Mechanics
V.P.I.

John D. DiBattista
AMPD
M.S., Eng. Mechanics
V.P.I.

Rodney S. Goering
RMFD
M.S., Eng. Mechanics
V.P.I.

Robert C. Goetz
Dynamic Loads
M.S., Eng. Mechanics
V.P.I.

Gerald L. Gregory
AMPD
M.S., Mechanical Eng.
V.P.I.

H. Jackson Hale
AMPD
M.S., Mechanical Eng.
V.P.I.

James D. Harris
Analysis and Computation
M.A., Mathematics
William and Mary

Wilford D. Hesketh
Flight Instrumentation
M.S., Electrical Eng.
V.P.I.

Gerald F. Hill
Instrument Research
M.A., Physics
William and Mary

John C. Hoppe
Instrument Research
M.S., Physics
William and Mary

John Q. Howell
Flight Instrumentation
M.S., Physics
Stanford University

James T. Howlett
Dynamic Loads
M.A., Mathematics
William and Mary

William F. Hunter
FVSD
M.S., Eng. Mechanics
V.P.I.

Charles B. Johnson
Aero-Physics
M.S., Aerospace Eng.
V.P.I.

Stephen Katzberg
Flight Instrumentation
Master of Electrical Eng.
University of Virginia

Jules J. Lambiotte
Analysis and Computation
M.S., Mathematics
William and Mary

Edward R. Long
Space Mechanics
M.S., Physics
William and Mary

Samuel H. Melfi
Instrument Research
M.S., Physics
William and Mary

Homer G. Morgan
Dynamic Loads
M.S., Ind. Management
M.I.T.

Nicholas D. Murray
Flight Instrumentation
Master of Electrical Eng.
University of Virginia

Brian J. O'Hare
AMPD
M.S., Aerospace Eng.
V.P.I.

Robert E. Peabody
Analysis and Computation
M.S., Mathematics
William and Mary

Conrad P. Pracht
Analysis and Computation
M.S., Electrical Eng.
University of Arizona

James Scheiman
FMTD
M.S., Eng. Mechanics
V.P.I.

John D. Shaughnessy
AMPD
M.S., Aerospace Eng.
V.P.I.

John N. Shoosmith
Analysis and Computation
M.S., Mathematics
William and Mary

Charles P. Shore
Structures Research
M.S., Eng. Mechanics
V.P.I.

Kathryn A. Smith
Analysis and Computation
M.S., Mathematics
William and Mary

Philip J. Smith
Cost Engineering
M.S., Personnel Adm.
George Washington

William T. Suit
Space Mechanics
M.A., Mathematics
William and Mary

Kenneth Sutton
AMPD
M.S., Personnel Adm.
George Washington

William M. Thompson
Dynamic Loads
M.S., Eng. Mechanics
V.P.I.

Royce A. Toni
FVSD
M.S., Eng. Mechanics
V.P.I.

Richard H. Weinstein
Aero-Physics
M.S., Physics
V.P.I.

Alan H. Whitehead
Aero-Physics
Master of Aerospace Eng.
University of Virginia

James R. Williams
Space Mechanics
M.S., Physics
V.P.I.

Michael D. Williams
Aero-Physics
Master of Aerospace Eng.
University of Virginia

George R. Young
AMPD
M.A., Mathematics
William and Mary

KNOW YOUR CREDIT UNION

Early in June a short article pointed out the Credit Union's new approach to automobile loans. Briefly, loans on untitled 1967 and 1966 automobiles may run up to 85% of the list price for as long as 48 months. Interest rates are low and the loan is insured at no out-of-pocket cost to the borrower.

The response to this news release was extremely gratifying. During the month 103 members (previous high 82) took advantage of the Credit Union's relaxed terms as well as its quick, courteous, convenient service. The latter includes - among other things - ample parking facilities, a comfortable lounge for prospective borrowers, and a walk-right-in appointment system for picking up your automobile loan check.

With the new car loans sparking total loans to an all-time monthly high of some $600,000, should not you, too, give some thought to what your Credit Union has to offer? As outlined, its financing of new cars is hard to beat - 48 months brings the payments way down. But, in addition, there are still the old faithfuls: personal loans up to $750; boat loans; real estate loans; and FHA Home Improvement Loans to $3500. Interest is low and all are insured at no out-of-pocket cost to the borrower.

A really good deal is to borrow when possible, against shares. All it takes is a phone call (extension 3606) and a quick trip by to pick up your check. Paying back the loan is more reliable as a savings device than trying to rebuild shares once they are withdrawn, and you have the benefit of insurance both on the shares pledged and on the loan itself. Quite a package. It is a fact that for borrowing or saving your Credit Union is your best bet.... by far!

COIN CLUB MEETS JULY 14

The Langley Research Center Coin Club will meet on July 14 at the Activities Building. Doors will be open at 7:30 p.m. with the meeting beginning at 8.

Sam McAdams, Mechanical Services Division, was the winner of last month's raffle of a brilliant uncirculated set of wartime silver nickels. This set was housed in an engraved plastic holder and is a nice addition to Mac's collection.

The raffle this month will be a brilliant uncirculated 1950-D Jefferson nickel - this item is the key and one of the most sought after coins of the entire Jefferson nickel series.

The program last month was an interesting narrated color slide program on early United States quarters which was furnished by the Virginia Numismatic Association. The June auction had good response and this month's auction will feature a varied selection of U.S. coins.

The membership continues to grow and with the addition of Lucille Coltrane, AMPD, and her husband Robert, the group now has 40 members.

FOR SALE: 89-inch sofa, gold and orange tweed. Russell, 877-9070.

FOR SALE: 1961 Vespa motor scooter, new battery and windshield. Smith, 826-7341.

WANTED: Ride from vicinity of Betsy Lee Gardens to W.A. on 8 shift. Dannelly, 3247 or CH5-6664.

WANTED: Driving combination from Foxbridge to W.A. on 8 shift. Al Moore, 4481.

Pictured above are the Neighborhood Youth Corps enrollees who arrived last month for a two-month work-training assignment at Langley. Sponsor for the program is the Newport News Office of Economic Opportunity. All high school students, the girls are working as clerk-typists and the boys as mechanical aids. The enrollees are front row (from left): Frank Brooks, Brenda Bridges, Dwight Jones, Catherine Canady, Louvennia Dixon, Katherine Smith, Thomassenia Williams, Willie Green, Kenneth Knight, Jimmie Fogg, James Holmes. Second row: Coy Byrd, James Walker, Albert Knight, Robert Berkley, Gary Joyner, Terry White, William Gilbert, Jackie Davis. Top row: Walter Kelley, Larry Davis, James Grimes, Samuel Green, Samuel Braxton, Nathaniel Banks, Anthony Williams, John Smith, Isiah Addison, Larry Cooper. Not included in the photo are Calvin Bridges, Larry Brown, Timothy Davis, Kenneth Thornton, Stanley Titus, and Alfred Wardrett.

LANGLEY PARACHUTE TEST

(Continued from page 1)

flight unit, will land as two separate units. Although the disc will descend without a parachute, its blunt cone design should permit it to land easy enough to recover its two cameras intact.

The 15-flight Planetary Entry Parachute Program is managed by Langley Research Center. The program includes ten rocket-launched flights, six of which have been completed.

The helium-filled 26-million cubic foot balloon system was developed by the Air Force Cambridge Research Laboratories, Bedford, Mass. This organization will be the project sponsor at the White Sands Missile Range.

WANTED: Citizens Band audio (mobile unit) and radio direction finder. Meadors, 723-0411.

FOR SALE: Chesapeake Bay Retriever pups - $50. Hubbard, 877-2225 or 596-5108.

FOR SALE: 3-bedroom brick house with attached garage in Fox Hill. Pressley, 851-4851.

FOR SALE: Set of black wall tires size 7.10 x 15 - 2 weeks old. Glaude, 596-8477.

FOR SALE: 1951 Buick - $75; 12 pieces of Classic Rose china by Rosenthal. Ferrell, 851-0466.

FOR RENT: 4-bedroom 2-1/2-bath house - available August 20. Murac, 826-1199.

FOR SALE: Sofa and chair - $50. Webster, 838-0833 after 5.

WANTED: Home for 2-year-old male Beagle - all shots and dog house included. Siviter, 723-1989.

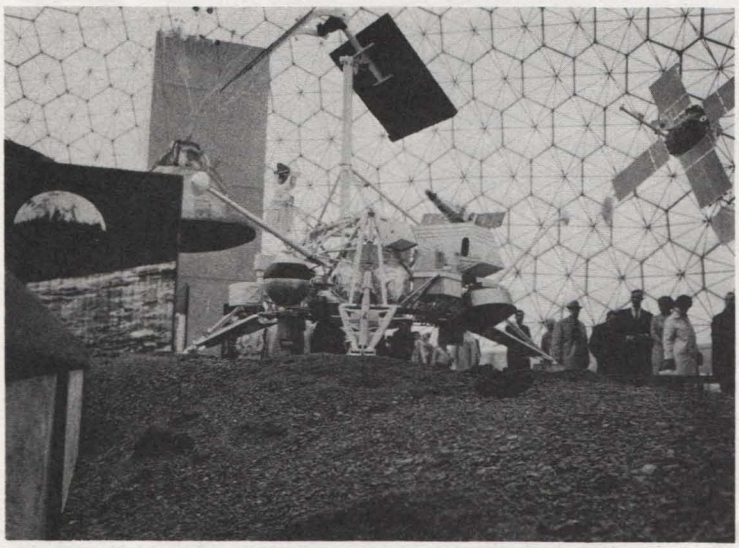
LANGLEY'S ROLE AT EXPO '67

The major attraction in the U.S. Pavilion at EXPO '67, Montreal, Canada, is the space exhibit. It has received wide acclaim, in fact, as one of the top exhibits of the Canadian World Exhibition. Langley along with Manned Spacecraft Center, Marshall Space Flight Center, Jet Propulsion Laboratory, and Office of Space Science and Applications worked with the NASA Headquarters Office of Public Affairs to provide material for the exhibit.

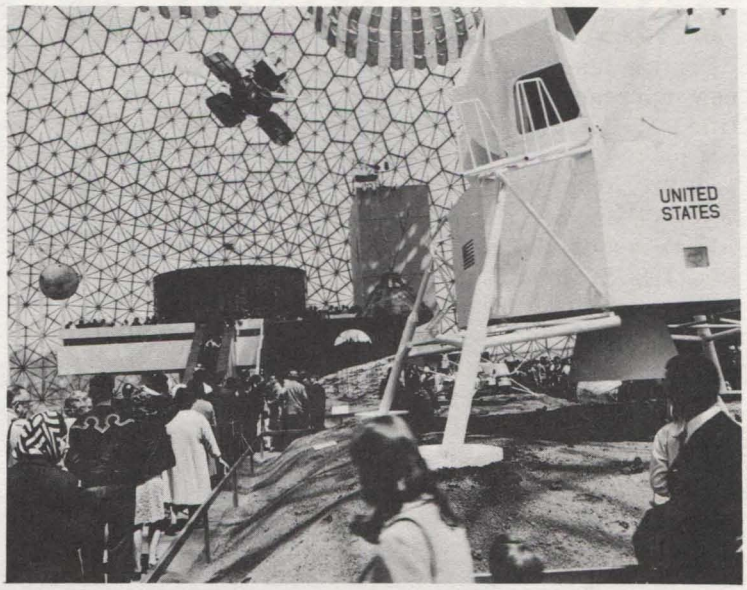
Dalton P. Morris, Research Projects and Models Section, Research Models and Facilities Division, was named advisor-consultant for the Lunar Surface Model which was built by the U.S. Army Map Service. Morris worked with the exhibit architects, Cambridge Seven Associates, and the United States Information Agency project personnel in integrating the lunar surface model with Lunar Orbiter photo enlargements and the array of spacecraft.

Langley provided four Explorer 12-foot-diameter polka dot balloons which were installed in the U.S. Pavilion by George Adamowski and Charles Holt, both of the Model and Pliant Structures Shop, Mechanical Services Division. Langley supplied the Lunar Orbiter film negatives which were enlarged by the U.S. Army Map Service. In addition to the view of the Earth from the moon, the two other enlargements show the craters Damoiseau and Copernicus. Adamowski and Holt also installed the photo enlargements and assisted with the placement of the Surveyor I spacecraft.

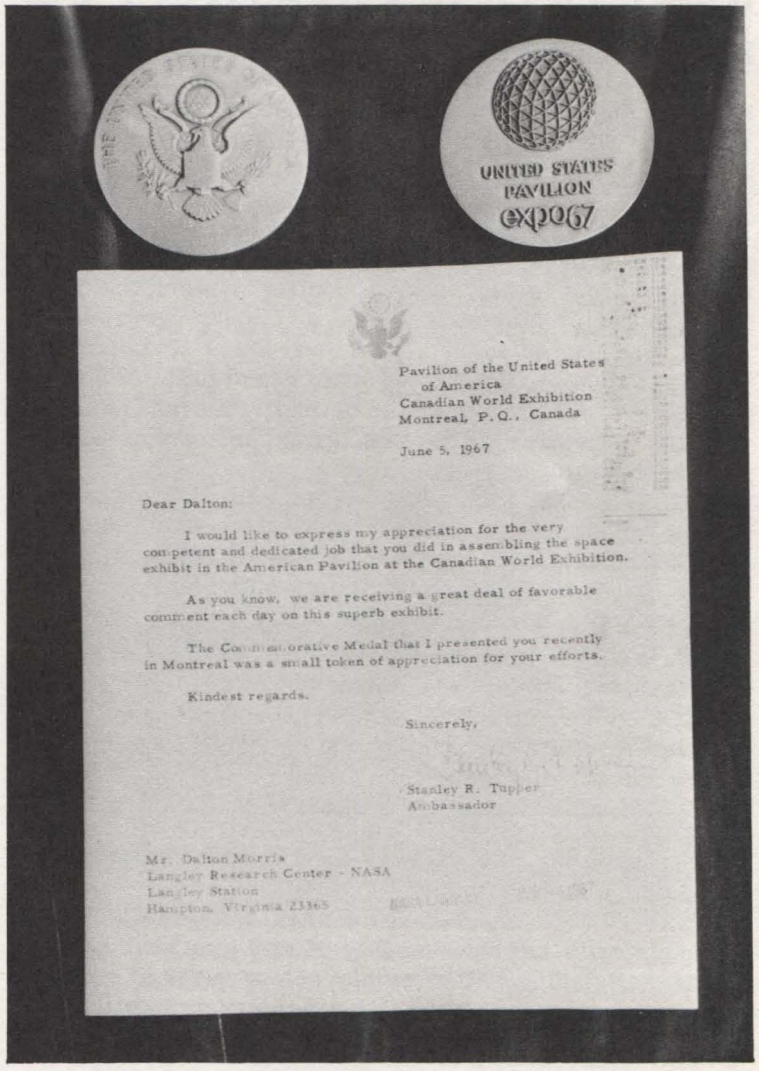
A number of Langley employees have already visited EXPO '67. In general they share the view that the space exhibit in the U.S. Pavilion is a good show. Those planning to visit EXPO will find something from home in the U.S. Pavilion.



A close-up view of Surveyor I resting on the lunar surface model with the Apollo Command Module on the left, Ranger in the background above Surveyor and Mariner on the right. The lunar surface is an authentic representation of the immediate vicinity of Surveyor I as photographed by the spacecraft after landing on the moon. The material for the lunar surface model comes from the Sunset Crater in Arizona. The material itself is popular with spectators. About a month after EXPO opened, it was necessary to replace the material in the perimeter areas within hand reach of the railings as these areas were picked bald for souvenirs.



"Destination: Moon" is the theme of the NASA space exhibit in the U.S. Pavilion at EXPO '67, Montreal, Canada. The Lunar Module in the foreground and the Surveyor in the background rest on the lunar surface model. Overhead from left) are a Gemini spacecraft, Lunar Orbiter, and the first Apollo Command Module to reenter the atmosphere in an unmanned test. Also in the background is the photograph of the Earth taken by the Lunar Orbiter while in orbit around the moon.



Pavilion of the United States
of America
Canadian World Exhibition
Montreal, P.Q., Canada

June 5, 1967

Dear Dalton:

I would like to express my appreciation for the very competent and dedicated job that you did in assembling the space exhibit in the American Pavilion at the Canadian World Exhibition.

As you know, we are receiving a great deal of favorable comment each day on this superb exhibit.

The Commemorative Medal that I presented you recently in Montreal was a small token of appreciation for your efforts.

Kindest regards.

Sincerely,

Stanley R. Tupper
Ambassador

Mr. Dalton Morris
Langley Research Center - NASA
Langley Station
Hampton, Virginia 23365

Shown above are members of the old and new Executive Board of the Activities Association. Front row (from left): Roy Henley, 1967 treasurer; Arnold Mueller, 1968 treasurer; Charles Clarke, 1968 president; Tom Pressley, 1968 vice-president; Winnie Bragg, 1968 secretary, and Robert Huffman, 1967 secretary. Back row: Ann Bell, 1968 arts and crafts committee; Ernest Greene, 1968 social committee; Pat McLean, 1968 children's committee; Dick Kurtz, 1967 social committee; Betty Sheets, 1967 arts and crafts committee; Joe Siefring, 1968 activities committee; Herbert Boulter, 1968 building and grounds committee, and Marvin Leffel, 1967 building and grounds committee.

COUNTDOWN

CARNIVAL. . .The two-day Carnival celebration will be held on August 25 and 26 on the grounds of the Activities Building. There will be plenty of games, food and prizes with rides for the children. The Carnival Grand Prize which will be given away on Saturday night is a 1967 Renault 10. This car is the most modern of the foreign compacts with disc brakes, 4 on-the-floor, vinyl upholstery, fully reclining front seats, sealed cooling system, and many other modern features. It will be on display about Aug. 1. There will be 40 other prizes awarded at 20-minute intervals including the Friday night grand prize of a large portable TV. All prizes will be of quality merchandise and with the exception of the two grand prizes you must be present to win.

CARNIVAL QUEEN. . .One of the main attractions will be the selection of a Carnival Queen. Each division may enter one contestant in the event. Under the general supervision of Generaly Assembly Representatives, each division will hold a contest to nominate their choice for the finals. The contestant must be a Langley Research Center employee and she must be assigned to the division she represents. Members of the General Assembly are eligible to compete. Selection of the queen will be by vote upon purchasing a carnival ticket. Tickets will go on sale July 24 for one dollar each and they may be purchased from District Representatives. The queen will receive a portable TV set and her two runners-up will each receive a $25 U.S. Savings Bond.

TENNIS CLASS. . .A class for women in the fundamentals of tennis will be held on July 22 at 9 a.m. on the NASA courts. All ladies, either employees or wives of employees, are invited to attend. Tennis instructors will be Ed Kilgore and Jackie Butler, two of the top ranking tennis players on the Peninsula. After the instruction period, they will play an exhibition set. Each person should bring a tennis racket and should register for the class before July 19. Contact Pat McLean, 3410, or Sharon Haythorne, 4861.

NASA MOVIE NIGHT. . .All NASA personnel and their families and friends are invited to view a one hour movie program at 7:30 p.m. on July 31 in the Activities Building. The program will cover two of this nation's worst natural disasters in recent times. "How the Earth was Moved" (45 minutes) covers the dramatic first 72 hours following the 1964 Alaska earthquake. Portions of this film were taken by an amateur shipboard photographer at the exact time the earthquake originated. The earthquake is considered to be the greatest disaster that has ever occurred on the North American Continent. A second color film (10 minutes) covers the Topeka, Kansas tornado.

SLOWPITCH LEAGUE. . .KNADS lead the Slowpitch League with 8 wins and 1 loss. Structures is second with 7 wins, 2 losses, ACD third with 6 wins, 2 losses, and Ballbusters fourth with 7 wins, 3 losses. Scores in recent games were as follows: Structures 7 - ACD 5, Ballbusters 7 - ACD 6, Al's Owls 7 - Sluggers 6, Sluggers 2 - Marauders 1, Structures 5 - Ballbusters 3.

FOR SALE: A-H Sprite Mark I Seabring motor, C-R gear box - $695. Holliday, 851-2360.

FOR SALE: Car-top carrier for station wagon - 72 inches by 36 inches by 6 inches. Evensen, 877-4296.

FOR SALE: AKC registered toy silver Poodle pups. Forrest, 868-6226.

FOR SALE: 3-bedroom brick rancher with attached garage, fireplace, 1-1/2 baths - located on circle. Russell, 877-9070.

FOR SALE: AKC registered Pekingese pups. Boykin, 838-1248.

FOR SALE: 1965 Volkswagon. Hall, LY6-5896.

Langley Researcher

VOLUME 6, NUMBER 15 LANGLEY RESEARCH CENTER JULY 28, 1967

TWENTY CANDIDATES NAMED FOR CARNIVAL QUEEN TITLE

In separate contests held throughout the Center last week 20 divisions elected candidates to compete for the title of Carnival Queen. The winner will reign over the canrival which will be held August 25 and 26 on the grounds of the Activities Building.

Selection of the queen will be by vote upon purchasing a carnival ticket. Tickets may be purchased from District Representatives for one dollar each. The candidate receiving the largest number of votes will be crowned queen during the carnival events. The queen will receive a portable TV set and her two runners-up will each receive a $25 U.S. Savings Bonds.

Pictures of the 20 candidates are shown on page 8. The candidates and the groups they represent are as follows:

Dianne L. Adams, Office of Director, Office of Associate Director, Office of Eng. and Tech. Service, and Office of Assistant Director for Administration.

Carol M. Thomas, Office of Assistant Director for Flight Projects, Flight Reentry, LOPS, MORL, Scout and Space Vehicle.

[illegible]. Elaine Iroler, Applied Materials and Physics Division.

[illegible]ue A. Nelson, Analysis and Computation Division.

Virginia W. Shuler, Flight Instrumentation Division.

Evlyn B. Moore, Instrument Research Division.

Sheila Ann T. Anthony, Space Mechanics Division.

(Continued on page 3)

Chris Gross (right), Radiation Effects and Instrumentation [illegible]ection, Instrument Research Division, receives a check [illegible]or $1,000 and congratulations from Dr. Floyd L. Thompson, Director, for his invention suggestion entitled "Means for Temperature Compensating Semi-conductor Strain Gages."

LANGLEY STAFF COMMENDED FOR COST REDUCTION PROGRAM

The manner in which NASA's Cost Reduction Program has been implemented by Langley Research Center was recently the subject of a letter of commendation received by Dr. Floyd L. Thompson, Director, from Dr. Robert C. Seamans Jr., Deputy Administrator of NASA.

Dr. Seamans' letter was written after the NASA Cost Reduction Board had given its approval to the Cost Reduction Program of the Center, the approval being based on a survey report submitted to the Board by a team from NASA Headquarters Cost Reduction Office. The letter said in part:

"I have just seen the Cost Reduction Board's approval of the Langley Research Center's Cost Reduction Program. I note that the evaluation report is based on the excellent manner in which you and all Langley personnel have addressed yourselves to improving efficiency and economy in the Space Program.

"Needless to say, I am pleased with the strong support which Langley's management has given the Cost Reduction Program and the results which you have achieved."

In discussing Dr. Seamans' letter with T. Melvin Butler, Langley Cost Reduction Program Representative, and Edward T. Maher, Cost Reduction Officer, Dr. Thompson said that he was pleased with this recognition of a good program at Langley by NASA Headquarters. He expressed his appreciation to each staff member who has contributed to this program, including members of the Cost Reduction Board, division monitors, etc. - but he cautioned that the task which lies ahead is not to be taken lightly.

"What has been done under the Langley Cost Reduction Program to date is commendable," said Dr. Thompson, "but as time goes on, it becomes increasingly difficult to maintain the same vigilance and interest. These attributes are necessary if this program is to be sustained and attain the same results as in the past."

Butler indicated his pleasure at the interest shown by all levels of the Center in the Cost Reduction Program. He said that it was gratifying to have such a large number of participants contributing valuable cost reduction ideas ranging from sophisticated management systems to ways to use the same form for two or more purposes. He challenged each Center supervisor to work with his Cost Reduction monitor to discover at close range the potential for cost reduction in his organization. "We need more savings," stated Butler. "We can get these savings with the full support of each staff member and the end result - the result we seek and must have - will be a stronger and better Center."

An analysis of Langley cost reduction submissions for Fiscal Year 1967 is now being made. A report on Langley's effort toward meeting its cost reduction goals will be the subject of a future article in Langley Researcher.

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 302, telephone 2575.

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. . .A Center romance reached the engagement stage when Linda Bilbrey and Donald F. Booth, both of Analysis and Computation Division, announced their plans to wed in August. . .Wedding bells will ring on August 12 when Nancy C. Smith, Personnel Division, takes her final vows with William Van Johnston, Gloucester. . . Dan Cupid scored another victory when Nancy Insley and Richard Hueschen, both of Flight Instrumentation Division, announced their engagement. The big event will take place on August 19.

SPEEDING NOTICE. . .Some Langley personnel are driving at an unsafe speed through the AMPD parking lot enroute to Building 1267. Personnel using this route to Building 1267 are urged to drive with caution and at a slow rate of speed to eliminate the possibility of hitting someone who may be going to his automobile parked in the AMPD lot.

DUCKPIN LEAGUE. . .Duckpins are back at the Hidenwood Lanes. An organizational meeting of the NASA Duckpin League will be held around the middle of August. Teams are urged to start organizing now. For additional information contact Al Shearin, 4483, or John Moore, 4485.

NEW ARRIVALS. . .Word has been received at the Center that Ann Worth, Space Mechanics Division, became the mother of an eight pound, two ounce son, Gregory Scott, on July 17. . .Passing out cigars and candy is George T. Carson, Space Mechanics. He became the father of a five pound, eleven ounce daughter, Michelle Dawn, on July 25.

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

WANTED: Refrigerator, freezer, washer, dryer, power mower. Shaughnessy, 838-2962.

FOR SALE: 1958 Chevrolet, 6-cylinder - $150. Fedors, 642-2018.

FOR SALE: Emerson air conditioner, 6,000 but, 115-volt- $90. Boyden, 898-5833.

FOR SALE: 18-foot Hampton One Design sailboat with sails - $250. Parlett, 723-0337.

FOR SALE: 1955 Packard Clipper. Williams, 464-0248 Virginia Beach.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 31:

Monday - Cream of mushroom soup, pepper steak, chicken shortcake, fried fillet of perch, chili con carne.

Tuesday - Chicken-noodle soup, roast veal, crab cak smoked pork sausage, franks and beans.

Wednesday - Tomato-barley soup, roast beef, breaded veal cutlet, spaghetti with chicken sauce, grilled spiced luncheon meat.

Thursday - Vegetable-beef soup, grilled steak, fried fantail shrimp, knockwurst, baked hash.

Friday - Clam chowder, roast turkey, Salisbury steak, broiled fish, seafood croquettes.

The menu for the week of August 7 is as follows:

Monday - Corn chowder, Spanish pot roast, baked salmon loaf, sauteed chicken livers over rice, Austrian ravioli.

Tuesday - French onion soup, simmered corned beef, stuffed shrimp, Polish sausage, macaroni and wieners.

Wednesday - Chicken-rice soup, baked ham, beef stew, fried chicken, tamale pie.

Thursday - Puree of bean soup, roast beef, barbecued pork chunks over rice, liver and onions, fish cakes.

Friday - Clam chowder, grilled steak, beef pan pie, fried fish, broiled fish, franks and beans.

FOR SALE: Motorola black and white TV set - $30. Jackson, 826-0535.

FOR SALE: 1/4 size Model T Ford with 3-1/2 hp engine. Press, 826-0038.

FOR SALE: CB 160 Honda. Fleming, 723-4473.

FOR SALE: 28-piece set of Craftsman tools (1/2-inch drive, sockets and wrenches) - $15. Mueller, 722-8641.

FOR RENT: 5-room unfurnished bungalow near grad school. Hogan, 133 Maple Ave., Newport News.

FOR SALE: AKC registered German Shepherd puppies. Hoyt, 868-9380.

SPACE AGE BRINGS ANSWERS TO SOME AGE-OLD QUESTIONS

How was Earth and the rest of our solar system formed? there life outside of Earth?

These two questions have been pondered by man since the beginning of his capability for reasoning. We still have no answer.

The time is fast approaching when we may very well have the answer to the second question as well as better knowledge on which to base a firm theory in the first.

Until the advent of the space age there was little chance of doing other than advance theories. Now NASA has the tools to investigate directly other bodies in the solar system. We are gaining knowledge almost daily about the moon and have learned much about Mars and Venus through spacecraft designed to photograph and take other scientific measurements.

The first Ranger to take photographs of the moon was hailed around the world as the biggest step forward in lunar knowledge since the invention of the telescope. Now the moon and its cratered surface are familiar to all of us even though we have so far, literally, only scratched its surface.

The moon is of special interest to us in attempting to find out how the solar system was formed for two reasons.

First, the stratigraphic record, the order in which deposits of the past were laid down, is preserved and decipherable on the airless, waterless lunar surface.

Second, because of its proximity to Earth the events of geologic history are likely to be more closely connected th those of Earth than the record of other planets. There also the possibility of finding organic material, either buried or in sheltered locations.

If the moon was captured by the Earth, there would have been violent disturbances on both. The product of such disturbances would be recognizable on the moon and would provide a key to recognize effects of a similar disturbance on Earth.

If there was a fusion of many satellite bodies there would have been a simultaneous rain of debris on Earth.

If the moon was formed from Earth, there will be evidence in the lunar composition and, possibly, organic material present which will shed light on the early evolution of life on Earth.

Finally, if the moon and Earth formed at the same time from a nebular mass the moon will provide important clues of chemical mechanisms operating during formation of the earth-moon system.

UNIVERSITY APPROVES NEW OPTION

Robert C. Sedwick, Director of the Tidewater Center, George Washington University, visited the Center recently to discuss with interested staff members the university's new Management Engineering option for the Master of Science in Administration.

Sedwick outlined the course and listed the prerequisite requirements. He stated that registration for the fall semester will be held September 5-8 and classes will start eptember 18.

For further information and application blanks contact the Training Branch, telephone 2611, Building 586.

FOR SALE: Sailfish, newly painted - $200. Baab, 245-6228.

An AFROTC group from Lockbourn, Ohio visited Langley Research Center on July 14 and toured a number of research facilities. Shown on the front row are (from left): Cadet Thomas Bischoff, Cadet Steve Wilson, Cadet Tracey Kane, and Astronaut David Scott, Manned Spacecraft Center.

COIN CLUB MEETS AUGUST 2

The next meeting of the Langley Research Center Coin Club will be held August 2 at the Activities Building. This meeting will start at 8 p.m. and doors will open at 7:30.

At the July meeting the club raffled off a brilliant uncirculated 1950-D Jefferson nickel which is one of the keys to this series. The lucky winner was Nora McAdams. The membership expanded to 44 with the addition of four members of the John L. Patterson family. A spirited auction was also held with all but three lots being sold.

At the August meeting the raffle will consist of a 1961 and a 1962 United States Proof Set. Another auction will also be held and will feature a varied selection of United States type coins. The club will also finalize its plans for sponsoring a bus trip to the Virginia Numismatic Association Convention which will be held on September 23 in Charlottesville.

TWENTY CANDIDATES NAMED

(Continued from page 1)

Rosslyn W. Hampton, Dynamic Loads Division.
Ruth A. Pokorski, Structures Research Division.
M. Jeanette Saunders, Aero-Physics Division.
Sally S. Lindberg, Flight Mechanics and Technology Division.
Rudeen S. Smith, Full-Scale Research Division.
Pamela J. Verniel, Electrical Systems Division.
Sandy L. Dunn, Flight Vehicles and Systems Division.
Janet B. Vaughan, Mechanical Services Division.
Sharyn M. Hilstrom, Administrative Services Division.
Ruth W. Luper, Fiscal Division.
Linda T. Johnson, Personnel Division.
Betty B. Branch, Procurement Division.
Judithann P. Beck, Research Reports Division.

FOR SALE: Winchester .243 calibre rifle, 4-power hunting scope with mounts. Spear, 595-3068.

FOR SALE: Eico 5-inch DC wide-band oscilloscope - $70. Gorjup, 838-2348.

FOR SALE: 3-bedroom, 2-bath brick rancher with attached garage on Robanna Dr., York County - $20,000 - owner will finance. Voitlein, 877-4253.

APOLLO NETWORK TRACKS ORBITERS FOR PRACTICE

Contributions of Lunar Orbiter spacecraft to the Apollo program have only begun when they have completed their picture taking and their cameras are turned off.

Three of these vehicles, Lunar Orbiter II, III and IV, continue to circle the moon, filling an important role as "stand-ins" for the Apollo capsule which will one day orbit the moon with its three-astronaut crew.

The Lunar Orbiter program, which is managed by Langley Research Center, has one more lunar orbiter flight scheduled for later this year.

The Orbiters serve as moving targets in space for equipment and personnel of the Apollo tracking network which will eventually communicate with the Apollo astronauts circling the moon.

NASA's Manned Space Flight Network has been rebuilt and refurbished to support the Apollo program. Its stations and personnel are already undergoing practice exercises to familiarize them with their new responsibilities.

In a typical test, a tracking station trains its antenna on Earth's horizon shortly after dark. The moon rises, an Orbiter emerges at the lunar limb from the moon's dark side. The tracking station on Earth homes in electronically on the spacecraft beacon transmitter as the Oribter simulates an orbiting Apollo capsule.

Tracking data received in these practice sessions is recorded on magnetic tape. At Goddard Space Flight Center this tape is checked against similar tape recorded at Jet Propulsion Laboratory from Deep Space Network stations monitoring the spacecraft at the same time.

Before the Manned Space Flight Network will be judged ready for support of a manned Apollo mission it must successfully demonstrate:

1. Around-the-clock station tracking and telemetry at lunar distance.
2. Engineering crews trained and ready for continuous communications with the Apollo spacecraft.
3. Test and checkout of the Real Time Computer Complex at Manned Spacecraft Center by demonstrating data processing, receiving and complex orbital calculations.

New equipment must be tested to meet demands of Apollo's manned 240,000-mile flight to the moon and return to Earth. The Apollo unified S-band system combines in a single transmission five communications functions previously requiring separate systems for Mercury and Gemini.

They include: tracking and determining flight path and velocity; commanding the spacecraft; voice communication with the astronauts; receiving telemetry on astronaut health and mission research; and receiving telemetry on the condition of the spacecraft and its batteries, fuel, systems and performance. Television monitoring of activities inside the spacecraft has been added as a sixth function for the Apollo mission.

Apollo's Unified S-band System incorporates two kinds of antennas: parabaloidal 30-foot diameter "dish" antennas and larger 85-foot dishes to handle the more complex tracking and telemetry out to the quarter-million-mile distance of the moon.

Lunar Orbiter vehicles first began serving as tracking targets when Orbiter II became available in December 1966. At that time three stations with improved 30-foot antennas were available - at Corpus Christi, Guam and Bermuda.

Two new 85-foot antennas joined the system in January - at Goldstone, Calif., and Canberra, Australia. With them came the 30-footers at Hawaii and Guaymas, Mexico. In March another 30-foot antenna at Merritt Island, Cape Kennedy, joined the network. By June, Lunar Orbiter III and IV, finished with their photographic missions, were added as tracking targets.

Still to be added is the new 85-footer near Madrid, expected this summer. Additional 30-foot dishes at Carnarvon, Australia; Ascension Island, Canary Island, Grand Bahama Island and Antigua will all be ready before the first manned Apollo is launched.

Practice in exercises acquainting the network crews with their tasks began with passive tracking - picking up the Orbiter signals and listening. At first there were problems in locating the spacecraft, then in hearing their faint distant signals. But with practice the new stations and crews are bringing in the signals loud and clear.

When they are not being used to exercise the network, the circling Lunar Orbiter vehicles continue other scientific missions, transmitting reports to the network on the moon's gravity and on radiation and meteroids in its vicinity.

CALENDAR OF COMING EVENTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JULY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1 Bridge Club	2	3	4	5 Building Open 1-8 p.m.
6 Building Open 1-8 p.m.	7 Department Meeting	8 Bridge Club	9	10 NASA Night at Pen. Stadium Payday Game Night 8 p.m.	11	12 Building Open 1-8 p.m.
13	14 Choral Society	15 Bridge Club Model Club	16	17	18	19 Research Projects and Models Building Open
20 Building Open 1-8 p.m.	21 Bridge Club	22	23	24 Payday Game Night 8 p.m.	25 C A R N I V	26 A L
27 Building Open 1-8 p.m.	28	29 Bridge Club	30	31		

1967 AUGUST 1967

EVENING COURSES OFFERED

Registration for evening classes at Christopher Newport News College will be held September 14 from 6 to 9 p.m. Pre-registration may be made any time prior to September 14 by mail or in person. Admission interviews are held by appointment only on September 5-7 and September 12 and 13.

Undergraduate courses offered include the following general subjects: biology, business, chemistry, economics, English, graphic arts, government, history, humanities, mathematics, philosophy, physics, psychology, sociology, Spanish, French, and speech.

Catalog descriptions are available in the Training Branch, Building 586.

FOR SALE: 1967 MGB convertible, less than 500 miles - will trade for late model Monza convertible. Bridge, 851-4820.

FOR RENT: 3-bedroom unfurnished house at 17 Gilbert St., $90 per month. Also 2-bedroom furnished beach cottage on Currituck Sound - week-end or week. Woolard, 723-8213.

COUNTDOWN

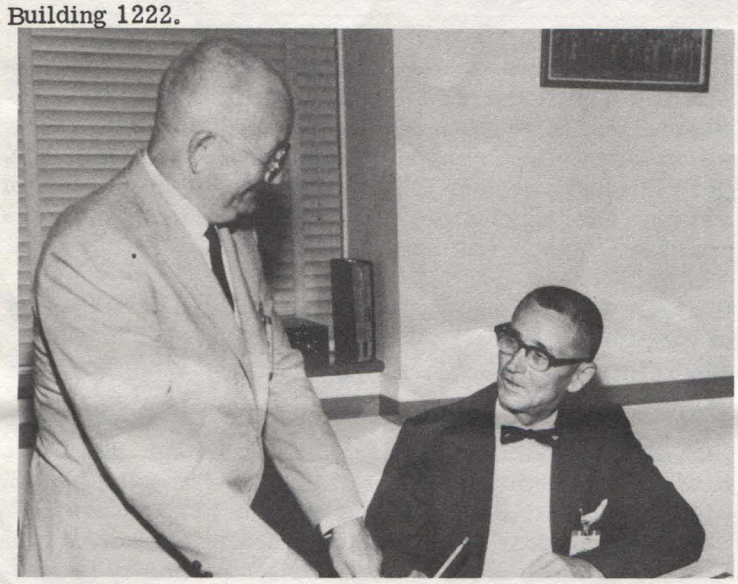
BASE NURSERY. . .Base Nursery facilities will be available for use by Center employees during the carnival weekend on August 25 and 26. Persons planning to use the nursery facilities are requested to call Mrs. Harris, 764-3449, at least a week before the carnival. The cost per hour is 40 cents for first child, 20 cents for second child, and 10 cents for each additional child. If your want your child to have supper, notify the nursery and a fee of 30 cents will be charged. The nursery stays open on Saturday night until 1:30 a.m.

BASEBALL GAME. . .NASA Night will be held at the Peninsula Memorial Stadium on August 10 when the Peninsula Grays meet Burlington. Tickets are available from District Representatives for half-price. Children under 12 will be admitted free. Tickets purchased at the gate will be full price. Game time is 7:45. Rain date for this event has been set for August 11.

MOVIE NIGHT. . .How would you react in a disaster? A one hour movie program has been arranged for viewing by NASA employees, their families and friends at 7:30 p.m. on July 3 at the Activities Building. "How the Earth was Moved" covers the 1964 Alaska earthquake and the second movies shows scenes taken during the 1966 tornado in Topeka, Kansas. Admission - FREE!

ROD AND GUN CLUB. . .Applications have been sent to all who have expressed an interest in the Langley Rod and Gun Club. Additional information and application forms may be obtained from Joe Siefring, 3483.

PLAYING CARDS. . .A number of boxes of plastic playing cards are on sale at the Activities Building. Each box contains two decks of cards with full color pictures and the NASA insignia. Persons interested contact Bruce Amole, Building 1222.



Charles A. Clarke (left), President of the Activities Association, sells the first carnival ticket to T. Melvin Butler, Assistant Director for Administration. The carnival will be held on Friday and Saturday, August 25 and 26 on the grounds of the Activities Building. Tickets are one dollar each and may be purchased from District Representatives. The purchase of a ticket entitles the buyer to vote for his choice of Carnival Queen.

The Carnival Grand Prize which will be given away on Saturday night, August 26, is a 1967 Renault 10. This car is the most modern of the foreign compacts with disc brakes, 4 on-the-floor, vinyl upholstery, fully reclining front seats, sealed cooling system, and many other modern features. Holding the signs are Joyce Helsel (left), Aero-Physics, and Ruth Pluta, Administrative Services.

CHORAL SOCIETY. . .An organizational meeting of a NASA Mixed Choral Group will be held at 7:30 p.m. on August 14 at the Activities Building. The group will be under the direction of Gene Hunt. The group is in need of a pianist. Anyone interested is requested to contact Marvin Leffel, 4766.

NASA GOLF TEAM. . .NASA defeated Sturgis-Newport Business Forms 15-1/2 - 14-1/2 on July 16 at the Newport News Municipal Golf Course. Bernie Garrett, AMPD, won low gross by defeating Cecil Johnson, Sturgis, on the fifth extra hole of a sudden death playoff after each shot an 80. Doug Whipple, Electrical Systems Division, won low net with 87-21-66 and Ray Haynes, Flight Instrumentation, won low net runner-up with 82-15-67. NASA is now 3-0 for the year. The next match will be with the Daily Press on September 24 at the Municipal Golf Course.

DOLPHIN SHOW. . .Throughout the month of August tickets will be available from District Representatives to permit NASA personnel and their families to attend any of the Dolphin performances for half-price at the Quik-Tic Driving Range at 1413 Armistead Ave. Children under six will be admitted free. Children over six will be charged 25 cents and the fee for adults will be 50 cents. The tickets are available for the asking and the fee should be presented with the ticket at the dolphin grounds. There are no shows on Mondays but all other days there will be continuous showings daily from 6 p.m. to 10 p.m. The shows generally last for 35 to 50 minutes. Included on the same tickets will be a bonus. The family will receive the same benefit for the golf driving range which is located at the same site on Armistead Ave.

FOR SALE: 3-bedroom, 2-bath house on corner lot in Windsor Terrace (behind Robert Hall). Newsome, 1825 Canterbury Rd., 851-3723.

FOR SALE: New 21-inch GE portable TV. Holquin, 838-0238.

FOR SALE: New 13-foot plywood sailboat with dacron sail and trailer - $550. Berry, 642-2298.

FOR SALE: 1959 Volkswagon - $475. Mason, 826-6530.

WORKERS GUARANTEED RIGHT TO VISIT PERSONNEL OFFICE

In response to several letters of complaint from Federal employees, the Civil Service Commission has directed Federal agencies to examine their internal policies and instructions to make sure that employees are not discouraged or prevented from visiting the personnel office, talking with management personnel in their agency, or filing grievances.

According to NASA policy an employee has the right to communicate with the personnel officials of this agency, the equal employment opportunity officer or his deputy, and a supervisory or management official of higher rank than his immediate supervisor.

When an employee wishes to visit his personnel office or talk with any of the management personnel, he should ask his immediate supervisor to indicate a convenient time which would not disrupt the work schedule unduly, but the employee is not required to explain his reasons for wishing to talk to any of the officials listed.

The policy further states: "An employee has the right to file a complaint, a grievance, or an appeal under the procedures of his agency or the Commission without interference or threat of reprisal. An employee acting in an official capacity for an agency shall not interfere with or attempt to interfere with the filing of such a complaint, grievance, or appeal, or take or threaten to take any act of reprisal (including but not limited to discharge or other disciplinary action, denial of promotion, or adverse performance evaluation) against an employee because he has filed, or expressed an intention to file, a complaint, a grievance, or an appeal under the procedures of the agency or the Commission."

The Commission's directive stressed, "It is not enough for a supervisor to abstain from overt acts or threats of interference; he should refrain from making any statement or taking any action that has the flavor of a threat, interference, or intimidation."

INCENTIVE AWARD GIVEN BOEING

An incentive award of $1,053,405 has been made to The Boeing Company, Seattle, by the NASA Lunar Orbiter Incentive Board for the third Lunar Orbiter mission.

Lunar Orbiter III, launched February 4, 1967, is now on an extended mission gathering meteoroid and radiation data in the vicinity of the moon as well as information on the moon's gravitational field.

Readout of photographs from Lunar Orbiter III was interupted on March 2 because of a failure in the readout process. Of the 211 telephoto and 211 wide angle pictures taken, 154 telephoto pictures and 153 wide angle pictures were transmitted to Earth stations.

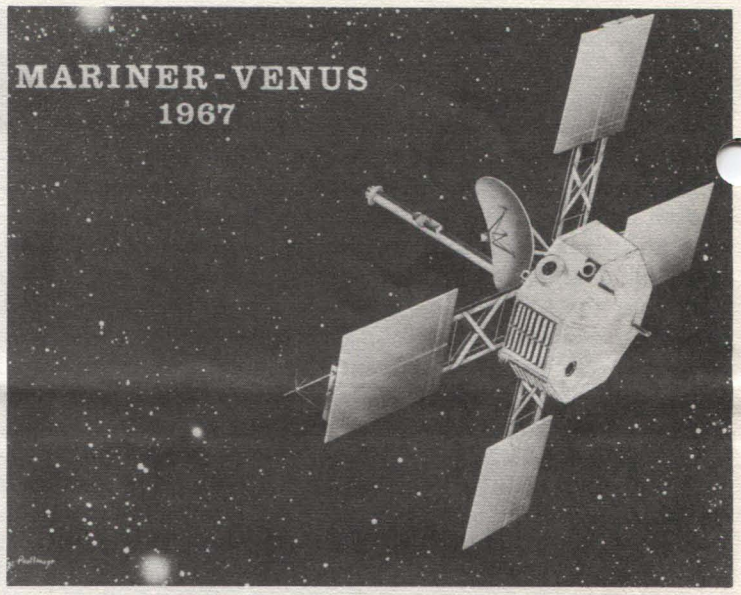
In making the award to Boeing, the Incentive Evaluation Board said that the quantity of photography of the prime sites with respect to that planned was the major factor adversely affecting the incentive results.

The Board said the Orbiter III mission did, however, produce pictures of high quality, properly exposed and with good positioning.

The Board also noted that the photography of secondary sites had considerable value scientifically, for Apollo simulation purposes, and was of high public interest. The secondary site photography was judged by the Board to have considerable merit in determining the incentive award.

Prime objective of the Lunar Orbiter III mission was to obtain from lunar orbit detailed photographic information of various lunar areas to assess their suitability as landing sites for Apollo and Surveyor spacecraft and to improve U.S. scientific knowledge of the moon.

Members of NASA's Lunar Orbiter Incentive Evaluation Board are Dr. Bernhardt L. Dorman, Assistant Administrator for Industry Affairs; Dr. Homer E. Newell, Associate Administrator for Space Science and Applications; and Dr. Floyd L. Thompson, Director of Langley Research Center, which manages the Lunar Orbiter project.



Artist's concept of NASA's Mariner E spacecraft for the Venus 1967 mission. The 542-pound Mariner spacecraft was launched from Cape Kennedy on June 14 by an Atlas/Agena D. launch vehicle on a four-month-long mission to Venus. Mariner's trajectory will take it to within some 2,000 miles of Venus on October 19, about ten times closer to the planet than Mariner II in December 1962. Primary objective of the Mariner Venus 1967 mission is to obtain scientific information on the origin and nature of Venus and its environment. Although it is the closest planet to Earth, Venus is largely an unknown planet because of its thick cloud envelope. The Venusian atmosphere itself is a mystery with theories of its density, for instance, ranging from five to several hundred times the density of the Earth's atmosphere. The Mariner Venus mission also will gather information on the interplanetary environment during a period of increasing solar activity.

NOTICE: A full or part-time position is open at Trinity Methodist Church in Newport News for a person professionally qualified to be either a Director of Christian Education or an Educational Assistant. Time availability will determine income. Contact Reverend J. William Hough, Box 73, Newport News, Va. 23607, supplying resume of training and experience, indicating time available and probable length of residence in this area.

GARAGE SALE: Tomorrow from 10 a.m. until dark - plenty of bargains. Foudriat, 439 Martha Lee Drive, Hampton.

WANTED: Ride or driving combination from Cavalier Manor, Portsmouth, to W.A. on 7:30 shift. Darden, 4509.

FOR SALE: Walter's player piano - $200. Webb, 596-6757.

Five Langley staff members recently received Special Service Awards for Exceptional Service. Each recipient received a certificate of commendation and a check for $500. Left photo - Charles J. Donlan (left), Associate Director, congratulates Harry W. Carlson, Harvey H. Hubbard, and Domenic J. Maglieri. Right photo - Also receiving the award was Peter R. Kurzhals. Not present when the pictures were taken was Francis E. McLean.

HEALTH AND FIRST AID

You will work better and enjoy life more if you follow simple, general health rules. Perhaps the most important of these are to eat the right food and to get plenty of sleep. Lack of sleep or of proper food causes fatigue and decreased efficiency, and is a factor in many accidents.

If you become ill when at work, do not continue on the job, but report to your supervisor. He will see that you get proper medical aid.

Wash your hands whenever you finish a job, especially before eating or after you have been using chemicals. Observe "No Eating" and "No Smoking" signs. Some materials are dangerous if they get in your mouth.

Do your part to keep washrooms, toilets, drinking fountains, and locker rooms neat and sanitary.

Report immediately for first aid, regardless of how slight your injury.

Do not attempt to move a person who has been injured, but wait until proper medical assistance arrives. Be sure you know how to call for help.

Do not allow anyone except a medically trained person to remove foreign bodies from your eyes.

FOR SALE: 1962 Oldsmobile F-85 convertible - $550. Smith, 642-4509 Gloucester.

FOR SALE: 3-bedroom, 2-bath brick split-level house in Riverdale - built-in kitchen, fully air conditioned, wall-to-wall carpets, attached garage. Edwards, 838-2533.

WANTED: Driving combination from Williamsburg to W.A. on 8 shift. Butler, 4666.

FOR SALE: 14-foot Wolverine boat with 10 hp Johnson motor and Teenes trailer. Verell, 67 Pear Ave., 244-8528.

WANTED: Ride from Sherwood Ave., Phoebus, to W.A. on 8 shift. Shadley, 4535.

FOR SALE: 1958 18hp Mercury outboard motor - used only in fresh water - $75. Routten, 851-0273.

FOR SALE: 3-bedroom brick rancher in Bethel Heights - wall-to-wall carpet, eat-in kitchen, stove and refrigerator - $15,300 or assume 5-1/4% loan. Neal, 826-0518 after 5.

STAFF MEMBERS RECEIVE AWARDS

Five staff members recently received Special Service Awards for Exceptional Service. Each recipient received a certificate and a check for $500. The presentations were made by Charles J. Donlan, Associate Director.

Receiving the awards were Harry W. Carlson, Supersonic Mechanics Section, Full-Scale Research Division; Harvey H. Hubbard, Head of Acoustics Branch, Dynamic Loads; Domenic J. Maglieri, Head of Aircraft Noise Control Section, Dynamic Loads; Dr. Peter R. Kurzhals, Head of Stability and Control Section, Applied Materials and Physics; and Francis E. McLean, Large Supersonic Tunnels Branch, Full-Scale Research.

The certificates read as follows:

Carlson - "For the development of precision wind tunnel techniques for measuring the shock field characteristics of aircraft and for the establishment of a firm calculative basis for determining the sonic boom signature of supersonic aircraft."

Hubbard - "For outstanding contributions in conceiving and implementing extensive research programs which significantly advanced the fundamental knowledge of the sonic boom."

Maglieri - "For outstanding management of basic research programs which advanced the understanding of the sonic boom and its relation to aircraft flight operation."

Dr. Kurzhals - "For the development of an effective and imaginative approach to the control of the attitude of large manned spacecraft and to the suppression of disturbances caused by crew activity which development required the unique application of control moment gyroscopes and the creation of a unique analytical representation of the controlled and uncontrolled motion of the spacecraft."

McLean - "For application of fundamental 'near-field' technology to the reduction of sonic boom overpressures for very large supersonic aircraft."

FOR SALE: Young Shetland pony with saddle - $75, also 2 end tables - $4 each. Childs, 898-6719.

CANDIDATES FOR LANGLEY CARNIVAL QUEEN

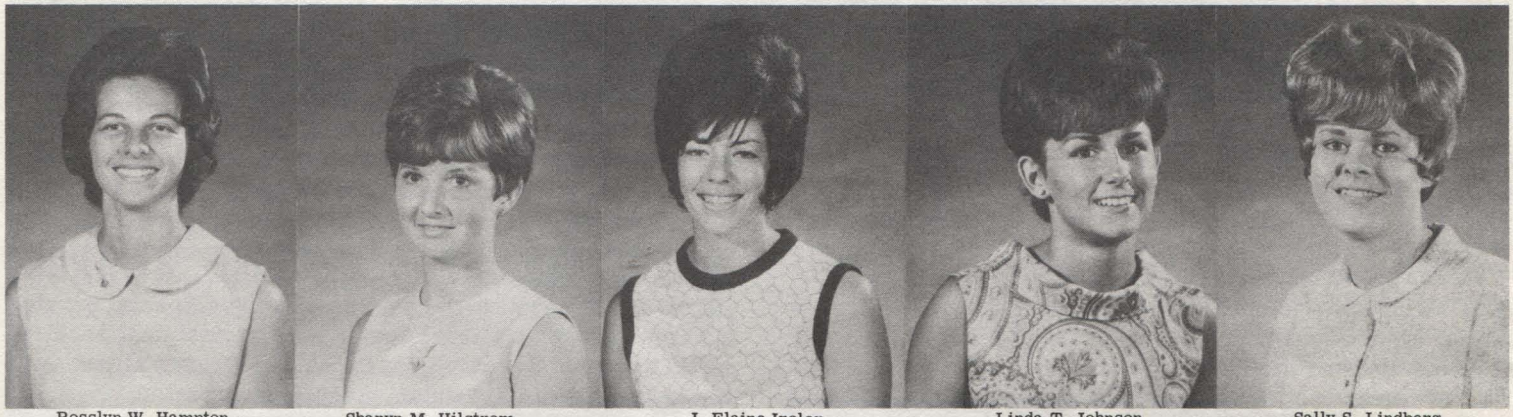
Dianne L. Adams
Office of Director

Sheila Ann T. Anthony
Space Mechanics

Judithann P. Beck
Research Reports

Betty B. Branch
Procurement

Sandy L. Dunn
Flight Vehicles and Systems



Rosslyn W. Hampton
Dynamic Loads

Sharyn M. Hilstrom
Administrative Services

J. Elaine Iroler
AMPD

Linda T. Johnson
Personnel

Sally S. Lindberg
FMTD

Ruth W. Luper
Fiscal

Evlyn B. Moore
Instrument Research

Sue A. Nelson
Analysis and Computation

Ruth A. Pokorski
Structures Research

M. Jeanette Saunders
Aero-Physics

Virginia W. Shuler
Flight Instrumentation

Rudeen S. Smith
Full-Scale Research

Carol M. Thomas
Flight Projects

Janet B. Vaughan
Mechanical Services

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Langley Researcher

VOLUME 6, NUMBER 16 LANGLEY RESEARCH CENTER AUGUST 11, 1967

'13' LUCKY FOR LEWIS RESEARCH CENTER AND LANGLEY IN LUNAR ORBITER PROJECT

Thirteen is a lucky number for NASA's Lewis Research Center, Cleveland, Ohio, in their work with the Lunar Orbiter Program. After the successful launch of Lunar Orbiter and during the post launch press briefing, V. H. Warren Plohr, manager of the Lewis Agena Project, detailed the role of "13" in the orbiter launch vehicles.

Lunar Orbiter V successfully launched from Cape Kennedy on August 1 by a Lewis-managed Atlas Agena-D was the Lewis Center's 13th launch to the moon. The preceding 12 lunar launches were four Atlas Agenas carrying Rangers, four Atlas-Centaurs carrying Surveyors, and the first four Orbiters.

It was also Plohr's thirteenth launch as project manager and by getting Orbiter off on the first day of the August window the spacecraft has an extra 13 degree slice of the moon that it can photograph. Lunar Orbiter V like its predecessors went off of pad 13 at the Cape. Lunar Orbiter II was the 13th launch from the Cape for Lewis Agena Project and Lunar Orbiter III was the 13th Lewis Atlas/Agena launch from the Cape.

As launch vehicle manager for the Orbiter Program, Lewis responsibility begins with supplying the spacecraft launch vehicle requirements and follows through the procurement, design, fabrication, test and integration of launch preparations and launch through injection of the spacecraft into the proper orbit.

The Agena Project is supported by the Lewis Atlas Project which manages the Atlas boosters for both Lewis Agena and Lewis Centaur vehicle combinations.

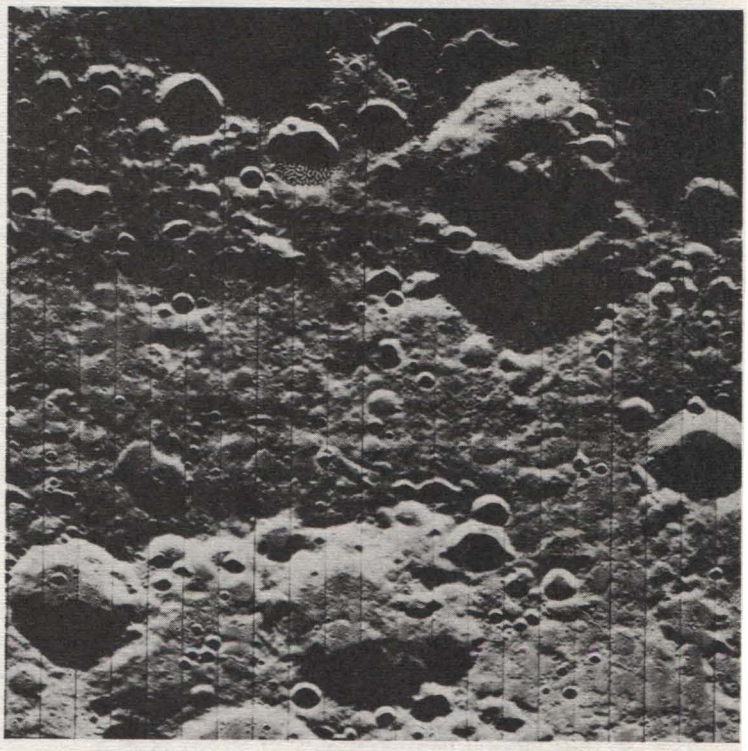
Lunar Orbiter V completes the launch series of the highly successful photographic spacecraft.

In one year, the Langley-managed Orbiters have been major contributors to the nation's effort to learn about the moon's surface, and have acquired a wealth of photographic detail which will stand as the definitive source of lunar surface information for many years.

The first three Lunar Orbiter missions were in direct support of the Apollo and Surveyor lunar landing programs; they identified at least eight areas in which potential manned landing locations exist.

The fourth Orbiter mission completed a broad photographic survey of the moon's front face, yielding telephoto pictures of 99 per cent of the entire area with ten times finer resolution than the best existing telescope views.

(Continued on page 4)



This view of the back side of the moon was made by Lunar Orbiter V with a telephoto lens from 1660 miles on August 6. The picture shows an area never before photographed, revealing a heavily cratered upland surface about 130 by 140 miles in area. This was one of the first five photographs taken by Lunar Orbiter V.

TERMINAL DESCENT OF SPACECRAFT SIMULATED IN MARTIAN ATMOSPHERE

The successful simulation of a Voyager capsule terminal descent in the Martian atmosphere was conducted July 28 as part of the Planetary Entry Parachute Program to develop techniques for soft-landing unmanned instrumented spacecraft on Mars.

The scientific experiment was conducted by NASA after a 15-foot diameter saucer-shaped spacecraft was carried by a huge balloon system to high altitude and released over the White Sands Missile Range, New Mexico.

The balloon carrying the spacecraft was launched from Walker Air Force Base, New Mexico, and the experimental payload was dropped free at an altitude of 129,000 feet over White Sands.

Eight rocket engines in the spacecraft then were ignited by ground command to propel it to a velocity of about 1,100 miles an hour as it climbed to 137,000 feet.

With the altitude, velocities, and pressures combining to make the test environment closely correspond to the rarefied atmosphere of Mars - a 65-foot diameter disc-gap-band parachute carrying a 500-pound instrument package was deployed from the spacecraft.

The specially designed parachute is one of three types being investigated by NASA for possible use as decelerators in easing the Voyager capsule to a soft landing on Mars. The other types are the cross and the ringsail.

The disc-gap-band parachute includes a circular crown of Dacron separated from a skirt by a gap which provides

(Continued on page 5)

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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 for a November wedding is Ruth Pluta, Administrative Services. She is engaged to Gregory D. Coren, Reading, Pa. . .Nancy M. Hopkins, Structures Research, is engaged to Lt. John Thomas White, Poquoson. No date has been announced for the wedding. . . Making plans to desert the bachelor ranks is Charles Morris, Flight Mechanics and Technology. He is engaged to Barbara Wilkey, Newport News, and the wedding will take place on December 16. . .A Center romance reached the engagement stage when Judith Ann Pettigrew and Brantley R. Hanks, both of Dynamic Loads, announced their plans to wed on December 2. . .Sally Gerton, Aero-Physics, has announced her engagement to Robert Schwartz, Full-Scale Research. No wedding date has been announced.

AFGE MEETING. . .The NASA Lodge No. 2755, American Federation of Government Employees (ALF-CIO affiliated) will hold its monthly meeting on Wednesday, August 30 at 7 p.m. at the Central Labor Union Hall, Newport News.

DUCKPIN LEAGUE. . .An organizational meeting of the NASA Duckpin League will be held at 4:30 p.m., August 14 in the Activities Building. All interested persons are requested to attend. Those unable to attend should call Al Shearin, 4483, or John Moore, 4485.

BEACH PARTY. . .All single NASA employees and friends are invited to a Beach Party at Grandview tonight at 6:30. Cost will be fifty cents per person. For further information contact George Green, MS 240.

TENPIN LEAGUE. . .An organizational meeting of the NASA Tenpin League will be held at 7:30 p.m., August 16 at the Activities Building. All teams should have a representative present. For information contact Leonard Mayo, 3681.

BABY DERBY. . .Celebrating the birth of an eight pound, two ounce daughter, Mary Elizabeth, on July 28 is Billy W. Beasley, Electrical Systems. . .Announcing the birth of a seven pound, nine ounce son, Gregory Alan, on July 28 is Leland A. Imig, Structures Research. . .A nine pound, two ounce son, Steven Bradley, arrived at the John E. Hubbard household on July 31. The father works in Mechanical Services. . .Weighing in at seven pounds, fourteen ounces on July 28 was John Michael, new son of John F. Wilson, Research Models and Facilities.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of August 14:

Monday - Puree of bean soup, braised short ribs, broiled Canadian bacon, chicken-fried beef steakette, Spanish omelette. Snack Bar - soup, hamburger, hot pastrami on rye, French fries.

Tuesday - Consomme julienne, Swiss steak, fried scallops, broiled B-C-T on toast, chili con carne. Snack Bar - soup, ham and egg sandwich, steak sandwich, French fries.

Wednesday - Chicken-noodle soup, chicken cacciatore with spaghetti, fried shrimp, stuffed pepper, grilled cheese sandwich. Snack Bar - soup, grilled cheese sandwich, flying saucer, French fries.

Thursday - Vegetable-beef soup, grilled steak, breaded veal cutlet, sauteed chicken livers, cheddar dog. Snack Bar - soup, cheddar dog, breaded veal steak sandwich, French fries.

Friday - Clam chowder, chopped steak, smoked pigs in a pone, fried fish, broiled fish, cheese omelette. Snack Bar - soup, fish sandwich, hot corned beef on rye, French fries.

The menu for the week of August 21 is as follows:

Monday - Cream of mushroom soup, roast ribs of beef, grilled ham slice, Polish sausage, western omelette. Snack Bar - soup, western omelette, fried ham sandwich, French fries.

Tuesday - Cream of tomato soup, grilled pork steak, fish cakes, chicken pie, stuffed pepper. Snack Bar - soup, hamburger, hot pastrami on rye, French fries.

Wednesday - French onion soup, baked Virginia ham, braised sirloin tips over rice, liver and onions, baked hash. Snack Bar - soup, ham pattie on bun, liver sandwich, French fries.

Thursday - Vegetable-beef soup, grilled steak, beef stew, fried chicken, grilled spiced luncheon meat. Snack Bar - soup, spiced luncheon meat sandwich, steak sandwich, French fries.

Friday - Clam chowder, barbecued spareribs, stuffed flounder, broiled fish, franks and beans. Snack Bar - soup, hot dog, hot corned beef on rye, French fries.

NEW PLANT SAFETY BUILDING OF NASA BEGINS OPERATIONS

A new Plant Safety Building has been completed at Langley Research Center to house firefighting and safety personnel and equipment.

Eastern Construction Corporation of Tabb built the one-story permanent type brick structure at a cost of $100,160. It is located at the corner of Ames and Moffett Roads in the West Area.

The facility's 3,904 square feet of area include a 64 by 36-foot apparatus room, and a 25 by 64-foot area which contains the duty quarters and day room for the firefighting unit and an office for the NASA Safety Inspector and safety equipment.

The building increases the safety services and facilities available to the 4,300 NASA employees, most of whom are assigned to the West Area, and for the protection of the Center's $250,000,000 investment in wind tunnels, specialized research laboratories, and support structures.

Fire protection of NASA s East and West area facilities is delegated to the Langley Air Force Base Fire Marshall under a cooperative agreement between NASA and the Air Force. The Air Force is providing the new facility's 12 firefighting personnel and the NASA is furnishing three fire trucks and three shift supervisors who will function under the direction of the LAFB fire marshall.

The cities of Hampton and Newport News and NASA have a mutual aid agreement for back-up fire protection should the need arise.

SILVERS DIES AT AGE 42

Norman H. Silvers, Lunar Orbiter Project Office, died unexpectedly July 28 in Riverside Hospital.

Silvers was born September 3, 1924 in Miami, Florida. He graduated from Miami Senior High School and received his B.S. degree in Aeronautical Engineering from Georgia Institute of Technology.

He joined the Center staff on June 26, 1944 as an aeronautical engineer at the Atmospheric Wind Tunnel. He transferred to 7 x 10-foot Tunnels Branch in 1946 and was assigned to Unitary Wind Tunnel in 1954. He had been in LOPO since 1965.

He is survived by his wife, Mrs. Bette Lou Silvers; a son, Randy Silvers, and a daughter, Vicki Silvers.

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. Members who do not receive statements are requested to notify the Chairman of the Supervisory Committee, P.O. Box 607, Langley AFB, Virginia 23365. Members are also requested to check their records and to report any errors to the Supervisory Committee at the above address. Please note that the date of the audit was June 30. Any transactions after that date will appear on the next semi-annual statement which will be issued as of December 31.

FOR SALE: 16-1/2-foot Grady-White boat, convertible top, 65 hp Mercury engine, Cox trailer and many extras - $1395. Smith, 851-1409.

A new Plant Safety Building has been completed in W.A. to house firefighting and safety personnel and equipment. In ceremonies held last week Dr. Floyd L. Thompson, Director, turned over the key to the new building to Base officials. Taking part in the ceremonies are (from left): Marvin Forrest, Assistant to the Chief, Office of Engineering and Technical Services; Albert Mittelmaier, Chief of the LAFB Fire Department; Dr. Thompson, and Colonel Andrew J. Myers Jr., Base Fire Marshal. Bottom photo - Crew members of the new station pose with Base officials. They are front row: James W. Powell, Clayton Campbell, and Kenneth Kuzma. Back row: Jackie Holloway, NASA Fire Prevention Inspector; Chief Mittelmaier, Harvey Marshall, J. W. Vaillancourt, Col. Myers, and W. E. Lipford, NASA Supervisory Firefighter.

FOR SALE: 17-foot National One-Design sailboat with trailer - $550. Goble, 595-2066.

WANTED: Hand or power tools for home workshop. Goble, 595-2066.

WANTED: Ride or driving combination from vicinity of Beaconsdale Shopping Center to E.A. on 8 shift. Anderson, 2582.

FOR SALE: 4-bedroom, 1-1/2 bath house with attached garage in Fairfield. Schaeffer, 851-0220.

WANTED: Driving combination from Powhatan Park to W.A. on 8 shift. Clark, 3595.

COURSES OFFERED STAFF

A number of courses, sponsored by the College of William and Mary, have been approved by the Undergraduate Training Committee. The fall semester will start on Sepber 18 and the courses offered are as follows:

CREDIT COURSES

Math 103 - Algebra and Trigonometry - 45 hours. An integrated study of the real number system, sets, functions, graphs, equations and inequalities, systems of equations, trigonometric functions and their properties. This class is scheduled to be conducted on Wednesdays from 4:30-7:30 p.m. in Building 1149, Room 201.

Math 201 - Calculus with Analytic Geometry - 45 hours. Inequalities, absolute values and analytic through conics. Sets, ordered pairs and functions leading to limits and derivatives of algebraic and transcendental functions including application to maxima, minima, plane motion and Law of the Mean Value. Differentials and their applications. This class will meet on Wednesdays from 4:30-7:30 p.m. in Building 586, Room 111.

Math 202 - Calculus with Analytic Geometry - 45 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. Technique of integration, parametric equations, polar coordinates and vectors. Two classes of this course will be conducted - one on Wednesdays from 4:30-7:30 p.m. in Building 586, Room 110 and the other one on Thursdays from 4:30-7:30 p.m. in Building 586, Room 110.

Math 302 - Differential Equations - 45 hours. Ordinary differential equations. Laplace Transform. Series solutions of Legendre and Bessel equations. Solutions of partial differential equations by separation of variables. Applications in geometry, physics, and engineering. This course will meet on Thursdays from 4:30-7:30 p.m. in Building 1149, Room 201.

NON-CREDIT COURSES

Basic Mathematics for College (Trigonometry) - 45 hours. This will be a continuation of the course that began in the spring semester of 1967. The content of this course will consist of the function of angles, the solution of right and oblique plane triangles of trigonometric equations and of identities. This course will be conducted on Mondays from 3:30-6:30 p.m. in Building 1149, Room 201.

Basic Mathematics for College (Analytic Geometry) - 45 hours. This will be a continuation of the course that began in the spring semester of 1967. The content of this course will consist of straight lines, probabilities, determinants, surface and space curves, etc. This course will meet on Tuesdays from 3:30-6:30 p.m. in Building 1149, Room 201.

Other courses may be organized if there is a specific need and sufficient enrollment is obtained.

Application forms for enrolling are available in the Training Office, telephone 2611. Approval of the supervisor and division chief is required before the applicant may enroll. Applications must be returned to the Training Office on or before August 25.

Top photo - Lewis Research Center's H. Warren Plohr (center) and Joseph A. Ziemianski (right) were photographed at their communication consoles during preparations for the launch of the Lunar Oribter spacecraft to the moon. Lewis is responsible for launches of the Atlas-Agena rocket which was used for Lunar Oribter. Plohr is Agena Project Manager and Ziemianski, Agena Project Engineer for Lunar Oribter. Joseph B. Mahon (left), is Agena Program Manager in NASA Headquarters. Bottom photo - Russell B. Keller Jr., (left), an engineer from Lewis Research Center, is shown here at his console in the Launch Vehicle Mission Control Center, Cape Kennedy. Keller is Lewis Assistant Project Engineer for Lunar Orbiter. Robert Girouard, Space Vehicle Systems Manager, from Langley's Lunar Orbiter Project Office is also shown.

LUNAR ORBITER PROJECT

(Continued from page 1)

For most of the area covered, the pictures contain a hundred-fold increase in discernible detail.

Lunar Orbiter V has the complex assignment of photographing areas of potential interest to:

----the Apollo and Surveyor landing programs;
----the future Apollo Applications Programs; and
----science by photographing at close range sites of outstanding interest identified from the broad higher altitude survey completed by Lunar Orbiter IV.

FOR SALE: Girl's bicycle - $10, paint sprayer with compressor - $38, dual Scuba regulator - $20, large bookcase- $15, cherry TV cabinet with louvred doors - $65, large boat compass - $35, several small electrical appliances, assorted old straight chairs. Mrs. Gilman, 722-5847.

FOR SALE: 1967 Volvo, 2-door, 122S. Grist, 596-7426.
FOR SALE: High chair - $5, baby crib and mattress - $12, training chair - $2. hand mower - $12. Kirkland, 596-0641.
FOR SALE: Ford F-100 pick-up, custom cab, small insulated camper. Smith, 484-6628.

CARNIVAL TICKETS AVAILABLE

Tickets are now available from District Representatives for the Carnival which will be held Friday and Saturday, August 25 and 26 on the grounds of the Activities Building. The tickets are one dollar each. By purchasing a ticket the buyer is eligible for the ground prizes and he may also vote for his choice for Carnival Queen.

Ground prizes will be given away every 20 minutes. The big prize on Friday night will be a Zenith portable TV set and the grand prize on Saturday night will be a Renault 10 automobile. Winners of the prizes must be present for all drawings except the TV set on Friday and the Renault on Saturday.

Drawing times and the prizes to be given away are as follows:

Friday: 6 p.m. - Samsonite folding table with four padded chairs, 6:20 - Plinney Walker boudoir alarm clock, 6:40 - Juliette petite personal radio, 7 - J. E. Stores phonograph, 7:20 - deluxe tool kit, 7:40 - Westinghouse toaster, 8 - GE 5-band AM-FM short wave portable radio, 8:20 - Coleman portable cooler, 8:40 Sunbeam steam spray or dry iron, 9 - Go Cart, 9:20 - electric can opener, 9:30 - Sunbean 8-cup electric percolator, 10 - Zenith portable TV with stand.

Saturday: 2 p.m. - archery set with target, 2:20 - 30-cup West Bend coffee percolator, 2:40 - Ross 10 transistor micro-radio, 3 - Hamilton Beach blender, 3:20 - Gebeo Bait casting rod and reel, 3:40 - General Electric AM table radio, 4 - Jason 10 x 50 wide angle binoculars, 4:20-Ronson veraflame lighter, 4:40 - one-dozen Wilson golf balls, 5 - Yashica Lynx 5000 35mm camera, 5:20 - Ingram wrist watch, 5:40 - Sunbeam electric toothbrush, 6 - cart, golf bag, Sam Snead basic set of clubs, 6:20 - fishing tackle box, 6:40 - folding travel alarm, 7 - Smith-Corona electric portable typewriter Electra 110, 7:20 - rechargeable flashlight, 7:40 - hostess cart with trays, 8 - His & Her Schwin bicycles, 8:20 - roast and serve platter, 8:40 - Sunbeam portable mixer, 9 - Go Cart, 9:20 - electric can opener, 9:40 - AM clock radio, 10 - Renault 10 automobile.

SPACECRAFT TEST SUCCESSFUL

(Contined from page 1)

the major portion of geometric porosity required to maintain parachute stability in extremely thin atmosphere.

In the July 28 simulation, the test parachute slowed the payload's descent from approximately 1600 feet per second to 300 feet per second through the thin, Mars-like atmosphere high above the Earth.

The spacecraft, which descended without a parachute, and the parachute-instrument package were to be recovered from the range for use in a scientific analysis of flight results.

Made of tissue-thin plastic film reinforced with Dacron threads, the helium inflated balloon at maximum altitude has a volume of 26 million cubic feet and is 410 feet in diameter by 502 feet long.

The balloon was developed and launched by the Air Force Cambridge Research Laboratories, Bedford, Mass., which also served as project sponsor at the site of the experiment.

Martin Marietta's Denver Division, under NASA contract, builds the payload and saucer-shaped spacecraft and is responsible for integrating the parachute package with the spacecraft.

The Activities Association is sponsoring an effort to send 3,000 Christmas packages to our servicemen in Viet Nam. The standard size box, which is held by Deborah Smith, may be obtained from District Representatives or from the cafeterias. The filled boxes must be returned to Representatives before October 1. The outside Christmas covering was designed by Bobby Silverthorn, Technical Illustrators.

ASSOCIATION SPONSORS EFFORT TO SEND PACKAGES TO SERVICEMEN

The Activities Association is sponsoring an effort this year to send 3,000 Christmas packages to our servicemen in Viet Nam.

Heading the committee for the Activities Association is Ann Bell. She is being assisted by Herb Boulter and Arnold Mueller.

The Association is furnishing a standard size box which may be obtain from District Representatives or from the cafeterias. The boxes are 8 inches long, 5 inches deep, and 6 inches wide. The filled boxes must be returned to the Representatives before October 1 so they may be sent to Norfolk for shipping by Operations Handclasp.

Before packing, it is suggested that the contents be placed in a plastic bag in order to make them waterproof.

Some of the small gifts which would probably be appreciated are: razor, razor blades, toothbrush, toothpaste, paper back novels, playing cards, cribbage board, pocket game sets, darning kit, nail clippers, wallet, nail file, small pocket knife, cigars, cigarettes, candy, key ring, chewing gum, fruit cake, note paper, pen or pencil.

The sender may also enclose a Christmas card with his name and address.

As of press time the Planetary Entry Parachute Program's third balloon launch was scheduled for Wednesday, August 9. Members of the ground support crew for the launch are: R. R. Lundstrom; Mission Director; Wayne L. Darnell, Assistant Mission Director; Henry Elksnin, Launch Supervisor; James N. Chacamaty, Mechanical Systems; W. R. Rash, Electrical Systems; D. D. Shuster, Pyrotechnic Systems; V. H. Knight and P. L. Yeager, Instrument Systems, and S. J. Kubalak, Tracking Systems.

15 SCOUT ROCKETS ORDERED

A contract for services and materials necessary to provide 15 Scout Rocket vehicles will be negotiated by NASA with LTV Aerospace Corp., Dallas. Scout is used extensively in launching payloads for NASA's Office of Space Science and Applications.

Langley Research Center, which is responsible for management of the Scout Project, will conduct the contract negotiations. The new contract will cover a 24-month period, with deliveries beginning about the 10th month at a rate of one vehicle per month.

The value of the procurement is expected to exceed $10 million and is expected to be a firm-fixed-price contract.

Several major subcontracts will result from this award, the primary ones being with Aerojet-General Corp., Sacramento, Calif, for the first-stage rocket motor; Thiokol Chemical Corp., Huntsville, Ala., for the second stage; Hercules Powder Co., Wilmington, Del., for the third stage; and United Technology Center, Sunnyvale, Calif., for the fourth stage.

Walter Kidde Co., Bellview, N. J., is expected to receive a subcontract for various reaction control and hydrogen peroxide systems; and Minneapolis-Honeywell Regulator Co., Minneapolis, for guidance system packages. Numerous subcontractors throughout the country will be furnishing other specialized Scout components and subsystems.

The Scout is a multi-stage launch vehicle using four solid propellant rocket motors capable of carrying payloads of various sizes on orbital, space probe or reentry missions. It can loft a 320-pound satellite into a 300-mile orbit or carry a 50-pound scientific package approximately 11,000 miles away from Earth.

The four-stage vehicle is 72 feet long and weighs 20 tons at lift off. Launching sites are operational on both coasts of the United States for either east-west or polar launchings.

MEN AND MACHINES

You should use only the machines and the equipment that you are authorized and qualified to use.

Before you turn on a machine, make sure that everyone is in the clear, and that guards and safety devices are in place and properly adjusted. Never tie down or otherwise block out guards and devices, such as two-hand controls.

Do not leave a machine running unattended.

When adjustments are necessary, turn off the power and wait until the machine has come to a standstill. Do not attempt to brake or slow down moving machinery with your hand or with some makeshift device. Bleed off residual pressure if machine is of this type.

Keep your machine clean. If it becomes necessary to remove chips from a moving machine, do it with a brush or stick and not with your hands.

Most machine operations require that the operator wear eye protection.

Do not wear long sleeves, neckties, gloves or jewelry when operating machinery. Protect long hair.

FOR SALE: Bedroom suite, sofa, coffee table, large desk, chest of drawers, baby furniture, dining room suite. Norwood, 838-4321.

FOR SALE: 1961 Vespa motor scooter, new battery and windshield. Smith, 826-7341.

Members of Langley's Planetary Missions Technology Steering Committee are (clockwise): William D. Mace, Thomas A. Toll, Dr. George W. Brooks, David G. Stone, Eugene S. Love, chairman, Roger A. Anderson, Edwin C. Kilgore, James E. Stitt, Percy J. Bobbitt, and William H. Phillips. Not shown is Paul R. Hill. The functions of the committee as they relate to planetary missions are to survey in-house and contractual supporting research and technology and to recommend new effort or changes in efforts where appropriate, to monitor research programs to ensure adequate dissemination of new results and developments, to participate in the definition of the scope and depth of contract studies, and to review and evaluate results of studies and recommend appropriate action.

KNOW YOUR CREDIT UNION

This is the time of year for some members to enjoy the thought that "all work and no play..." while others walk around muttering "school days, school days" without a sign of the nostalgia supposed to accompany the refrain of "dear, old, golden-rule days." It must be a comfort to both groups to know that their Credit Union stands behind them: ready to change the thought into reality or take the "mutter" out of muttering.

Seriously, everyone needs a vacation. If you haven't had yours, begin by putting your trip plan on paper. Figure out how many days you'll be gone. Then estimate the amount needed each day for food, lodging, transportation, and special expenses (admissions, tolls, souvenirs, tips and possible automobile repairs). If your savings cover the total, fine. If not, you will know how much to cut down on your projected trip. Or how much you will need from your Credit Union to get you there...and back.

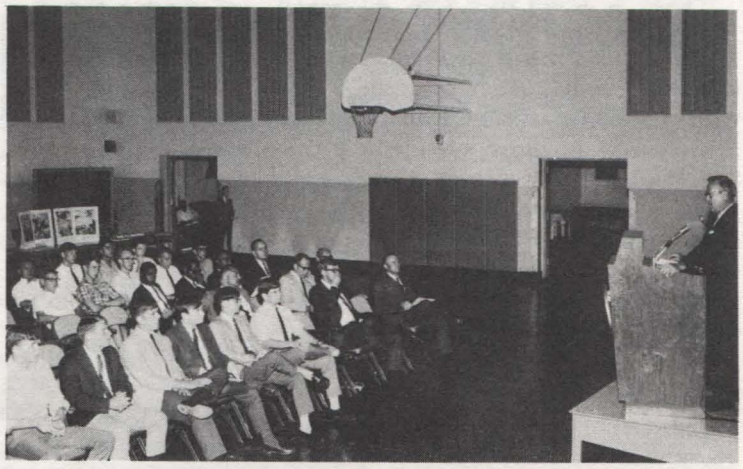
If you decide on a relaxing, stay-at-home vacation, plan some of those fix-up, paint-over, or add-on projects you've been putting off. An FHA Home Improvement loan to $3500 can solve any financial problem and send you back to work with a real feeling of accomplishment.

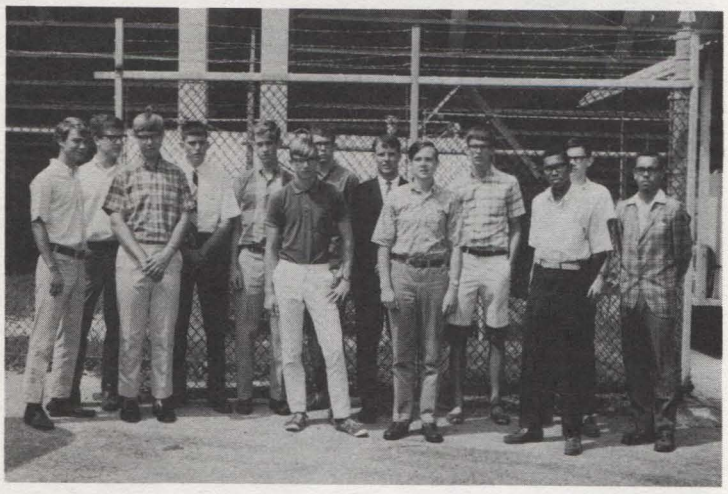
Assistance is available, too, for those to whom the approaching start of a new school year brings problems. A personal loan to $750 can solve most of them: new shoes for fast growing youngsters, tuition, school supplies, and incidental expenses.

Service at your Credit Union is fast, courteous , and convenient. So whatever your needs, come in and talk it over. The Credit Union's best advertisement is a member who is truly satisfied.

FOR SALE: 1967 Mustang. Mayo, LY6-4529 after 5 p.m.

FOR SALE: Shop vacuum cleaner, 20-inch window fan. Harris, 898-7086.





Langley Research Center has agreed to sponsor a program for a NASA Aerospace Explorer Post. Top left photo- Assisting the Post are seated (from left): Bill Reed, assistant advisor; Josh Foyles, advisor, and Dr. George W. Brooks, committee chairman. Standing - Axel Mattson, institutional representative; Paul Davis, Boy Scouts of America; Lt. Bill Lenz, organizer; Archibald Sinclair, committee member, and Donald Baals, committee member. Committee members not shown are Dr. Robert Fulton, Dr. Samuel Katzoff, Francis Rogallo, Bill Williams, and Charles King. Top right photo - Thirty-one boys and their fathers attended the first meeting. They were briefed by Mattson. Lower left photo - On July 24 13 members of the post visited the Center and toured a number of research facilities. Lower right photo - Mattson shows a model of Lunar Orbiter to Chuck Mills, Kecoughtan High School; James Holmes, Phenix High School, and Bill Vogeley, York High School.

NASA AEROSPACE EXPLORER POST

Langley Research Center has agreed to sponsor a program for a NASA Aerospace Explorer Post. The purpose of the program is to give promising boys an opportunity to work with and learn from men of character who have a variety of skills and abilities - men who can have a constructive influence in the formative years of these Explorer Scouts.

The Explorer program has been carefully designed by the advisor, assistant advisor, institutional representative and the committee members to meet the needs and desires of high school age boys interested in a phase of space science as a career.

The Post will meet twice each month for a two-hour session with knowledgeable scientists to discuss and work in a chosen area. Some of these areas are aircraft, launch vehicles, spacecraft, man in space, instrumentation, lunar exploration, and computation. The first area to be explored will be aircraft with sub-headings such as wind tunnels, wind tunnel models and supersonic transport. The Post will decide upon the order the other areas will be discussed and studied.

Inivitations were extended to 46 boys respresenting seven high schools from the Peninsula area. The initial meeting was held July 17 in the Activities Building with 31 boys and their fathers present. An invitation was extended to the Post to participate in a tour of the Center on July 24. thirteen members accepted the invitation.

Attending the first meeting were the following: Newport News High School - Peyton Clark, John Smith, Glenn Hile, Jerry Smith, Ralph Gore, Floyd Stall; Phenix - John Gould, James Holmes, Donnie Wright; Kecoughtan - James Wilson, Stacey Mills, Paul Supan, Robert Ferguson; Poquoson- Ronnie Quinn and Deanne Brown; Hampton - Edward Page, David Vance, Richard Judy, Howard Winch, James Fitzpatrick; York - James Riggins, Wayne Howe, Michael Reeves, Joseph Whitehurst, Arthur Vogeley, Bruce Tuovila, Joe Burner, Richard Lane; Warwick - Dennis Galle, Chris Wilson, and Richard Newman.

WANTED: Driving combination from Tuckahoe or Hidenwood to W.A. on 7 shift. Shearin, 4483.

FOR SALE: Chrome dinette set - $15. Ackerly, 595-1414.

COUNTDOWN

FOOTBALL: The Activities Association is making final arrangements for a limited number of tickets and transportation to both the Kiwanis Bowl and Oyster Bowl games.

The Kiwanis Bowl will feature the Washington Redskins vs. the Pittsburgh Steelers in a preseason game on Sept. 9. The cost of tickets and transportation to and from the game will be $6.25. Busses will leave the Activities Building one hour before game time. Tickets will be sold on a first come first served basis.

The Oyster Bowl game between the Duke Bluedevils and Navy will be played on November 11. Busses will leave the Activities Building at 8 a.m. This will permit you to arrive in time to view the parade, have lunch before game time, and view the colorful pre-game ceremonies. Total cost will be $8.75 per person. Reservations will be made on a first come first served basis. For additional information contact John Wharton, 4508.

DOLPHIN MONTH: Throughout the month of August tickets will be available from District Representatives to permit NASA personnel and their families to attend any dolphin performance for half-price. Children under six will be admitted free. Children over six will be charged 25 cents and the admission for adults will be 50 cents. There are continuous showings daily (except Sunday and Monday) from 6 p.m. to 10 p.m. Included on the same tickets will be an additional treat allowing the family the same benefit on the Quik-Tic golf driving range which is at the same location on Armistead Ave. Tickets are available for the asking and the admission fee and ticket must be presented at the dolphin grounds.

CHORAL SOCIETY: An organizational meeting of the NASA Mixed Choral Society will be held on August 14 at 7:30 p.m. in the Activities Building. All NASA personnel and NASA contractors interested in joining the group are requested to contact Marvin Leffel, 4766. The group is also in need of a pianist. The society will be directed by Gene Hunt.

AERO CLUB: A meeting of NASA personnel interested in forming a NASA Flying Club will be held on August 14 at 7:30 p.m. in the Activities Building. Two meetings have already been held. At the August 1 meeting a representative of Mac Air Corporation, a new fixed base operator at Patrick Henry Airport, was on hand to explain their procedure for forming an aero club. This organization will have available for club use a Cessna 150, Sky Hawk, Mooney Mark 21, and Piper Aztec aircraft. Plans are for the club to cater to all levels of pilots. For additional information contact Bruce Jordan, 4484.

SKEET SHOOTING: A trap and skeet shooting tournament with trophies to the winners will be held later this month. For details contact Warren Kelliher, 3041.

TENNIS NEWS: The week of July 17 saw 32 men participate in a NASA Tennis Tournament to establish ladder rankings and play. The winner of the tournament was Ed Riddle. The 10 top players in the Tennis Club are: 1. Ed Riddle, 2. Lane Kelly, 3. Norm Silsby, 4. Ron Turner, 5. Chip Sibbers, 6. Dick Pincus, 7. Dr. K. Miura, 8. Bill Weaver, 9. Elmer Goyette, 10. Dr. L. Meirovitch. Persons interested in ladder competition should notify Jim Mueller, MS 130.

Fifteen women are taking tennis lessons under the sponsorship of the Activities Association. Top photo - Instructors Jackie Butler and Nancy Watson (kneeling) pose with some of the students. Bottom photo - Putting her lesson into practice is Chris Mueller.

On July 22, 15 girls took their first tennis instructions. Jackie Butler and Nancy Watson gave lessons for two hours and played some exhibition games. The girls are continuing their lessons each Wednesday from 5 to 6 p.m. at the NASA courts. Ladies interested in instructions should contact Pat McLean, MS 168, or Sharon Haythorn, MS 243.

A current tennis directory is being compiled. All interested persons, except those who played in the recent tournament, should send their name, mail stop, NASA extension, home address and telephone number to Bob Bolton, MS 234, or A. W. Mueller, MS 239. This should be done by August 18 so that the directory may be distributed at the easliest possible time.

WANTED: Ride from Bellwood Rd. or Tyler Ave. to W.A. on 8 shift. Nuttall, 3221.

FOR SALE: 3-piece living room suite - sofa and 2 chairs. Constance, 826-7988.

FOR SALE: 16-foot fiberglas runabout with 50 hp Mercury motor and trailer. Ward, 868-9093.

FOR SALE: 3 old-fashioned window screens, 2 screen doors, 3 wooden storm windows. Riggin, 722-6087.

FOR SALE: 17,000 btu air conditioner, also 22-inch window fan with stand. Clark, 826-0205.

Langley Researcher

AUGUST 25, 1967 LANGLEY RESEARCH CENTER VOLUME 6, NUMBER 17

MARTIN APPOINTED CHAIRMAN OF UNITED FUND CAMPAIGN

Dennis J. Martin

Dennis J. Martin, Technical Assistant to the Chief, Dynamic Loads Division, has been appointed as chairman of the Center's fourteenth annual United Fund Drive scheduled for September, it was announced by Dr. Floyd L. Thompson, Director.

Assisting Martin in the campaign will be Robert H. Turner, Assistant Head of Research Facilities Services, Mechanical Services Division, who will be in charge of the general solicitation, and Henry A. Fedziuk, Chief of Research Reports Division, who will be chairman of advanced solicitation.

Other members of the drive committee include Malcolm P. Clark, employees at school; Elva L. Rollins, employees on travel; Edwin M. Russell, LTV Aerospace Corp. representative, company representatives; Marvin Forrest and Francis T. Hoban, service contractors; William F. Lawson, PUF movie showings; Barbara J. Durling, financial chairman, and Helen H. Willey, financial vice-chairman.

Martin stated that an intensive one-day campaign of all staff members will be held on September 22. The general solicitation will be preceded by advanced solicitation of key personnel on September 14.

During the drive held last year staff members, contractors and representatives of local companies assigned to the Center donated or pledged a record total of $71,794.96 to organizations benefitting under the solicitation program. This figure represented a total of $69,434 from Center employees for 95.1 percent participation and an average contribution of $17.20.

Martin is a native of Beatrice, Nebraska. He graduated from Beatrice High School and received his B.S. degree in Physics from the University of Nebraska in 1942 and his M.S. in Physics from the College of William and Mary in 1962.

He joined the Center staff on June 1, 1942 as a junior physicist in the Physical Research Division. He was called to active duty with the U.S. Army on September 10, 1946 and returned to the Center following his discharge. He transferred to Dynamic Loads Division in 1948 and was named Assistant Head of Vibration and Flutter Branch on December 5, 1958. He was appointed to his present position on January 12, 1962.

NASA RELEASES EXTENSIVE MAP OF MOON'S HIDDEN SIDE

The first extensive map of the moon's hidden side, based largely on pictures taken by Langley Research Center's first four Lunar Orbiters, has been released by NASA.

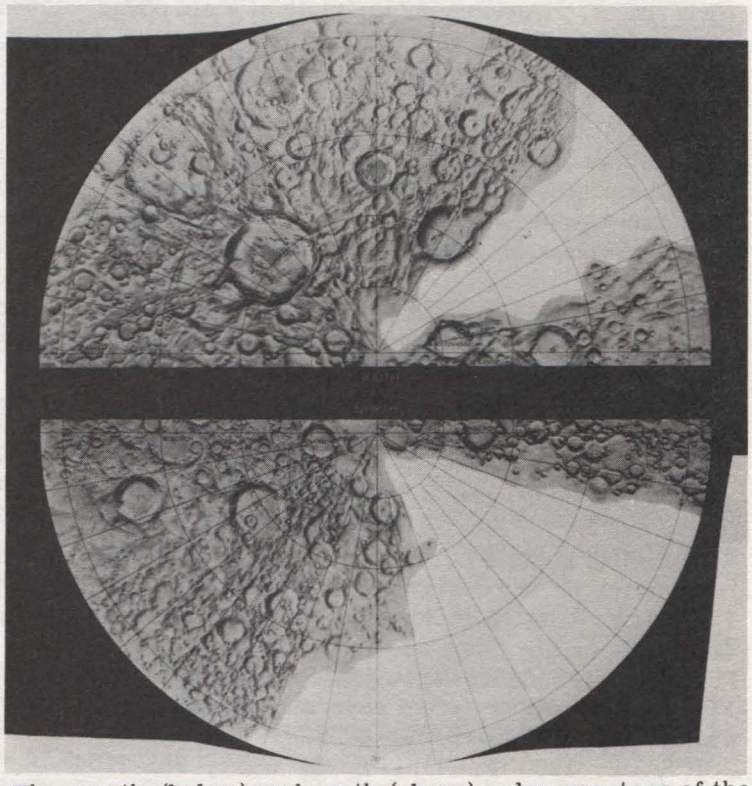
International dissemination of research results played a part in the map's production.

The Orbiters provided about 85 percent of the photographs used in the chart. The remainder were based on photographs from Russia's Zond III spacecraft in July 1965.

The map covers about 75 percent of the moon's far side, which is always turned away from the Earth. Lunar Orbiter V has taken and is reading out photographs covering the remaining 25 percent, but NASA decided to publish the incomplete chart so it would be available for the 13th General Assembly of the International Astronomical Union, which meets every three years.

The worldwide meeting began Tuesday in Prague, Czechoslovakia. Astronomers and scientists attending the assembly are expected to use the chart as a guide in assign-

(Continued on page 3)



The north (below) and south (above) polar quarters of the moon's hidden side are charted in these maps just published by NASA. Eighty-five percent of the map is based on photographs taken by Langley Research Center's first four Lunar Orbiters. Coverage of the central part of the hidden moon face is nearly complete.

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 302, telephone 2575.

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. . .Robert L. Gungle, Flight Vehicles and Systems Division, was married to Margarete Spiel Koncir on July 28.

TENPIN LEAGUE. . .Bowling will start September 5 with the handicap leagues bowling at Hidenwood and Century Lanes. Teams or individuals interested in bowling should contact Leonard Mayo, 3681.

AFGE MEETING. . .The NASA Lodge No. 2755, American Federation of Government Employees (AFL-CIO affiliated) will hold its monthly meeting on Wednesday, August 30 at 7 p.m. at the Central Labor Union Hall, Newport News.

NEW HEIR. . .Announcing the birth of a six pound, eleven ounce son, Brian Kenneth, on July 15 is Thomas E. Ezell, Mechanical Services Division.

NIGHT TELEPHONE NUMBER. . .A special telephone has been installed for use of staff members of the Analysis and Computation Division during the hours of 4 p.m. to 7:30 a.m. Anyone calling ACD personnel during these hours should call extension 3040.

TOUCH FOOTBALL. . .The patter of big feet and the groans of "old" men will soon be heard as the NASA Touch Football League gets its season of play underway. Again this year the league will play at Kecoughtan High School at 9:30 a.m. on Saturdays with the first game scheduled for September 9. All teams or individuals desiring to play should call Charlie Woerner, 3784, as soon as possible so plans can be made concerning the number of teams, schedules, and teams needing players.

FOR SALE: 3-bedroom house at 411 Shenandoah Rd. Boyd, 826-3990.

FOR SALE: 1956 Volkswagon - $200. McLemore, 838-0003.

FOR SALE: GE 3-speed reversible window fan - motor weather proofed. Spear, 595-3068.

FOR SALE: 1960 Fairlane Ford. Wary, 851-1104.

FOR SALE: Climatic-air automobile air conditioner - $60. Moore, 851-2223.

FOR SALE: Portable typewriter, also twin size white leather headboard. Kennessy, 596-7535.

FOR SALE: Corner lot in Edgehill - $4300, also 1929 Ford roadster and assorted parts - $350. Wood, 596-3445.

Mrs. U.S. Savings Bonds 1967, Mrs. Dorie Damuth of Magnolia, Texas, visited the Tidewater Area on August 10 and 11. Attending a luncheon given in her honor were Kitty O'B. Joyner, Chairman of the Center's 1967 Bond Drive, and Edward A. Howe, Chief of Fiscal Division. Mrs. Damuth won the title at this year's Mrs. America Pageant in San Diego. As Mrs. Texas, she was chosen from among the finalists for the Savings Bonds title. She is a 34-year-old, brown-eyed, auburn-haired ranch wife. She stands five feet, six inches, and weighs 125 pounds.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of August 28:

Monday - Tomato-barley soup, corned beef, chuckwagon steak, stuffed cabbage, Spanish omelette. Snack bar - Soup, chicken pattie on bun, hot pastrami on rye, French fries.

Tuesday - Minestrone soup, pepper steak, spaghetti and meat balls, fried fish, hot dog. Snack bar - Soup, hot dog, steak sandwich, French fries.

Wednesday - Chicken-noodle soup, chicken and dumplings, baked ham, Salisbury steak, deviled crab, chili con carne. Snack bar - Soup, hamburger, baked ham sandwich, French fries.

Thursday - Vegetable-beef soup, roast beef, fried scallops, chicken chow mein, grilled cheese sandwich. Snack bar - Soup, grilled cheese sandwich, hot roast beef sandwich, French fries.

Friday - Clam chowder, chopped steak, stuffed shrimp, broiled fish, western omelette. Snack bar - Soup, western omelette on bun, flying saucer, French fries.

The menu for the week of September 4 is as follows:

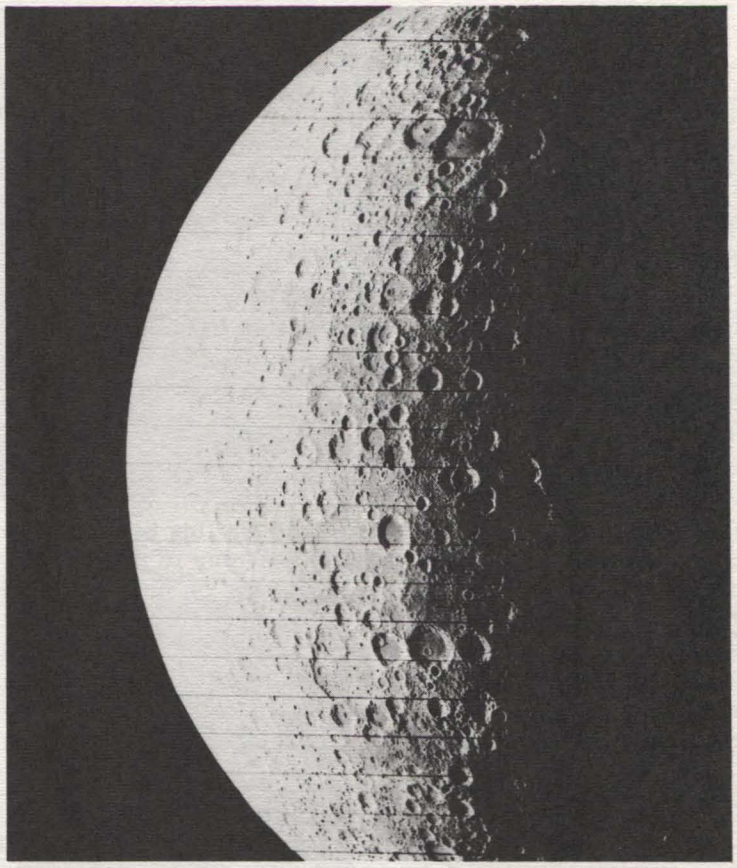
Monday - H O L I D A Y

Tuesday - Puree of bean soup, Spanish pot roast, breaded veal cutlet, stuffed pepper, baked hash. Snack bar - Soup, hot dog, steak sandwich, French fries.

Wednesday - Cream of tomato soup, roast fresh ham, baked lasagna, liver and onions, fish cakes, Snack bar - Soup, hamburger, baked ham sandwich, French fries.

Thursday - Cream of mushroom soup, roast turkey, fried oysters, Polish sausage, franks and beans. Snack bar - Soup, grilled cheese sandwich, hot roast beef sandwich, French fries.

Friday - Clam chowder, hot roast beef sandwich, fried shrimp, broiled fish, cheese omelette. Snack bar - Soup, western omelette on bun, flying saucer, French fries.



Left photo - As most Americans slept in the pre-dawn hours of August 8, NASA's Lunar Orbiter V spacecraft trained its telephoto lens on the sunlit side of the Earth and made this first photograph of the nearly-full planet from 214,806 miles away. Much of the lighted hemisphere was free of cloud cover, and the picture contains clear outlines of the entire east coast of Africa from the Mediterranean to the Cape of Good Hope, Such prominent features as Italy, Greece, Turkey, the Red Sea, the Arabian Peninsula, and the Suez Canal area are clearly seen. The subcontinent of India shines through a light covering of clouds at the center of the photograph and near the top of the picture lies the North Polar region. Right photo - One of the first wide angle views of the moon's hidden side photographed by Orbiter V is this picture made on August 6. The lighted portion represents about one-fourth of the hidden side. The terminator or dividing line between sunlight and darkness lies in the region of 105 degrees west longitude. Features on the surface as small as 1500 feet across can be distinguished in the photograph.

GWU REGISTRATION AUGUST 30

Registration for the George Washington University fall semester courses will be held on Wednesday, August 30 in Room 111, Building 586, from 9 a.m. until noon. Dr. Robert C. Sedwick, Director of the Tidewater Center, and Mrs. Betty Church, Administrative Assistant, will be in charge. All Center employees approved to take courses during the 1967 fall semester should register at this time.

Two courses will be offered at the Langley Center: BPA 287 - Relationship of Government to Business from 2:30 to 4:30 p.m. on Mondays, William L. Williams, instructor, and BA 261 - Business Economics from 2 to 4 p.m. on Thursdays, Dr. Leonard Schifrin, instructor.

Other courses offered in the evening at Fort Monroe are: BA 213 - Current Issues in Unionism, Collective Bargaining, and Labor Relations, 8 o'clock on Tuesdays, BPA 297 - Case Studies in Administration, 5:30 on Thursdays; BPA 209 - Seminar, Personnel Management, 5:30 on Tuesdays; BPA 204 - Quantitative Factors in Administration, 6:30 on Mondays; BPA 207 - Human Behavior in Organization, 8 on Wednesdays; BPA 287 - Relationship of Government to Business, time to be announced later.

Courses offered at Fort Eustis are BPA 201 - Advanced Administrative Management, 7:30 on Tuesdays, and BPA 204 - Quantitative Factors in Administration, 8 on Mondays.

MAP OF MOON'S HIDDEN SIDE

(Continued from page 1)

ing names to the newly discovered craters, seas, valleys and mountain ranges on the moon.

The chart was compiled for NASA by the Air Force Aeronautical Chart and Information Center at St. Louis.

As published, the map is divided into three sections.

One, a wide band ranging 48 degrees north and south of the lunar equator, is nearly complete. It is drawn to the Mercator projection in which degrees of longitude are treated as equally wide from north to south, although they really become narrower as the distance from the equator increases.

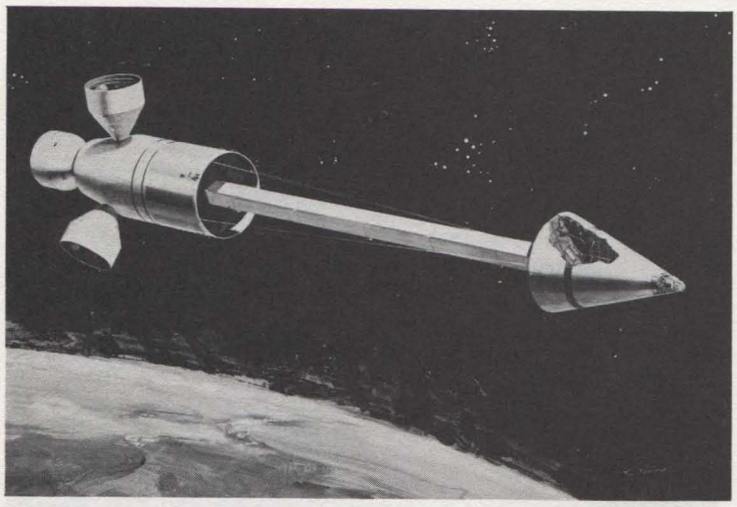
The other two show the north and south polar areas from 90 - the actual pole - to 48 degrees of latitude.

WANTED: Ride or driving combination from Harwood Mills to W.A. on 7:30 shift. Burgess, 4807.

WANTED: Driving combination from Tuckahoe or Hidenwood to W.A. on 7 shift. Shearin, 4483.

WANTED: Driving combination from GEX area to W.A. on 8 shift. Preisser, 3561.

FOR SALE: 1965 Winco generator, 4,000 watt, 110 to 220 volts, used 50 hours - $200. Valentine, LY6-3770.



Cone-shaped nuclear generator (right) trailing behind large space laboratory may provide the best way to meet growing requirements for electrical power on future orbital flights lasting up to five years, Douglas Aircraft Company engineers reported after a 14-month study for NASA. Fixed at the end of the 125-foot-long boom, a radiation shield on the blunt end of the atomic power plant would throw a low radiation "shadow cone" 80 feet in diameter around the space station.

KNOW YOUR CREDIT UNION

Two years ago this month the Board of Directors decided to make FHA Title I Property Improvement Loans available to credit union members. Some hundred NASA employees are glad they did, but borrowings to date of approximately $150,000 do not indicate a truly wide-spread interest.

terest. And that is strange because the percentage of home owners is high and the percentage capable of completing themselves - or knowledgeably superintending - a home improvement project is even higher. Maybe the advantages of the program need more publicity.

To being with, a Title I loan is separate and distinct from all others. You may have one in addition to any personal, car, or other loan still outstanding. Loans up to $4500 can be made for a period of 5 years to finance alterations, repairs, and improvements to an existing structure. Interest charges are a low .75 of 1% on the unpaid balance each month on loans up to $2500 and an even lower .70 of 1% on the full amount of loans that exceed that figure. Note, also, that it is possible to have more than one Title I loan at one time. The limiting factor is that the total balance outstanding may not exceed the $3500 specified.

To qualify, a member must hold title (usually complete with mortgage) to the property to be improved. The basic structure must be a finished building and, if the loan is over $600, occupied for at least 90 days before the date of the application. Eligible expenditures include almost everything which substantially improves or protects the basic livability or utility of the property. Covered are such items as enlarging size of the structure, wiring, painting, installing central air conditioning or heating system, building a patio, landscaping, installing a septic tank, adding a fence or sidewalk, or installing built-in kitchen equipment.

So you see the field is wide open for all practical purposes. About the only two likely items that do not qualify are the construction of a swimming pool or of a barbecue pit. Other than these, go ahead as fancy dictates. Put in that permanently installed sprinkling system, add those awnings, drill that well complete with pump and piping. Only do it now. With winter coming on, today is the day to get started while you can still get a jump on the weather, available work force, and rising costs. Your Credit Union will be glad to help. Come in or call NASA 3606 for further details.

FLIGHT EXPERIMENT SUCCESSFUL

A specially designed parachute applied aerodynamic brakes to a research capsule high above the Earth August 15 to successfully simulate the terminal descent of a spacecraft headed for a soft-landing on a planetary surface.

The 65-foot diameter ringsail parachute - one of three types under study for possible use as decelerators in planetary landings - slowed the 500-pound instrumented capsule as it traveled through Mars-like atmosphere 137,000 feet above Earth.

The experiment was part of the 15-flight Planetary Entry Parachute Program (PEPP) managed by Langley Research Center.

Variations of the ringsail, cross, and disc-gap-band parachute systems are being studied individually in the program to provide a broad scientific basis for determining their effectiveness as decelerators in future efforts to soft-land unmanned instrumented spacecraft on Mars.

The parachute with attached instrumented capsule was packaged inside a 15-foot diameter spacecraft which was carried aloft by a huge helium-inflated balloon.

Launched at 8:09 a.m. EDT from Walker Air Force Base, New Mexico, balloon and spacecraft arrived over the White Sands Missile Range as the balloon reached its maximum altitude of about 130,000 feet. The spacecraft was released from the balloon at 11:42 a.m. EDT and its cluster of eight rockets fired to accelerate it upward to the test environment of 137,000 feet.

Parachute deployment and separation of the instrumented capsule from the rocket-propelled spacecraft occurred when the velocity reached 1,600 feet per second. The parachute slowed the descent of the capsule by 1,360 feet per second as it simulated terminal descent in the thin Mars-like atmosphere. The spacecraft landed separately, without a parachute.

The parachute, instrumented capsule, and spacecraft landed about 45 minutes after deployment of the payload and were recovered from the range, along with cameras in the capsule and spacecraft, and will be used by scientists in analyzing results of the flight.

This was the third of five planned balloon-launched experiments in PEPP. There have been six of ten scheduled ground-launched rocket flights.

FOR SALE: Scuba equipment, twin 72-cubic-inch diving tanks with double hose regulators - $50. A. Lambiotte, 244-1738.

FOR SALE: One week passports to EXPO 67, two children only - $3.50 each. Chambliss, 851-4591.

FOR SALE: 18-foot fiberglas Owens boat with 75 hp Evinrude motor and trailer - $1300. Watson, 428-0379 Virginia Beach.

FOR RENT: New home during fall semester. Kyle, 595-3923.

FOR SALE: 1958 Ford. Boswell, 838-3235.

LANGLEY CENTER'S NYC AND YOC SUMMER PROGRAMS

Today the Neighborhood Youth Corps (NYC) enrollees depart after a nine-week work-training assignment at the Center. This is the first summer that Langley has participated in this program, which is sponsored by the Newport News Office of Economic Opportunity. The 35 NYC enrollees, working primarily as mechanical aids, have been located in 24 different facilities throughout the Center. All are returning to high school next week.

A majority of the Youth Opportunity Campaign (YOC) trainees also depart today, while those attending college will leave by September 15. This group of 39 was assigned primarily to the administrative divisions and performed clerical and administrative duties. For many in both groups this was their first job.

Highlight of the summer program for these two groups was a luncheon on August 17 as guest of the Center with Dr. Floyd L. Thompson the principal speaker. Esther Brown, who was assigned secretarial duties with the Navigation and Guidance Research Branch of FID, described her experiences as a YOC trainee. On july 24 a Spacemobile lecture and tour of the Landing Loads area and 16-foot Transonic Tunnel was held for the NYC's and YOC's of high school age, while the college YOC's participated in a seven-hour tour of ten research divisions on July 27.

During the various briefings on orientation, job opportunities, and individual responsibilities, the employees heard several Center speakers including Charles J. Donlan, T. Melvin Butler, Henry A. Fedziuk, Anshal I. Neihouse, S. Walter Hixon, and John J. Cox.

The bulk of training received by these youngsters was on-the-job training by supervisors and co-workers to whom they were assigned.

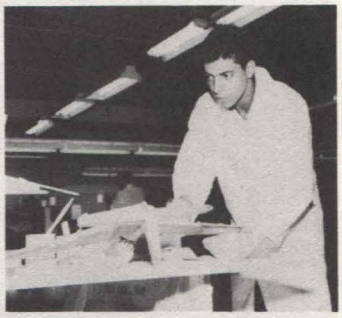
Coordinator for the summer youth program was John Witherspoon, Training Branch of Personnel Division.

Janet Vaughan records cost dats for Experimental Machine Shop.

Edna Bazemore receives telephone work order for Administrative Services.

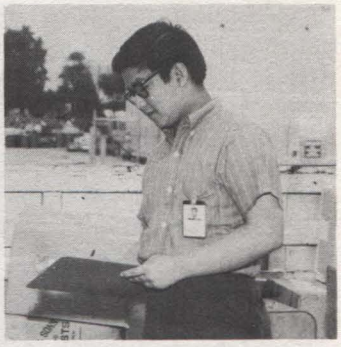
NYC and YOC summer employees are welcomed to the Center by Charles J. Donlan, Associate Director.

Stuart Johnson, ACD, explains console operation to Rodney Stallings, Connie Collins, and Patricia Larrow.



Left photo - James Grimes shows notebook covering his training accomplishments to John Witherspoon, coordinator for NYC and YOC programs. Right photo - Timothy Davis sands model in Modelmaking Branch.

Sandra Branch files per-records in Personnel Div.



Don Wong checks incoming shipment at Building 1206.

Dorothy Gorthy explains Contract Management Section files to Linda Clark and Linda Putman.

ELEVEN NEW ASTRONAUTS NAMED

NASA has announced the selection of 11 new scientist-astronauts. All are civilians.

Ten of them will report for duty at Manned Spacecraft Center on September 18. The 11th man will complete his medical internship before reporting for duty in about a year.

The 10 scientist-astronauts will have two weeks of general orientation activities at MSC and will begin a program of academic or "ground school" training on October 2. They will begin Air Force flight training in March to become qualified jet pilots.

The ground school at MSC will include orbital mechanics, astronomy, computers, spacecraft orientation, and general math and physics refresher courses, as well as field trips for contractor facility orientation.

Two of the new astronauts are naturalized citizens of the United States.

The group is the sixth class of astronauts to be selected and the second chosen specifically for scientific education rather than for pilot backgrounds. The first scientific group numbered six and was selected June 28, 1965.

The 11-man selection increases the number of NASA astronauts to 56. They were selected from a 65-man group screened by the National Academy of Sciences for NASA from nearly 500 applicants. Each member of the group has earned a doctorate and each is married.

The new astronauts are:

Dr. Joseph P. Allen, 30, a physicist research associate at the University of Washington in Seattle.

Dr. Philip K. Chapman, 32, a naturalized citizen born in Australia and presently a staff physicist at the Experimental Astronomy Laboratory, Massachusetts Institute of Technology.

Dr. Anthony W. England, 25, a graduate fellow in geophysics at MIT, the youngest man to be named an astronaut.

Dr. Karl G. Henize, 40, professor of astronomy at Northwestern University and an experimenter in the Gemini program.

Dr. Donald L. Holmquest, 28, who reports in about a year after completing internship requirements for his doctorate in physiology at the Baylor College of Medicine.

Dr. William B. Lenoir, 28, assistant professor of electrical engineering at MIT.

Dr. John A. Llewellyn, 34, a naturalized citizen born in Wales, presently an associate professor in chemistry at Florida State University.

Dr. Franklin S. Musgrave, 31, a post-doctoral fellow at the University of Kentucky with a doctorate in medicine from Columbia University and a Ph.D. in physiology from the University of Kentucky plus four other college degrees.

Dr. Brian T. O'Leary, 27, a Ph.D. in astronomy presently in the NASA trainee program at Space Sciencies Laboratory, Department of Astronomy, University of Calif.

Dr. Robert A. Parker, 30, assistant professor of astronomy at the University of Wisconsin.

Dr. William E. Thornton, 38, who recently completed a two-year tour of duty with the Aerospace Medical Division of Brooks Air Force Base, San Antonio, Texas.

FOR SALE: Large assortment of Mercury dimes and buffalo nickels. Youngblood, 877-1224.

FOR SALE: 1957 Ford, 406 engine. Whittaker, 723-0107.

Gary Stuart Settles, winner in the International Science Fair held in San Francisco in May will be a guest of the Langley Research Center on September 7 and 8.

INTERNATIONAL SCIENCE FAIR WINNER TO VISIT CENTER

Gary Stuart Settles, 17-year old student of Walland, Tennessee, will be a guest of the Langley Research Center on September 7 and 8. His visit is a prize for winning a NASA certificate in "Investigation of Mach 1.95 Blunt-Body Drag Due to Central Injection" at the International Science Fair held in San Francisco in May.

In his project Settles used a small supersonic wind tunnel and associated instrumentation to determine the effect of central gas injection on the drag force of a Mach 1.95 vehicle. He established that oxygen or propane injection decreases base drag and increases form drag and skin friction drag.

During his tour of the Center, Rollins will talk with engineers and scientists and visit a number of wind tunnels and research facilities. He will be accompanied by his father, Charles H. Settles.

In an effort to help promote interest in science among high school students, NASA awarded special prizes to a total of six exhibitors at the annual fair in San Francisco. The winners were invited to visit NASA centers.

FOR SALE: 1951 Chevrolet, 6 cylinder, 83,000 miles - $150. Muraca, 826-1199.

WANTED: Temporary home for male Beagle - dog house included. Stein, 877-2122.

FOR SALE: 2 lots in Shore Park, sizes 90 x 150 and 105 x 150 - near boat basin. Murden, 723-9123.

FOR SALE: Pair of red Oldsmobile F-85 bucket seats - $35. Lawson, 851-1500 after 5:30 p.m.

WANTED: Driving combination from Virginia Beach-Ocean View area to W.A. on 8 shift. Williams, 4491.

STUDENT TRAINEES RECEIVE BACHELOR DEGREES

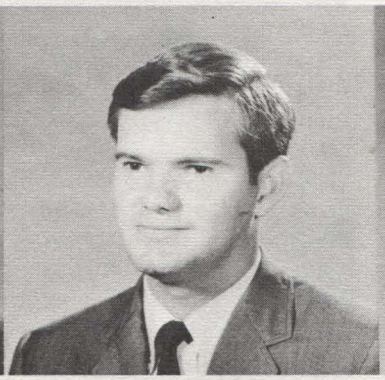
Harry F. Benz
Drexel Institute of Tech.
B.S. in Elec. Eng.

Ronald L. Cain
University of Alabama
B.S. in Metallurgical Eng.

Samuel M. Dollyhigh
N. C. State University
B.S. in Aerospace Eng.

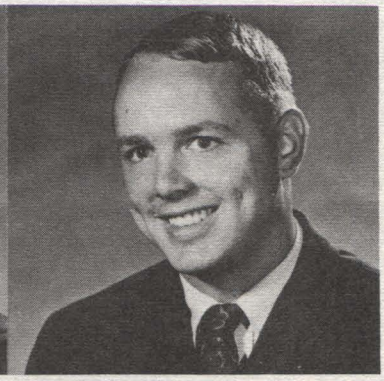
John C. Fedors
V.P.I.
B.S. in Elec. Eng.

George C. Greene
N. C. State University
B.S. in Mech. Eng.



Reginald M. Holloway
V.P.I.
B.S. in Elec. Eng.

Fred F. Hubble, III
Northeastern University
B.S. in Physics



Pendleton M. Jackson
V.P.I.
B.S. in Mech. Eng.

Robert L. Krieger, Jr.
V.P.I.
B.S. in Elec. Eng.

Lemuel E. Mauldin, III
Mississippi State College
B.S. in Elec. Eng.

Milton W. Skolaut, Jr.
V.P.I.
B.S. in Physics

David L. Smith
V.P.I.
B.S. in Mech. Eng.

John A. Tanner
N. C. State University
B.S. in Mech. Eng.

FOR SALE: 3-bedroom brick and frame rancher in Foxbridge. Toni, 851-2754.

WANTED: Driving combination from Denbigh to E.A. on 8 shift. Abel, 2661.

WANTED: Ride from Todds Lane to W.A. on 8 shift. Sandra Chaney, 3337.

WANTED: Driving combination from Shore Park to E.A. on 8 shift. Crommie, 596-6801.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Kennedy, 4557.

WANTED: Driving combination from Beaconsdale Meadows to W.A. on 7:30 shift. Beckage, 596-3556 or 3737.

WANTED: Girls to share house on waterfront - references required. Jones, 826-1455.

NEW RETIREMENT CERTIFICATES

A revised Certificate of Membership in the U.S. Civil Service Retirement System incorporating the most recent changes in the retirement act will be distributed in the near future.

Each Time and Attendance Clerk will receive a sufficient number so that every career or career-conditional employee may be issued one of the updated pamphlets.

The pamphlet should be retained with other Civil Service employment forms and information for reference. Older certificates should be discarded since they contain some obsolete information.

WANTED: Home for kittens. Edwards, 722-1744.

COUNTDOWN

SKEET SHOOT: A NASA skeet shoot will be held at the Williamsburg Public Shooting Court during the first week of September. All NASA personnel, their families and friends, and contractor personnel are invited. Handicaps will be established for the shoot. For complete details contact Warren Kelliher, 3041.

FOOTBALL GAMES: A few tickets are still available for the Kiwanis Bowl game featuring the Washington Redskins vs. the Pittsburgh Steelers on September 9. Cost of tickets and transportation to and from the game is $6.25. Busses will leave the Activities Building at 7:30 p.m.

Tickets are also available for the Oyster Bowl game between the Duke Bluedevils and Navy on November 11. Busses will leave the Activities Building at 8 a.m. This will permit fans to arrive in time to view the parade, have lunch before game time, and see the pre-game ceremonies. Total cost will be $8.75 per person. For additional information call John Wharton, 4508.

CHORAL SOCIETY: An organizational meeting of the NASA Choral Society was held August 14. It was decided to have rehearsals at the Activities Building from 7:30 to 9 p.m. on the second, third, and fourth Mondays of each month. The membership is open to NASA employees, NASA contractor personnel, and their families. For additional information call Marvin Leffel, 4766, or Gene Hunt, 3541.

NASA FLYING CLUB: Do you have a pilot's license? Would you like to learn to fly? Come to the next meeting of the new NASA Flying Club on September 11 at 8 p.m. in the Activities Building. Plans are for the club to cater to those wanting to learn to fly as well as to experienced pilots of all levels. For information call Bruce Jordan or Dave Gregory, 4884, or Joe Judd, 2691.

CHRISTMAS BOXES: The program to send 3,000 Christmas packages to Viet Nam is underway and boxes may be obtained from District Representatives. The filled boxes should be returned to the representatives as soon as possible. The packages will be shipped from Norfolk by "Operation Handiclasp."

KNADS WIN SOFTBALL TITLE

KNADS won the NASA Slowpitch Softball League with 13 wins and only 1 loss. Ballbusters were second with 11 wins and 3 losses and Structures came in third with 10 wins and 4 losses.

The 10 leading batters were: Jay Lambiotte with .721, Jim Harris .610, Charles Miller .600, Steve Park .576, Lem Meetz .571, Raymond Barr .561, Bob Reynolds .545, Ron Clark .536, Phil Young .550, Terry Straeter .533, and Tom Bales .519.

Top RBI players were: Jay Lambiotte with 37 runs batted in, Charles Miller 21, Weldon Staton 24, Steve Park 21, Jim Harris 16, and Jim Kiss 15.

The leading home run hitters were: Weldon Staton with 8, Leonard Credeur 8, Richard D'Amato 8, Charles Miller 6, Jay Lambiotte 6, and Steve Park 5.

FOR SALE: Lime oak dining suite with table, 4 upholstered chairs, server, and china cabinet. Williams, LY6-3720.

FOR SALE: 3-bedroom house with attached garage - assume 5-1/4% loan with $90 monthly payments. Keynton, 826-5549.

TWO-DAY CARNIVAL STARTS TODAY; QUEEN TO BE ANNOUNCED TONIGHT

The two-day carnival which will be held on the grounds of the Activities Building tonight and tomorrow promises to be one of the gayest, most fun-filled week-ends on record here.

One of the big attractions will be the crowning of the Carnival Queen tonight at 9:30. Twenty Center beauties are competing for the title.

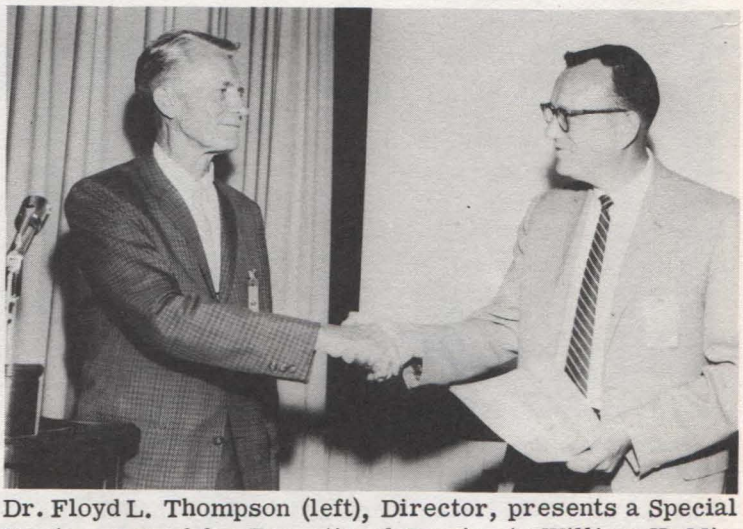
Today's events will open at 5 o'clock with a concert by the Continental Army Band of Fort Monroe. Immediately following the concert the midway will open. Ground prizes will be given away every twenty minutes. A complete list of prizes and drawing times was published in the last Langley Researcher. Winners must be on the grounds to win all prizes except the two grand prizes. The grand prize tonight will be a large portable TV set and drawing time will be 10 o'clock.

The midway will open tomorrow at 2 o'clock and the festivities will open with another band concert - The Centurians will play rock 'n roll music. An area will be roped off for dancing.

The Queen's Cornation Ball will start at 9:30. The queen and her two runners-up will be presented their gifts and lead off the first dance.

At 10 o'clock the grand prize, a Renault 10 automobile, will be awarded to some lucky person. All booths will be open as long as people have a desire to participate. Carnival tickets will be sold on the grounds throughout the carnival.

Don't worry about going home to eat - there will be plenty of good food available on the grounds.



Dr. Floyd L. Thompson (left), Director, presents a Special Service Award for Exceptional Service to William H. Michael Jr., Space Mechanics Division, "for exceptional service in proposing and carrying out as principal investigator an experiment in selenodesy in connection with the Lunar Orbiter Project and in acting as advisor for photographic orbit establishment." Robert H. Tolson, also of Space Mechanics, received a Special Service Award "for outstanding contributions in research involving theoretical developments in the field of orbital and flight mechanics of spacecraft, and particularly, for development and application of advanced theoretical techniques for orbit determination of lunar gravitational field properties in relation to the NASA Lunar Orbiter Program."

Langley Researcher

VOLUME 6, NUMBER 18 LANGLEY RESEARCH CENTER SEPTEMBER 8, 1967

OCTOBER: 'AN APPROPRIATE TIME' FOR COMMEMORATION

The following Joint Resolution has been introduced in Congress:

"Resolved, Whereas this calendar year marks the fiftieth anniversary of the establishment in 1917 of the Langley Research Center at Hampton, Virginia; and

"Whereas the Langley Research Center of the National Aeronautics and Space Administration, for forty-one years a facility of the former National Advisory Committee for Aeronautics, has provided a continuing technological basis for significant advances in military and commercial aviation; and

"Whereas pioneering scientific investigations conducted by the Langley Research Center contributed to the development over the years of unique facilities, research techniques, and the technical competence required to establish and maintain this country's leadership in aeronautics; and

"Whereas the Langley Research Center was the birthplace of Project Mercury- the first United States manned space flight project; and

"Whereas the Langley Research Center is one of the major research facilities of the National Aeronautics and Space Administration engaged in significant programs of advanced research and technology relating to aeronautics and the manned and unmanned exploration of space- including, among others, the development of the supersonic transport, vertical and short take-off and landing aircraft, the Apollo lunar mission, and a variety of other projects designed to accelerate our flight progress and expand our knowledge of the universe; Now, therefore, be it RESOLVED, that the President is hereby authorized and requested to issue a proclamation that the first week of October, 1967, is an appropriate time to commemorate the 50 years of service to the nation by the Langley Research Center."

Members of the Langley Research Center 50th Anniversary Planning Committee look at the large golden colored sign which has been erected at West Gate in commemoration of the Center's "fifty years of service to the nation." Committee members are (from left): Donald D. Baals, Assistant Chief of Full-Scale Research Division; H. Lee Dickinson, Office of Public Affairs; P. M. Lovell Jr., Executive Assistant, Applied Materials and Physics Division; Edward T. Maher, Chief of Administrative Services Division; Martin A. Weiner, Research Models and Facilities Division; Anshal I. Neihouse, Office of the Director; Henry A. Fedziuk, Chief of Research Reports Division, and Axel T. Mattson, Office of the Director, chairman. The golden anniversary celebration will be held at the Center during the week of October 2. Open House for the general public is scheduled for Saturday and Sunday, October 7 and 8.

LANGLEY'S 50 YEARS OF SERVICE RECOGNIZED IN JOINT RESOLUTION

A joint resolution introduced in the House by Representative Thomas N. Downing of the First Congressional District of Virginia and in the Senate by Senator Harry F. Byrd Jr., for himself and Senator William B. Spong Jr., both of Virginia, gives wide recognition to the golden anniversary of the Langley Research Center.

The resolution states that "the President is hereby authorized and requested to issue a proclamation that the first week of October, 1967, is an appropriate time to commemorate the 50 years of service to the nation" by the Center.

The Langley staff is currently preparing exhibits, planning demonstrations of aeronautical and space research, and getting ready for an inspection of its facilities as features of the anniversary observance.

Monday, October 2, will begin the formal anniversary program which will be conducted daily through Friday, October 6, for about 400 invited guests each day. The same program is planned each of the five days for the special guests, including key members of the Government, industry, and the scientific community.

Focal point of the celebration will be the NASA Hangar, where there will be exhibits and demonstrations featuring the past, present, and future in the realm of flight.

A formal program will be conducted at the Hangar as a feature of the morning program, and will include talks by Dr. Floyd L. Thompson, Director, on the Center's anniversary theme-- "fifty years of service to the nation;" and by Charles J. Donlan, Associate Director, who will introduce the program plans for each day.

At the Hangar, the exhibits and demonstrations will fea-

(Continued on page 5)

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

RESEARCHER OFFICE MOVES. . .Langley Researcher has moved to new quarters in Building 1195-A, Room 116, West Area. The new telephone number is 3116 and the Mail Stop is 154.

New Arrivals. . .Weighing in at nine pounds, eleven ounces on August 24 was James Bryson, son of Kathleen Owen, Administrative Services Division. The proud grandfather is Robert Guillotte, Flight Vehicles and Systems. . .Announcing the birth of an eight-pound, two-ounce son, Samuel James, on August 21 is James M. Cubbage, Aero-Physics. Wayne Richardson, Security Office, recently became the father of a daughter. . .Celebrating the birth of a nine-pound son, Mark Lee, on July 27 are Betty, formerly of General Files, and Jimmie C. Miller, Research Models and Facilities.

BLOODMOBILE. . .The Red Cross Bloodmobile will visit the Center on September 13. Those who have not registered to donate blood and wish to do so may call East Dispensary, telephone 2243.

FOOTBALL FANS. . .Staff members interested in a chartered bus trip to the Duke vs. University of South Carolina football game on September 30 are requested to contact Fowlke, 596-1445, or Lanford, 877-2191.

CLOSED FOR INVENTORY. . .The Instrument Issue Room, IRD, Building 1230, will be closed for inventory on September 15. Only emergency business will be conducted during the day.

CONGRATULATIONS. . .Thomas J. Gear, Mechanical Services, was elected by the American Legion as the Department of Virginia's Commander for 1967-68 in the final session of the 49th annual Department Convention in Roanoke. Gear graduated from the NASA Apprentice School in 1952 as a sheetmetal worker.

USE OF GSA CARS. . .Langley travelers to the Kennedy Space Center requiring the use of a GSA vehicle must possess a valid Government operator's license. Temporary operator's permits can no longer be obtained from KSC by the Langley Mission Support Office; therefore, Langley travelers should obtain the operator's license before leaving for Kennedy if a GSA car will be used. Travelers are also reminded that commercial rental cars are not authorized if a GSA vehicle is available.

Raye C. Mathis

Alton P. Mayo

TWO RECEIVE PERFORMANCE AWARDS

Raye C. Mathis, Flight Vehicles and Systems Division, and Alton P. Mayo, Space Mechanics Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Mrs. Mathis received her award for "her sustained, above-grade performance in providing general mathematical support and accurate and efficient computer programing for the Dynamic Analysis Branch."

Mrs. Mathis was born in Greenville, South Carolina, and graduated from Greenville High School. She received her B.A. degree in Mathematics in 1961 from Furman University and joined the Center staff on February 4, 1963.

Mayo received his award for "sustained superior performance as the engineer responsible for the successful adaptation of earth orbit determination programs to the Lunar Orbiter Mission, and for proposing and monitoring studies that insured a successful solution to convergence problems in lunar orbit determination programs."

He was born in Greenville, North Carolina, and graduated from Greenville High School. He attended East Carolina Teachers College and received his B.S. degree in Mechanical Engineering in 1951 from North Carolina State College in Raleigh. He started his NASA career on June 19, 1951.

NEWLYWEDS. . .Lee R. Dawson, Analysis and Computation, was married to Carolyn Ruth Trout, Hampton, on September 2 in Wythe Parkway Baptist Church. The bride was given in marriage by her father, Otto F. Trout of Applied Materials and Physics Division.

ALUMNI MEETING. . .University of South Carolina alumni are invited to a dinner-meeting of the Peninsula Chapter of the U.S.C. Alumni Association on September 21 at the Wedgewood Dinner Theater. For reservations call Fowlke, 596-1445, or Oglesby, 595-1902, before September 12.

BOATING COURSE. . .A free eight-lesson course in safe boat handling will be given to the public by the U.S. Coast Guard Auxiliary Flotilla 61 at 523 Bridge St., Hampton. The lessons will be given each Tuesday and Thursday starting October 3 at 7 p.m. Students will be accepted through October 10. For information call 244-1021, 722-4967, or 723-5426 after 5 p.m.

UNITED FUND WORKERS NAMED

Dennis J. Martin, Chairman of the Center's fourteenth annual United Fund campaign, announced that an advanced solicitation of top staff officials will open the Center's United Fund effort. Advanced solicitation will get underway on Thursday, September 14. A general one-day solicitation of staff members will be held on Friday, September 22.

Assisting Martin in the campaign will be Robert H. Turner, who will be in charge of the general solicitation, and Henry A. Fedziuk, who will be chairman of advanced solicitations.

Martin stated that all staff members planning to be on leave during the drive should contact their division chairmen in advance so the Center's report will not be delayed.

Martin has announced the appointment of the following division chairmen for the drive:

Office of the Director; James R. Dinkins; Research Reports, Philip E. Weatherwax; Flight Reentry Programs, William I. Scallion; Lunar Orbiter Project Office, Anna P. Plott; MORL Studies Office, Sidney F. Pauls; Scout Project Office, Abraham Leiss; Applied Materials and Physics, Robert S. Osborne; Analysis and Computation, Nancy S. Holt; Flight Instrumentation, William F. Cuddihy; Instrument Research, Raymond M. Hansen; Space Mechanics, James B. Whitten; Dynamic Loads, Domenic J. Maglieri; Structures Research, William A. Brooks; Aero-Physics, Richard J. Moberg; Flight Mechanics and Technology, James R. Kelly; Full-Scale Research, Kenneth W. Goodson.

Office of Chief of Engineering and Technical Services, Marvin Forrest; Electrical Systems, Harold R. Long; Flight Vehicles and Systems, Elmer J. Wolff, Mechanical Services, George L. Meidinger; Plant Maintenance, Dale F. Emswiler; Research Models and Facilities, George L. Wentland.

Office of Assistant Director for Administration, Jess G. Ross; Administrative Services, William F. Lawson; Fiscal, Abner M. Askew; Personnel, James C. Tingle; Photographic, Robert E. McGee; Procurement, William R. Kivett.

Chairmen for advanced solicitations are as follows:

Office of the Director, Donald L. Loving; Research Reports, Ida Young; Flight Reentry Programs, David G. Stone; Lunar Orbiter, Anna P. Plott; MORL Studies Office, Sidney F. Pauls; Scout Project, Abraham Leiss; Applied Materials and Physics, Don D. Davis; Analysis and Computation, Elmer F. Smith; Flight Instrumentation, Harry M. Lawrence; Instrument Research, Sheldon T. Peterson; Space Mechanics, Ralph W. Stone; Dynamic Loads, Vera Huckel; Structures Research, B. M. Wilson; Aero-Physics, Charles H. McLellan; Flight Mechanics and Technology, Robert O. Schade; Full-Scale Research, Robert L. Stallings.

Office of Chief of Engineering and Technical Services, Marvin Forrest; Electrical Systems, Bernard Ellis; Flight Vehicles and Systems, Barton E. Geer; Mechanical Services, Daniel R. Hayes; Plant Maintenance, Milfred E. Cook, Research Models and Facilities, Harold L. Maxwell.

Office of Assistant Director for Administration, Jess G. Ross; Administrative Services, William F. Lawson; Fiscal, Sidney Parker; Personnel, J. Norwood Evans; Photographic, Harris B. Pate; Procurement, Sherwood Butler.

A kickoff luncheon will be held at 12:30 p.m. on September 13 in the West Cafeteria, Building 1213. Attending will be division chiefs, advanced solicitation chairmen, and division chairmen. Speaker will be Herbert H. Bateman, past president of the Peninsula United Fund.

A general solicitors meeting will be held on September 15 at 2 p.m. in the Hangar, Building 1244. Speaker will be W. Tilford Smith, Senior Vice President, Newport News Shipbuilding and Dry Dock Company, drive chairman.

Air Chief Marshal Boon Choo Chandrubeksa, Commander in Chief, and members of the Royal Thailand Air Force visited the Center on August 22. Shown with the group are front row (from left): Group Captain Sansern Vanich, Group Captain Sompol Burusratanaphan, Dr. Floyd L. Thompson, Center Director; Air Chief Marshal Chandrubeksa, and General Gabriel P. Disosway, Headquarters TAC, Langley Air Force Base. Back row - Henry A. Fedziuk, Chief of Research Reports Division; Colonel Frank R. Amend, USAF Escort Officer; Charles J. Donlan, Center Associate Director; Air Chief Marshal Kamol Thejatunga, and Air Vice Marshal Chalerm Divaveja.

CONSTRUCTION CONTRACT AWARDED

Langley Research Center awarded Chicago Bridge and Iron Company, Philadelphia, a $2,090,000 contract for the erection of a tunnel structure and foundations for a new V/STOL Transition Research Wind Tunnel.

The V/STOL wind tunnel will be specially equipped to study the problems encountered by aircraft which incorporate vertical or short takeoff and landing characteristics. The new facility is scheduled to go into operation in late 1969. Large models will be studied in the new tunnel's 15 by 21.5-foot test section, and landing speeds of up to 230 miles an hour will be simulated.

The specialized research facility will be built in West Area adjacent to one end of the 7 by 10-foot wind tunnels building, which now houses a low and high-speed test section. The low speed test section will be modified for use as a model preparation area for the new tunnel.

Congress authorized $5,011,000 in fiscal 1966 for construction of the V/STOL Transition Wind Tunnel.

The contract calls for services and materials to furnish and install the tunnel structure and foundations and involves only a part of the total appropriated fund. Not included are the fan drive system, fan blades and hub, test section with associated appurtenances and controls, and utility services.

WANTED: Home for white female kitten. Schiess, 247-3097.
FOR SALE: Fetters 5000 btu air conditioner - $25. Richardson, 868-6556.

AIAA CHAPTER MEETS SEPT. 20

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will open its 1967-68 season with a dinner meeting on September 20 at the Warwick Yacht and Country Club.

Robert M. Stewart, Director of Artificial Biosystems Laboratory, Center for Research and Education, Space-General in California, will be guest speaker. His subject will be "The Mind is in the Head?" He will discuss the possibility of growing artificial nerve cells both from a standpoint of manufacturing a machine to recognize patterns and also for the study of physiological problems as a substitute for human brains. The most important single theme to be discussed will be that of "field-trainable" systems. The talk will be illustrated with movies and slides.

Stewart has eighteen years of experience in the areas of aerospace system analysis and design, automatic pattern recognition, and research on electrochemical neural models. At Space-General he directed two major study and development programs relating to terrain pattern detection and recognition techniques. He is presently directing a research effort on a unique electrochemical method of computing and data processing, and on electrochemical neural models.

The meeting will be preceded by a social hour at 6 p.m., followed by dinner featuring a smorgasbord at 7 and the meeting at 8.

Reservations may be made by calling B. O'Hare, 877-3634, B. Wright, 898-5318, C. Willis, 838-0685, or B. Spencer, 722-6478, by noon on September 18.

COIN COLLECTING CLUB

As the summer season draws to a close the spotlight on Langley activities begins to focus indoors. The Langley Research Coin Club is no exception, so for the September 13 meeting the board of directors has planned a very enjoyable evening for its 44 members. The meeting will be held at 7:30 p.m. in the Activities Building. The feature attraction will be the raffling of a brilliant uncirculated $5 gold piece of the 1903 vintage. One of the lucky members will enhance his collection with the addition of this beautiful piece.

The Virginia Numismatic Association is furnishing the membership and guests with a very interesting narrated color slide program on "Hard Times Tokens" and rounding out the evening will be another auction of 60 lots. A variety of U.S. type coins in all grades will be offered. Featured will be the following uncirculated items: $2-1/2 gold piece, 1950-D Jefferson nickel, Texas and Sesquicentennial Commemorative half dollars, 1914 Barber dime, 1918-S Mercury dime, 1938 Buffalo nickel, 1895 Liberty nickel, Walking Liberty half dollars and many other desired coins. Several pieces of currency will also be offered including a crisp uncirculated Series 1928-F $2 United States Note and a circulated Series 1922 $10 Gold Certificate.

Members and guests are urged to attend.

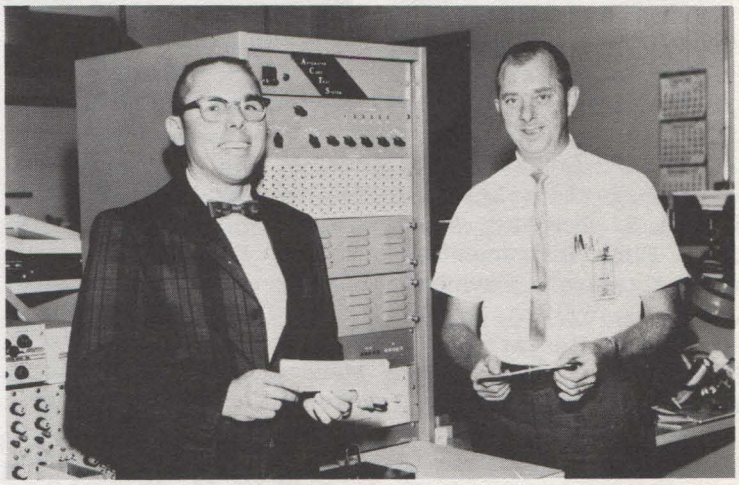
FOR SALE: National One Design 17-foot sailboat with trailer - $400. Goble, 595-2066 after 5 p.m.

FOR SALE: 1962 Renault Daulphine. Boyd, 826-4545.

FOR SALE: 1963 Dodge Dart. Brooks, 868-3541.

FOR SALE: 17-inch ebony portable TV and stand - $100. Kelly, 596-1829.

FOR SALE: 1957 Chevrolet. Devan, 877-2671.



Top photograph - John F. Wilson, Research Models and Facilities Division, was recently awarded a $110 cash award by the Langley Incentive Awards Committee for his suggestion concerning the modification of the old Mach 11 nozzle shroud in the Continuous Flow High Temperature Tunnel. This shroud will now fit the new nozzle blocks and thus save the purchase of a new nozzle shroud. This suggestion will result in a savings to the Government of $2140. Bottom photograph - Christian G. Leffler and Dale G. Holden, both of Flight Instrumentation Division, hold their cash award and stand adjacent to an Automated Core Test System. The Langley Incentive Awards Committee recently awarded them $340 to be equally divided for their idea concerning the design and construction of a more efficient and flexible automatic magnet core test station which could simultaneously test five different core parameters for use in magnetic logic devices. Adoption and implementation of this idea resulted in a first year savings to the Government of $6795.

FOR SALE: Miniature male Poodle - shots and papers - $100. Ferro, 245-5473.

FOR SALE: 13-foot Vaurien One Design sailboat with trailer - $550. Drewry, 838-3500.

FOR SALE: 4-drawer file cabinet. Huggett, 596-9583.

FOR SALE: Boy's 24-inch bicycle - $8. Mulac, 596-0666.

FOR SALE: Cleveland trumpet with case and two instructor books. Prior, 595-4372.

FOR SALE: 1966 Volkswagon, Model 1300, air conditioned, $1650. Reid, 898-5623.

FOR SALE: 3-bedroom brick and redwood rancher with patio and garage - located in Patrician Manor. Howell, 826-8945.

LANGLEY'S 50 YEARS OF SERVICE

(Continued from page 1)

ture three areas of advanced research and technology--aeronautics, space flight, and space science. There will also be a special exhibit on supporting research and technology which will include a variety of ground and flight instrumentation.

After lunch in the Activities Building, the visitors will be escorted by bus for an inspection of selected facilities and demonstrations of research and supporting activities. These include the new Fatigue Research Laboratory, the Free-Body Dynamics Facility, the Hot Gas Radiation Research Facility, the Unitary Plan Wind Tunnel, the Stabilization and Control Laboratory, and the Experimental Machine Shop.

Open House for the general public is scheduled for Saturday, October 7, from 10 a.m. to 4 p.m. and on Sunday, October 8, from 12 noon to 4 p.m. In addition to the many Hangar exhibits, the public will have an opportunity at the Open House to enjoy a guided tour of typical wind tunnels and specialized research laboratories-- the 16-Foot Transonic Wind Tunnel, the Lunar Landing Research Facility, and the Experimental Machine Shop. The Spacemobile will present continuous demonstrations and lectures on aeronautics and space in the Activities Building.

The West Area Cafeteria will be open October 7 for the convenience of the staff and guests who attend the Open House.

SHOCKING EXPERIENCES

Unless you are an electrician, do not attempt electrical repairs. Treat all electric wires as live wires. Do not touch any dangling wires that you may encounter, but report them to your supervisor.

Do not use portable electrical equipment if your hands are wet or if you are standing on wet ground.

When a fuse blows, it indicates an overload or possibly a short. Tell your supervisor.

If you find sparking or smoking motors or other electrical equipment, turn off the power and report the condition at once.

Extension cords are often the cause of electric shock. Examine them carefully for worn insulation and exposed strands of wire before you use them. Do not drag cords over sharp edges or run them across aisles where they can be damaged or cause someone to trip.

Pull on the plug instead of yanking the cord. Remember that voltages of even less than 110 can cause death.

Only qualified electricians should work on electrical equipment or touch energized lines.

WANTED: Ride from toll side of James River Bridge to E.A. or W.A. on 8 shift. Newcomb, 2695.

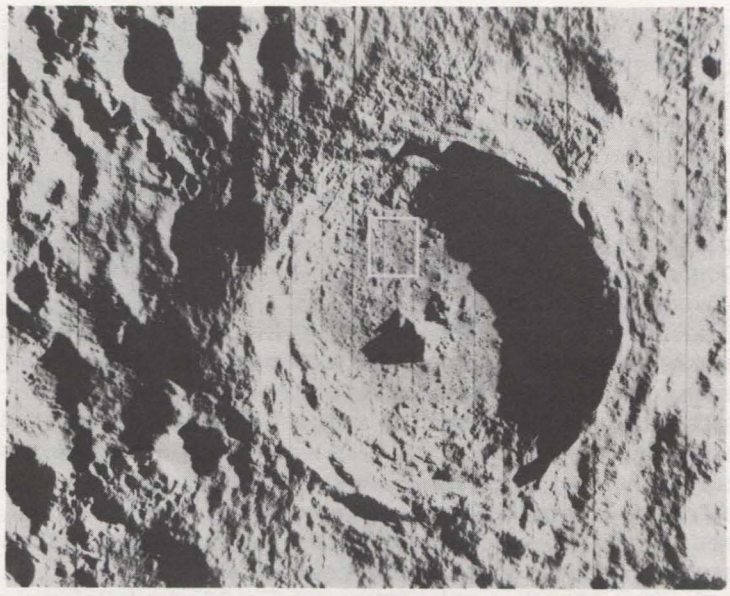
WANTED: Ride from Belleview Terrace to W.A. on 7 shift. Derby, 851-0907.

WANTED: Alternate driver from Norfolk to W.A. on 7:30 shift. Hudgins, 4851.

WANTED: Driving combination from Denbigh area to W.A. on 8 shift. Strehle, 4811.

WANTED: Ride or driving combination from Menchville Rd. to W.A. on 7 shift. Wilson, 4664.

FOR SALE: Lime oak dining suite with table, 4 upholstered chairs, server, and china cabinet. Williams, LY6-7320.



Tycho, a very young large crater on the moon's southern hemisphere was photographed in crisp detail on August 15 by Lunar Orbiter V. The 56-mile-wide Tycho crater appears in this series of two photos, taken by two different cameras. The top picture was taken by the wide angle lens of Orbiter V's medium-resolution camera. It is a view looking almost directly down into the crater, showing the central peak, rough floor, and precipitous walls. The bottom picture was taken at the same time with the high resolution telescopic camera aboard Orbiter V and shows a small 7 by 8-mile portion of the crater floor (outlined by the white rectangle in the top photo) in great detail. Fractures, flow markings and protruding dome-like hills with exposed layers are visible. Both spacecraft pictures were taken from orbit 135 miles above the moon's surface.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of September 11:

Monday - Corn chowder, Swiss steak, grilled ham slice, salmon cakes, chili con carne. Snack bar - Soup, ham pattie, steak sandwich, French fries.

Tuesday - Split green pea soup, roast ribs of beef, grilled pork shops, fried fish, macaroni and wieners. Snack bar - Soup, fried fish, hot pastrami, French fries.

Wednesday - French onion soup, baked Smithfield ham, braised beef tips, fried chicken, grilled cheese and bacon sandwich. Snack bar - Soup, grilled cheese and bacon sandwich, chicken fried beef steakette, French fried.

Thursday - Chicken-rice soup, grilled steak, smoked pork sausage, sauteed chicken livers, baked hash. Snack bar - Soup, hot dog, turkey sandwich, French fries.

Friday - Clam chowder, braised short ribs, broiled fish, stuffed shrimp, knockwurst, tamale pie. Snack bar - Soup, hamburger, hot corned beef, French fries.

The menu for the week of September 18 is as follows:

Monday - Puree of bean soup, Spanish pot roast, baked ham, chicken pattie, fish cakes. Snack bar - Soup, hot dog, grilled ham sandwich, French fries.

Tuesday - Cream of tomato soup, breaded veal cutlet, baked meat loaf, chicken chow mein, Spanish omelette. Snack bar - Soup, ham and egg, flying saucer, French fries.

Wednesday - Fried oysters, spaghetti with meat sauce, liver and onions, deviled crab, franks and beans. Snack bar - Soup, grilled cheese, hot pastrami, French fries.

Thursday - Vegetable-beef soup, grilled steak, barbecued pork chunks, fried fish sticks, chili con carne. Snack bar- Soup, barbecue, steak sandwich, French fries.

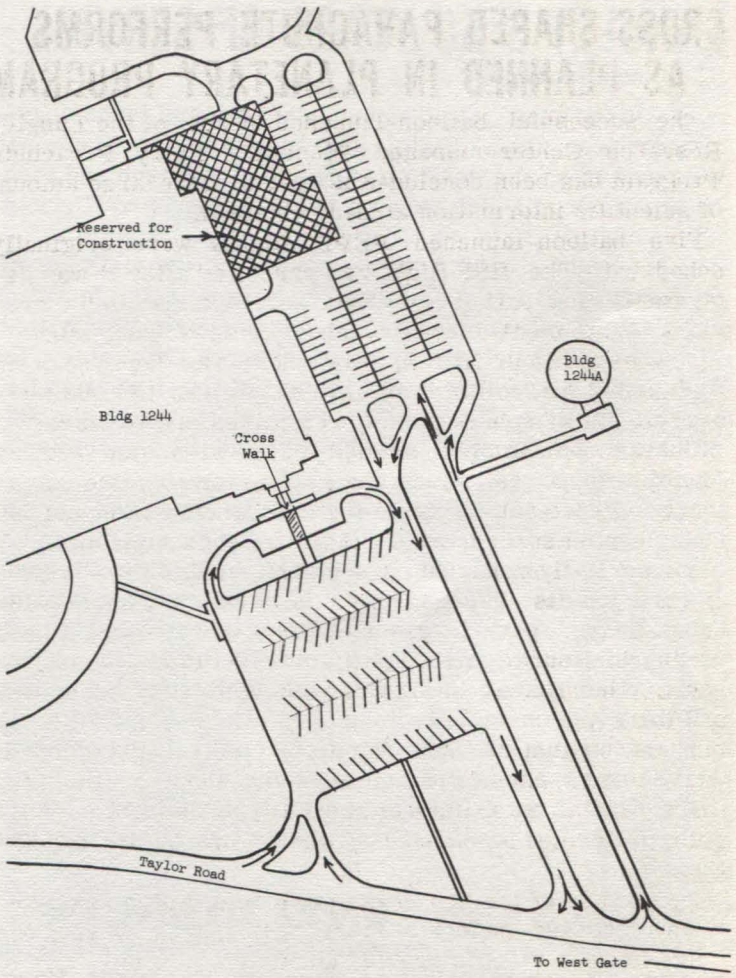
Friday - Clam chowder, roast beef, Polish sausage, fried fish, grilled spiced luncheon meat. Snack bar - Soup, hot corned beef, cheeseburger, French fries.

'10' COMMANDMENTS URGED FOR BETTER PUBLIC SERVICE

Federal employees and Federal agencies have been asked to wage a continuing crusade for improved service to the public, and for improved communications with the public.

Here are one man's ideas on the subject. The "Ten Commandments of Human Relations," expressed by L. J. Andolsek, vice-chairman of the U.S. Civil Service Commission:

1. Speak to people - there is nothing as nice as a cheerful word of greeting.
2. Smile at people - it takes 72 muscles to frown and only 14 to smile.
3. Call people by name - the sweetest music to anyone's ears is the sound of his own name.
4. Be friendly and helpful - if you would have friends, be friendly.
5. Be cordial - speak and act as if everything you do were a real pleasure.
6. Be genuinely interested in people - you can like everyone if you try.
7. Be generous with praise - cautious with criticism.
8. Be considerate of the feelings of others - it will be appreciated.
9. Be thoughtful of the opinion of others - there are three sides to a controversy; yours, the other fellow's, and the right one.
10. Be alert to give service - what counts most in life is what we do for others.



Effective today, the traffic flow adjacent to Building 1244 (West Area) will be changed to the one shown above. Staff members should notice the one-way streets and the area reserved for construction.

APPRENTICE SCHOOL NOTICE

The fall semester of the Apprentice School will start on September 11 and classes will be held in the Apprentice classrooms located on the first floor of Building 586. The class schedule for new apprentices will be announced later.

Courses which are being offered and instructors are:

Monday - College Algebra, instructor to be named, and Blueprint Reading, instructor to be named.

Tuesday - College Algebra, R. D. Ross; Engineering Drawing, C. W. Osborn; Blueprint Reading and Basic Concepts, T. K. Lusby, and College Physics I, G. C. Moen.

Wednesday - Analytic Geometry, L. V. Clark; Environmental Testing, J. R. Tyeryar; College Physics I, V. G. Collins, and Machinery Handbook, J. W. Simpson.

Thursday - Machinery Handbook II, H. D. Stalnaker; A.C. Fundamentals I, J. J. Roberts; Strength of Materials I, Gordon Owsley, and Transistors, A. L. Jones.

Friday - Foundry, E. B. Kastelberg.

FOR SALE: Tropical fish, guppies and black mollies; also motorcylist hardhat. Phaup, 826-6941.

FOR SALE: 6000 btu Carrier trailer-type air conditioner- $10. Laney, 868-9995.

FOR SALE: Turquoise 12-cubic-foot GE refrigerator-freezer - 2-door - $125. Coleman, 723-4365.

FOR SALE: Conn B-flat clarinet. Carpini, 826-4347.

CROSS-SHAPED PARACHUTE PERFORMS AS PLANNED IN PLANETARY PROGRAM

The successful balloon-launched phase of the Langley Research Center-managed Planetary Entry Parachute Program has been concluded as a result of the large amount of scientific information already obtained.

Five balloon-launched PEPP flights were originally scheduled. The fifth flight was cancelled after it was determined that satisfactory data were obtained in the previous flights on all three parachute designs under study.

In each of the four flights, a parachute was deployed from a simulated spacecraft at an altitude of about 135,000 feet-where the atmosphere closely resembles that of Mars.

The parachutes were studied in the simulated Martian atmosphere to determine their value for possible use as part of a decelerator system for soft-landing an unmanned instrumented spacecraft on the surface of the planet.

The specially designed parachutes included the modified ringsail, the disc-gap-band, and the cross. A 54-foot-wide cross-shaped parachute was successfully tested August 22 in the fourth and final flight in the balloon-launched series. There have been six of ten scheduled rocket launches in PEPP.

In the August 22 flight, the cross type parachute and an instrumented capsule were deployed from a simulated spacecraft at an altitude of about 135,000 feet. The parachute performed as planned in gently lowering the capsule to earth.

One purpose of the test of the parachute, which consisted of two crossed panels of fabric with spaces between the arms of the cross to provide geometric porosity, was to determine the effect of the low-pressure pocket created in the wake of the spacecraft.

The parachute-capsule unit and the spacecraft, which descended separately, were recovered - along with on-board motion picture cameras - for use in evaluating results of the experiment.

The spacecraft containing the packaged parachute and instrumented capsule was carried to an altitude of about 130,000 feet by a helium-filled balloon launched at 9:02 a.m. EDT from Walker Air Force Base, New Mexico.

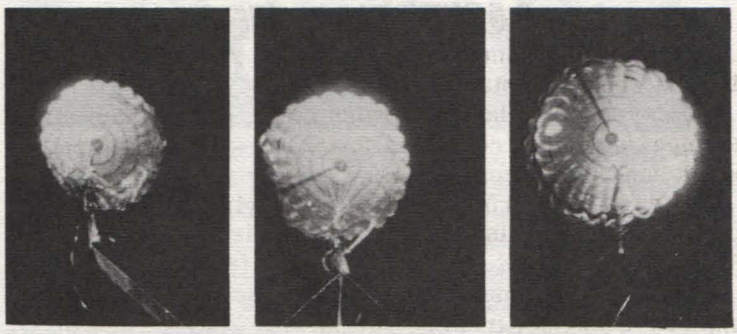
The spacecraft was dropped free from the drifting balloon after it arrived over the White Sands Missile Range. Rockets in the spacecraft propelled it on an arcing trajectory to the test altitude, where the parachute-capsule unit was deployed.

AIKEN NAMED TO NEW POSITION

William S. Aiken Jr., former Langley staff member, has been appointed Deputy Director of the Aeronautical Vehicles Division, Office of Advanced Research and Technology, NASA Headquarters. He has been Chief of Operations Research Branch since January 1962.

Aiken joined NASA at Langley in 1942 and served in different capacities at the Center for eighteen years with the exception of a two-year (1946-47) assignment at Flight Research Center. During 1960 and 1961 he was Assistant Chief of the Aircraft and Missiles Division, Tactical Air Command Headquarters, Langley Air Force Base.

Aiken received a B.S. degree in Aeronautical Engineering from Rensselaer Polytechnic Institute in 1942. He has specialized in flight research, aircraft loads, operations research and dynamics.



A series of 10 rocket-launched flight experiments to test parachute designs and techniques which might be useful in future attempts to soft-land instrumented capsules on Mars is being conducted by Langley. An experimental parachute is folded inside a spacecraft five feet long and 13-1/2 inches in diameter, and is launched from the White Sands Missile Range, New Mexico, by a two-stage Honest John-Nike rocket vehicle. The parachute deploys at an altitude of about 130,000 feet-- where the Earth atmosphere compares with that of Mars-- and descends with a 200-pound payload simulating an unmanned instrumented Mars lander suspended from it. Conditions at test altitude closely resemble those which NASA scientists expect the Voyager capsule to encounter during terminal descent through the Mars atmosphere. Frames taken from an on-board spacecraft camera show a 30-foot ringsail parachute inflating at 0.63, 0.66 and 0.70 seconds after deployment in one of the flights. At the time of deployment, the parachute was traveling at 960 miles an hour at an altitude of about 130,000 feet. NASA scientists use the recorded data to analyze the flight results. The parachute and payload, including the cameras and instruments, were recovered. Six of ten planned rocket launches in the Planetary Entry Parachute Program managed by Langley have been conducted. Four balloon-launched flights using larger parachutes have been completed.

BOOKS AVAILABLE IN LIBRARY

The following management books are now available at the Technical Library:

"Management and Morale" by F. J. Roethlisberger; "The Armor of Organization" by Alvin Brown; "Management of the Personnel Function" by I. L. Heckman; "How Managers Make Things Happen" by G. S. Odiorne; "Human Relations in Administration" by R. Dubin; "Elements of Public Administration" by F. M. Marx; "General and Industrial Management" by Henri Fayol; "Management and the Worker" by F. J. Roethlisberger; "The Study of Politics" by Charles S. Hyneman; "The Job of the Federal Executive" by M. H. Bernstein; "The Human Group" by G. C. Homans; "Human Relations in Management" by W. C. Scott; "Understanding Organizational Behavior" by Chris Argyris; "The Art of Administration" by Ordway Tead; and "Fusion Process" by E. W. Bakke.

FOR SALE: Hepplewhite dining table with four chairs - $35. Bryan, 838-1237 after 5 p.m.

FOR SALE: 1959 Posche. Teu, 596-5364.

FOR SALE: 7-room Cape Cod house with garage, basement and side porch, located in Beaconsdale. Pay equity and assume loan. Gardner, LY6-7761.

FOR SALE: 1967 Honda 306 scrambler. Greenman, 838-2973 before 2:30 p.m.

COUNTDOWN

KIWANIS BOWL. . .Busses will leave the Activities Building tomorrow night at 7:15 instead of 7:30 for the Kiwanis Bowl game. The game will be between the Washington Redskins and the Pittsburgh Steelers.

CARNIVAL WORKERS. . .The Activities Association wishes to thank all volunteer workers who helped during the two-day carnival. Each person who worked is requested to send his name, telephone number, mail stop, number of hours worked, and area worked to Herbert Boulter, Mail Stop 236.

NEW OFFICER. . .James E. Gardner, Structures Research, has been named vice president of the Activities Association. He replaces Thomas Pressley who recently resigned from the Center staff.

PRIZE WINNERS. . .Winners of the two carnival grand prizes were Janet C. Stephens, Aero-Physics, who won the Zenith portable TV set and Oscar L. Crawford, Analysis and Computation, who held the lucky ticket for the Renault 10 automobile.

NASA FLYING CLUB. . .Persons interested in flying are invited to the next meeting of the new NASA Flying Club on September 11 at 8 p.m. in the Activities Building. Plans are for the club to cater to those wanting to learn to fly as well as to experienced pilots of all levels. For information call Bruce Jordan or Dave Gregory, 4884, or Joe Judd, 2691.

TENNIS TOURNAMENT. . .A tennis tournament will be held by the LRC Tennis Club on September 23, 24, and 25. Only those members who have paid the 50¢ membership fee may participate. Sets played will be the best two of three. Entry fee will be a can of championship balls. To enter send your name, mail stop, extension, and home telephone number to Bob Bolton, Mail Stop 234.

OYSTER BOWL. . .Tickets are still available for the Oyster Bowl game on November 11 between the Navy and Duke. The fee for the bus trip and ticket to the game is $7.25, Persons desiring the meal will be charged an additional $1.50.

TROPHY NIGHT. . .League recognition night will be held on September 30. Guest speaker will be Suey Eason, Hampton Recreational Department. All persons interested in attending are requested to contact Robert Huffman, 3511.

FOR SALE: 1965 Chevrolet Impala. Ostroff, 877-9455.

WANTED: Driving combination from Beechwood to W.A. on 8 shift. Margason, 3611.

WANTED: Ride or driving combination from Williamsburg to W.A. on 8 shift. Parker, 4478.

FOR SALE: 1953 Ford V-8 - $75, refrigerator-freezer - $25, washing machine - $10, 21-inch TV - $5, rotary mower - $15, push mower - $3, plastic lawn spreader - $2, two-burner kerosene heater - $15, dining table - $5, Lionel electric train set - $25, electric ice cream freezer - $2, 3/4 mattress and spring set - $5. Byers, 596-8973.

FOR SALE: 14-foot Wolverine runabout with 22-1/2 hp Mercury engine, and trailer - $190. Jones, 898-6476.

WANTED: Ride to Southampton area from W.A. at 3:30 p.m. Whelan, 3337.

FOR SALE: 1950 Chevrolet. Rowland, 851-1586.

Top Photo - Charles J. Donlan, Associate Director, crowns Dianne Adams, Office of Public Affairs, queen of the two-day carnival which was sponsored by the Activities Association on August 25 and 26. Bottom photo - Queen Dianne poses with Janet B. Vaughan (right), Mechanical Services Division, first runner-up, and Jeanette Saunders (left), Aero-Physics Division, second runner-up. Dianne received a portable TV set and each of the two runners-up received a $25 U.S. Savings Bond.

SEPT. 22 DEADLINE FOR PACKAGES

The deadline for the Activities Association's effort to send 3,000 Christmas packages to our service men in Viet Nam is September 22.

The Association is furnishing a standard size box which may be obtained from District Representatives or from the cafeterias. The filled boxes must be returned to the District Representatives or placed in the large containers in the cafeterias by September 22 so they may be sent to Norfolk for shipment by Operation Handclasp.

A list of instructions and gift suggestions is provided with each box.

Langley Researcher

VOLUME 6, NUMBER 19 LANGLEY RESEARCH CENTER SEPTEMBER 21, 1967

Dr. Floyd L. Thompson, Director, launches the Center's United Fund campaign with his donation to solicitor Donald L. Loving. Looking on is Henry A. Fedziuk, chairman of advanced gifts.

LANGLEY CENTER'S ANNIVERSARY CELEBRATION STARTS OCTOBER 2

Langley Research Center will officially celebrate its "fifty years of service to the nation" during the week of October 2.

The formal anniversary program will open on Monday, October 2, and will be conducted daily through Friday, October 6, for about 400 invited guests each day.

Focal point of the golden anniversary celebration will be the NASA Hanger, where there will be exhibits and demonstrations featuring the past, present, and future in the realm of flight.

The exhibits and demonstrations at the Hangar will center around three areas of advanced research and technology--aeronautics, space flight, and space science. There will also be a special exhibit on supporting research and technology.

After lunch in the Activities Building, visitors will be escorted by bus on an inspection tour of the new Fatigue Research Laboratory, Free-Body Dynamics Facility, Hot Gas Radiation Research Facility, Unitary Plan Wind Tunnel, Stabilization and Control Laboratory, and Experimental Machine Shop.

Open House for the general public will be held on Saturday, October 7, from 10 a.m. to 4 p.m. and on Sunday, October 8, from 12 noon to 4 p.m. In addition to the many Hangar exhibits, the public will have an opportunity to inspect the 16-Foot Transonic Wind Tunnel, Lunar Landing Research Facility, and Experimental Machine Shop.

During the Open House the Spacemobile will present continuous demonstrations and lectures on aeronautics and space in the Activities Building.

The West Area Cafeteria will be open October 7 for the convenience of the staff and guests who attend the Open House.

ONE-DAY SOLICITATION SET FOR UNITED FUND EFFORT

Tomorrow a corps of over 300 solicitors will contact each employee in an effort to complete the Center's United Fund effort in an intensive one-day campaign, according to Dennis J. Martin, Chairman of the Center's drive.

Martin stated that the Peninsula United Fund organization is using "1 hour's pay per month" as a fair share guide. Employees who contribute or pledge this amount will be given a gold check pin.

The pace for the Center's effort was set this week when the advanced solicitation of key personnel was conducted under the direction of Henry A. Fedziuk, Chief of Research Reports Division.

Fedziuk reported that as of press time on Tuesday, advanced gifts had reached a total of $30,136.00. This represents an average donation of $54.59 from 552 staff members. Fedziuk stated that the total is expected to reach a higher figure as a number of persons have not been contacted because they are on travel or leave.

At a kickoff luncheon held last week Herbert H. Bateman, past president of the Peninsula United Fund, told campaign workers that the united way of giving "starts and ends with earth's greatest treasure - the human personality. More specifically it begins with the needs of people. A complex society presents complex human need factors which none of us acting alone can meet. . .Because ours is a humane society, we have developed agencies or institutions to minister to these needs."

Bateman stated further, "Combining into one united ef-

(Continued on page 3)

Herbert H. Bateman (second from right), past president of the Peninsula United Fund, was guest speaker last week at a kickoff luncheon for the Center's annual United Fund drive. Shown with Bateman are (from left): Richard L. Covey, Executive Director of the Peninsula United Fund; Dennis J. Martin, chairman of the Center's drive, and Dr. Floyd L. Thompson, Langley Director.

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. . .Making plans to desert the bachelor ranks is George C. Greene, Dynamic Loads. He is engaged to Elizabeth Cazel, Newport News, and plans call for a November 25 wedding in Burlington, North Carolina.

AFGE MEETING. . .The NASA Lodge No. 2755, American Federation of Government Employees (AFL-CIO affiliated) will hold its monthly meeting on Wednesday, September 27 at 7 p.m. at the Central Labor Union Hall, Newport News.

STAMP EXHIBIT. . .William B. Mayo, Chief of Mechanical Services Division, will have his stamp collection on display at the Activities Building during the Center's golden anniversary celebration.

REPRESENTATIVE TO VISIT HERE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will visit the Center on September 25 from 3 p.m. until 4 p.m. Employees having problems or questions concerning the plan may call Lois Taylor, 2605, for an appointment.

IAM MEETING NOTICE. . .The NASA Lodge No. 892, International Association of Machinists, will hold its monthly meeting on Tuesday, October 3 at 7 p.m. at the Central Labor Union Hall, Newport News.

WEDDING BELLS. . .Mary W. League, formerly of Applied Materials and Physics Division, was married to James R. Calfee, Newport News, on September 17 at the First Presbyterian Church, Hampton.

EMPLOYEES DONATE BLOOD

The Red Cross Bloodmobile visited the Center on Sept. 13 and staff members donated a total of 175 pints of blood.

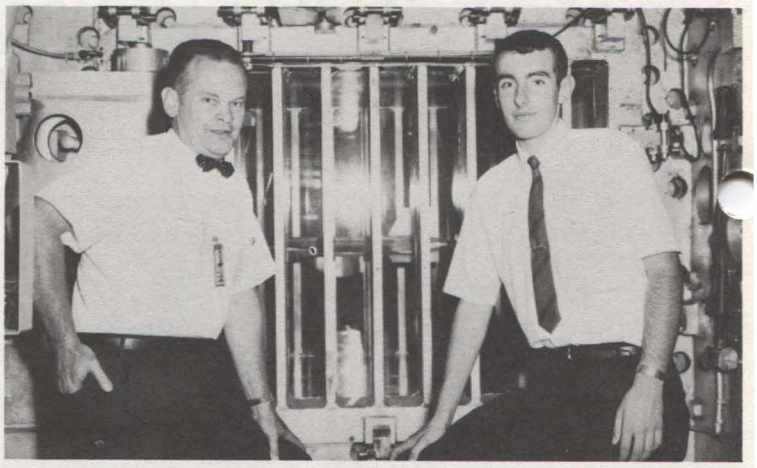
John Denton, who donated his 75th pint, was tops among the veteran blood donors who supported the Bloodmobile visit.

Leigh K. Lewis reached the seven-gallon mark and Edgar D. Freeman and Horace E. Bellamy attained a four-gallon record.

Completing their quota for a three-gallon pin were Albert Philips, Shirley S. Floyd, Frank M. Plott, and Richard Holt. Two-gallon donors were Martin E. Leatherman, William R. Latta, and Charles B. Rumsey.

One-gallon pins were presented to Sam J. Ailor, Franklin I. Horan, and Robert Spruill.

The next Bloodmobile visit will be on December 13.



Gary Stuart Settles (right), winner in the International Science Fair held in San Francisco in May, was a guest of the Langley Research Center on September 7 and 8. Shown with him in Unitary Wind Tunnel is Leroy Spearman, head of Large Supersonic Tunnels Branch, Full-Scale Research Division. Settles is a high school student at Walland, Tenn.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of September 25:

Monday - Tomato-barley soup, pepper steak, fried fantail shrimp, creamed dried beef on toast, western omelette. Snack bar - Soup, western omelette, steak sandwich.

Tuesday - French onion soup, pot roast, broiled ham slice, stuffed pepper, grilled cheese sandwich. Snack bar - Soup, grilled cheese, sliced barbecued beef sandwich.

Wednesday - Corn chowder, chopped steak, chicken pie, beef stew, fish cakes. Snack bar - Soup, hot dog, hot pastrami on rye.

Thursday - Vegetable-beef soup, fried scallops, grilled pork steak, baked lasagna, Spanish omelette. Snack bar - Soup, barbecue, grilled ham sandwich.

Friday - Clam chowder, roast beef, broiled fish, fried chicken, macaroni and wieners. Snack bar - Soup, fish sandwich, beef steakette on roll.

The menu for the week of October 2 is as follows:

Monday - Puree of bean soup, baked ham, chuckwagon steak, Polish sausage, beef ravioli. Snack bar - Soup, ham and egg sandwich, flying saucer, German potato cakes.

Tuesday - Cream of tomato soup, Swiss steak, stuffed shrimp, ham and noodle casserole, franks and beans. Snack bar - Soup, hot dog, steak sandwich.

Wednesday - Green split pea soup, corned beef, veal cutlet, livers and onions, chili con carne. Snack Bar - Soup, hamburger, corned beef on rye.

Thursday - Vegetable-beef soup, grilled steak, barbecued pork chunks over rice, stuffed flounder, baked hash. Snack bar - Soup, barbecued pork, veal cutlet on roll.

Friday - Clam chowder, Spanish pot roast, baked salmon loaf, fried chicken, chili dog. Snack bar - Soup, hot dog, hot roast beef sandwich.

Saturday (Open House) - Chicken-rice soup, grilled rib eye steak, Polish sausage, fried chicken, hamburger.

FOR SALE: Registered Persian kittens. Trusty, 877-3217.
WANTED: Driving combination from Carriage Hill to W.A. on 8 shift. Benefiel, 4483.
FOR SALE: Cornet - $95. Rigo, 877-2241.

LANGLEY DEVICE WINS AWARD

The Langley Research Center developed Underwater Location Aid has been selected as one of the 100 most significant new technical products of the year in the 1967 "I-R 100" Competition sponsored by Industrial Research magazine.

Two other products entered by NASA were chosen by the judges. They were Digital Computer Processing of X-Rays developed by Jet Propulsion Laboratory and Tungsten Alloy developed by Lewis Research Center.

The 100 products were selected on the basis of their technical importance, uniqueness, and usefulness by the Industrial Research Editorial Advisory Board, consisting of 30 leading scientists, engineers, and research administrators.

Sixty-nine companies, three universities, and two federal agencies were honored September 19 at an awards dinner at the New York Hilton Hotel. The dinner was followed by a two-day exhibit of winning products.

John C. McFall Jr., Applied Materials and Physics Division, and Ray W. Lovelady, Flight Instrumentation Division, were co-inventors of the Langley product. McFall accepted the award on behalf of the Center and Lovelady handled the exhibit of the award winning device.

The Underwater Location Aid provides a shock-resistant, leightweight, low-volume transmitter and a portable, battery operated receiver for precise location of submerged objects such as downed aircraft, research payloads, space boosters at ranges from a few inches to three nautical miles.

UNITED FUND CAMPAIGN

(Continued from page 1)

ort or campaign for funds that are needed for a number f agencies regularly and dramatically reduces the costs of raising the total amount needed. Unlike many individual agencies conducting separate fund drives where only 73% of the money raised goes to meet the need for which it was raised, 95.7% of your contribution to the United Fund goes to meet the needs which induced your contribution. Only 4.3% is spent for administration costs. . .Statistically, mathematically, historically and logically united fund raising results in less shrinkage because of costs of raising the money."

In endorsing the annual campaign Dr. Floyd L. Thompson, Director, said, "We can take pride in the fact that we have recognized our obligations in this vital program in the past by our previous enviable records. I am confident that with our combined efforts and personal concern for the well-being of our fellow man that we will also make this year's campaign a success."

Martin pointed out that he is confident employees will again give generous support to this annual project and meet the Center's goal of $65,000. He reminded staff members that although he is anxious to put the drive over the top tomorrow, pledges and cash donations will be accepted by solicitors after the one-day campaign.

Division chairmen, who are directing the activities of the corps of solicitors, are reminded to make a report by the end of tomorrow to the respective financial chairmen to facilitate a proper evaluation of the one-day drive effort.

Barbara Durling, Building 1229, telephone 4485, is West Area financial chairman and Helen Willey, Building 641, telephone 2631, is East Area financial chairman.

Top photo - Division chairmen for the United Fund drive are front row (from left): George A. Wentland, William A. Brooks, Nancy S. Holt, William F. Cuddihy, Abner M. Askew, and William F. Lawson. Second row - Kenneth W. Goodson, Richard J. Moberg, William L. Scallion, Robert S. Osborne, and Elmer J. Wolff. Third row - James R. Kelly, Domenic J. Maglieri, Dale F. Emswiler, James B. Whitten, Abraham Leiss, and Robert H. Turner. Bottom photo - Chairmen for the advanced gifts solicitation are front row: Dennis J. Martin, drive chairman, Sidney Parker, Sherwood L. Butler, Jess G. Ross, Henry A. Fedziuk, Don D. Davis, and Elmer F. Smith. Second row - Milfred E. Cook, Daniel R. Hayes, B. M. Wilson, J. Norwood Evans, Marvin Forrest, and William F. Lawson. Third row - Abraham Leiss, George A. Wentland, Edwin M. Russell, Donald L. Loving, Charles H. McLellan, Ralph W. Stone, Sheldon T. Peterson, and Vera Huckel.

FOR SALE: 1956 Thunderbird hardtop with new motor, paint, wide-track tires and upholstery. Pendleton, 596-8034 after 4:30 p.m.

WANTED: Home for 6 four-week-old puppies. Scheiman, 851-2117.

FOR SALE: Snare drum with white pearl finish, stand, and carrying case - $50. Randolph, 887-5056.

Nine staff members recently received cash awards for applications that might result in the granting of a patent. Top left photo - Dr. William G. Batte, Analysis and Computation, received $200 for his suggestion entitled "Bi-directional Binary Rate Multiplier" and $200 for "Binary Accumulator with Roundoff." Top center - Otis J. Parker, Flight Vehicles and Systems, was awarded $300 for "Flared Tube Strainer." Upper right - Walter Illg (left), Structures Research, and Fred F. Eichenbrenner, Mechanical Services, shared a $200 award for "Light Shield and Infrared Reflector for Fatigue Testing." Lower left - Willard S. Blanchard, Applied Materials and Physics, received $200 for his suggestion concerning "Collision Negator." Lower center - Howard B. Miller (left), Mechanical Services Division; William W. Anderson (center), Research Models and Facilities, and George E. Sweet, Applied Materials and Physics, shared a $500 award for "Radiometer." Lower right - John S. Mixson, Dynamic Loads Division, received a check for $100 for his suggestion concerning a "Ring Wing Vehicle."

COURSES OFFERED EMPLOYEES

The York County Adult Education evening program will begin classes at 7 p.m. on September 25 at York High School.

The following courses will be offered: Mathematics for Electronics, D.C. Fundamentals, A.C. Fundamentals, Vacuum Tubes and Semi-conductors, Electronic Circuitry, Pulse and Digital Circuits, Introduction to Digital Computer Programming, Industrial Electronics, Microwaves, Transistors, Mathematics for Engineering Technicians, Typing, Bookkeeping, Business Machines, and Shorthand.

Classes will meet on Monday and Thursday evenings for a period of 10 weeks. Registration fee is $10. For further information call the York County Adult Education Office, 898-5957.

SAFETY RULES FOR PEDESTRIANS

Use the hand rails on stairs or on elevated places. Never jump from platforms, scaffolds, loading docks, or other elevations.

Be alert when walking in aisles. Watch out for moving power equipment. Look where you are walking, so that you don't slip or stumble.

You are inviting an accident when you try to take a short cut over a conveyor. Always walk to the nearest bridge or passage when you want to cross.

Keep out of areas which are barricaded or marked "restricted" or "dangerous" - these signs are intended as warnings for your safety. If your work requires that you enter other departments, you should familiarize yourself with any special safety rules applying to those departments.

FOR SALE: French provincial dresser with mirror, canopy bed and mattress with lilac canopy, bedspread and cafe curtains for 2 windows sizes 50 x 52 and 25 x 52 - $125. Rumsey, 898-3591.

FOR SALE: RCA washer-dryer combination - $15, Sears refrigerator - $35. Elliott, 596-0397.

FOR SALE: "Principles of Electrical Engineering" by Vincent Deltor. Monahan, 596-3418.

FOR SALE: Hardwick apartment-size gas stove - $50. Reed, 596-8377.

FOR SALE: 1958 Dodge Coronet hardtop, 2-door - $200. Baab, CH5-6228.

FOR SALE: 10-gallon aquarium and accessories. Dearing 877-5429 after 5:30 p.m.

WANTED: Driving combination from Southampton to E.A. on 8 shift. Farmer, 2661.

SUCCESS OF HIS UNMANNED FLIGHTS GAVE LANGLEY FAITH IN AIR FUTURE

Assistant Secretary of the Navy Theodore Roosevelt, writing to his Chief, Secretary Long, on March 25, 1898, said: "The machine has worked. It seems to me worthwhile for this government to try whether it will not work on a large enough scale to be of use in the event of war. This is well worth doing."

According to a paper by Dr. Paul Edward Garber, Head Curator of the Smithsonian Institution's National Air Museum, Mr. Roosevelt was referring to Aerodrome Number Five -- launched by Dr. Samual Pierpont Langley, in whose honor the Center was named in 1917.

This unmanned but inherently stable, steam-engined heavier-than-air craft of Dr. Langley's had a 14-foot span and weighed 26 pounds. "Mr. Roosevelt had learned that this aircraft had been launched from a catapult, and under its own self-contained power, had flown onward, upward, circling for a minute and a half, and then, when its fuel was exhausted, had descended gently into the water," wrote Dr. Garber.

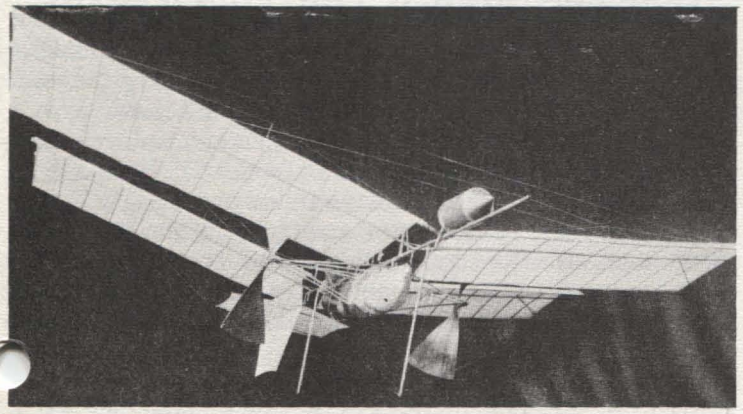
"It was lifted out, its wings dried, its engine refueled, and again launched to repeat its first success. This was the first time in the history of man's age-old efforts to fly, that a powered machine, heavier than air, had made free and sustained flights. By sustained, I mean more than a few hundred feet," Dr. Garber explained.

"Dating back to the very dawn of civilization, man had yearned to fly, but not until near the close of the 18th century was he able to leave the ground in free ascent," according to Dr. Garber.

"Thus, as we review that century, we realize that there were many aeronautical experimenters who preceded Langley, and some attained some measure of success. Langley's Aerodrome No. Five was not the first to achieve mechanical flight but when its distance and duration in the air are compared with the performances of those aircraft that came earlier we learn, for example, that Langley's craft flew more than 10 times farther than the compressed-air-powered ornithopter of Lawrence Hargrave in Australia, which I believe had previously been most successful with a flight of 312 feet in 1891."

Dr. Langley, born August 22, 1834, at Roxbury, Mass., now a part of Boston, was one of America's greatest scientists. When at the age of 52 his then-dormant interest in flight was aroused, he began his pioneering experiments in aviation.

One project Dr. Langley undertook "as a patriotic effort in wartime" was the construction and test of an aerodrome



Langley Aerodrome No. 5

This outstanding line drawing portrait of Dr. Samuel Pierpont Langley, in whose honor the Center was named in 1917, was drawn by Nettie J. Chandler, Technical Illustrating, Research Reports Division.

having about four times the dimensions of the No. 5 aerodrome, and intended to carry a man.

Dr. Garber observed that, although Dr. Langley's large aerodrome failed to fly, his fame in aeronautics "rests secure upon the magnificent performances of his smaller, unmanned aircraft: his No. 5, No. 6, and the quarter-size scale model, which was the first heavier-than-air craft in the world to fly with a gasoline engine."

The failure of the large aerodrome to fly was cited by Dr. Garber as the only defeat in Dr. Langley's illustrious career and yet "he never wavered in the belief that man would conquer the air." Dr. Langley, who died at Aiken, South Carolina, February 27, 1906, after a life "rich with honors," penned this description of his work in aeronautics:

"I have brought to a close the portion of the work which seemed to be specially mine, -- the demonstration of the practicability of mechanical flight, -- and for the next stage, which is the commercial and practical development of the idea, it is probable that the world may look to others. The world, indeed, will be supine if it does not realize that a new possibility has come to it, and that the great universal highway overhead is now soon to be opened."

ORBITER FLIGHT PATH CHANGED

NASA engineers monitoring the four Lunar Orbiter spacecraft circling the moon have changed the path of Orbiter III to simulate as closely as possible the orbit in which manned Apollo spacecraft are expected to fly.

The maneuver was accomplished by firing the spacecraft's velocity control engine for 125.5 seconds to lower the apolune or high point of the orbit.

Tracking data now show the spacecraft to be operating in an orbit with a perilune or low point 89 miles above the lunar surface and an apolune of 196 miles. Before the maneuver, Orbiter III had a perilune of 87 miles and an apolune of 1,133 miles.

The new orbit approaches the 100-mile circular orbit intended for the Apollo command module. It is inclined 21 degrees to the moon's equator, and Lunar Orbiter requires only two hours and 11 minutes for a complete circuit in its new path.

Information about the lunar gravity fields to be obtained from tracking Orbiter III in its new low orbit will be of value to the Apollo program.

Langley Research Center engineers managing the Lunar Orbiter project report that the maneuver marked the 25th consecutive successful use of the Orbiter's 100-pound thrust velocity control engine in space.

Lunar Orbiter III left Cape Kennedy on February 4 and has been in orbit about the moon since February 8. Its engine was used on July 17 to raise the spacecraft's perilune to increase its lifetime.

Four spacecraft of the Lunar Orbiter series are operating in orbit around the moon, although communication with one of them, Lunar Orbiter IV, is no longer possible.

The active spacecraft serve as valuable tracking targets for stations in the NASA Manned Space Flight Net which uses them for crew training exercises and for evaluating the orbit determination computer programs to be used in the Apollo missions.

WILLIAMS PRESENTS PAPER

William L. Williams, Staff Assistant, Office of the Assistant Director for Administration, recently returned from the 14th International Meeting of the Institute of Management Sciences held in Mexico City, Mexico, August 22-26.

Williams presented a paper on "In-House Research on the Management of R and D in Government Agencies" as part of the College of Research and Development session held at the National University of Mexico. Dr. Michael Radnor, Northwestern University's Technological Institute, was co-author of the paper.

Over 400 participants from all over the world attended the meeting. Herbert A. Simon, Carnegie Institute of Technology, was banquet speaker.

FOR SALE: 1959 XK150 Jaguar hardtop coupe - rebuilt engine and new interior. Taylor, 877-5724 after 5 p.m.

WANTED: Set of pro-type golf clubs. Taylor, 877-5724.

FOR SALE: 17-foot Commodore, Carolina tilt trailer, and 45 hp electric start motor; also 11,500 btu Fedders air conditioner - $80. Privette, 1128 78th St.

FOR SALE: 5-foot high, 40-foot long Sears steel fence with poles - $10. Maddalon, 838-2821.

FOR SALE: 16-foot fiberglas boat with 50 hp Johnson motor and trailer - $1200. Newcomb, 245-8584.

Charles F. Burch

Chris Gross

E. J. Yarrington

THREE RECEIVE PERFORMANCE AWARDS

Charles F. Burch, Mechanical Services Division; Chris Gross, Instrument Research Division, and Edgar J. Yarrington, Mechanical Services Division, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Burch received his award for "his overall excellence in the performance of duties and for his notable contributions in building the Subsonic Wing Body Model for the 8-Foot Tunnel."

Burch was born in Newport News and graduated from Warwick High School. He entered on duty at the Center on September 30, 1957 and graduated from the Apprentice School as a machinist in 1962.

Gross was rewarded for "his outstanding performance in the development of advanced solid state strain gage devices in which radiation effects were used to provide improved strain sensitivity and temperature performance."

A native of Charlotte, North Carolina, Gross graduated from New Hanover High School in Wilmington and received his B.S. degree in Nuclear Engineering from North Carolina State University in Raleigh in 1962. He joined the Center staff on February 12, 1962.

Yarrington was cited for "his sustained superior performance during his current assignment to Langley's 9 x 6-Foot Thermal Structures Tunnel which was at a level of capability and reliability that considerably exceeded his present requirements as an experimental facility mechanic."

Yarrington is a native of Hampton and graduated from Hampton High School. He joined the staff on January 4, 1962 and graduated from the Apprentice School as a test facility mechanic in 1966.

FLOWERS NEEDED FOR ANNIVERSARY

Margaret Strickland, who is in charge of decorations for the luncheons for the Langley 50th Anniversary Celebration which will be held at the Center on October 2, 3, 4, 5, and 6, is seeking the help of Center employees. She asks that persons having flowers of any kind, please bring them on the morning of the days listed above.

Flowers may be left in the East Area at the Receptionist's desk or with Helen Johnson at 8-Foot Tunnel. West Area employees are requested to leave them at the Activities Building or call Miss Strickland, 3209 or 4701, to have them picked up.

FOR SALE: 1953 MW electric range - $30. Judy, 826-4515.

FOR SALE: 13-lb. bowling ball - $8. Bailey 586-0236.

MERIT PROMOTION PLAN

It is the practice of the Center to keep its personnel informed of the various personnel programs concerning them. One of these programs is the Merit Promotion Plan. All staff members have been given copies of this plan and copies are also given to new employees when they enter on duty. Additional copies of Langley's Merit Promotion Plan are available in the Personnel Office.

The purpose of the Federal Merit Promotion program is not to reward workers for long and faithful service but 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 that selections are made on a fair and equitable basis. A recent advance in modern personnel administration, it has as its goal identifying the best man or woman to fill each vacant position.

The program, covering more than 2 million jobs in the competitive service, has been in effect since January 1, 1959. During this period, promotions falling within the program have been made under agency rules that conform to established Civil Service Commission guidelines.

The Langley Center's Merit Promotion Plan applies to filling positions by means of internal transfer of employees, either where a reassignment results directly in a promotion, or where it results in definitely improved opportunity for promotion. The Merit Promotion Plan does not apply to promotion resulting from gradual change of duties and responsibilities. Neither does it apply to reassignments when it is determined that opportunity for promotion will not be improved because of the reassignment. Authority to fill positions by new appointment, transfer from another agency, change to lower grade, or other methods besides promotion is not affected by the establishment of this plan.

For further information concerning the plan, employees may consult their supervisors or John H. Cox, Employment Branch, telephone 2233, Building 587, Room 130.

LOFTIN TO PRESENT PAPER AT ANGLO-AMERICAN MEETING

Laurence K. Loftin, Assistant Director, will present a paper on "Research Relating to Large Supersonic Cruising Aircraft" at the 10th Anglo-American Conference which will be held October 18-20 in the International Hotel, Los Angeles.

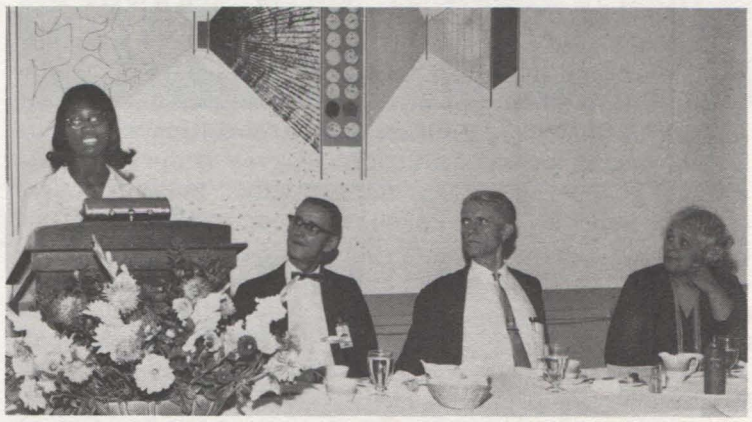
More than 25 distinguished British, Canadian and American aircraft engineering executives will present technical papers on the future of commercial aviation - from ground effect vehicles to hypersonic transports.

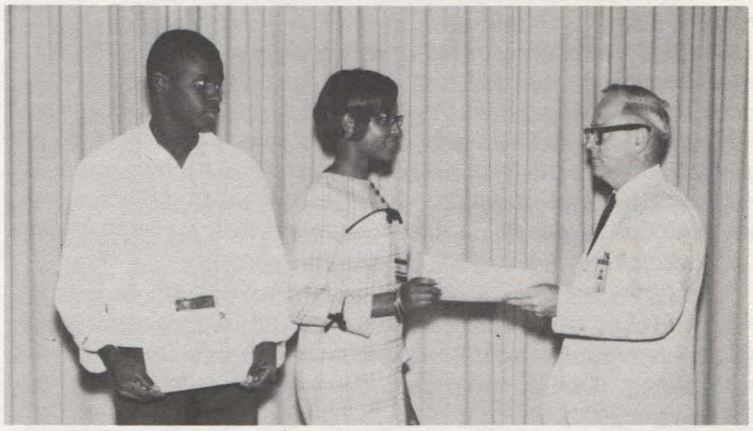
Host for the meeting is the American Institute of Aeronautics and Astronautics. The other societies sponsoring the meeting are the Royal Aeronautical Society and the Canadian Aeronautics and Space Institute.

Nearly 100 Britons and Canadians will be joining their American colleagues to compare technical progress in short haul transportation, supersonic and hypersonic transport and in such operational areas as all-weather flying, safety, airport planning and noise.

FOR SALE: Sears model 600 camping trailer with add-a-room. King, 595-0919.

WANTED: Driving combination from Riverdale to W.A. on 8 shift. Lovell, 3595.





SUMMER EMPLOYEES. Top photo - Esther J. Brown, a YOC trainee, describes her experiences at the Center at a luncheon given for the Youth Opportunity Campaign (YOC) trainees and Neighborhood Youth Corps (NYC) enrollees employed at the Center this summer. At the speakers table are (from left): T. Melvin Butler, Assistant Director for Administration; Dr. Floyd L. Thompson, Director and principal speaker at the luncheon, and Mrs. Norvleate Downing, Executive Director of the Newport News Office of Economic Opportunity. Center photo - Charles F. Barnett, Personnel Officer, presents letters of appreciation to YOC trainees who received outstanding evaluations on their performance this summer. Recipients are (from left): Linda J. Brigman, Gene H. Burke, Brenda D. Frazier, and C. Don Wong. Also receiving outstanding evaluations were Diane Gwaltney, Rodney E. Stallings, Janet B. Vaughan, and Judith L. Washington. Bottom photo - J. Norwood Evans, Assistant Personnel Officer, presents NYC Outstanding Award certificates to Coy E. Byrd and Brenda M. Bridges who were selected as the two most outstanding NYC enrollees during their summer assignment at the Center.

COUNTDOWN

TROPHY NIGHT. . .The Activities Association will honor all the winning teams of all NASA leagues of the 1967 season on September 30 at the Activities Building. Guest speaker will be Suey Eason, Hampton Recreational Department. Trophies will be presented by Jeanette Saunders, second runner-up in the carnival queen contest. All NASA employees are invited to attend. Dinner will be served at 6:30 p.m. and a fee of $2.50 per person will be charged. For reservations contact Bob Huffman, 3511. Following the presentation of trophies, a film will be featured showing the football highlights of the Washington Redskins' 1966 season. Refreshments will be served.

DINNER AND DANCE. . .The Activities Association has issued invitations to carnival workers to a buffet dinner and dance on October 14 at the Activities Building. Dinner will be served at 7:30 p.m., followed by dancing to the music of Jerry Fisher and his band. Carnival workers who have not received invitations should contact Herb Boulter, 3492.

TENNIS NEWS. . .Staff members are invited to visit the tennis courts on September 23 and 24 and watch the tennis club's final summer tournament. Matches will begin on Saturday at 9 a.m. and on Sunday at 1 p.m.

The men's summer ladder will end September 24 and a fall ladder will be started. Jim Mueller is ladder chairman.

Women interested in forming their own ladder competition should contact Mueller, Mail Stop 234. Women's tennis classes will end September 27.

AUCTION. . .Used lumber from the carnival will be auctioned off at 2 p.m. on September 26. Lumber must be removed by September 28. The Activities Association reserves the right to last bid. Lumber may be seen at the left rear of the Activities Building.

TURKEY SHOOT. . .The annual Turkey Shoot will be held October 28 at the Activities Building. Tickets will be available from District Representatives. Persons interested in helping during the shoot are requested to call J. A. Siefring, 3483.

HALLOWEEN DANCE. . .A Halloween Costume Ball will be held on October 28 at the Activities Building. Prizes will be awarded for the best costumes. Judges for this event and additional information will be published later. Music will be furnished by The Fugitives from 9 p.m. to 1 a.m. Tickets will be $3 per couple and may be purchased from members of the Executive Board.

SEPT. 22 DEADLINE FOR PACKAGES

The deadline for the Activities Association's effort to send 3,000 Christmas packages to our service men in Viet Nam is September 22.

The Association is furnishing a standard size box which may be obtained from District Representatives or from the cafeterias. The filled boxes must be returned to the District Representatives or placed in the large containers in the cafeterias by September 22 so they may be sent to Norfolk for shipment by Operation Handclasp.

A list of instructions and gift suggestions is provided with each box.

Charles A. Clarke (left), president of the Activities Association, presents $25 U.S. savings bonds to Frederick M. Healy, Flight Mechanics and Technology; Rex B. Martin, Flight Instrumentation, and Moses G. Farmer, Dynamic Loads. As a result of the Center's recent bond drive, the Activities Association presented bonds to winners in three categories - new bond subscriber, new bond and freedom share subscriber, and new increase in allotment.

NASA BOWLING LEAGUES

Misfits lead League A in the NASA Tenpin League with 7 wins and 1 loss. Hornets and Short Circuits are tied for second with 5 wins and 3 losses each. Top scores were rolled by Jim Henry with a 263 game and 631 set.

ABT and HMS are tied for first in League B with a perfect record of 8 wins each. Hotshot Tunnel is third with 7 wins and 1 loss. Top bowlers were Charles Miller with a 247 game, William Goad with a 636 set, and Peggy Mayo with a 234 game and 643 set.

Galaxies lead League C with a perfect record of 8 wins. Alley Cats are in second with 7 wins and 1 loss. Top scores were rolled by John Royall with a 274 game and 669 set, Marge Simonton with a 216 game, and Mary Carmines with a 588 set.

LEAGUE A					
Misfits	7	1	ACD	3	5
Hornets	5	3	Phantoms	3	5
Short Circuits	5	3	Turkeys	3	5
Flyers	4	4	Cleanups	2	6
LEAGUE B			LEAGUE C		
ABT	8	0	Galaxies	8	0
HMS	8	0	Alley Cats	7	1
Hotshot Tunnel	7	1	Hayze	6	2
Sparkys	6	2	Hopeless 5	6	2
Flight Engineers	4	4	Class Kats	5	3
Pinwigglers	4	4	Gliders	4	4
Dillys	4	4	Question Marks	4	4
Mets	3	5	Green Hornes	4	4
Payloads	3	5	5 Rebels	4	4
Gas House Gang	3	5	Hits & Misses	3	5
Cee Pee's	3	5	A-OK's	3	5
Astro's	2	6	Invaders	1	7
Flight	1	7	Allies	0	8
Woodnickers	0	8	Bowling Belles	0	

FOR SALE: 5-band Knight short wave receiver - $30. Henderson, 596-3334.

Langley Research Center
1917 ☆ FIFTY YEARS OF SERVICE TO THE NATION ☆ 1967

TRADITION OF OVER HALF CENTURY OF SERVICE TO SCIENCE OF FLIGHT PERMITS LANGLEY STAFF TO LOOK WITH CONFIDENCE TO MOON, PLANETS

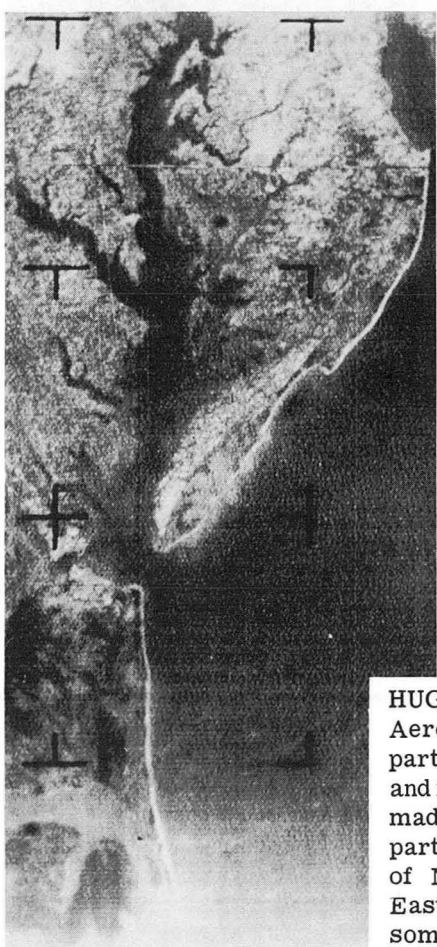
In modern wind tunnels and specialized laboratories, in flight research, and in theoretical studies, scientists at the Langley Research Center of the National Aeronautics and Space Administration are looking to the future. Their mission: to advance the science of flight. In accomplishing this goal, Langley initiates pioneering projects in aeronautical and space science and technology, and helps establish the feasibility of undertaking future missions in space as well as laying a broad foundation for the development of spacecraft and aircraft with superior performance.

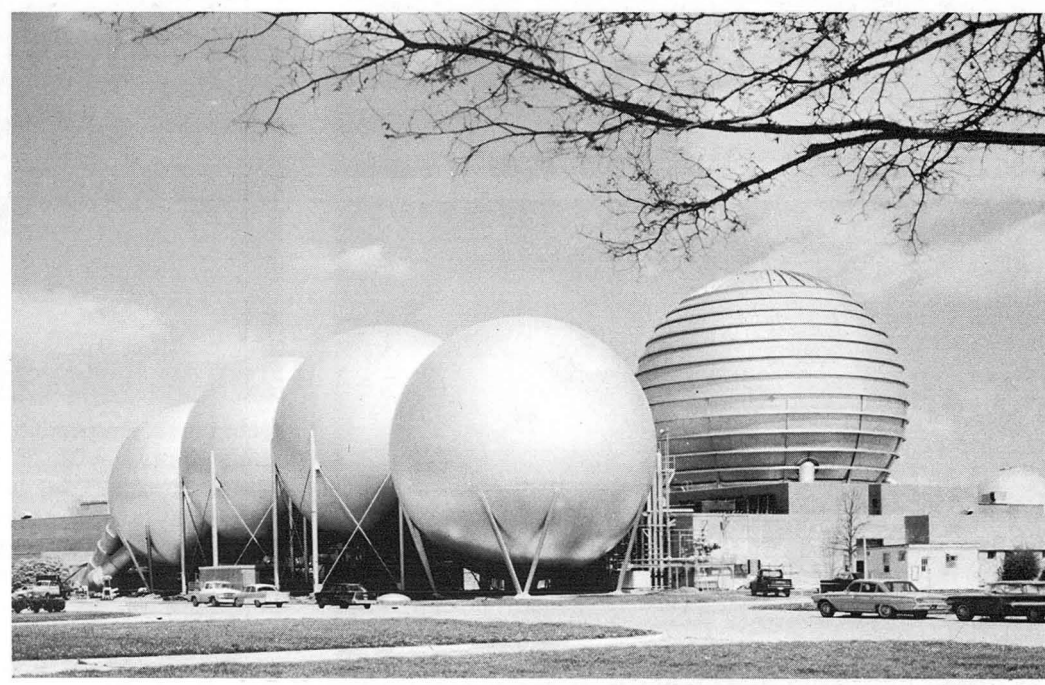
Langley research encompasses many fields and relates to a variety of end objectives. These include launch vehicles, manned and unmanned earth satellites, lunar vehicles, planetary spacecraft, hypersonic flight vehicles, supersonic aircraft of advanced design, vertical takeoff-landing and short takeoff-landing machines and helicopters, and subsonic aircraft with particular reference to the operating problems of transports.

In the space field, there is an intensive study of technical problems associated with possible future missions. Technology relative to a Manned Orbiting Research Laboratory, for example, has been under study at Langley for several years. This basic research includes investigations of the problems of heat balance, structural requirements for resistance to micrometeoroids, and energetic particle radiation as affecting space vehicle mechanisms or occupants, and studies of life support systems.

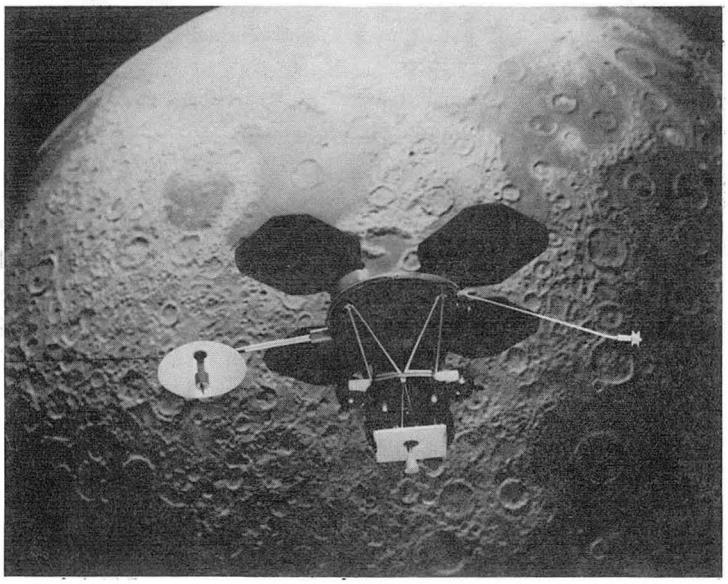
Langley is conducting extensive research in aeronautics, including a variety of scientific studies to provide basic information for use in the development of an efficient supersonic commercial air transport. Scientists also are seeking solutions to problems that relate to lifting vehicles for flight in the hypersonic range, velocities above five times sonic speed. This research involves not only difficult aerodynamic and structural problems, but basic questions regarding the propulsion to be employed in this speed range.

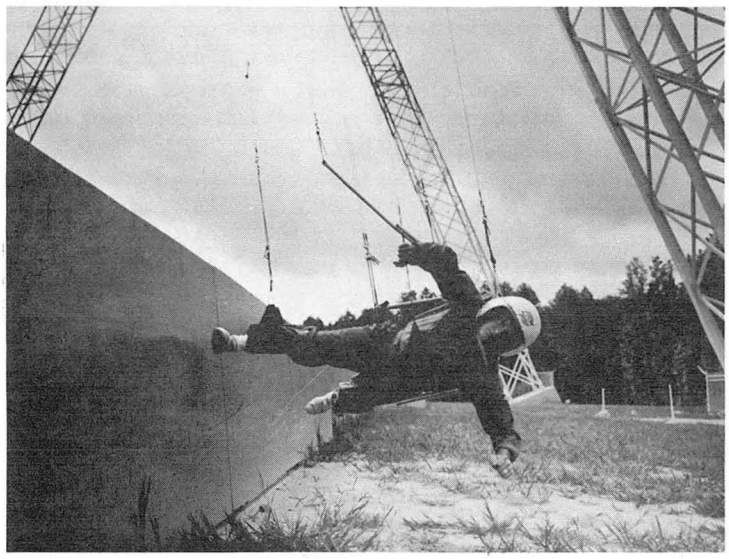
Langley Research Center has a staff of about 4,000 scientists, engineers, technicians, and other supporting personnel and laboratories and other facilities which represent an investment by the United States of one-third billion dollars. Established in 1917, just 14 years after the pioneering flights of the Wright Brothers at nearby Kitty Hawk, Langley has a history of significant accomplishment in the aerospace field during a period of over half a century -- a tradition which permits the Center to look with confidence to the stars.

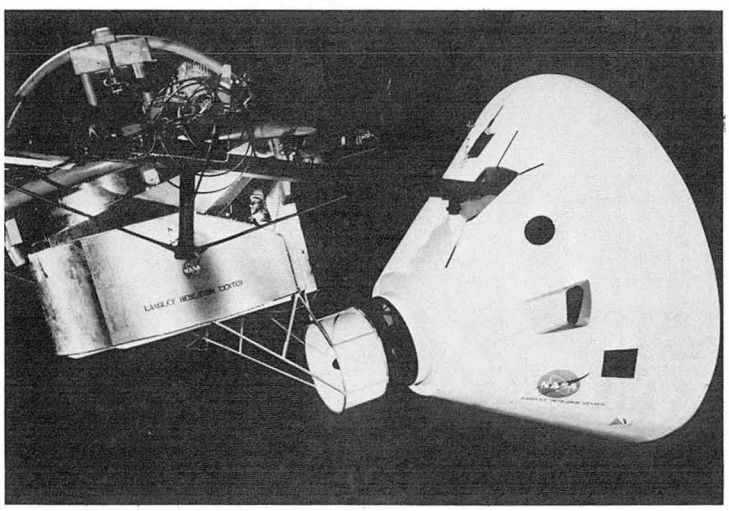


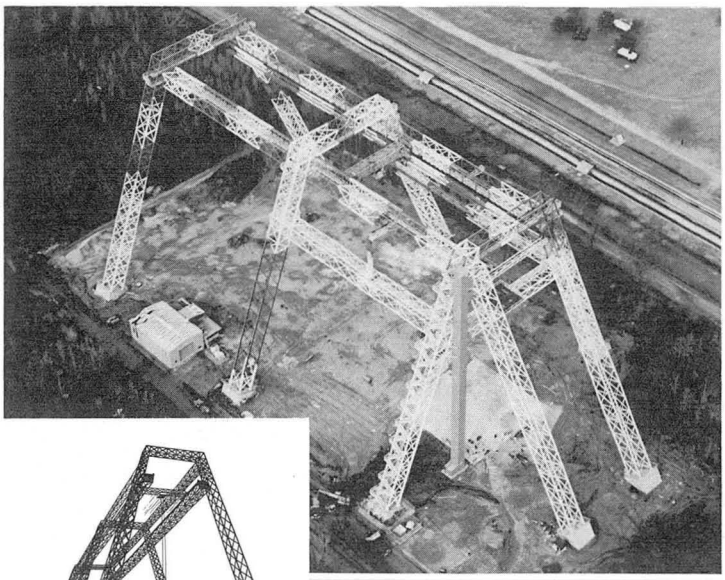


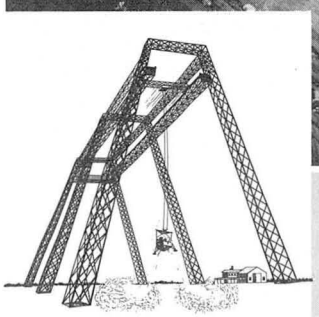
HUGE VACUUM SPHERES (above), typical of new space age facilities at the National Aeronautics and Space Administration's Langley Research Center, Hampton, Virginia, are part of several modern laboratories used to investigate problems of very high-speed flight and reentry from space. In the photograph of the eastern section of the United States (left), made by the United States weather satellite Nimbus I, Langley is to the right of the lower part of the cross mark. The picture, made from an altitude of 325 miles on the 138th orbit of Nimbus, shows (from left) the Langley Research Center area, Chesapeake Bay, the Eastern Shore, and the Atlantic Ocean. Photographs on the next three pages illustrate some of Langley's aerospace facilities and research activities.

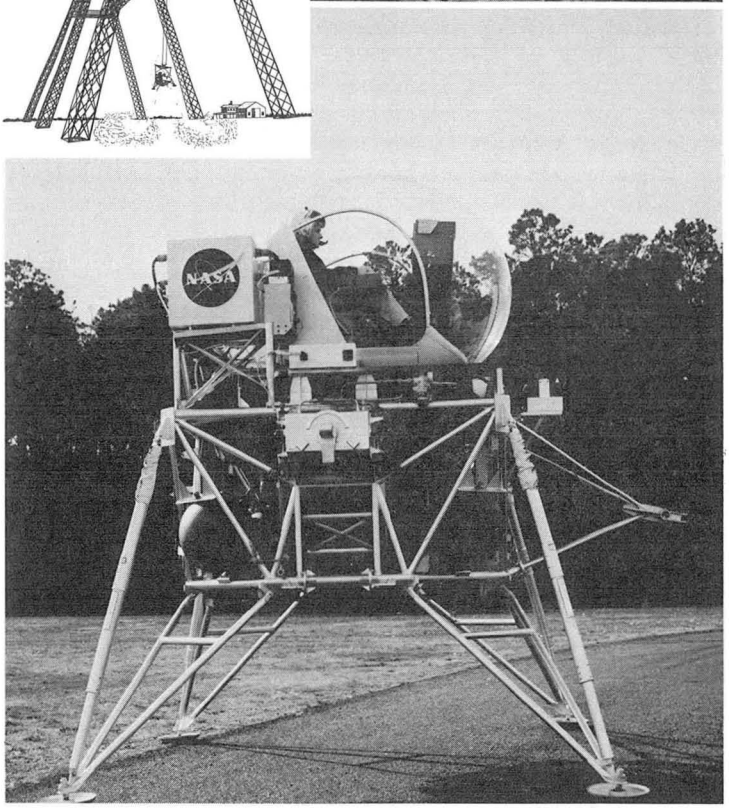




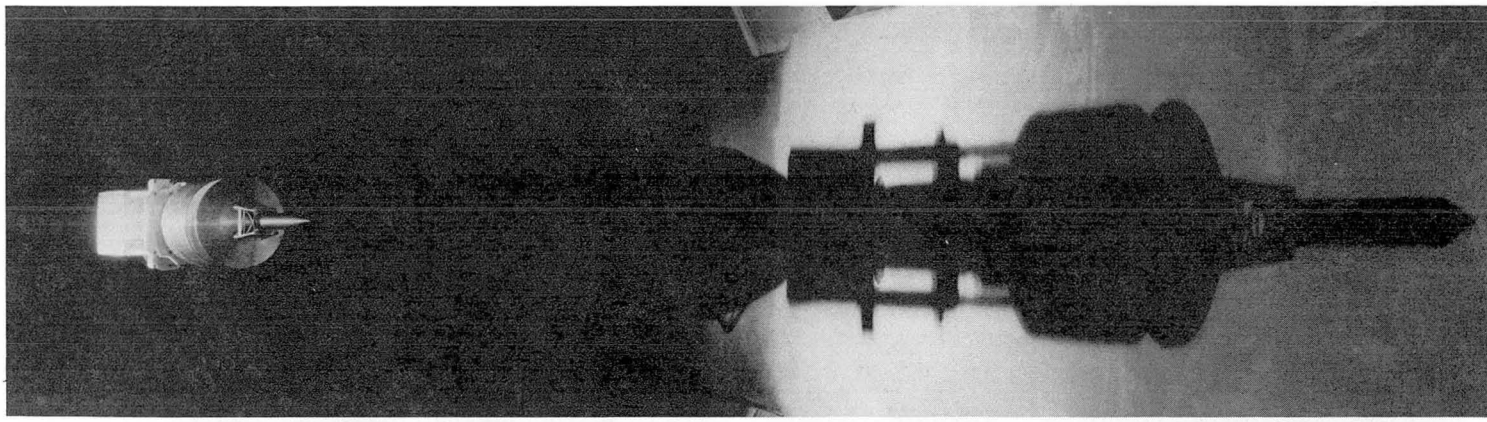


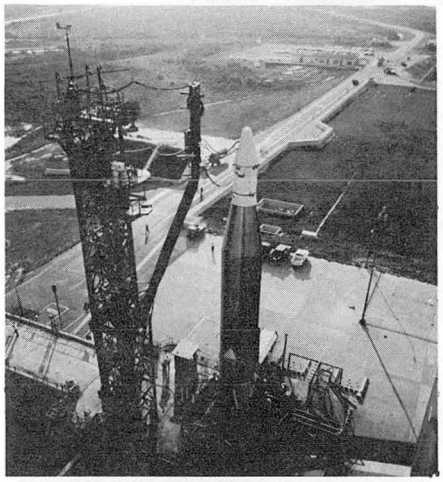


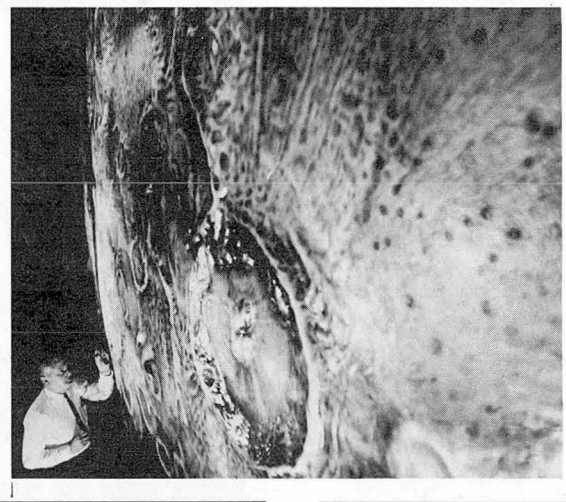


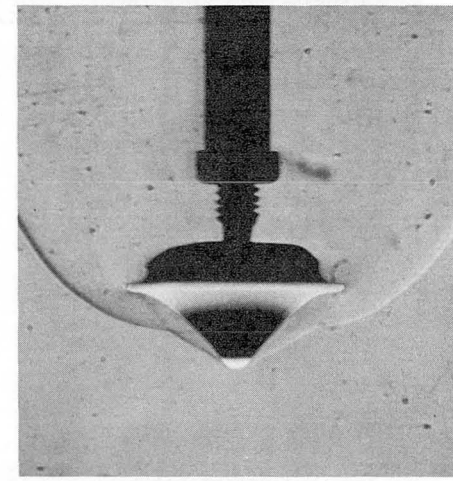


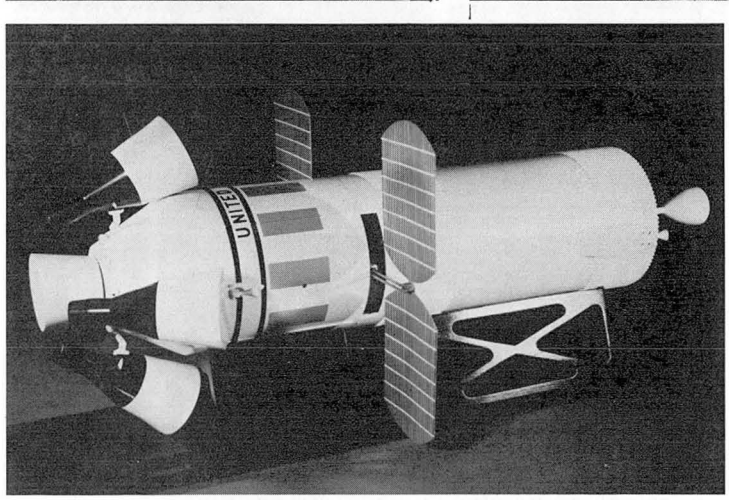
LUNAR ORBITER is a Langley-managed project to make high resolution photographs of the moon to locate suitable landing sites for the manned mission. Scale Models (top left) show how it will approach to within less than 30 miles of the moon to photograph lunar objects as small as a yard square. First flight is scheduled for 1966 from Cape Kennedy, Florida. Lunar Landing Research Facility (top right) is a controlled laboratory for developing lunar landing techniques. Suspended from the 250-foot high, 400-foot long steel gantry will be a manned rocket-powered research vehicle (lower right) to study problems astronauts will encounter in landing on the moon. In operation (drawing), the facility will simulate the one-sixth gravity of the moon. In another research device, designed for studying locomotion problems of an astronaut in moving about on the moon, a system of slings suspended from the gantry supports most of the weight of a scientist (center left) and allows him to walk and jump under conditions simulating lunar gravity. Some studies are made with the subject wearing a space suit or a heavy back pack. A facility (lower left) includes the simulated crew section of the Project Apollo Lunar Excursion Module (LEM), which is shown after having been maneuvered by a research pilot to rendezvous and dock with an Apollo model. The two vehicles are supported by an overhead cable system. The simulator includes an analogue computer (not shown).

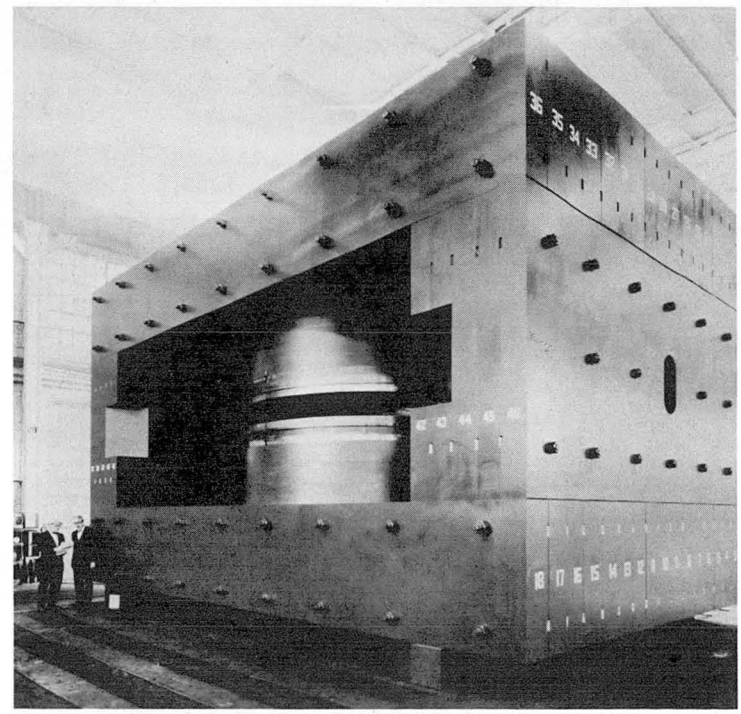




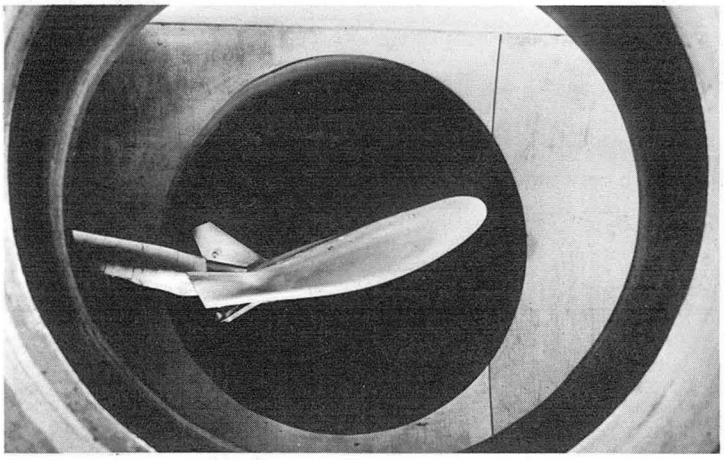


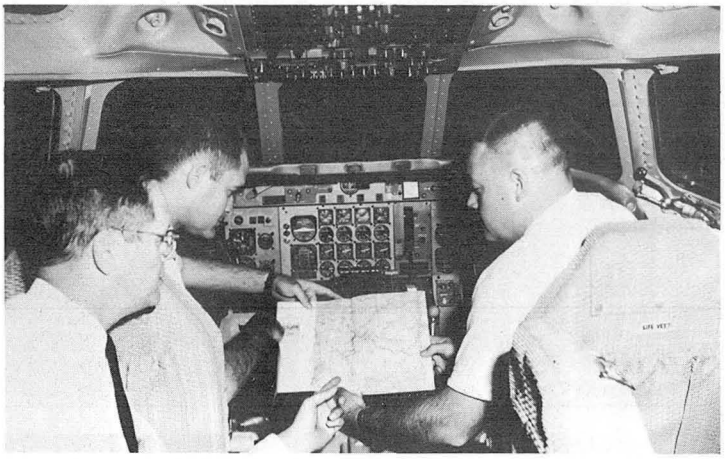


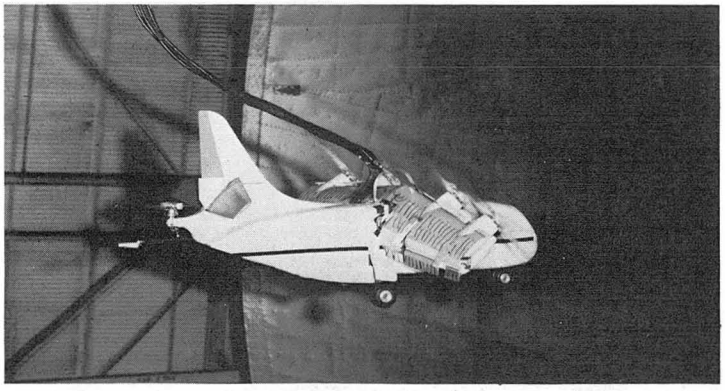


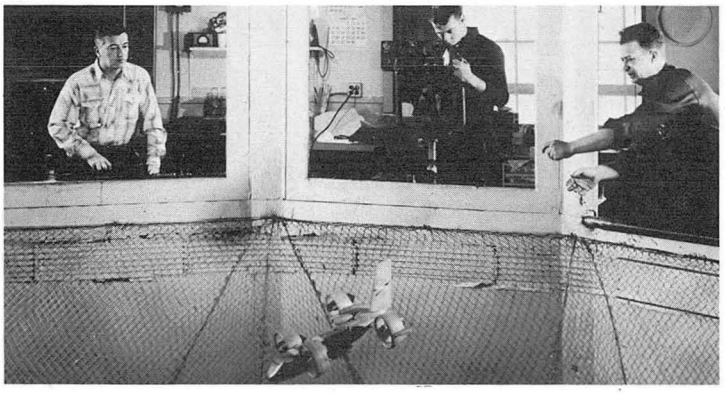


IN OTHER LUNAR research, an Apollo model with launch escape system (top) casts its shadow in a transonic dynamics wind tunnel in aerodynamic tests; a Project Fire booster and reentry package (upper left) is viewed at Cape Kennedy, Florida, prior to an April 1964 flight in which vital scientific information at speeds of about 25,000 miles an hour-- slightly in excess of lunar reentry velocity-- was obtained; and an engineering designer (upper center) checks one of four large lunar maps being built as part of a unique Lunar Orbit and Landing Approach simulator. Looking further into the future, a model (upper right) is tested in a high-speed wind tunnel as part of a research program to determine entry vehicle shapes for use as future unmanned instrumented probes to study the atmospheric and surface properties of Mars. Scientific studies to establish a technological basis for a Manned Orbiting Research Laboratory are leading to new concepts, including one (lower left) based on the Saturn 1B launch vehicle, with Gemini type ferry spacecraft clustered around its docking fixtures. A Space Radiation Effects Laboratory being built by Langley near the Center will house a magnet core (lower right) as an integral part of a synchrocyclotron for studying the effects of high energy particles, both electrons and protons, on space vehicles and their systems. The laboratory will be a focal point for a graduate study center operated by Virginia Associated Research Center in cooperation with the NASA.









MODEL of the HL-10 lifting-body type reentry vehicle (top left) is studied in a variable density Mach 8 wind tunnel to determine its heat transfer characteristics. Such experiments help scientists devise thermal protection systems for the Langley concept, which is studied in facilities having test speeds ranging from subsonic through hypersonic. Langley scientists (top right) discuss details of air traffic control prior to beginning a simulated flight to study problems of integrating the supersonic commercial air transport of the future into the nation's air traffic control system. The simulation is part of extensive basic research by Langley to provide the technology for development of a supersonic transport. A specially-equipped Boeing 707 (center) was investigated to find ways to reduce the landing and takeoff distances required by jet transports. Large wing flaps, shown fully deflected, employ the boundary layer technique to increase the airplane's ability to fly at lower speeds. Langley conducts research with a variety of V/STOL models and full-scale vehicles to provide basic data useful in the design and construction of operational aircraft. A one-tenth-scale model of the tri-service XC-142A tiltwing airplane (lower left) is shown in the full-scale tunnel in research to study dynamic stability and control in transition flight, and an X-22A tilt-duct model (lower right) is released in a vertical wind tunnel while cameras record its spin and recovery characteristics.

Langley Researcher

VOLUME 6, NUMBER 20 LANGLEY RESEARCH CENTER OCTOBER 6, 1967

During opening day ceremonies of Langley Center's 50th Anniversary Celebration and Inspection, Dr. Robert R. Gilruth, Director of Manned Spacecraft Center, presented to Dr. Floyd L. Thompson, Langley Director, a plaque commemorating Langley Research Center's "fifty years of service to the nation." The plaque was presented on behalf of the five NASA installations whose personnel nuclei were provided by the Langley staff.

EMPOYEES DONATE $71,583 TO UNITED FUND CAMPAIGN

Langley Research Center employees had pledged a record total of $71,583 to the United Fund as of press time on October 3. This exceeds last year's total of $69,540 and there are still a number of employees remaining to be contacted, according to an announcement by Dennis J. Martin, Chairman of the Center's drive.

The average pledge in the advance solicitation is $54.73 while the average of the combined advance and general is $19.13 as of now, which is $1.93 greater than last year.

Some of the outstanding averages in the advance drive which is essentially complete are the Office of the Director with $102, Dynamic Loads with $78.89, and Fiscal with $74.17. A complete list of the advance solicitation results is given on Page 8.

Groups that have completed their solicitation both advance and general and have reported 100% participation are: Office of Director, Dynamic Loads, Fiscal, Flight Re-entry Programs, Research Reports, Voyager, Office of Assistant Director for Administration, Office of Chief

(Continued on page 8)

RESEARCH HIGHLIGHTS OUTLINED AT 50TH ANNIVERSARY EVENTS

A panoramic view of the capabilities for advanced research and technology in NASA's senior scientific establishment was presented this week to over 1500 guests attending the Langley Research Center's 50th Anniversary Celebration and Inspection.

Against a detailed background of hundreds of contributions which Langley scientists have made to national programs for flight in and beyond the earth's atmosphere, members of the Center's staff described current and future efforts supporting national goals in space and aeronautics.

Langley was founded in 1917 by a predecessor agency of NASA, the National Advisory Committee for Aeronautics. For more than two decades, until 1940, it was the only national laboratory for research into the problems of flight.

During the World War II period, Langley furnished personnel and research techniques used to found other research establishments now an important part of NASA. They include the Ames Research Center, Lewis Research Center, Flight Research Center, and Wallops Station. All comprised the nucleus around which NASA was formed on October 1, 1958.

Timely research at Langley made it possible for NASA to undertake manned space flight through Project Mercury only a few days after the founding of the agency in 1958. Personnel drawn from the Langley Research Center formed the Space Task Group which managed the Mercury program and later established the NASA Manned Spacecraft Center.

During opening day ceremonies Dr. Robert R. Gilruth,

(Continued on page 8)

Attending the Anniversary Celebration are (from left) Representative Thomas N. Downing, First District of Virginia; Senator Harry F. Byrd, Virginia; and James E. Webb, NASA Administrator.

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. . .Wedding bells rang on September 23 when Linda Edwards, Flight Vehicles and Systems, took her final vows with Francis Terry Edmundson, San Francisco, California, at the Trinity Methodist Church, Poquoson.

HISTORICAL FACTS. . .Michael D. Keller, University of Arizona, is writing "A History of the Langley Research Center, 1917-1957" on a contract with NASA. He would appreciate any detailed information any of the staff members might have concerning the early years of the Langley Center. He is interested in old documents, pictures, and general recollections of the NACA period of Langley history. Keller may be contacted at 6020 Edsall Road #103, Alexandria, Virginia 22304.

NEW HEIR. . .Announcing the arrival of a seven-pound, three-ounce son, Ross Anthony, on September 11 is Rodney S. Goering, Research Models and Facilities.

VIETNAM PACKAGES. . .The Activities Association announced that it collected a total of 1,062 Christmas packages to send to our servicemen in Vietnam. The boxes will be shipped from Norfolk by Operation Handclasp.

BARBERSHOP CHORUS. . .Alan Rice, Aero-Physics, has been named music director for the Hampton Roads Barbershop Chorus which rehearses Tuesday nights at J. H. Saunders Elementary School in Newport News. Affiliated with SPEBSQSA, this popular group is now conducting its fall recruiting campaign and welcomes for membership all congenial men of good character who love harmony in music or have a desire to harmonize. Interested persons should contact one of the following NASA members: Al Rice, APD; Ira Ramsey, FVSD; John McFall, AMPD; Jim Youngblood, AMPD; Hal Murrow, DLD; Jim Brabrand, PSA Unit; or Norman Crabill, LOPO.

WANTED: Ride from Decatur St. to W.A. on 8 shift. Cheryl Nuttall, 3221.

WANTED: Alternate driver from Southampton to W.A. on 8 shift. Capone, 4633, or Davenport, 3711.

WANTED: Alternate drivers from Southern Shopping Center, Norfolk, to W.A. on 8 shift. Peterson, 4785.

WANTED: Driving combination from 4 Lear Circle, Windwood, to W.A. on 7:30 shift. Miller, 3483.

FOR SALE: 1954 Chevrolet, engine completely overhauled-$115. McClelland, 868-9151.

EMPLOY THE HANDICAPPED WEEK

National Employ the Physically Handicapped Week was observed for the twentieth year during this week. Employment of the handicapped is a continuing year-round program in the Federal service but a week is set aside each year to acquaint the public with the efforts that Federal agencies are making to place and utilize handicapped citizens.

The NASA's policy is to give first consideration in the proper placement of physically handicapped persons on jobs where their physical disability is not a handicap.

The President's Committee on Employment of the Handicapped (the word "Physically" has been deleted to incorporate the mentally handicapped and mentally restored) reports during two decades:

-More than 1,800,000 handicapped men and women have been rehabilitated through Federal-State programs.

-Before rehabilitation, their incomes averaged $7.92 a week, for most were unemployed. But after rehabilitation, their incomes rose to an average of $46.09 per week.

-In 20 years, more than 6 million handicapped workers have been placed in jobs through State employment services and nearly 800,000 disabled veterans have been rehabilitated by the Veterans Administration.

-Some 256,000 handicapped persons have been employed by the Federal government, including more than 3,000 mentally retarded persons, many of whom have found jobs for the first time in their lives.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of October 9:

Monday - Cream of mushroom soup, roast beef, grilled pork chops, fried fish sticks, Irish omelette. Snack bar - Soup, sea dog, hot pastrami on rye, French fried.

Tuesday - Split green pea soup, roast fresh ham, braised beef tips, spaghetti and meat balls, cheese omelette. Snack bar - Soup, cheeseburger, meat ball sandwich, French fries.

Wednesday - French onion soup, pepper steak, fried fantail shrimp, baked meat loaf, tamale pie. Snack bar - Soup, ham and egg sandwich, steak sandwich, French fries.

Thursday - Tomato-barley soup, beef stroganoff, broiled Canadian bacon, liver and onions, deviled crab, baked hash. Snack bar - Soup, hot dog, meat loaf sandwich, French fries.

Friday - Clam chowder, fried clams, chicken cacciatore, Salisbury steak, broiled fish, broiled luncheon meat. Snack bar - Soup, barbecue, flying saucer, French fries.

The menu for the week of October 16 is as follows:

Monday - Puree of bean soup, Swiss steak, grilled ham slice, creamed dried beef on toast, western omelette. Snack bar - Soup, western omelette, corned beef, French fries.

Tuesday - Corn chowder, Spanish pot roast, veal cutlet, smoked pork sausage, baked hash. Snack bar - Soup, hamburger, steak sandwich, French fries.

Wednesday - Chicken-noodle soup, roast ribs of beef, barbecued pork chunks, fried chicken, chili con carne. Snack bar - Soup, barbecue, hot roast beef sandwich.

Thursday - Vegetable-beef soup, grilled steak, baked lasagna, chicken chow mein, fish cakes. Snack bar - Soup, hot dog, hot pastrami, French fries.

Friday - Clam chowder, boiled ham, stuffed flounder, broiled perch, franks and beans. Snack bar - Soup, fish sandwich, broiled ham sandwich, French fries.

Langley Research Center

1917 ☆ FIFTY YEARS OF SERVICE TO THE NATION ☆ 1967

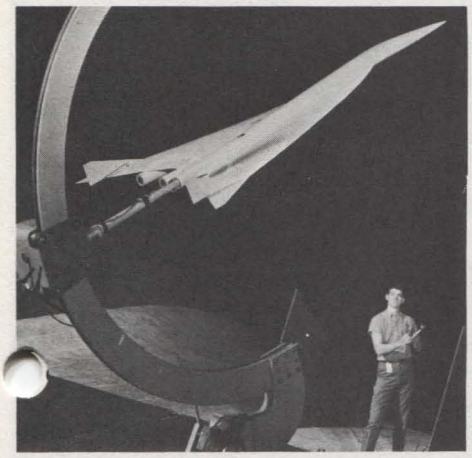
PIONEERING U.S. PROGRAMS OF ADVANCED RESEARCH AND TECHNOLOGY ASSURE SUPREMACY IN AERONAUTICS AND NEW KNOWLEDGE OF UNIVERSE

Langley Research Center has been in operation since 1917, the first national laboratory established to conduct basic research in the science of aeronautics. Langley was for 41 years a facility of the former National Advisory Committee for Aeronautics, and for the past nine years has been one of the major aerospace research centers of the National Aeronautics and Space Administration.

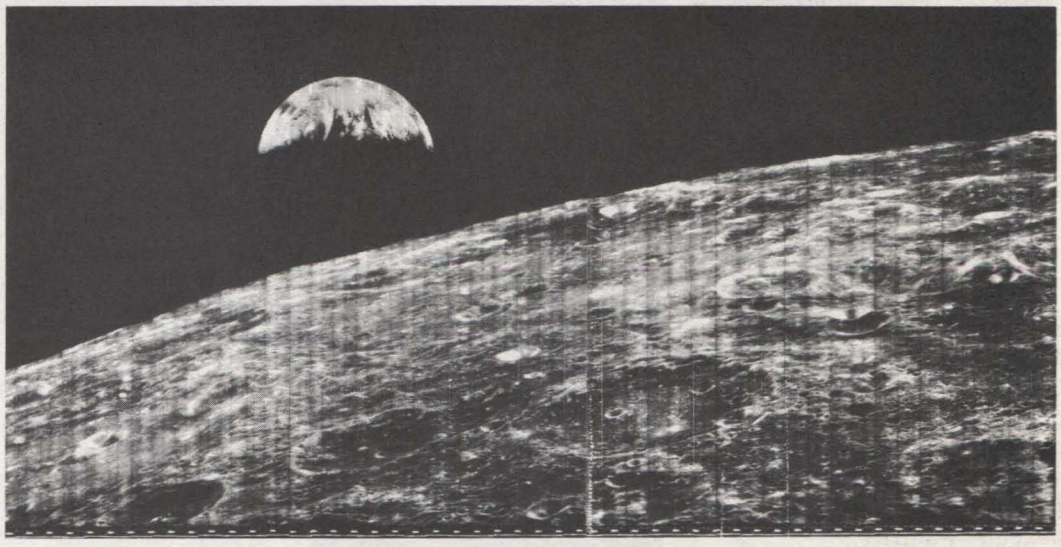
Langley was the NACA's only field center for approximately two decades, after which it was instrumental in establishment of four other NACA facilities, providing from its own experienced staff the personnel nucleus of each.

These installations, which became a part of the NACA on October 1, 1958, included the Ames Research Center, Moffett Field, California; the Lewis Research Center, Cleveland, Ohio; the Flight Research Center, Edwards, California; and Wallops Station, Wallops Island, Virginia.

Langley's 50 years of service to the nation have been characterized by pioneering scientific investigations which contributed to the development of unique facilities, research techniques, and the technical competence required to establish and maintain this country's leadership in aeronautics, and to contribute significantly to our knowledge of the universe.



Mission: To engage in basic and applied research to advance aerospace flight... generate new and advanced concepts for future NASA programs. . . advise and provide research assistance to other NASA organizations and Government agencies. . . search for and identify potential industrial applications evolved in the course of research. . . plan, develop, and operate necessary facilities. . . and prepare for appropriate dissemination of scientific and technical information resulting from research activities.



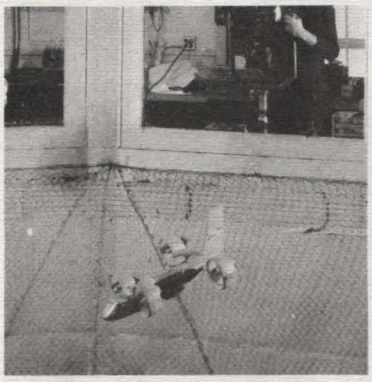
LABORATORY AND FLIGHT STUDIES EXTEND AIRCRAFT SPEED, UTILITY

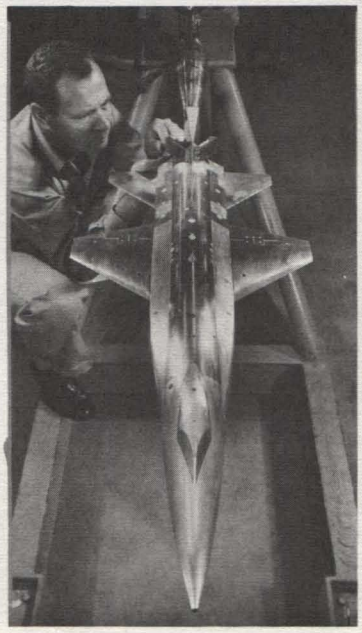
Langley has seen the speed of airplanes go from less than 100 miles per hour to more than 4,000 miles an hour in the span of 50 years. Some of Langley's accomplishments in aeronautics have been factors in the nation's successful efforts on a continuing basis to extend the speed regime and increase the effectiveness of aircraft.

Early milestones included the development in the late Twenties of the cowling for radial aircooled engines, a streamlining effect credited with increasing airplane speeds of that period from 12 to 15 per cent; the accumulation of an extensive backlog of information and scientific know-how during its first two decades and the intelligent application of this knowledge to increase the performance and utility of aircraft used in World War II; the conception in the Forties of research airplanes leading to history-making aeronautical advancements at supersonic and hypersonic speeds.

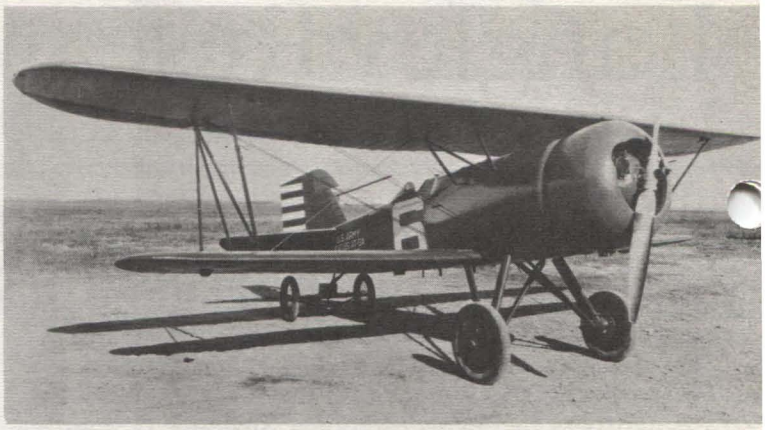
The design, development, and practical application in the Fifties of the world's first transonic wind tunnels bridged the technological gap previously existing in research facilities in the region between subsonic and supersonic speeds. The discovery and experimental verification in the Fifties of the Area Rule, a revolutionary idea concerning the configuration of aircraft, was the first major scientific product of transonic wind tunnels. The Area Rule design concept was recognized as the key to practical supersonic flight.

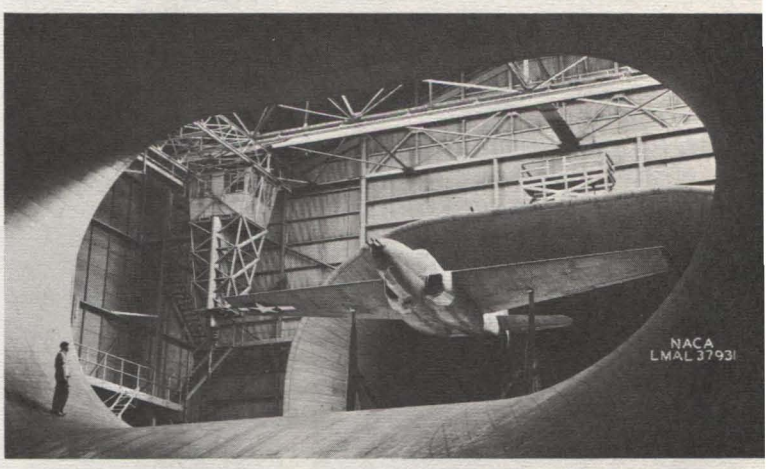
Today, Langley's aeronautical research includes investigations of current and future concepts such as hypersonic flight vehicles and their propulsion systems, supersonic aircraft of advanced design, such as the SST and military vehicles; helicopters; VTOL/STOL aircraft-- a subject of experimentation at Langley since the late Forties leading to the development of a vehicle combining vertical or short takeoff and landing capability with the good performance and handling qualities of a conventional airplane in cruising flight; subsonic aircraft with particular reference to the operating problems of transports; and the development and practical application of pioneering aircraft concepts such as variable sweep.

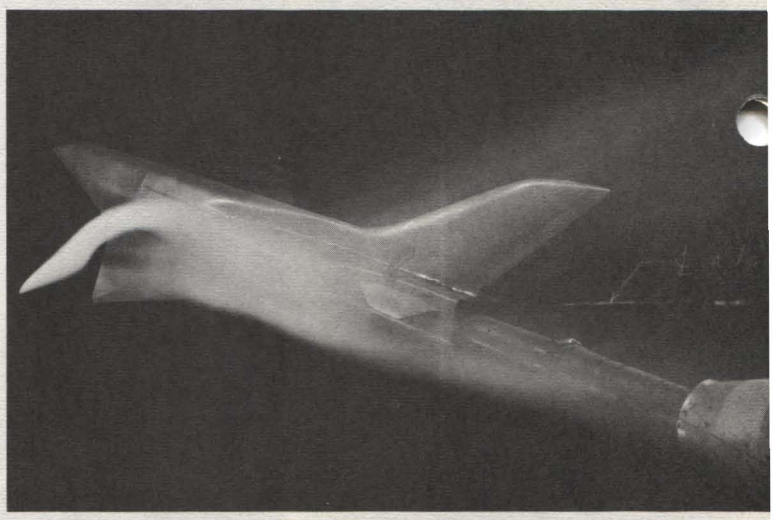




First page shows aerial view of major Langley facilities; Lunar Orbiter I photograph of earth with moon in foreground; research model of supersonic transport concept (top left); Lunar Landing Research Facility.







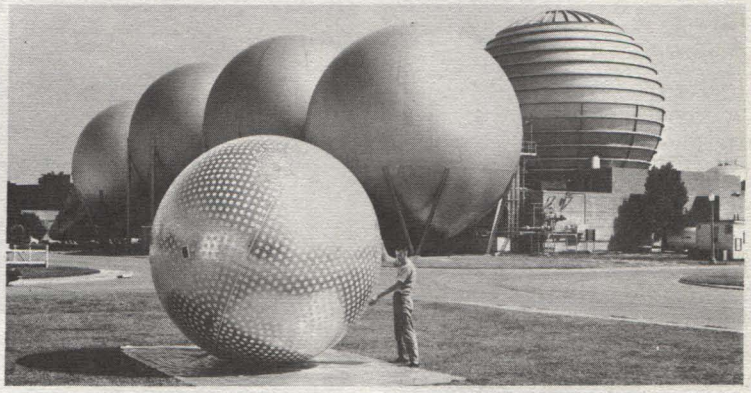
Aeronautics, representing the first "A" in NASA, is a major subject of study at Langley. An early airplane (top) flown in the Twenties demonstrated improvement in speed and other flying qualities after installation of a Langley cowling for radial aircooled engines. The P-59 of World War II was investigated in the Full-Scale Tunnel (above, center) in drag cleanup studies to improve aerodynamic performance by streamlining the exterior surface. Looking to the future, smoke flow in a wind tunnel (bottom) illustrates how a vortex generated by a delta wing affects the landing characteristics of a hypersonic cruise vehicle-- an aircraft capable of flight at more than five times sonic speed. The nation's pioneer vehicle in this speed range is the X-15 research airplane, a model of which is being prepared (left) for an early wind tunnel test. An X-22 tilt-duct model (far left) in a wind tunnel study of spin and recovery characteristics is one of several V/STOL concepts investigated at Langley.

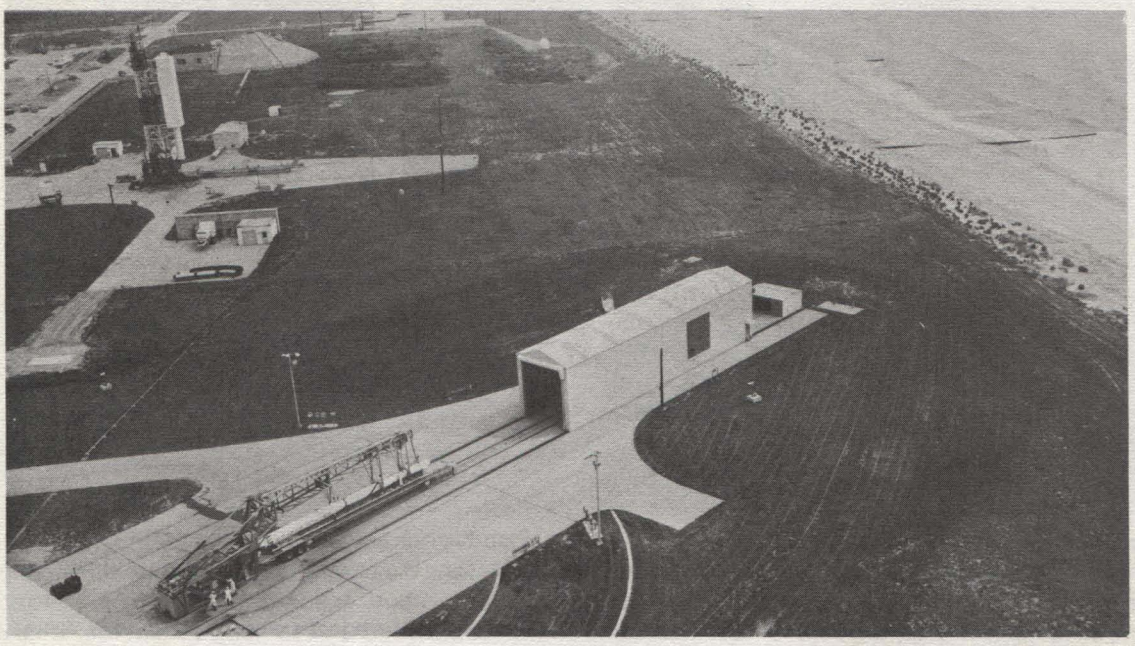
LANGLEY, BIRTHPLACE OF MERCURY, SUPPORTS MAJOR SPACE PROGRAMS

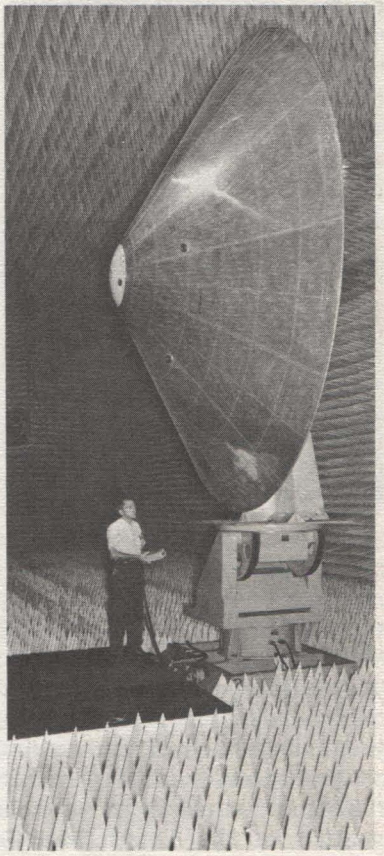
Langley was the birthplace of Project Mercury, the first United States manned space flight project. The Center provided a nucleus for the Space Task Group, which operated at Langley from 1958 until 1962 when Project Mercury was successfully completed and the group moved to the Manned Spacecraft Center which was established in Houston, Texas. Some of Langley's other milestones in manned spacecraft include extensive research in support of Mercury, Gemini, and the current Apollo.

The invention at Langley of automatically erectable spacecraft made possible the successful Echo-type passive communications satellites, and the smaller air density-drag measurement Explorer satellites; the Center developed the versatile Scout, first all-solid fueled launch vehicle to place a satellite in orbit; and managed the Lunar Orbiter and other major space flight efforts such as Project Fire.

Analytical, laboratory, and flight investigations conducted at Langley are providing basic information useful in future projects concerned with the exploration of the planets.







Lunar Orbiter II photograph of Copernicus (top left) is one of many dramatic pictures relayed to earth during the successful five-flight program. A spacecraft (right) used in the Planetary Entry Parachute Program (PEPP) is installed in an anechoic chamber for pre-flight antenna pattern measurements. A 12-foot inflatable sphere undergoes a ground inflation test prior to going into orbit to be used in air density-drag measurements. Vacuum spheres in the background are part of Langley's high-speed laboratory research facilities. The four-stage solid-fueled Scout rocket and launch area at Wallops Island, Va. (above.)

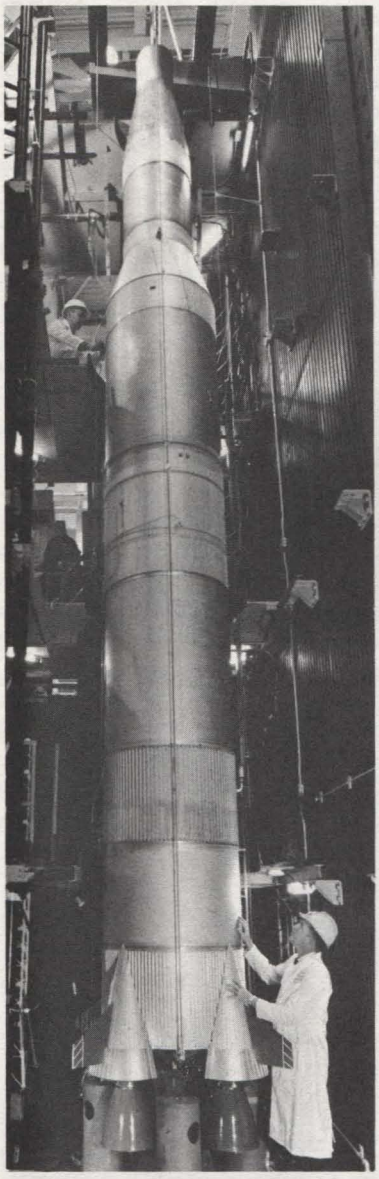
AWARD-WINNING RESEARCH TEAM ACCELERATES FLIGHT PROGRESS

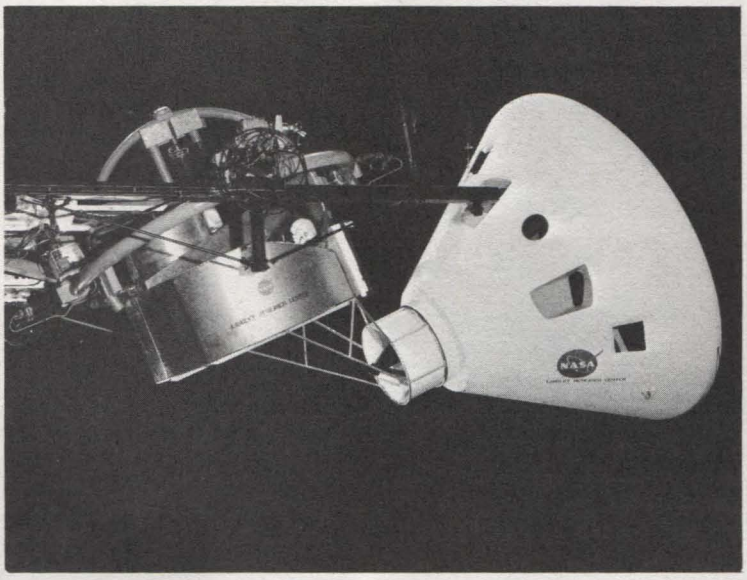
In addition to Lunar Orbiter, which has identified areas in which potential manned landing locations exist on the moon, and has provided a body of photographs which form the essential scientific knowledge of nearly the entire lunar surface for the next quarter century, the Center is supporting Apollo through the use of unique simulators and specialized laboratories-- many of them the products of the imagination and pioneering technical contributions of the staff.

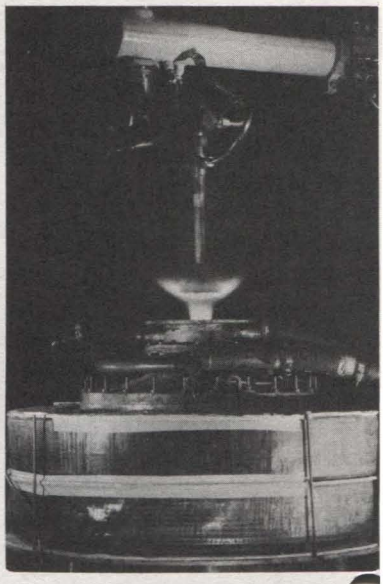
These facilities are making it possible for Langley scientists and research pilots, working with NASA astronauts, to duplicate some of the conditions of space to develop techniques for such events as lunar landing, walking on the moon, extra vehicular activity, rendezvous and docking in lunar orbit, reentry, and earth-landing.

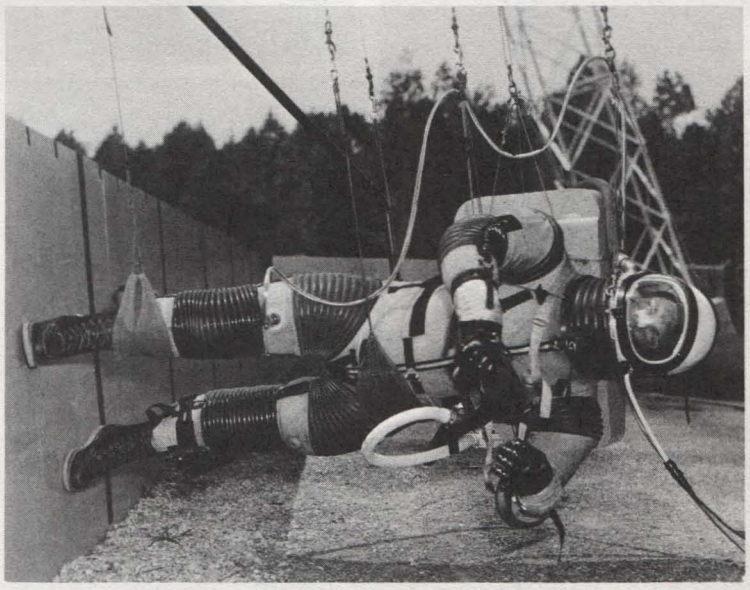
In making a number of outstanding contributions to the progress of the aerospace sciences, Langley staff members have been recipients of some of the highest honors and awards obtainable in the realm of flight.

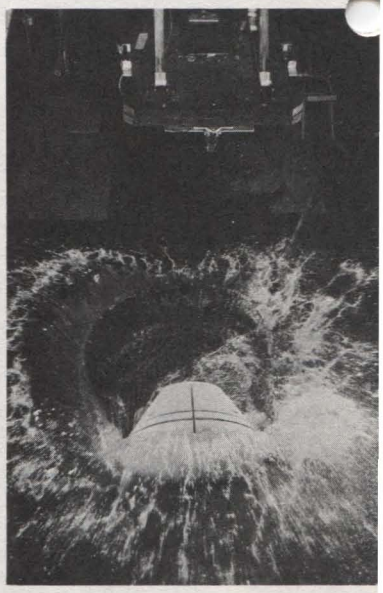
This experience and history of accomplishment, combined with the availability at one location of an array of specialized laboratory facilities and equipment, constitute a national resource for the future conduct of advanced research and technology relating to important programs concerned with aeronautics and manned and unmanned exploration of space.











One of the many Langley research programs in support of Project Apollo provides structural dynamic data on a model of Saturn V and the lunar spacecraft (left). The one-tenth scale model-- 36 feet high- is supported during tests so that it is free to vibrate as it might at launch. A unique device (lower left) conceived at Langley permits a research engineer-- supported by a system of slings-- to walk and jump under conditions simulating the one-sixth gravity of the moon to study problems of astronaut locomotion on the lunar surface. A manned vehicle simulates the crew section of the Lunar Module (top left) in research to develop rendezvous and docking techniques useful to astronauts returning to the lunar orbiting Apollo Command Module after exploring the moon. Apollo's return to earth in the Command Module will require reentry into the dense atmosphere at a speed of about 25,000 miles an hour. Intense heat generated by friction during this critical maneuver is duplicated in an electric arc heater (top right) operated at temperatures up to 10,000 degrees F. to evaluate spacecraft heat shield materials. A one-fourth-scale model (lower right) is launched from an overhead pendulum in research to study Apollo's water landing characteristics.

COUNTDOWN

OPEN GOLF TOURNAMENT. . .The first annual NASA Open Golf Tournament sponsored by the Activities Association will be held at Langley sometime during the month of October. The tournament will consist of a one 18-hole round. Players must have a handicap to participate. Players not having an established handicap are requested to write down all scores and courses played since April 1 and send them to Frank Lawrence, M.S.216, or Bob Turner, M.S. 222, by October 20. A tentative date of October 26 and 27 has been set, allowing two days to complete the tournament. The prize will be a trophy with the winner's name inscribed and put on display in a trophy case in the Activities Building. Winner will be low net scorer determined by his handicap. In addition to the trophy, a blind bogey contest will be held for those who wish to enter. Cost for the blind bogey will be one dollar. Winners will be awarded merchandise from the Pro Shop.

FLYING CLUB. . .The next meeting of the newly formed NASA Flying Club will be held on Monday, October 16 at 7 p.m. in the Activities Building. Included on the agenda will be the discussion and voting to choose one of four companies to instruct and provide aircraft for the club members. For further information call Dave Gregory, 4651.

CHORAL GROUP. . .The NASA Choral Group rehearses on the second, third, and fourth Monday nights of each month in Building 1222. Those interested are invited to attend.

DINNER-DANCE. . .Carnival workers who have not received their invitations to the Association's dinner-dance October 14 should contact Herb Boulter, 3492. Persons not planning to attend are requested to notify Bruce Amole. Dinner will be served at 7:30 p.m. followed by dancing from 9 to 12 to the music of Jerry Fisher and his band.

TURKEY SHOOT. . .The annual Turkey Shoot will be held October 28 at the Activities Building. Tickets may be purchased from District Representatives. The shoot will start at 9 a.m. and continue throughout the day.

HALLOWEEN DANCE. . .The Activities Association will sponsor a Halloween Costume Ball on October 28 at the Activities Building. Music will be furnished by The Fugitives from 9 p.m. to 1 a.m. Tickets will be three dollars a couple and may be purchased from representatives, board members, or at the Activities Building. Prizes will be awarded for the best costumes. Judges will be Mr. and Mrs. Edwin C. Kilgore and Mr. and Mrs. T. Melvin Butler.

NASA GOLF CHAMPS. . .In the last match of the season NASA defeated Daily Press 22-8 in a Peninsula Industrial Golf League match. Walt Olstad, Aero-Physics, won low gross trophy by defeating Marion Bowler, Daily Press, in a sudden death playoff after each had shot 79. NASA ended the season with a 4-0 record and will be presented the championship plaque. A medal play tournament for members of the league will be held October 8 at the Newport News Municipal Golf Course followed by a free picnic at the picnic grounds. A banquet will be held November 3 at the Gourmet Inn at which time league officers will be elect- Team members planning to attend the banquet should contact Bob Turner.

WANTED: Ride or driving combination from Jenkins School to W.A. on 7 shift. Wilson, 877-9560.

Five staff members recently received cash awards for applications that might result in the granting of a patent. Top photo - Joseph D. Pride (left) and James W. Mayo, both of Flight Vehicles and Systems Division, shared a $500 award for "Low Profile Clamping Band." Mayo also received a $100 award for "Frangible Insert." Center photo - William L. Grantham, Flight Instrumentation Division, received a $500 check for his suggestion concerning "Plasma Diagnostic Technique." Lower photo - Dr. Vernon L. Bell (left) and Dr. George F. Pezdirtz, both of Applied Materials and Physics Division, shared a $200 award for "Dosimeter for High Levels of Absorbed Radiation."

ADVANCE SOLICITATION REPORT

Division	Total Pledge	Avg. Pledge
Office of Director	$2754	$102.00
Dynamic Loads	2919	78.89
Fiscal	445	74.17
Project Fire	355	71.00
Research Reports	415	69.17
Aero-Physics	2311	66.03
Voyager Office	244	61.00
Off., Asst. Dir. for Adm.	666	60.55
AMPD	3364	60.07
Off., Chief of Eng. & Tech. Serv.	600	60.00
Structures Research	2125	59.03
Analysis and Computation	816	58.29
FMTD	1605	55.34
FVSD	1430	55.00
Full-Scale Research	2263	53.88
LOPO	1068	53.40
Space Mechanics	1219	53.00
RMFD	1156	52.55
Personnel	302	50.33
Instrument Research	967	43.95
Flight Instrumentation	1168	41.71
Administrative Services	287	41.00
Scout Project	280	40.00
MORL	195	39.00
Electrical Systems	694	38.56
Space Vehicle Design	105	35.00
Mechanical Services	1181	31.08
Plant Maintenance	368	26.29
Procurement	505	25.25
Photographic	157	22.43
TOTAL	$31,964	54.73

UNITED FUND CAMPAIGN

(Continued from page 1)

of Engineering and Technical Services, Flight Vehicles and Systems, Personnel, Administrative Services, MORL, and Space Vehicle Design Criteria. Additional groups are expected to achieve the 100% participation goal as they complete their drives.

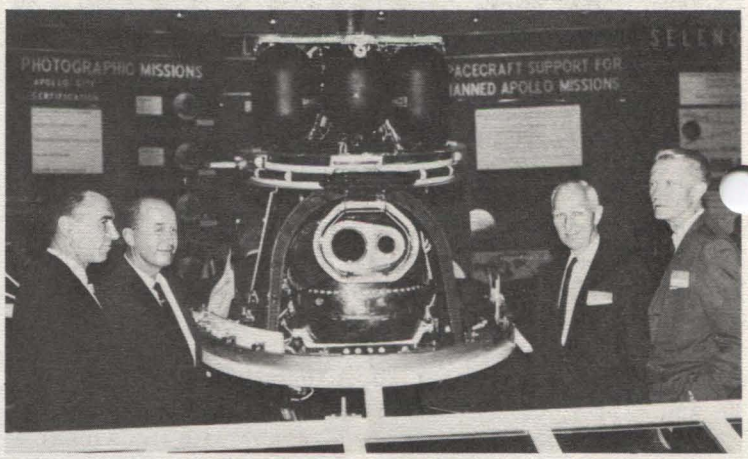
NASA service contractors and technical representatives in the area, who are being solicited by NASA, report an additional $1597 from 104 pledges for an average of $15.35. Ling-Tempco-Vought employees lead the service contractors with 62 pledges totalling $1062 for an average of $17.30. They are also 100%.

Martin stated Langley Research Center employees can all be proud of the excellent response to the United Fund appeal. Gifts were almost without exception equal to or greater than last year. Unexpected and welcome pledges have been received from visitors to the Center.

COIN COLLECTING CLUB

The Langley Research Center Coin Club will meet October 12 at 8 p.m. in the Activities Building. The meeting will feature a brilliant uncirculated Texas commemorative half dollar which will be given away to a lucky winner. An auction of 38 lots will also be held and will feature modern day coins with a scattering of some early U.S. type coins.

FOR SALE: 1965 Impala, air conditioned. Ostroff, 877-9455.
FOR SALE: 1967 Plymouth convertible. Fedors, 642-2018.



Standing by a model of the Lunar Orbiter during Langley's 50th Anniversary Celebration are (from left): Dr. William Feldman, Eastman Kodak Company's Program Manager-Research and Engineering; Clifford H. Nelson, Langley's Lunar Orbiter Project Manager; Robert J. Helberg, The Boeing Company's Lunar Orbiter Program Manager; and Dr. Floyd L. Thompson, Director of Langley Center.

LANGLEY CENTER'S ANNIVERSARY

(Continued from page 1)

Director of Manned Spacecraft Center, presented a golden anniversary plaque to the parent organization on behalf of the five installations.

During an afternoon visit to several Langley research facilities, the guests were shown reduced gravity simulation experiments, a hot gas radiation facility, and a new laboratory for flight instrumentation research.

An extensive display in the Langley Hangar provid[illegible] examples of actual research artifacts illustrating the wid[illegible] range of activities described during the formal presentations.

Open House for the general public will be held tomorrow from 10 a.m. to 4 p.m. and on Sunday from 12 noon to 4 p.m. In addition to the Hangar exhibits, the public will have an opportunity to inspect the 16-Foot Transonic Wind Tunnel, Lunar Landing Research Facility, and Experimental Machine Shop.

During the Open House the Spacemobile will present continuous demonstrations and lectures on aeronautics and space in the Activities Building.

LECTURE SERIES PLANNED

Automatic Control will be the subject of a series of lectures to be given by members of the research staff of Honeywell, Inc. The first two lectures are scheduled on Tuesday, October 10 at 8:30 a.m. and 1:30 p.m. in the Dynamic Loads Classroom, Building 1229, Room 236.

The initial lecture will be on Minimax Control and will be presented by C. Arthur Harvey. In the afternoon, Dr. E. E. Yore will speak on Optimal Decoupling Control.

The lecture series is organized for technical and scientific personnel working in automatic control theory and applications. Subsequent lectures will be announced at a later date. Persons working in this technical area are encouraged to attend all lectures.

TV PROGRAM: Israel Taback and William Boyer, Lunar Orbiter Project Office, will appear on the program "Conversation" on WVEC, Channel 13, on Sunday at 2 p.m.

Langley Researcher

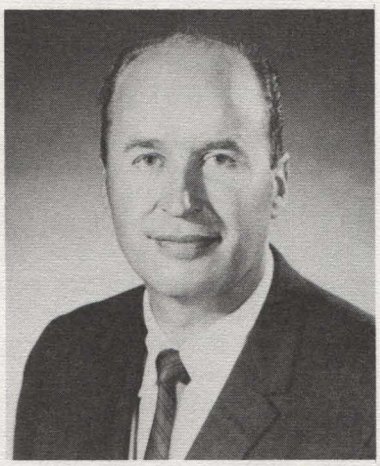
VOLUME 6, NUMBER 21 LANGLEY RESEARCH CENTER OCTOBER 20, 1967

PRESIDENT, AEROSPACE LEADERS CITE LANGLEY'S SERVICE TO NATION

NELSON APPOINTED NEW ASSISTANT DIRECTOR AT LANGLEY CENTER

Clifford H. Nelson, manager of the successful Lunar Orbiter Project, has been appointed an Assistant Director at Langley Research Center.

In announcing the appointment, Dr. Floyd L. Thompson, Langley Director, said Nelson is retaining his responsibilities as Lunar Orbiter project manager. The appointment is effective immediately.



Clifford H. Nelson

Nelson will be Assistant Director of Langley's Group 1, which includes four research divisions-- Analysis and Computation Division, Flight Instrumentation Division, Instrument Research Division, and Space Mechanics Division.

(Continued on page 7)

DR. JOHN P. WALSH TO ADDRESS APPRENTICE GRADUATES TODAY

Dr. John P. Walsh, Assistant Manpower Administrator, Manpower Administration, U.S. Department of Labor, will be the principal speaker at the 25th graduation ceremony of the NASA Apprentice School at 1:30 p.m. today in the Activities Building.

Dr. Floyd L. Thompson, Director of the Langley Center, will introduce Walsh and preside at the ceremony.

Dr. Furman Kenney, Pastor of Parkview Baptist Church, Newport News, will give the invocation.

Wayne C. Hogge, who will receive a journeyman completion certificate as an electrician, was elected by the graduates to represent them as the class speaker.

Musical selections will be provided by the Tactical Air Command Band under the direction of Major Richard E. Thurston.

Presentation of journeyman certificates will be made by S. Walter Hixon, Supervisory Employee Development Specialist.

Dr. Walsh was born in Buffalo, New York, and graduated from Buffalo Technical High School. He received his B.S. degree from State University of New York College, his M.S. from Cornell University, and his Ed.D. from George Washington University.

Pictures and the trades of the graduates are shown on Pages 4 and 5. Not shown with the group is Thomas L. Pressley, engineering draftsman, who has resigned.

CENTER HONORED AS PIONEER IN ADVANCEMENT OF FLIGHT

A highlight of the 50th Anniversary Celebration and Inspection held October 2 through 8 was the issuance of a special proclamation by President Lyndon B. Johnson in honor of the Langley Research Center.

The President's action followed approval by Congress of a Joint Resolution citing the Center for its accomplishments in the fields of aeronautical and space flight and authorizing and requesting the Chief Executive to issue the proclamation.

The Joint Resolution was introduced in the House by Representative Thomas N. Downing of Virginia's First Congressional District, and in the Senate by Senator Harry F. Byrd Jr., for himself and Senator William B. Spong Jr., both of Virginia.

In complying with the request included in the Joint Resolution, the President called on the National Aeronautics and Space Administration and the American people during the first full calendar week in October to observe the Center's anniversary with appropriate ceremonies and activities honoring Langley's half century of service to the Nation.

(Continued on page 6)

Dr. Floyd L. Thompson, Langley Director, holds a copy of a Joint Resolution approved by Congress and one of the pens used by President Johnson to sign it. The President issued a special proclamation called for in the resolution-- citing Langley for its accomplishments and urging the NASA and the American people during the first calendar week in October to observe the Center's anniversary. Spread before Dr. Thompson are some of the many citations and letters of congratulations on Langley's half century of service to the Nation.

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

TIME CHANGE. . .Effective at 2 a.m. on Sunday, October 29, Daylight Saving Time will end in this area. Accordingly, at 2 a.m. on October 29, all clocks will be moved back one hour to conform to Eastern Standard Time.

NEW HEIRS. . .Announcing the birth of a seven-pound, ten-ounce son on October 19 is John B. Graham, Lunar Orbiter Project Office. . .Weighing in at six pounds, twelve ounces on September 30 was Michael Carlton Jr., son of Michael C. Fisher, Aero-Physics Division.

PROFESSOR TO VISIT. . .Dr. Howard M. Nahikian, Department of Mathematics and Graduate Administration, North Carolina State University at Raleigh, will visit the Center on October 25 to consult with graduate students. Staff members desiring to confer with Dr. Nahikian are requested to call Training Branch, 2611, for an appointment.

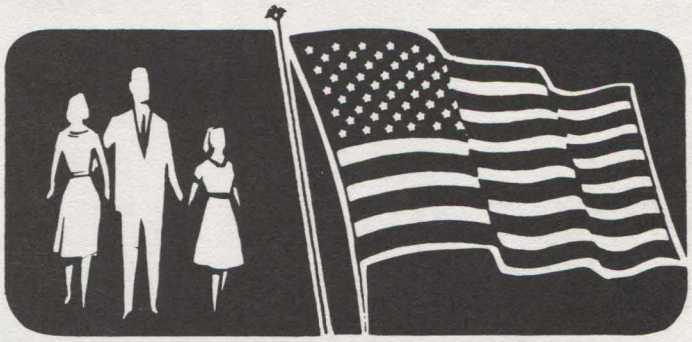
AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees (AFL-CIO affiliated) will hold its monthly meeting on Wednesday, October 25 at 7 p.m. at the Central Labor Union Hall, Newport News.

CLASSIFICATION MEETING. . .The Hampton Roads Classification Association will hold a seminar on October 26 and 27 at the Chamberlin Hotel. William L. Williams, Office of the Assistant Director for Administration, will be a panel members at the session on October 27 and he will speak on "Position Management and Design." Keynote speaker will be Raymond Weissenborn, U.S. Civil Service Commission, Washington, D.C.

WORKSHOPS. . .The School of Engineering, Old Dominion College, is offering a series of engineering workshops. The dates and topice are as follows: November 4 - Underwater Technology; December 9 - Photostress Analysis; February 10 - Air Pollution; March 9 - Corrosion Failures; and April 20 - Operations Research. Additional information may be obtained from the Training Branch, 2611.

EMERGENCY TELEPHONE NUMBERS. . .To assure that staff members are familiar with emergency telephone numbers and also to clarify a question in a recent Mission Safety 70 News, the emergency telephone numbers for the Center are as follows: Fire - 2222, Ambulances - 4512 (West), 2533 (East).

Dreams come true with



U.S. SAVINGS BONDS
Now paying 4.15% to maturity

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of October 23:

Monday - Chicken-noodle soup, chicken and dumplings, grilled pork chops, stuffed pepper, chili-mac. Snack bar - Soup, hamburger, corned beef on rye, French fries.

Tuesday - Potato soup, fried oysters, roast fresh ham, liver and onions, tamale pie. Snack bar - Soup, sea dog, hot roast pork sandwich, French fries.

Wednesday - Tomato-barley soup, half-pound chopped steak, stuffed shrimp, ham and noodle casserole, grilled cheese and bacon sandwich. Snack bar - Soup, grilled cheese and bacon, flying saucer, French fries.

Thursday - Vegetable-beef soup, pot roast, grilled ham, fried chicken, baked hash. Snack bar - Soup, ham and egg sandwich, hot roast beef sandwich, French fries.

Friday - Clam chowder, braised short ribs, gaked salmon loaf, fried fish, Spanish omelette. Snack bar - Soup, fish sandwich, hot pastrami on rye, French fries.

The menu for the week of October 30 is as follows:

Monday - Cream of tomato soup, roast beef, grilled pork steak, sauteed chicken livers, fish cakes. Snack bar - Soup, hot dog, hot roast beef sandwich, French fries.

Tuesday - Puree of bean soup, barbecued beef, breaded veal cutlet, spaghetti and meat sauce, franks and beans. Snack bar - Soup, barbecued beef, steak sandwich.

Wednesday - Chicken-vegetable soup, Hungarian goulash, Salisbury steak, broiled fish, western omelette. Snack bar-Soup, hamburger, veal steak sandwich, French fries.

Thursday - Green split pea soup, grilled steak, baked ham, beef stew, cheese omelette. Snack bar - Soup, chicken pattie on bun, baked ham sandwich, French fries.

Friday - Clam chowder, simmered corned beef, baked meat loaf, fried fish, Austrian ravioli. Snack bar - Soup, sea dog, hot corned beef on rye, French fries.

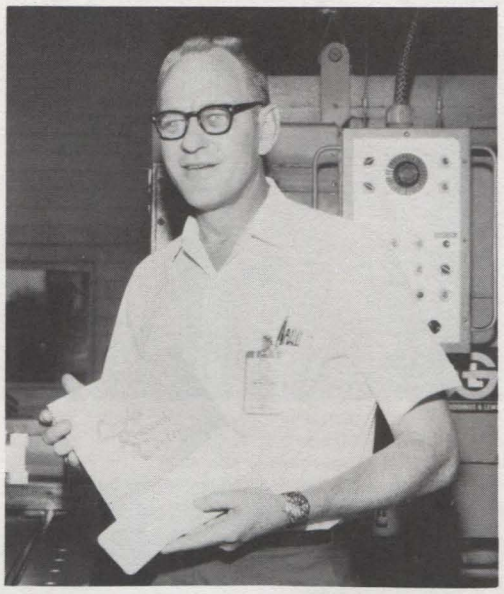
FOR SALE: 120 x 218 waterfront lot. Batten, 877-9018.

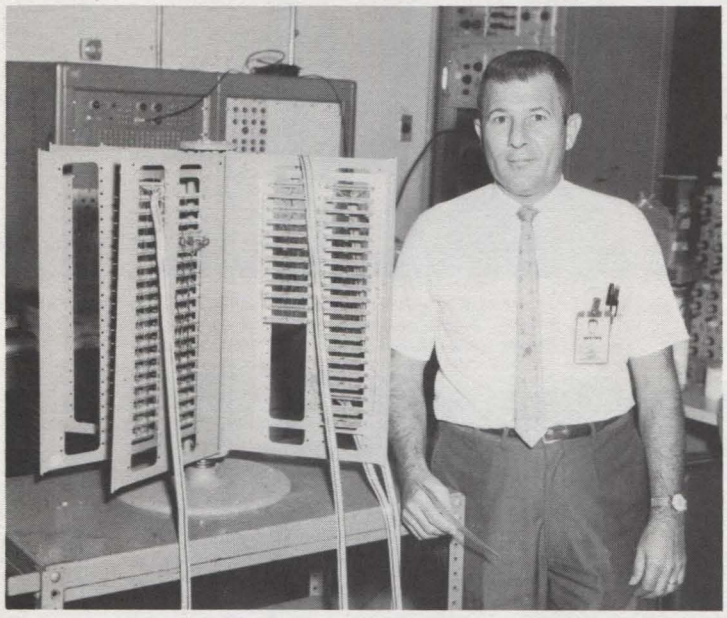
FOR SALE: 22 magnum automatic rifle with 2-1/2 power scope - $65. Horvath, 244-2497.

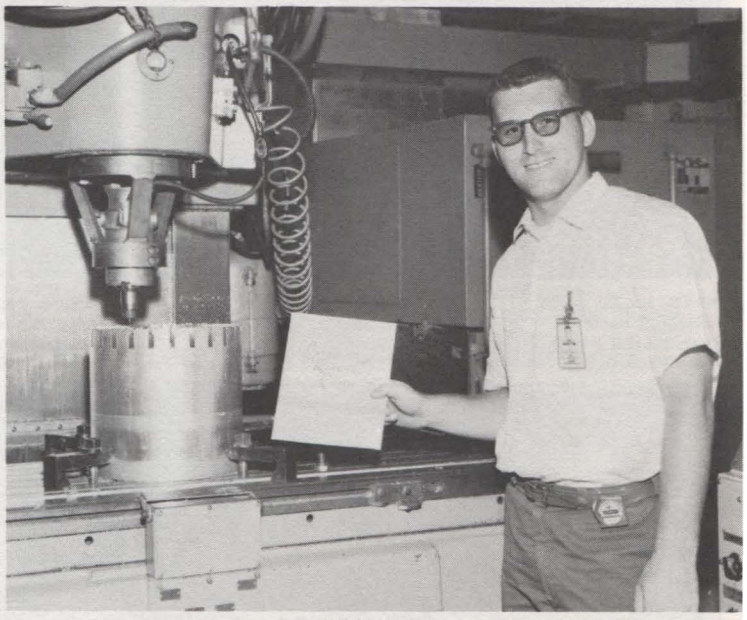
WANTED: Driving combination from Hilton Village to W.A. on 7 shift. Hanrahan, 3360.

WANTED: Driving combination from Dutch Village Apts. to W.A. on 8 shift. Wilmoth, 4632.

WANTED: Driving combination or ride from River Drive Apts. to W.A. on 8 shift. Lewis, 3404.







Five staff members recently received cash awards for suggestions under the NASA Incentive Awards Program. Top left photo - Boyd L. Williams Jr., Mechanical Services, received $30 for his suggestion concerning the design and construction of a jig for constructing filaments which are used in an Electron Probe X-ray Microanalyzer. Top center - Viggo G. Dereng, Mechanical Services, was awarded $15 for suggesting the design and development of a multiple axis feed-rate number calculator for the Bendix Dynapath 20 Numerical Control System which will reduce present machine and programming time. Top right - Gideon J. Hagood, Mechanical Services, received $35 for the development of a low damping, low frequency spring support which is used for a mass that simulates spacecraft on the launch pad. Lower left - Matthew Carli Jr., Flight Instrumentation, was awarded $25 for the design and development of a means for electrically connecting micrologic flat paks into a breadboarded electronic system which will provide engineers and technicians easier accessability in testing components. Lower right - Sullivan R. Donadio, Mechanical Services, received $60 for the implementation of a standard Stanley router head which is adapted to fit the Cincinnati Numerical Control Milling Machine and thus increase cutter speeds, accuracy and machining efficiency in milling deep sections with small diameter cutters.

FOR SALE: Simmons box springs and mattress for double bed - $35. Robertson, 898-6782.

FOR SALE: Solid cedar wardrobe - $25. Huggett, 596-9583.

FOR SALE: 1966 150CC Susuki - $250. Rollins, 595-4763.

FOR SALE: Kittens and hamsters. Weidman, 868-5892.

FOR SALE: 3-bedroom brick house, paneled den with fireplace, built-in kitchen, 2 full baths. Moore, 595-1854.

FOR SALE: Bundy clarinet - $50. Hagood, 596-2672 after 5.

FOR SALE: Formica dinette set with leaf and 4 chairs. Anderson, 898-5983.

WANTED: Home for kittens, Conway, 826-7730.

FOR SALE: 13-foot aluminum travel trailer, sleeps 4 or 5, stove, sink, ice box - $750. Van Zandt, 826-1416.

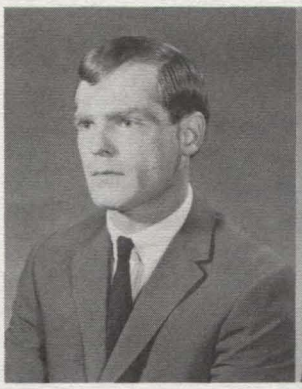
FOR SALE: 1966 Honda Superhawk 305. Taback, LY6-8128.

FOR SALE: 1962 Chevrolet Impala hardtop, 2-door. Pierce, 596-0475.

WANTED: Driving combination from Stuart Gardens to W.A. on 8 shift. Copeland, 4417.

FOR SALE: 1965 Volkswagon - $1095, 1960 Oldsmobile station wagon - $395. Fricke, 877-3922.

FORTY-TWO LANGLEY APPRENTICES GRADUATE TODAY



George W. Askew
Hampton, Virginia
Experimental Facilities Mechanic
Arc Tunnel

Daryl P. Crandlemire
St. Stephen, Canada
Experimental Machinist
Experimental Machine Shop

Phillip M. Davidson
Portsmouth, Virginia
Experimental Machinist
Instrument Construction Shop

James R. Davis
Hampton, Virginia
Experimental Facilities Mechanic
Structures Laboratory

Jack C. DeHart
Newport News, Virginia
Electrician
Electrical Services

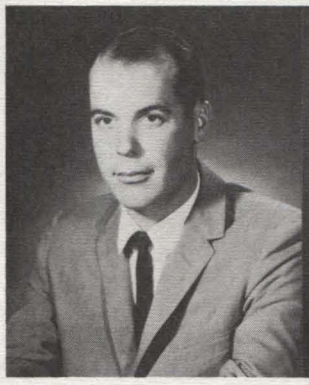
Burt R. Emerson, Jr.
Chicago, Illinois
Experimental Facilities Mechanic
Space Vacuum Laboratory

Robert K. Faison, Jr.
Emporia, Virginia
Experimental Machinist
Instrument Construction Shop

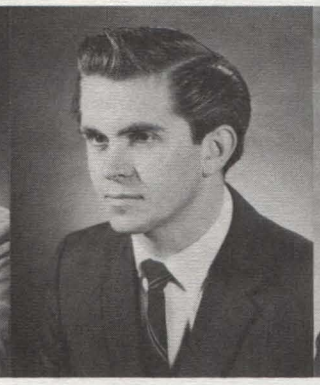
John W. Fogle
Newport News, Virginia
Dynamic Modelmaker
Pliant Model Development Section

Theodore E. Garris
Kinston, North Carolina
Experimental Machinist
Experimental Machine Shop

William H. Garrison
Hampton, Virginia
Dynamic Modelmaker
Pliant Model Development Section



Jacob E. Garver
Jacksonville, Florida
Experimental Facilities Mechanic
Applied Rocket Research



James F. Garvin
North Adams, Massachusetts
Engineering Draftsman
Resigned - V.P.I.

Henry M. Goad
Newport News, Virginia
Experimental Facilities Mechanic
8-foot High Temperatures Struct.

Wayne C. Hogge
Wicomico, Virginia
Electrician
Electrical Services

Stephen P. Horvath, Jr.
Chicago, Illinois
Dynamic Modelmaker
Pliant Model Development Section

Stephen C. Irick
Welch, West Virginia
Engineering Draftsman
Dynamic Vehicles Section

William S. Jones
Culpeper, Virginia
Dynamic Modelmaker
Pliant Model Development Section

Andrew P. Killmon
Nassawadox, Virginia
Experimental Machinist
Resigned

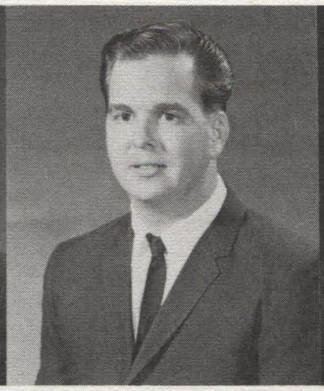
James J. Kiss
Windber, Pennsylvania
Experimental Facilities Mechanic
Structures Laboratory

Virgil S. Laney
Norton, Virginia
Engineering Draftsman
Electrical Flight Systems

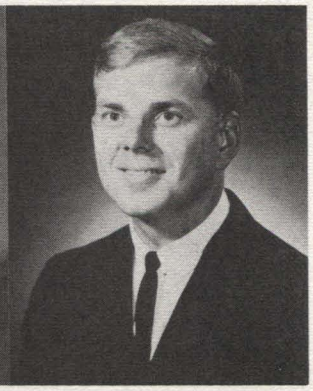
Martin E. Leatherman
Corpus Christi, Texas
Experimental Machinist
Experimental Machine Shop

William H. McDaniel
Selma, North Carolina
Experimental Machinist
Experimental Machine Shop

Gerald E. Miller
Washington, D.C.
Experimental Metal Worker
Fabrication Shop



Jerry M. Nichols
Toast, North Carolina
Electrician
Electrical Services



Edward H. Ostwald
Royal Oak, Michigan
Experimental Machinist
Instrument Construction Shop

Gerald C. Purgold
Newport News, Virginia
Experimental Facilities Mechanic
Rocket Combustion Research

Donald H. Quisenberry
Newport News, Virginia
Dynamic Modelmaker
Composite Model Development Sec.

Edgar T. Reeves, III
Roanoke, Virginia
Electrician
Electrical Services

William E. Robbins
Gloucester, Virginia
Experimental Machinist
Instrument Construction Shop

John R. Saunders
Newport News, Virginia
Electrician
Electrical Services

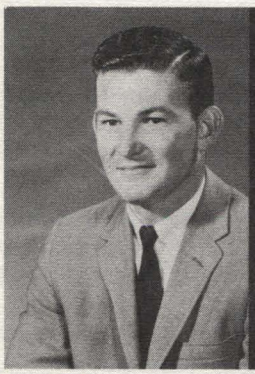
Donnie K. Shinn
Hampton, Virginia
Experimental Facilities Mechanic
Impacting Structures

David D. Shuster
Philadelphia, Pennsylvania
Experimental Facilities Mechanic
Applied Rocket Research

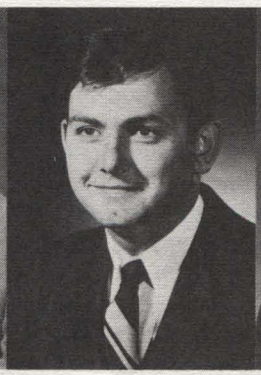
Wayne E. Silver, Sr.
Roanoke, Virginia
Engineering Draftsman
Ground Support Systems

Richard B. Sweeney
Newport News, Virginia
Engineering Draftsman
Resigned - V.P.I.

Lemuel F. Swindell
Engelhard, North Carolina
Experimental Machinist
Resigned



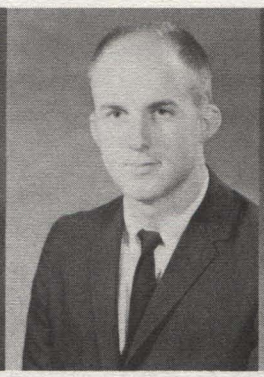
Kenneth F. Test
Langley Air Force Base, Va.
Engineering Draftsman
Ground Support Systems



Richard W. Tyson
Greenville, North Carolina
Electrician
Electrical Services

Fred A. Vaughn, Jr.
Leaksville, North Carolina
Experimental Machinist
Experimental Machine Shop

Donald E. Velsor
Asheville, North Carolina
Electrician
Electrical Services



David P. Whittaker
Williamson, West Virginia
Electrician
Electrical Services

Rodney C. Wyatt
Newport News, Virginia
Experimental Facilities Mech.
9 x 6-Foot Tunnel

CENTER HONORED AS PIONEER

(Continued from page 1)

The President also sent a congratulatory letter to Dr. Floyd L. Thompson, Langley Director.

"I am happy to join with those honoring the Langley Research Center on the occasion of your fiftieth anniversary," the President wrote Dr. Thompson.

"For half a century, your Center has demonstrated how the Federal Government, assisted by universities and private industry, can meaningfully contribute to the peaceful use of aeronautics and space for the benefit of all mankind.

"On this milestone year in your record of national achievement, I salute the entire Langley staff and wish you Godspeed in the crucial course ahead."

There was a message to Dr. Thompson from Vice President Hubert H. Humphrey, who pointed out that the aerospace age is highlighted by the outstanding ceremonies at the 50th anniversary of Langley Research Center.

Vice President Humphrey told Dr. Thompson:

"I convey warmest congratulations to you personally on the superb contributions you have made, particularly to America's manned space program.

"What a debt our people and all the world's people owe to pioneers of the skies who have made possible our epic achievements in realms never before within man's reach much less travel.

"As chairman of the National Aeronautics and Space Council, I extend personal regards to the many distinguished guests, public officials and private citizens, leaders in every walk of life in Virginia and throughout the nation who share these happy hours with you."

Another significant message to Dr. Thompson from Sir Robert Cockburn, Director of the Royal Aircraft Establishment at Farnborough in England, cited the traditionally close cooperation which has existed between the two nations in the field of flight:

"The Royal Aircraft Establishment congratulates the Langley Research Center on their fifty years of continuous contribution to aeronautical advancement. Your institution has had a far-reaching influence on the development of aviation, not only in the United States of America but throughout the world. Of all the modern technologies, aviation has surely been the most international since its inception. Your work has contributed to the defense of our countries, and to the evolution of a great system of world transport; we are pleased and honored that during the last fifty years there has been such a close relationship between our establishments.

"As early aviation pioneers ourselves, we know the difficulties that have been surmounted, and understand the feelings of Samuel Pierpoint Langley who wrote in 1891 'a great many scientific men treated the whole subject with entire indifference, as unworthy of attention, or as outside of legitimate research, the proper field of the charlatan, and one on which it was scarcely prudent for a man with reputation to lose to enter.' This we have changed. There have been few developments which, measured in terms of their impact on human affairs, have progressed as rapidly as has aviation in the last half-century.

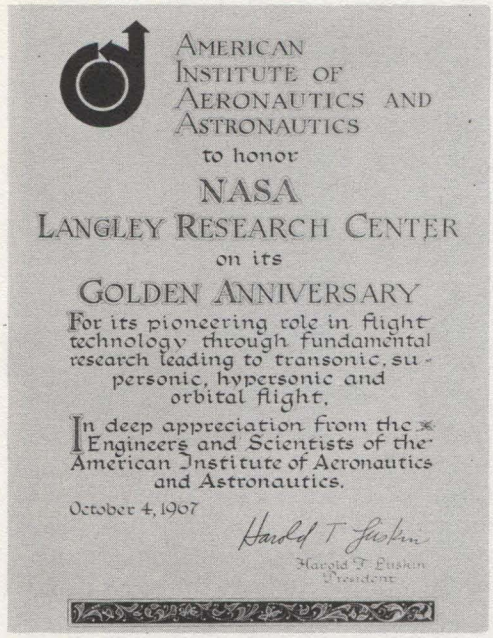
"The aeronautical links between us are well known, but there are geographical and historical links as well. Your town of Hampton was named for the Earl of Southampton, whose ancestors were also responsible for giving their name to the county of Hampshire, in which the RAE is situated.

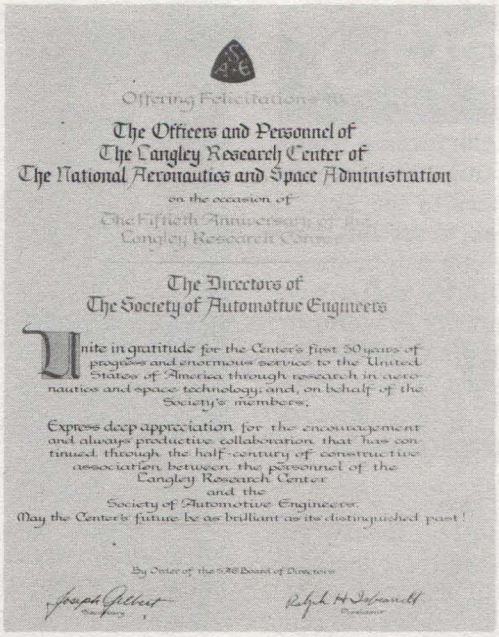
"It remains for us to wish you continuing success in meeting the challenges of the future, which are every bit as great as those which our predecessors helped to bring to achievement."

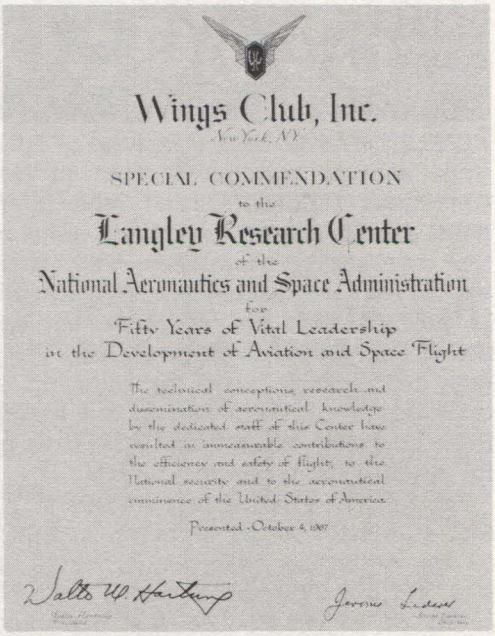
The week's formal anniversary observance got under way in Washington October 1 when the National Academy of Sciences and the Smithsonian Institution entertained officials from NASA and a number of other aviation dig-

(Continued on page 7)

Many national dignitaries attended the Center's formal 50th Anniversary Celebration and Inspection. Top photo - Charles J. Donlan (right), Associate Director, meets with Representative George Miller, California, Chairman of the House Committee on Science and Astronautics, and James E. Webb, NASA Administrator. Center photo - Dr. Floyd L. Thompson (left), Langley Director, is shown with (from left): James C. Elms, Director of Electronics Research Center; Dr. Robert C. Seamans Jr., NASA Deputy Administrator; and Dr. Abe Silverstein, Director of Lewis Research Center. Lower photo - Shown at the Fatigue Laboratory are (from left): Laurence K. Loftin Jr., Assistant Director; John H. Crews Jr., Structures Research; Rep. Miller, and Dr. Mac C. Adams, NASA Associate Administrator for Advanced Research and Technology.


AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
to honor
NASA
LANGLEY RESEARCH CENTER
on its
GOLDEN ANNIVERSARY
For its pioneering role in flight technology through fundamental research leading to transonic, supersonic, hypersonic and orbital flight.
In deep appreciation from the Engineers and Scientists of the American Institute of Aeronautics and Astronautics.
October 4, 1967
Harold T. Luskin
President


Offering Felicitations to
The Officers and Personnel of
The Langley Research Center of
The National Aeronautics and Space Administration
on the occasion of
The Fiftieth Anniversary of the Langley Research Center
The Directors of
The Society of Automotive Engineers
Unite in gratitude for the Center's first 50 years of progress and enormous service to the United States of America through research in aeronautics and space technology; and, on behalf of the Society's members,
Express deep appreciation for the encouragement and always productive collaboration that has continued through the half-century of constructive association between the personnel of the Langley Research Center and the Society of Automotive Engineers.
May the Center's future be as brilliant as its distinguished past!
By Order of the 1967 Board of Directors


Wings Club, Inc.
New York, N.Y.
SPECIAL COMMENDATION
to the
Langley Research Center
of the
National Aeronautics and Space Administration
for
Fifty Years of Vital Leadership
in the Development of Aviation and Space Flight
The technical conceptions, research and dissemination of aeronautical knowledge by the dedicated staff of this Center have resulted in immeasurable contributions to the efficiency and safety of flight; to the National security and to the aeronautical eminence of the United States of America.
Presented - October 4, 1967
Walter W. Hartung
Jerome Lederer

ANNIVERSARY CELEBRATION

(Continued from page 6)

nitaries at a commemorative lecture honoring Dr. Samuel Pierpont Langley, after whom this Center was named, and the 50th anniversary of Langley Research Center. E. H. Heinemann, aviation pioneer, delivered the lecture.

There were 1,745 registered guests during the formal observance at Langley October 2 through 6. An estimated 5,000 persons were present the night of October 5 during the special Celebration and Inspection held for Langley staff members and their families. Approximately 25,000 persons from all areas of Virginia and elsewhere attended the Open House held for the general public October 7 and 8.

Three certificates honoring Langley were presented during the Celebration and Inspection in recognition of the Center's pioneering role in aeronautics and space flight. They were received from the American Institute of Aeronautics and Astronautics, the Society of Automotive Engineers, and the Wings Club, Inc., of New York.

A number of messages marking Langley's anniversary and listing some of the Center's accomplishments since 1917 have appeared in the Congressional Record in recent days. Many of the comments were initiated by members of the Congressional delegation who were guests of the Center during the Celebration and Inspection.

In addition, many favorable comments have been received from key industry and Government leaders and the general public concerning the conduct of the Celebration and Inspection.

Dr. Thompson said the many favorable comments received from those who were guests of the Center are evidence of the technical and educational value of the presentations and the competence of the staff members and the many others who cooperated in the planning and actual conduct of the Celebration and Inspection.

Dr. Thompson described the Celebration and Inspection as a successful effort to portray the story of how NASA's advanced research and technology programs are serving the country's needs in aeronautics and space.

He expressed his appreciation to the Langley staff, NASA Headquarters, other NASA Centers, other Federal agencies, the aerospace industry, educational institutions, and the many other organizations whose cooperation and assistance contributed to this success.

ASSISTANT DIRECTOR NAMED

(Continued from page 1)

The 53-year-old native of Billings, Montana, succeeds Francis B. Smith, who was transferred to NASA Headquarters seven months ago to become Assistant Administrator for University Affairs.

Nelson was appointed in September 1963 to head the Lunar Orbiter Project, which is managed by Langley Research Center. The first of the five Lunar Orbiter spacecraft left the launch pad at Cape Kennedy on August 10, 1966, and the fifth was launched less than a year later-- on last August 1.

The five successful missions have provided significant new information about the Moon's surface, and have acquired a wealth of photographic detail which will stand as the definitive source of lunar surface information for many years.

Nelson attended Montana State College and was graduated with the degree of Bachelor of Science in Electrical Engineering from the University of Washington in June 1938. He joined the Langley staff in May 1941 as a research engineer.

Prior to his appointment as head of Lunar Orbiter, Nelson was active in the development of flight research techniques and instrumentation used in aircraft and space vehicles in advanced scientific investigations conducted by Langley. He was project engineer on a number of these flight research programs.

FOR SALE: GE deluxe electric stove - $25. Diacont, LY6-3292.

FOR SALE: 3-bedroom house with attached garage and fenced backyard in Holly Court. Lupton, 851-5142.

FOR SALE: Trailer hitch for 1966 Ford convertible - $5, new 12-volt Sears car battery - $10. Williams, 723-5074.

FOR SALE: Formal gown empire style with bishop's coat, size 5; formal gown with bell skirt, size 5; empire style crepe cocktail dress with brocade coat, size 9. Sharon, 722-8924.

COUNTDOWN

CHRISTMAS BOXES. . .A total of 1,074 Christmas boxes were sent to our servicemen in Vietnam. The Vietnam Christmas Committee and other members of the Activities Association wish to thank employees, their friends, the contracting companies, and visiting company representatives who participated in the project. The committee is pleased with the response and especially grateful to the district representatives who helped distribute, collect, and pack the boxes for shipping. A word of appreciation also to Chisman Booker and his crew in Shipping and Receiving for their help in the final preparations needed for sending the boxes to Vietnam.

CARNIVAL FINANCIAL REPORT. . .In issuing a financial statement on the carnival, Arnold Mueller, treasurer of the Activities Association, stated that the total income was $11,877.22, total expenses were $8,761.65, with a net profit of $3,115.57. He also expressed his thanks to the many staff members who supported the event. Persons interested in seeing a breakdown of the report should contact their district representatives.

OPEN GOLF TOURNAMENT. . .The first annual NASA Open Golf Tournament will be held on October 26 and 27 at the Langley Golf Course. The tournament will consist of one 18-hole round and players will be allowed two days to complete the tournament. The winner will be low net scorer determined by his handicap. The prize will be a trophy with the winner's name inscribed and placed on display in a trophy case in the Activities Building. A blind bogey contest will be held for those who wish to enter. Cost for the blind bogey will be one dollar. Players not having an established handicap are requested to write down all scores since April 1 and send them to Frank Lawrence, M.S. 216, or Bob Turner, M.S. 222, before October 26.

TURKEY SHOOT. . .The annual Thanksgiving Turkey Shoot will be held October 28 at the Activities Building. Matches will be conducted under the direction of safety and range officers. Contestants will furnish their own firearms and the Association will supply shotgun shells. All ammunition will be handled by the person in charge of ammunition. A fee of fifty cents will be charged for each match.

HALLOWEEN DANCE. . .The Activities Association will sponsor a Halloween Costume Ball on Saturday, October 28 at the Activities Building. Music will be furnished by The Fugitives from 9 p.m. until 1 a.m. Tickets are three dollars per couple and may be purchased from representatives, board members, or at the Activities Building. Prizes will be awarded for the best costumes. Judges will be Mr. and Mrs. Edwin C. Kilgore and Mr. and Mrs. T. Melvin Butler.

WANTED: Ride from Ivy Ave., Newport News, to W.A. on 7 shift. James, 4587.

WANTED: Alternate drivers from Bayside Shopping Center, Virginia Beach, to W.A. on 8 shift. Williams, 4491.

WANTED: One or two girls to share 3-bedroom house. Sharon, 722-8924.

WANTED: Ride from Jefferson Ave. and 74th St. to W.A. on 8 shift. Swanson, 3326.

Dr. Floyd L. Thompson (right), Director, presents a check for $250 and a Special Service Award for Achievement to W. Thomas Blackshear, Mission Analysis Section, Space Mechanics Division, "for outstanding research contributions involving theoretical developments for orbit determination of lunar satellites, and for application of such procedures, which have materially contributed to the success of the Lunar Orbiter Project." A native of Gainesville, Florida, Blackshear received his B.S. degree in Mathematics from Florida State University and joined the Center staff on June 15, 1962 as an Aero-Space Technologist.

TRAVEL INSURANCE NOTICE

The annual premium due date for NASA Travel Accident Insurance is Nov. 1. Notices of premiums due were sent out with Record of Earnings cards earlier this week. Payment must be made on or before Nov. 1 for coverage to be continuous. There is no grace period.

Travel Accident Insurance offers the following types of coverage:

Plan I offers protection during personal and local business travel. It provides coverage for local and world-wide personal travel by car or by land, sea, and air common carriers. The coverage is for 24 hours a day, 365 days a year. This plan also covers the enrollees for local business travel-- trips where travel orders in accordance with Government travel regulations are not required. The cost of this plan is 30 cents annually for each $1,000 of protection. An employee may elect $25,000, $50,000, or $100,000 of coverage for $7.50, $15, or $30 a year.

Plan II offers protection during personal travel, just as in Plan I. It also offers world-wide business travel protection regardless of the type of vehicle-- even while flying as a passenger in a private plane. By choosing this plan, the enrollee will be covered on business trips where travel orders are required, whether local, regional, or cross country, or whatever the destination, while he is exposed to the risks assumed. For this extra protection, plus personal travel coverage, the cost is sixty-five cents per $1,000. An employee may elect $25,000, $50,000, or $100,000 of coverage for $16.25, $32.50, and $65 a year, respectively.

An additional optional benefit of both plans is accident protection coverage for a spouse. When enrolling in either plan, $10,000 of Travel Accident Insurance may be added for a wife or husband. The cost of this benefit is a flat $4.50 a year.

Employees who wish to enroll in the Travel Accident Insurance Plan should call the Employee Services Branch, 2605, for further information.

Langley Researcher

VOLUME 6, NUMBER 22 LANGLEY RESEARCH CENTER NOVEMBER 3, 1967

NASA HONORS STAFF MEMBERS AT CEREMONY IN WASHINGTON

Eight Langley staff members and one research team were honored at NASA's annual awards ceremony in Washington October 24. The awards were presented by NASA Administrator James E. Webb and Deputy Administrator Dr. Robert C. Seamans Jr.

Dr. Floyd L. Thompson, Langley Director was one of four scientists who have held kep managerial positions with NASA to receive the NASA Distinguished Service Medal.

Dr. Thompson received his award "In recognition of his many years of distinguished leadership and service in aeronautical and space research and development. As Director of the Langley Research Center he has added great strength to our nation's capability for the development and testing of structures, life support, rendezvous and docking, planetary entry and landing systems needed to support the nation's aeronautical and space efforts. He has contributed much to the solution of many of the most pressing problems in aeronautical research, particularly in the challenging new areas of supersonic, hypersonic and V/STOL flight. He has demonstrated outstanding administrative capability and a broad understanding of the requirements for success in large complex organizations. He demonstrated the value of all these qualities in the most difficult and demanding assignment of serving as Chairman of the Apollo 204 Review Board. He contributed greatly to the success of Project Mercury which was conceived, organized and staffed under his direction; to Proj-

(Continued on page 3)

ANNUAL AWARDS CEREMONY PLANNED FOR NOVEMBER 7

The Center's Annual Awards Ceremony will be held on Tuesday, November 7 at 2 p.m. in the NASA Hangar, Building 1244. The awards ceremony is one of Langley's highlights of the year.

The program will include the presentation of 40, 30, and 25-year service emblems and certificates, invention and contribution awards, and special service awards which recognize individuals for their particular achievements in helping to realize NASA's mission.

Dr. Floyd L. Thompson, Director, and Charles J. Donlan, Associate Director, will make the awards presentations.

Music will be furnished by the Hampton High School band. The retirement of the colors will be performed by the U.S. Marine Color Guard, Marine Barracks, Naval Weapons Station, Yorktown.

Refreshments will be served immediately following the ceremony, compliments of the Activities Association.

(Continued on page 7)

50TH ANNIVERSARY GUESTS PRAISE STAFF FOR SUCCESS OF INSPECTION

Letters of appreciation received by Dr. Floyd L. Thompson, Langley Director, from guests of the 50th Anniversary Celebration and Inspection are high in their praise of the staff of the Langley Research Center.

The letters include many favorable comments from the public concerning the organizational ability and the technical competence of the Langley staff as demonstrated by the thoroughness of their plans for the observance and the exceedingly effective way in which it was conducted.

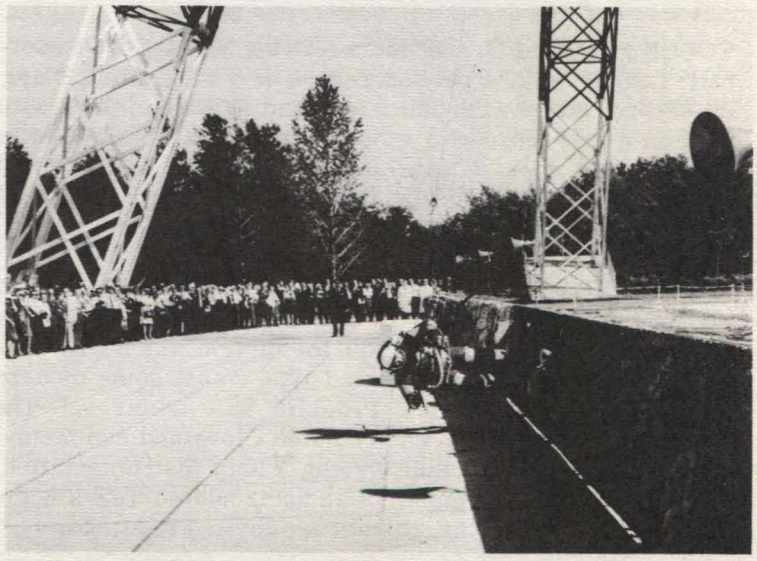
The letters came from representatives of other Federal agencies, industry, educational institutions, and a number of other organizations with which Langley has worked over the years. Excerpts from a few of the letters follow:

Colonel C. E. Adams Jr., Department of the Army, Norfolk District Corps of Engineers: "Please extend my compliments to those impressive and articulate young men who gave the presentations."

Dr. Edgar F. Shannon Jr., President of the University of Virginia: "All Americans can take the greatest pride in the contribution that Langley Research Center has made to the advancement of. . .aviation and astronautics."

Roger W. Fulling, Development Department of E.I. du-Pont de Nemours and Company, Wilmington, Delaware: ". . .I can assure you that from the viewpoint of a repre-

(Continued on page 4)



Visitors to the 50th Anniversary Celebration and Inspection watch as a space-suited Langley scientist walks on a simulated lunar surface in a demonstration of man's ability to move about on the moon under one-sixth gravity. Many of the guests who attended the observance the first week in October wrote letters praising the staff for their contributions to the outstanding success of the birthday celebration.

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

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

WEDDING BELLS. . .Deserting the bachelor ranks is Joseph W. Drewry, Applied Materials and Physics. He was married to Dorothy Enid Gibbons on October 10.

SKYWATCHERS. . .The Skywatchers Astronomy Club will hold a business meeting in the Activities Building on November 8 at 7:30 p.m. After the business meeting a viewing session will be held at the observatory using the 16-inch telescope. Visitors are invited to attend.

JEWELRY FOR SALE. . .The Activities Association is selling four jewelry items with the NASA emblem on them. The following items, which come in rhodium or hamilton plate finish, may be purchased at the Activities Building: man's tie tac - $1.70; man's tie bar - $1.90; lady's pin - $1.40; and lady's bracelet and disc charm - $2.75.

TOUCH FOOTBALL. . .Boozers lead the NASA Touch Football League with a perfect record of 6 wins. Misfits are in second with 5 wins and 1 loss and ACD is in third with with an even record of 3 wins and 3 losses. KNADS are in fourth place with 2 wins and 4 losses and Packers and Bombers are battling for the bottom slot with 1 win and 5 losses each.

COIN CLUB. . .The Langley Research Center Coin Club will meet on November 15 at 7:30 p.m. in the Activities Building. Featured will be a 30-lot auction which will contain some choice uncirculated type coins, some modern issues, and a circulated Franklin half dollar set. The raffle will consist of an uncirculated Cleveland commemorative half dollar. Bob Wright, Flight Instrumentation, was the winner last month of an uncirculated Texas commemorative half dollar. Guests are invited to attend.

ENGAGED. . .Making plans to join the ranks of newlyweds is Carol A. Majette, Structures Research. She is engaged to Walter Gaylord Lockett, Hampton, and plans call for a December 8 wedding.

WANTED: Driving combination from Norfolk to W.A. on 7 shift. Brown, 3141.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 6:

Monday - Cream of mushroom soup, roast veal, chuck wagon steak, smoked pork sausage, Irish omelette. Snack bar - Soup, hamburger, veal steak, French fries.

Tuesday - Vegetable-beef soup, Spanish pot roast, fried shrimp, liver and onions, baked hash. Snack bar - Soup, barbecued pork sandwich, hot roast beef, French fries.

Wednesday - Chicken-noodle soup, pepper steak, chicken cacciatore with spaghetti, pork choppette, Spanish omelette. Snack bar - Soup, chicken pattie, steak sandwich, French fries.

Thursday - French onion soup, roast ribs of beef, barbecued spare ribs, Polish sausage, wieners and sauerkraut. Snack bar - Soup, hot dog, chicken fried beef steakette, French fries.

Friday - H O L I D A Y

The menu for the week of November 13 is as follows:

Monday - Puree of bean soup, braised beef tips, grilled pork chops, baked lasagna, fish cakes. Snack bar - Soup, cheeseburger, hot corned beef on rye, French fries.

Tuesday - Tomato-barley soup, roast pork, Salisbury steak, sauteed chicken livers, grilled cheese and bacon sandwich. Snack bar - Soup, grilled cheese and bacon, flying saucer, French fries.

Wednesday - Chicken-rice soup, grilled steak, fried scallops, barbecued chicken, tamale pie. Snack bar - Soup, sea dog, steak sandwich, French fries.

Thursday - Vegetable-beef soup, roast beef, grilled ham slice, chicken chop suey, western omelette. Snack bar - Soup, barbecued pork sandwich, hot roast beef sandwich, French fries.

Friday - Clam chowder, beef stroganoff, stuffed shrimp, broiled fish, franks and beans. Snack bar - Soup, hot dog, fried ham sandwich, French fries.

WANTED: Ride from Southampton to E.A. on 8 shift. Yvonne Powell, 2553.

WANTED: Driving combination from Riverdale to W.A. on 8 shift. Hilliard, 4446.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Johnston, 4861.

FOUND: Two men's sweaters, cardigan type, in Hangar. Elliott, 4541.

FOUND: Pair of men's brown frame glasses in Building 1298. Call 3551 for further information.

FOR SALE: Mattress and box springs, 13-inch wheel covers for 1966 Corvair Corsa, car bed, Infanseat, clock radio, baby scales. Campbell, 877-9342 before 6 p.m.

JOIN THE STAR-SPANGLED FREEDOM PLAN

SIGN UP FOR U.S. Savings Bonds New Freedom Shares

NASA HONORS STAFF MEMBERS

(Continued from page 1)

ects Scout, Echo, Fire and Lunar Orbiter; and to our nation's leading position in commercial and military aviation."

Also receiving the Distinguished Service Medal were Dr. Homer E. Newell, Associate Administrator; Edgar M. Cortright, Deputy Associate Administrator, Office of Manned Space Flight; and Dr. Raymond L. Bisplinghoff, former Associate Administrator for Advanced Research and Technology.

The NASA Exceptional Service Medal was presented to 20 NASA men for individual accomplishments in different fields of endeavor. Langley recipients and their citations were as follows:

William J. Boyer, head of Operations, Lunar Orbiter Project Office, "for outstanding performance as the Lunar Orbiter Project Operations Manager whose efforts significantly contributed to the achievement of all successful Lunar Orbiter flights with objectives attained as planned."

Laurence K. Loftin Jr., Assistant Director, "for outstanding leadership in the civil and military aeronautical programs of the Nation through effective management of aeronautical and related research at the Langley Research Center, especially through significant contributions to the Nation's Supersonic Transport Program during evaluation of the design proposals and in his succeeding advisory role."

James S. Martin Jr., assistant manager of Lunar Orbiter Project Office, "for outstanding and skillful contributions as Assistant Project Manager of the Lunar Orbiter Project which significantly aided the achievement of successful Lunar Orbiter flights with all objectives attained as planned."

Clifford H. Nelson, Assistant Director and Lunar Orbiter Project Manager, "for outstanding leadership in technical management which has led to many significant contributions in aerospace research instrumentation and reentry communications research and for his skillful and effective performance as Manager of the highly successful Lunar Orbiter Project."

The NASA Exceptional Scientific Achievement Award was presented to eight men for individual accomplishments. The award went to the following three Langley scientists:

Walter B. Horne, assistant head of Landing and Impact Branch, Dynamic Loads Division, "for his pioneering research and inception and adoption of new techniques for improving tire traction on wet pavements and the expeditious interpretation and dissemination of the results for improved aircraft and automotive safety by minimizing aircraft and automobile hydroplaning and braking skids."

William H. Phillips, Chief of Space Mechanics Division, "for significant scientific achievement in conceiving, directing, and personally conducting scientific research in the fields of aircraft stability and control, flying qualities, and guidance and control of aerospace vehicles. For development of new and improved methods of investigation through simulation and for inspirational leadership which has resulted in outstanding contributions in the aerospace field."

Israel Taback, head of Spacecraft Systems, Lunar Orbiter Project Office, "for outstanding contributions in engineering development of the Lunar Orbiter spacecraft and Photographic Subsystem and for significant contributions to the data analysis which resulted in the formulation of scientific procedures for quantitatively evaluating the integrity of the photographic data."

The Group Achievement Award was presented to the Lunar Orbiter Spacecraft and Operations Team and the Apollo 204 Review Board which was headed by Dr. Thompson. The Lunar Orbiter award was presented "in recognition of the Lunar Orbiter Spacecraft and Operations Team whose outstanding performance and dedicated efforts in accomplishing mission objectives have resulted in highly significant contributions to the NASA space program and to science."

This experimental plane was the nation's first to shatter the so called "sound barrier" 20 years ago. Shown (top) as it was then and (below) as it is now in the Smithsonian Institution in Washington, D.C., is the rocket-propelled Bell XS-1-- later designated X-1. Air Force Captain Charles E. Yeager was at the controls October 14, 1947 when the research plane exceeded the speed of sound, attaining a recorded speed of Mach 1.06-- about 700 miles per hour-- at an altitude of about 43,000 feet. Yeager, now a Colonel, is commander of the USAF 405th Fighter Wing at Clark Air Base in the Phillipines. His pioneering flight into the transonic region was a milestone in a joint long-range research program initiated in the Forties by the National Advisory Committee for Aeronautics (now NASA), the Army Air Force and the Navy. The research airplane concept had its beginning at Langley and led to many pioneering advancements in the transonic, supersonic and hypersonic speed ranges. The X-15 recently attained Mach 6.72, or about 4,530 miles per hour.

FOR SALE: 1966 MGB roadster - $1995. Rau, 723-1821.

FOR SALE: 1964 Pontiac GTO, engine recently overhauled, best offer. Ferguson, 898-5624 after 5 p.m.

FOR SALE: Allstate 250 motorcycle - $260. Whithaus, 723-4215 after 6 p.m.

FOR SALE: 3-bedroom house with attached garage on corner lot in Northampton. Sain, 826-7389.

FOR SALE: Baby stroller - $15. Imig, 877-1723.

GUESTS PRAISE LANGLEY STAFF

(Continued from page 1)

sentative of a commercial and technical business that this program was not only informative, but outstanding in technical accomplishment."

Air Commodore C. T. Nance, Defence Research and Development Staff, British Defence Staff, Washington: "I would like to add my congratulations. . .for a splendidly organized and extremely enjoyable occasion, aptly fitting the circumstances which it was designed to celebrate."

Walter R. Nexsen of Clark, Nexsen and Owen, Architects, Norfolk: "I was especially impressed with the degree of preparedness and the presentation of each speaker."

Arthur C. Wimer Jr., Chief Scientist of the Department of the Air Force, Headquarters Air Force Systems Command, Andrews Air Force Base, Washington: "In the traditional manner, I was pleased to find that the presentations, displays, and demonstrations were exceptionally well organized and both interesting and informative."

Commander D. Z. Skalla, Assistant Director, U.S. Naval Test Pilot School, Patuxent River, Maryland: "This visit provided a valuable insight into past, present, and future aerospace research and development for our flight test oriented group. They all have a clearer understanding of the ever-expanding capabilities of NASA."

W. W. Withee, Program Director of Manned Space Systems, General Dynamics (Convair Division), San Diego, California: "I appreciate the original thinking and tremendous effort that must go into an exposition of this magnitude. Of particular interest to me was the thought that is being given to the aspect of systems safety in the early stages of your research and development activities."

G. G. Brooder, Carefree, Arizona, retired Senior Vice President of Western Air Lines: "It is reassuring to know that such a dedicated group of people are constantly at work to keep our great Nation ahead of the world in aeronautics and space development and research. My first visit to Langley was in 1919 and I have been privileged to attend three inspections thus far. . ."

N. U. Mayall, Director of the Kitt Peak National Observatory, Tucson, Arizona: "I came away from Langley with a much better appreciation of its past and present achievements, and its interests and plans for the future. It seems to me that Langley has many 'firsts' to its credit, and that there is a real spirit of innovation and imagination that is invaluable in a research and development installation."

John P. Frazee, Director of Government Communications Services, The Chesapeake and Potomac Telephone Company of Virginia: "As a citizen, it is comforting to know that the future of aeronautics and space travel for our country is in such capable and competent hands."

H. F. Robinson, Dean for Research, North Carolina State University at Raleigh: "The program was extremely well organized and the information disseminated in a most effective manner. You and your staff certainly deserve the tremendous credit that is now coming to the Langley Research Center for the outstanding contributions you have made to the various areas of aviation science."

John H. Reed, member of the National Transportation Safety Board of the Department of Transportation, Washington: "I was immensely impressed by the great record the Center has established in over fifty years of service to the Nation." As a result of my visit I "feel that I am much better informed as to the outstanding work taking place there."

Standing in front of the AFSC Liaison Office exhibit during the 50th Anniversary Celebration and Inspection are (from left): Major General G. A. Kent, Deputy Chief of Staff, Air Force Systems Command, Andrews Air Force Base, Washington; Charles J. Donlan, Langley Associate Director; and Major Thiophilos Andrada, Langley Liaison Officer.

Thomas S. McCaffrey, Southern Regional Manager of the Federal Systems Division of Sperry Rand: "It was a very satisfying experience and I would like to express my thanks . . .for the very professional manner in which the history and achievements of Langley Research Center were presented."

C. L. Saunders, Crotts and Saunders Engineering, Inc., Winston-Salem, N.C.: It was "the most interesting and well planned program that I have ever attended."

John E. Hatch Jr., President of Spaco, Inc., Huntsville, Alabama: "The entire affair certainly reflected the high professional and technical position that Langley Research Center has held for the past 50 years." As a former Langley employee, "I was especially pleased and proud of the progress the Center has made during the past ten years."

G. L. Hansen, Vice President of Launch Vehicle Programs, General Dynamics (Convair Division) of San Diego, California: "Although I have been involved in the space program for many years I was amazed at the scope of activities at the Langley Research Center. My improved knowledge of these activities will be most beneficial to me."

R. J. Helberg, Assistant Division Manager of the Seattle Spacecraft Directorate, The Boeing Company: "I heard many comments. . .on the high quality of both the information and method of presentation. My own reaction to the program was that it was most interesting and presented in a very extraordinary and enlightening manner."

Charles Tilgner Jr., Director of Professional Activities, Grumman Aircraft Engineering Corporation, New York: "Langley's Fiftieth Anniversary Celebration was absolutely terrific. Everyone from Grumman who attended raved about it. Had I not been there myself, I wouldn't have be-

(Continued on page 5)

LETTERS CONGRATULATE STAFF

(Continued from page 4)

lieved them. It was the most enjoyable day that I have had in a long time and I thank you very much."

William F. Young Jr., Assistant Supervisor of Science, Virginia State Board of Education, District Office, Lynchburg: "Many science supervisors and teachers took advantage of the opportunity to visit your Open House. I was especially pleased to see the large number of both elementary and high school youngsters attending the Open House."

Fred W. Mellor, Manager of Systems and Technology Marketing, Goodyear Aerospace Corporation, Akron, Ohio: "Spending the day at your facility was a real eye-opener in that I never really appreciated the scope and magnitude of the disciplines and activities carried on across the board by Langley personnel."

James T. Pyle, Director, Aviation Development Council, New York: "I was proud of all of you and. . .delighted to hear the recurring theme of 'aeronautics' coming through so loud and clear-- music to my ears!"

R. M. Woodham, Associate Director, The Daniel and Florence Guggenheim Aviation Safety Center at Cornell University: "The presentations and the brochure given out were most interesting and should add to the reputation of Langley as the father and progenitor of much that is valuable in aviation."

Professor George K. Serovy, Department of Mechanical Engineering, Iowa State University: "As is always the case with NASA inspections and presentations your program was interesting and extremely well-organized. As an alumnus of the NACA, Class of 1953, it was a pleasure to see the progress. . .made during a relatively short period."

Representative Earle Cabell, Member of Congress from Texas: "I enjoyed the Science and Astronautics Committee trip to Langley for the celebration of your 50th Anniversary. The events were most interesting and informative, and the planning of the tour was excellent. Please accept my thanks for the fine job that you and your Center are doing in our nation's space effort."

J. B. Toomey, President of Value Engineering Company, Alexandria: "I was thoroughly impressed by your facilities, but most by the pride and enthusiasm of the NASA personnel conducting the tour as well as the organization and planning of the entire program."

L. Welch Pogue of the law firm of Reavis, Pogue, Neal and Rose, Washington: "I find that exposure to the selected high points of your research work is a very stimulating experience. The entire tour was very well organized, and judging by the many comments which I heard, your invitees were unanimous in deep appreciation of NASA's efforts to let some of us know what is going on in your fine facilities."

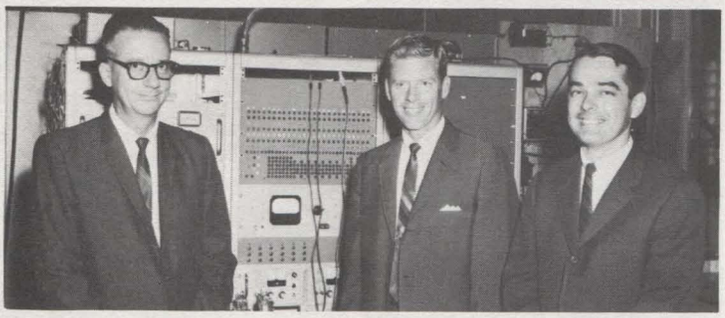
Senior Professor E. J. Cook, Science Department of the U.S. Naval Academy: "It was the most effective celebration of the kind that I have ever attended."

Visiting Professor Rudolf L. Wille, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology: "The program and the display. . impressed me deeply and I shall report on your high standards to my colleagues in Germany" at the DVL (Deutsche Versuchsanstalt fuer Luftund Raumfahrt).

Visiting the Center during the Anniversary Celebration were alumni Dr. Robert R. Gilruth (left), Director of Manned Spacecraft Center, and Christopher C. Kraft, Assistant Director for Flight Operations, MSC.

Dr. Floyd L. Thompson (right), Langley Director, talks with Dr. Raymond L. Bisplinghoff (left), former Associate Administrator for Advanced Research and Technology and now head of the Aeronautics and Astronautics Department, Massachusetts Institute of Technology, and Dr. Arthur E. Raymond, former Vice President of Douglas Corporation and now a NASA consultant. The two were guests of the Center during the 50th Anniversary Inspection.

GRANDDADDY: In an article in The Christian Science Monitor on Monday, October 16, the Langley Research Center is described as "the granddaddy of all government aeronautical and astronautical research centers." What was on display at Langley during the 50th Anniversary Celebration and Inspection, the article said, "was not only astonishing, but sometimes incredible." Pointing out that Langley "has its finger in most every aeronautical or astronautical research pie there is," the article said the Celebration and Inspection "turned out to be the greatest exhibit and forum on aeronautical research ever staged in the United States."



Ten staff members recently received cash awards from the NASA Incentive Awards Committee for applications that might result in the granting of a patent. Top photo - Sharing a $200 award for "Jet Shoes" are (from left: H. Douglas Garner and Ernest D. Lounsberry, both of Flight Instrumentation, and John D. Bird and David F. Thomas, both of Space Mechanics. Second photo - Stacey M. Mills, Eugene L. Kelsey, and H. Milton Holt, all of Electrical Systems, share a $150 award for their application entitled "Transient-Compensated Silicon Controlled Rectifier Inverter." Third photo - Franklin W. Booth, Flight Vehicles and Systems, received $100 for "Condenser-Separator Apparatus" and $200 for "Condenser-Separator." Bottom photo - Charles J. Donlan (left), Associate Director, presents a $200 check to William H. Phillips, Chief of Space Mechanics Division, for "Station Keeping of a Gravity-Gradient Stabilized Satellite."

OCTOBER LAUNCHES COMPLETE PARACHUTE REENTRY PROGRAM

Two launches during October completed the highly-successful Planetary Entry Parachute Program managed by the Langley Research Center.

Purpose of PEPP was to provide basic information concerning operation of selected candidate parachute configurations in a low-density environment.

NASA will analyze the basic data obtained in the flights to determine the effectiveness of various parachute designs as part of a braking system for soft-landing unmanned instrumented spacecraft in a low-density atmosphere.

The two October launches brought to ten the number of rocket-propelled flights in the program conducted from the White Sands Missile Range, New Mexico.

There were four balloon-launched flights in PEPP, the last of which was conducted at White Sands August 22. A scheduled fifth balloon-launched flight was cancelled after it was determined that satisfactory data were obtained in the previous four experiments.

The final rocket-powered flight was conducted October 17. A 40-foot diameter disc-gap-band parachute was deployed at an altitude of almost 30 miles above White Sands while moving at a velocity of about 1,700 miles an hour. It descended with a cylindrical spacecraft suspended underneath. Cameras and other research equipment in the spacecraft monitored parachute performance.

In addition to the disc-gap-band, the cross and modified ringsail parachutes were studied during PEPP.

Also launched in October as part of the PEPP flights was a ballute, a pear-shaped device which incorporate features of both a balloon and a parachute. Sent aloft by rockets October 3, it was deployed at about 140,000 feet while traveling at a speed of approximately 2,100 miles an hour.

STAFF MAY REVIEW STANDARDS

The Classification, Wage Administration and Organization Branch maintains a library of Position Classification standards published by the Civil Service Commission.

These classification standards, significant in the determination of the classification and grade of GS positions, are available for review by employees and supervisors.

Staff members wishing to consult these standards may do so by visiting the Classification Branch, Building 586, Room 129.

FOR SALE: Stenotype machine with tape and instruction manuals - $75. Alto, 595-0997.

FOR SALE: Baby feeding table, stroller, crib, etc. Sokol, 826-1596.

FOR SALE: 1966 Mustang hardtop with 4-speed transmission. Strickland, 851-3688 after 5 p.m.

FOR SALE: 1962 Chevrolet Bel Air - 4-door, 6 cylinders- $500. Bedsaul, 877-5534.

FOR SALE: 30 x 60 formica table with 4 chairs. Schrader, 877-4936.

FOR SALE: Buffet B-flat tenor saxophone. Bavuso, 838-0606 after 6 p.m.

FOR SALE: 17-foot Starcraft with cabin, 90 hp Johnson motor, tilt trailer. Luper, 851-1703 after 5 p.m.

FOR SALE: 1962 Chevrolet Impala hardtop with V-8 engine and automatic transmission. Hogan, 596-7344.

RAM-C SUCCESSFULLY LAUNCHED BY SCOUT FROM WALLOPS ISLAND

A rocket-propelled 267-pound payload plunged back into the Earth's atmosphere at 17,000 miles per hour October 19 in a successful NASA test to study methods for preventing loss of radio signals from reentering spacecraft.

A four-stage, all solid-propellant Scout launch vehicle sent the cone-shaped spacecraft from Wallops Island on an arching trajectory over the Atlantic Ocean. Liftoff occurred at 1:33 p.m. EDT. About eight minutes later the spacecraft impacted 725 miles downrange, approximately 150 miles northeast of Bermuda.

The test was a continuation of NASA's Project RAM (Radio Attenuation Measurements) to study the problem of communicating through the ionized plasma created when a spacecraft reenters the Earth's atmosphere at high velocities.

Primary purpose of this experiment was to evaluate the use of water spray to break down the shield of ionized gas which causes the interruption to radio signals.

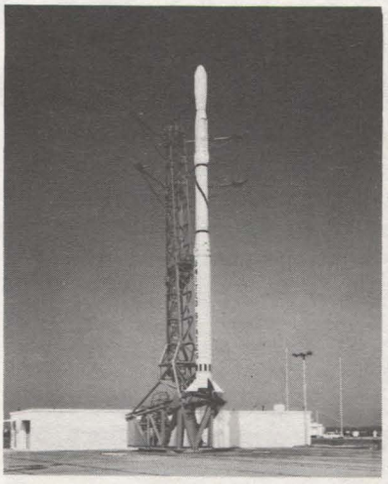
The RAM-C spacecraft was designed and fabricated by the Langley Research Center with Theo E. Sims serving as Project Manager and R. D. English as Vehicle Manager.

Other Langley participants included Norman D. Akey, Payload Manager and Experimenter; W. Linwood Jones Jr., Experimenter; William L. Weaver, Analysis Engineer; Louis H. Hunt Jr., Instrumentation Engineer; James W. Cheely, Systems Engineer; David H. Butler, Mechanical Engineer; Wayne L. Kitchen, Range Operations Engineer; Virgil L. Ball, Pyrotechnic Engineer; and Clyde J. May, Electrical Engineer.

For Wallops Station, Robert T. Duffy was Test Director for countdown and launch, and Joseph R. Duke was Assistant Test Director and Project Engineer, responsible for coordinating range and tracking operations.

Jack Levine, NASA Headquarters, Office of Advanced Research and Technology, is RAM-C Project Officer.

President Johnson presented the Harmon International Trophy, one of aviation's highest honors, to two astronauts and a veteran test pilot in ceremonies held recently in the White House Rose Garden. Trophy winners are (from left): North American Aviation XB-70 pilot Alvin S. White, and NASA astronauts Edwin E. Aldrin and James A. Lovell.



Left photo - An all-solid propellant Scout launch vehicle sent the Radio Attenuation Measurement (RAM-C) 267-pound instrumented experimental payload from Wallops Island on an eight-minute ballistic flight 725 miles across the Atlantic Ocean October 29 in a successful NASA test to study methods for preventing loss of radio signals from reentering spacecraft. Right photo - The nose cone and instrumentation of the RAM-C are checked out prior to launch on the spin table. The cone-shaped spacecraft is 51 inches long and 26 inches in diameter at the base.

ANNUAL AWARDS CEREMONY

(Continued from page 1)

The following staff members will receive 40-year service emblems: Marvin Forrest and J. Cabell Messick, Office of Engineering and Technical Services; Edward J. Bartsch, Procurement; Chris Harold, Mechanical Services; T. Aubrey Harris, Office of Director; and Paul Kuhn, Structures Research.

Thirty-year service emblems will be presented to the following: Elvin L. Ahl and Robert H. Simpson, Flight Instrumentation; Richard V. Braig, Kaleb Daws Osborn, and Joseph F. Pavlovsky, Research Models and Facilities; Donald H. Carson and Lewis W. Raines, Procurement; Earl J. Council, Flight Vehicles and Systems; Percy J. Crain, Office of Engineering and Technical Services; William H. Guy, Photographic; T. W. Edmund Hankinson and Isidore G. Recant, Lunar Orbiter Project Office; Frank T. Hart, Charles N. Leeper, Willard H. Miller, and Alfred M. Tankersley, Instrument Research; Melvin E. Hathaway, Structures Research; Virgil S. Ritchie, Full-Scale Research; Lindsey I. Turner, Aero-Physics; Alfred J. Voitlein, Flight Mechanics and Technology; Herbert A. Wilson, Applied Materials and Physics Division.

Also Harry A. Barritt, Earl R. Blymiller, Harry T. Davis, James C. Ferguson, Charles A. Fuchs, John G. Kenney, Warner Mooney, John Perry, Murray L. Segall, Joseph Sleigher, Charles M. Stringfield, Clyde Thiele, Francis S. Wolak, and Edmond J. Zavada, all of Mechanical Services.

FOR SALE: Clarinet - Evette by Buffet, ebony - $95. Spritzer, 596-8762 after 5:30 p.m.

WANTED: Console piano. Murray, 596-9329.

FOR SALE: McCulloch 640 chain saw. Mulqueen, 898-6327.

FOR SALE: 1963 Valiant - $375, 14-foot Wolverine boat with windshield, controls, and Teenee trailer - $145. Verser, 153 Pasture Rd. Poquoson.

STAFF MEMBERS DONATE $73,250 TO UNITED FUND

The Center's Fourteenth Annual United Fund Drive was officially completed October 31 and several pledging records were established. The total amount pledged was $73,250 compared with last year's record $69,434. The average pledge was $18.41 compared to last year's $17.20, also a record. Nearly every division or office recorded large increases in the percent participation; however, the total for the Center was a disappointing 94 percent, 1.1 percent below last year's 95.1 percent.

The Center was awarded a checkmanship trophy by the Peninsula United Fund for the outstanding effort. The trophy consisted of one of the highly prized Civil War relics recently found buried under the present location of the Continental Army Command Headquarters at Fort Monroe. The relic is one of a number of large artillery shells that were apparently buried sometime during the Civil War. The shells were de-armed and awarded at the PUF report meetings for outstanding campaign achievements.

The Center also extended their drive to include service contractors and aerospace technical representatives within the area. The total pledged was $2,994, bringing the grand total of contributions to $76,244.

Special commendation is extended to Ling-Temco-Vought employees with a total contribution of $1,063 and to The Boeing Company with a total of $450. The NASA Cafeteria employees had 100 percent participation.

Assisting the Campaign Chairman, Dennis J. Martin, in the drive were Robert H. Turner, in charge of general solicitation, and Henry A. Fedziuk, in charge of advance solicitation.

UNITED FUND STANDINGS

Office	Amt. Pledged	Avg.	% Part.	* LRC Fair Share	% LRC Fair Sha[illegible]
Off. Director	$3296	$64.63	100	$1370	24[illegible]
DLD	5359	38.01	100	3063	175
Res. Records	1279	24.13	100	781	164
Voyager	279	46.50	100	173	161
LOPO	1462	33.23	97.8	999	146
Flight Reentry	475	36.54	100	333	143
Admin.	887	26.88	100	629	141
ASD	1165	14.94	100	846	138
Fiscal	1625	16.09	99	1229	132
Structures	4304	29.08	98	3326	129
APD	4806	27.62	97.8	3753	128
SMD	2538	28.20	93.8	2000	127
FSRD	4825	28.55	93.9	3848	125
AMPD	6002	26.56	97.4	4955	121
FSVD	3540	24.41	100	3079	115
FMTD	2914	22.59	96.3	2626	111
Tech. Serv.	1222	20.03	100	1119	109
MORL	265	26.50	100	246	108
Personnel	786	14.56	100	757	104
RMFD	3080	18.44	99.4	3287	94
Space Vehicle	106	26.50	100	117	92
ACD	2786	18.45	91	3031	92
IRD	3373	16.86	94.3	3804	89
Scout	610	19.68	93.9	710	86
Procurement	1555	10.10	98.1	2194	71
FID	3461	14.98	89.2	5005	69
Plant Maint.	1048	8.19	100	1593	66
Elec. Systems	2318	10.25	99.6	3567	6[illegible]
Photographic	557	7.53	93.7	1042	53
Mech. Services	7060	8.24	89.4	13501	52

*LRC Fair Share based on average salary within division or office.

AIAA CHAPTER MEETS NOV. 8

Dr. Alanson D. Topping, Senior Engineer Specialist (Stress), Goodyear Aerospace Corporation, will be guest speaker at a meeting of the Hampton Roads Section of the American Institute of Aeronautics and Astronautics on November 8 at the Warwick Yacht and Country Club.

Dr. Alanson D. Topping

Dr. Topping will present a lecture, illustrated with slides, that briefly covers the history of lighter-than-air craft from the earliest flights in the 1780's through the second Graf Zeppelin, and up to the present time when buoyant vehicles are being used for astronomical observations. The title of his talk is "Bouyant Flight: Men and Gasbags."

Dr. Topping received his B.S. degree in general science and civil engineering from Purdue University, his M.S. in civil engineering from Missouri School of Mines and Metallurgy, and his Ph.D. in theoretical and applied mechanics from the University of Illinois.

He is responsible for structural and stress analysis on such space systems and advanced technology programs at Goodyear as expandable solar concentrators and antennas for space applications, ballutes, parachutes, and other recovery system components; inflatoplanes, paragliders, and pneumatic rotor blades, space station studies, and vee-balloons.

His experience with conventional metal structures includes airplane wing and fuselage sections, ejection seats and capsules, and research on spot weld strengths. He taught engineering mechanics courses for several years at the University of Illinois, Missouri School of Mines, and Purdue University before joining Goodyear.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner featuring yankee pot roast by Ozzie the Chef at 7:30, and the business meeting at 8:30.

Reservations may be made by calling B. O'Hare, 877-3634; Conrad Willis, 838-0695; or Bernard Spencer, 722-6478. Wives, guests, and non-members are invited.

FOR SALE: Large tricycle, girl's bicycle, blond youth bed with mattress and chest. Satterfield, 596-0258.

WANTED: Alternate drivers from Williamsburg on 8 shift. Mason, 2645.

WANTED: Driving combination from Beechwood to W.A. on 7:30 shift. Diaz, 3234 or 877-5494.

WANTED: Ride or driving combination from Gloucester Pt. to W.A. on 7:30 shift - after Dec. 1. Bushnell, 4677 or 722-0208.

Langley Researcher

VOLUME 6, NUMBER 23 LANGLEY RESEARCH CENTER NOVEMBER 17, 1967

APOLLO-SATURN SUCCESSFULLY LAUNCHED FROM CAPE KENNEDY

The successful flight test of the 6.2-million-pound Apollo/Saturn V space vehicle, the heaviest object man has ever sent aloft, was enough to put this nation ahead for the first time in both rocket power and moon spacecraft development. The 36-story Saturn booster lifted-off at 7 a.m. on November 9 from Kennedy Space Center.

The Apollo 4 mission marked several significant milestones in the United States program to land men on the moon and return them safely to Earth. It was the first launch from the Kennedy Space Center Launch Complex 39; the first flight of the integrated Apollo/Saturn space vehicle; first flight of the first (S-IC) and second (S-II) stages of the Saturn V launch vehicle; first engine restart in orbit of the upper (S-IVB) stage of the Saturn vehicle, and the first demonstration of Apollo spacecraft performance entering the Earth's atmosphere at speeds reached on return from a mission to the moon.

Objectives of the Earth-orbital unmanned mission were to obtain flight information on launch vehicle and spacecraft structural integrity and compatibility, flight loads, stage separation, subsystem operation, emergency detec-

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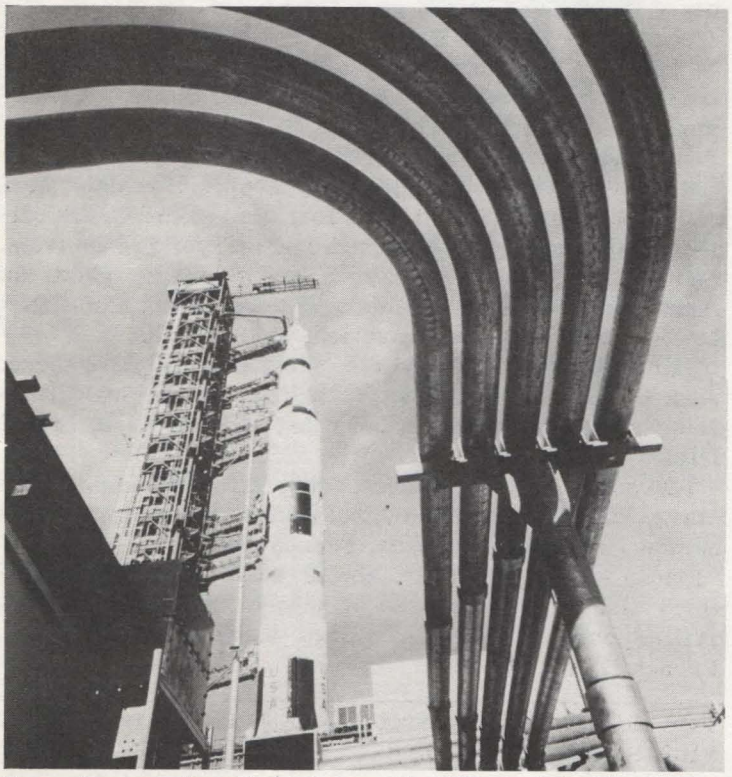
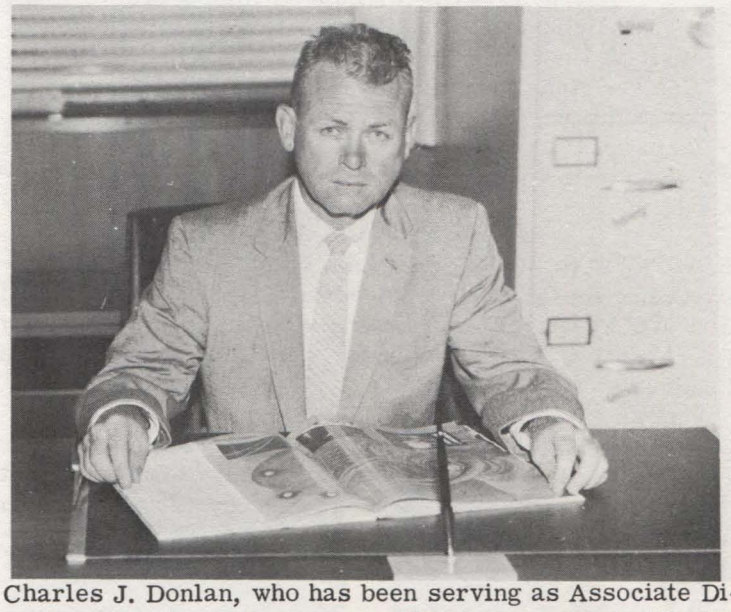


Ground servicing lines frame the 363-foot Apollo/Saturn V spacecraft at Kennedy Space Center before its successful launch on November 9.



Charles J. Donlan, who has been serving as Associate Director for the past six years, has been appointed Deputy Director of the Langley Research Center. The appointment, approved by James E. Webb, NASA Administrator, was announced to the staff on November 6 by Dr. Floyd L. Thompson, Director. Donlan, 51, was born in Lawrence, Massachusetts, and joined the Langley staff in 1938 after being awarded a B.S. degree in Aeronautical Engineering at Massachusetts Institute of Technology. In 1958, Donlan became a pioneer member of the NASA Space Task Group established at Langley that year to conduct Project Mercury, the nation's first manned space flight program. He served as Associate Director of Project Mercury until 1961 when he returned to the staff of Langley as Associate Director.

LANGLEY EMPLOYEES HONORED AT ANNUAL AWARDS CEREMONY

The annual ceremony for presentation of awards to staff members of the Langley Center was held November 7 in the NASA Hangar.

Six employees were presented diamond-studded 40-year service pins, 35 received emerald-studded 30-year pins, and 223 were recognized for 25 years of Federal service.

Dr. Floyd L. Thompson, Director, and Charles J. Donlan, Deputy Director, presented a number of special awards to individuals and groups.

Laurence K. Loftin Jr., Assistant Director, received a Special Service Award for Outstanding Leadership "for outstanding leadership in aeronautical research, which has had a pronounced impact on the civil and military aeronautical endeavors of the Nation, through effective direction of Langley Research Center programs and in partici-

(Continued on page 5)

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. . .Ruth A. Pluta, formerly of Administrative Services Division and now a member of the staff of Goddard Space Flight Center, was married to Gregory David Koren, Reading, Pennsylvania, on November 11 in Reading.

TURKEY SHOOT WINNERS. . .A total of 95 turkeys were given away at the annual turkey shoot held October 28 at the Activities Building. Winners of turkeys may pick them up after 3:30 p.m. on Tuesday, November 22 at the Activities Building.

BARBERSHOP CHORUS. . .The Hampton Roads Barbershop Chorus, under the direction of Al Rice, Aero-Physics Division, will present a Barbershop Rally at 8 p.m. on Tuesday, November 21 at Saunders Elementary School in Newport News. Invited guests include Richmond's award winning Tobacco Land Chorus, the Commodore Chorus from Norfolk, and the Portsmouth Barbershop Chorus. The program will feature performances by each chorus and several surprise quartets. Complimentary tickets (men only) may be obtained from the following: Al Rice, APD; Ira Ramsey, FVSD; John McFall, AMPD; J. Youngblood, AMPD; J. Brabrand, PSA Unit; and Norman Crabill, LOPO.

AFGE MEETING. . .The NASA Lodge 2755 American Federation of Government Employees (AFL-CIO affiliate) will meet on Wednesday, November 29 at the Central Labor Union Hall at 7 p.m.

CONGRATULATIONS. . .Robert R. Moore, Procurement Division, recently attended the Defense Advanced Procurement Management course, U.S. Army Logistics Center, Fort Lee. According to a letter received at the Center from Colonel Paul E. Bruehl, Deputy Commandant, "Moore compiled an exemplary academic record and was designated an honor graduate. He is congratulated for achieving these distinctions. His performance as a student reflects credit on himself and the National Aeronautics and Space Administration."

FOR SALE: 15-foot fiberglas boat, 45 hp electric start motor, trailer, accessories - $799. Greene, 898-6943.

FOR SALE: 23-inch Silvertone TV - $35, boy's brown and beige coats with pants - size 2 - $6 each, girl's green coat - size 4 - $7. Keynton, 838-5406.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 20:

Monday - Cream of tomato soup, chicken and dumplings, baked ham, smoked pork sausage, baked hash. Snack bar-Soup, hamburger, hot pastrami on rye, French fries.

Tuesday - Chicken-vegetable soup, fried oysters, breaded veal steak, chicken chow mein, grilled spiced luncheon meat. Snack Bar - Soup, ham and egg sandwich, veal steak sandwich, French fries.

Wednesday - THANKSGIVING DINNER ($1) - Chilled tomato juice, Waldorf salad, roast turkey, baked Smithfield ham, oyster dressing, cranberry sauce, giblet gravy, whipped potatoes, candied yams, buttered peas, pumpkin or mince pie, hot rolls and butter, coffee or tea. Snack bar - Franks and beans, soup.

Thursday - H O L I D A Y

Friday - Clam chowder, grilled steak, stuffed flounder, knockwurst, cheese ravioli. Snack bar - Soup, hot dog, steak sandwich, French fries.

The menu for the week of November 27 is as follows:

Monday - Cream of mushroom soup, pot roast of beef, grilled pork steak, baked meat loaf, fish cakes. Snack bar-Soup, fish sandwich, hot corned beef on rye, French fries.

Tuesday - Puree of bean soup, roast pork, spaghetti and meat sauce, liver and onions, hot dog. Snack bar - Soup, hot dog, hot roast pork sandwich, French fries.

Wednesday - Chicken-noodle soup, roast beef, barbecued pork chunks, fried chicken, franks and beans. Snack bar - Soup, barbecued sandwich, hot roast beef sandwich, French fries.

Thursday - Vegetable-beef soup, fried shrimp, grilled steak, chicken chop suey, baked hash. Snack bar - Soup, hamburger, steak sandwich, French fries.

Friday - Clam chowder, Swiss steak, chicken pan pie, fried fish, grilled cheese sandwich. Snack bar - Soup, grilled cheese sandwich, sliced barbecued beef on roll, French fries.

FOR SALE: 1958 Chevrolet, V-8, 4-door, straight shift - $100. Rankin, 723-9365.

FOR SALE: Engine and accessories - F-head, four-cylinder for jeep, valve in head with bell housing and pressure plate. Brown, PA3-8929 after 5 p.m.

EMBLEM CONTEST SPONSORED BY ACTIVITIES ASSOCIATION

The Executive Board of the Langley Morale Activities Association (LMAA) is announcing an Emblem Contest. The purpose of the contest is to provide the LMAA with its own emblem or seal which may be placed on its correspondence and which will lend dignity to the organization at its sponsored functions.

The contest is open only to employees (or their families) of Langley Research Center and the prize will be a $25 U.S. Savings Bond.

Contest judges are Charles F. Barnett, Chief of Personnel Division, and Charles Clarke, President of the Activities Association. Contest director is Arnold Mueller.

Rules for the contest are as follows:

1. The design of the emblem must be submitted on either lined or unlined white notebook paper (8 x 10-1/2 inches).
2. Designs may be either in color or black and white.
3. Descriptive phrases or sentences may accompany the design but must not be more than 50 words.
4. The management of the Langley Research Center has asked that no design be such that it could be mistaken for the official NASA emblem.
5. More than one entry maybe submitted.
6. The name of the employee with his extension and mail stop must be on the entry.
7. Entries are to be sent to Arnold Mueller, contest director, MS 239.
8. All entries must be in by March 1, 1968

No one should be discouraged from submitting an entry because of his art ability as the idea behind the design is the important point in the contest.

The winner will be announced the latter part of March.

APOLLO-SATURN SUCCESSFUL

(Continued from page 1)

tion subsystem operation and to evaluate the Apollo command module (CM) heat shield under conditions encountered on return from a moon mission.

The mission also tested flexible thermal seals to be used in the new outward-opening, quick-release hatch for the command module.

The flight plan called for the Saturn V launch vehicle to place the Apollo spacecraft and the launch vehicle third stage into a 117-statute-mile circular orbit inclined 32.73 degrees to the equator.

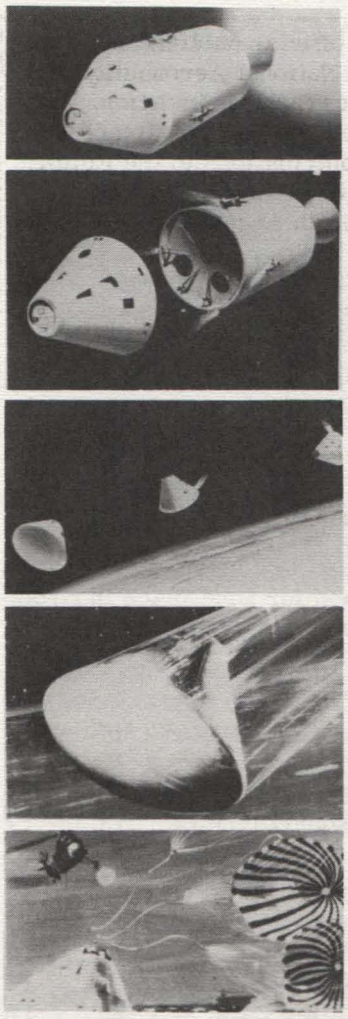
After completing two orbits, the third stage was ignited a second time to place the Apollo spacecraft into orbit with an apogee close to 10,800 statute miles.

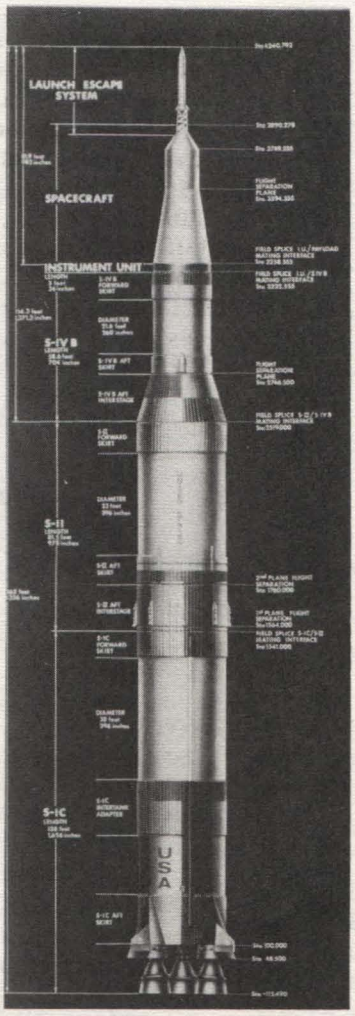
After separating from the third stage the spacecraft raised its apogee to approximately 11,400 statute miles by firing its service propulsion system (SPS) engine. A second service propulsion system burn during descent from apogee boosted reentry velocity to 25,000 statute miles per hour for the spacecraft command module.

On its dive from space back into the Earth's atmosphere, Apollo's heat shield heated to temperatures of 5,000 to 5,100 degrees. Splashdown was at 3:37 p.m. EST about 622 statute miles northwest of Hawaii.

WANTED: Driving combination from Manteo Ave. to E.A. on 8 shift. Horrocks, 2614.

WANTED: Driving combination from Poquoson to W.A. on 8 shift. Moore, 4817 or 868-9477.





Left photo - These artist's drawings picture the sequence of events during the successful launch of the Apollo/Saturn V. From top to bottom, the drawings show the Command and Service Modules launching back from the moon; separation of the Command and Service Modules; the Command Module changing position to place its heat shield forward, the Command Module entering Earth's atmosphere and finally the splashdown. The Apollo 4 configuration is shown in the photograph at right.

CHRISTMAS PARTY DECEMBER 10

The Activities Association's Annual Children's Christmas Party will be held on Sunday, December 10 at the Activities Building.

Two shows are scheduled with the first one starting at 1:30 p.m. and the second one planned for 3:15 p.m.

Featured on the program will be Ann Woodard and her Pussycat Puppet Theatre.

Santa will arrive in time for the party and will have his list with him.

Tickets are 25 cents each and must be purchased in advance from District Representatives. Adults must also have tickets in order to be admitted to the building.

FOR SALE: Bundy b-flat clarinet. Lewis, 596-8158 after 5.

FOR SALE: 120 x 218 waterfront lot near Langley. Batten, 877-9018.

FOR SALE: 1965 Plymouth Barracuda, new tires. Hubbard, 877-2225 after 5 p.m. weekdays.

FOR SALE: 1966 Sunbeam Tiger convertible plus hardtop. Shomo, 229-7016 after 7 p.m.

NASA BOWLING LEAGUES

Ten Spots lead the NASA Duckpin Bowling League with 29 wins and 11 losses. Rebel Bombers are in second place with 27 wins and 13 losses and 4 Hits and a Miss and The Tigers are tied for third with 26 wins and 14 losses each.

DUCKPIN LEAGUE

Ten Spots	29	11	The Spares	19	21
Rebel Bombers	27	13	Dam Fi No's	18	22
4 Hits and a Miss	26	14	The Worns	14	26
The Tigers	26	14	The Soreheads	11	29
The Invaders	23	17	The Lousers	13	23
The Gooduns	22	18	The Eves	8	28

Phantoms lead Group A in the Tenpin League with 21 wins and 16 losses. Top scores were rolled by Dale Holden with a 258 game and George Steinmetz with a 613 set.

Mets lead Group B with 27 wins and 13 losses. Top bowlers were Jerry Williams with a 262 game and 678 set and Marna Cordle with a 220 game and 590 set.

Knads and Greenhorns are tied for first place in Group C with 27 wins and 13 losses each. Hayze is in third with 26 wins and 14 losses.

GROUP A

Phantoms	21	15	Cleanups	17	19
Misfits	20	16	Flyers	16	16
Turkeys	20	16	Hornets	16	20
ACD	17	19	Short Circuits	13	19

GROUP B			GROUP C		
Mets	27	13	Knads	27	13
HMS	26	14	Greenhorns	27	13
Payloads	25	15	Hayze	26	14
Hotshot Tunnel	25	15	Question Marks	25	15
ABT	24	16	Alley Cats	23	17
Flight Engineers	23	17	Galaxies	22	18
Cee Pees	23	17	5 Rebels	21	19
Gas House Gang	22	18	Hopeless 5	19	21
Sparkys	18	22	Class Kats	19	21
Pinwigglers	17	23	Gliders	18	22
Astro's	15	25	Hits & Misses	16	24
Flight	14	26	Bowling Belles	16	24
Dillys	11	29	Invaders	11	29
Woodnickers	10	30	Allies	10	30

VACUUM SOCIETY MEETS NOV. 30

The Mid-Atlantic States Section of the American Vacuum Society will meet at the Gourmet Inn, Newport News, on November 30.

T. W. Edmund Hankinson, Lunar Orbiter Project Office, will speak on the Lunar Orbiter Program.

A charge of four dollars per person will be made for the roast beef dinner. A social hour will be held at 6:30 p.m. followed by dinner at 7:30. Persons interested in attending should contact F. A. Kern, 3234.

FOR SALE: 1958 Ford - $125. MacLachlan, 722-6731.
FOR SALE: GE table-top ironer - $30. Smith, PA3-6488.
FOR SALE: 1960 TV544 Volvo 2-door sedan. White, 868-9879 after 5 p.m.
FOR SALE: 3-bedroom, 1-1/2 bath rancher with fenced backyard in Foxbourn. Iseman, 851-5949 after 6 p.m.
WANTED: Lot at Nags Head. Wood, 596-3445.
FOR SALE: 25-foot runabout, V-8 Chris Craft motor, and accessories - make offer. Priddy, 723-5148.

Horace Bellamy (left), Mechanical Services Division, discusses job opportunities at the Langley Research Center with John L. Frank, Vocational Education Instructor at Hampton Institute, and Mrs. M. Barbee Pleasant, Education Specialist with the Office of Economic Opportunity, at the recent Job Opportunity Fair held at the Newport News Armory. Langley Center was one of 26 Government and private organizations represented at this annual event sponsored by the Newport News Office of Economic Opportunity. The purpose of the fair was to present to Tidewater residents up-to-date information on job opportunities available in the Tidewater area.

COUNTDOWN

CHORAL GROUP. . .The NASA Choral Group will discontinue rehearsals through December. Rehearsals will be resumed January 8 at 7:30 p.m. in the Activities Building. New members are invited to attend.

FLYING CLUB. . .NASA's newly formed Flying Club will have its first ground school class (for those seeking private pilot's license) at 7 p.m. on November 20 in Room 110, Building 586. For further information call Dave Gregory, 4651.

BASKETBALL LEAGUE. . .A meeting of all persons interested in playing in the NASA Basketball League this season will be held at 4:45 p.m. on November 20 in the Activities Building.

SQUARE DANCING. . .If sufficient interest is shown, the Activities Association will arrange to organize a square dance group for NASA employees, their families, and friends. There should be at least eight persons for each square and no less than three squares in order to make this a success. An instructor will be engaged to teach the group. Persons interested are requested to contact Joe Siefring, Mail Stop 238.

TOUCH FOOTBALL. . .The championship in the NASA Touch Football League will be decided tomorrow when the undefeated Boozers collide with Misfits who have a 7-1 record. ACD and KNADS are tied for third place with records of 3 wins and 5 losses. Bombers are in fifth with a 2-6 record and Packers are in the cellar position with 1 win and 7 losses.

ANNUAL AWARDS CEREMONY

(Continued from page 1)

pation with other organizations, especially through significant contributions to the Supersonic Transport Program during evaluation of the design proposals and in his succeeding advisory role."

Clifford H. Nelson, Assistant Director and Manager of Lunar Orbiter Project Office, was presented an Outstanding Leadership Award "for outstanding leadership exemplifying wisdom and accuracy of judgment in managing the Lunar Orbiter Project which, during a 355-day period, launched five successful spacecraft that have provided high-quality photographic coverage of essentially the entire lunar surface and thus resulted in the selection of eight potential Apollo landing sites and the exploration of scores of other sites of scientific interest."

Mark R. Nichols, Chief of Full-Scale Research Division, received the Outstanding Leadership Award "for pioneering achievements in the field of aeronautical research as related to the conception and development of advanced civil and military aircraft."

The Special Service Award for Exceptional Scientific Achievement was presented to William H. Phillips, Chief of Space Mechanics Division, and Israel Taback, LOPO.

Phillips was cited "for distinguished service to the Nation's aerospace program in conceiving and conducting scientific research programs in the fields of guidance, stability and control, and flying qualities for aircraft and spacecraft, for development of new and unique methods of research through simulation, and for his inspirational leadership which has resulted in outstanding theoretical and practical contributions which continue to produce major contributions to the design, development, and operational uses of aircraft and spacecraft."

Taback received his award "for outstanding contributions as the Spacecraft Manager in the design, implementation, and operation of the Lunar Orbiter Spacecraft, and for significant contributions to the data analysis which resulted in the formulation of scientific procedures for quantitatively evaluating the integrity of the photographic data."

Special Service Awards for Exceptional Scientific Achievement were awarded to Trutz Foelsche, Space Mechanics Division, and Walter B. Horne, Dynamic Loads Division.

Foelsche was cited "for exceptional service in conducting specific research programs for the interpretation and the acquisition of data on technologically and biologically significant components of space radiation, for proposing and carrying out, as the Principal Investigator, radiation experiments for the Lunar Orbiter, and for making significant contributions as an advisor on radiation to the National Supersonic Transport Program."

Horne was honored "for the generation and implementation of pioneering research programs for improving tire traction on wet pavements and for his untiring efforts in the timely interpretation and dissemination of the results for reduction of hydroplaning and braking skids and the improvement of aircraft and automotive safety."

Special Service Awards for Exceptional Service were presented to William J. Boyer, Lunar Orbiter Project Office; Edmund A. Brummer, LOPO: Norman L. Crabill, LOPO, Charles A. Gurtler, Flight Instrumentation; Robert L. Kenimer, FID: James S. Martin, LOPO; Thomas M. Walsh, FID; and Dalton D. Webb, LOPO.

During the annual awards ceremony, eight staff members were presented 40-year service emblems. Members of the 40-year group are front row (from left). Paul Kuhn, J. Cabell Messick, and Thomas A. Harris. Back row - Edward J. Bartsch, Marvin Forrest, and Chris Harold.

Receiving Special Service Awards for Achievement were Richard R. Adams, Instrument Research; Wayne R. Glenny, Procurement; Gerald M. Keating, Applied Materials and Physics; Frank V. Moore, Procurement; John F. Newcomb, Applied Materials and Physics; Edwin J. Prior, AMPD: Billie J. Walker, Full-Scale Research; and George R. Young, AMPD.

Eight staff members received Invention and Contributions Awards from the NASA Inventions and Contributions Board. The largest award of $2600 was presented jointly to James L. Hunt and Robert A. Jones, Applied-Physics, for "Technique for Quantitative Measurement of Aerodynamic Heat Transfer to Supersonic Wind-Tunnel Models of Complicated Shapes." Forrest P. Clay, professor at Old Dominion College, and Leonard T. Melfi, Instrument Research, shared a $1300 award for "Ionization Gage With Low X-Ray Limit." An $800 check was presented to T. W. Edmund Hankinson, LOPO, for "Fatigue-Resistant Shear Pin" and Gale A. Harvey, AMPD, received $500 for "Absolute Spectral Sensitometer."

A NASA Group Achievement Award was presented to the Supersonic Transport NASA Evaluation Team "in recognition of the efforts and assistance of the technical team of NASA personnel whose expertise and dedicated efforts in analyzing and evaluating contractor proposals and technical information resulted in a significant contribution to the National Supersonic Transport Development Program."

NASA Manned Spacecraft Center presented a Group Achievement Award to Apollo Launch Escape Vehicle Flight Development Test Program Team "for significant contribution to the Design and Development Program of the Apollo Launch Escape Vehicle and Little Joe II Launch Vehicle. The effective team effort of this group has played a vital role in achievement of a major milestone in the United States Manned Space Flight Program." Members of the team are Roger H. Fournier and Arvo A. Luoma, Full-Scale Research; James W. Mayo and Frank E. Mershon, Flight Vehicles and Systems; and Eugene D. Schult, Space Vehicle Design Criteria Office.

ELEVEN RECEIVE HONORARY AWARDS

Eleven employees recently received Honorary Suggestion Awards from the Incentive Awards Committee. Receiving certificates were the following:

William E. Lawson, Administrative Services, "for replacing the Xerox 914 copying machine in the Scout Project Office with a Xerox 720 copier which will result in increased savings of manpower and material."

Shimer Z. Pinckney, Aero-Physics, for "the development of an improved method for calculating theoretical flat plate turbulent boundary-layer temperature profiles by means of a digital computer."

Anne D. Leatherman, Flight Vehicles and Systems, for "reducing costs of routine plotting by utilizing a DD 80 off-line automatic plotter for obtaining trajectory curves and plots of model data."

Herbert S. Moffett, Mechanical Services, for "the development of a procedure for joining metallic sheathed thermocouple wire to thermocouple lead wire which can have varied diameters."

William E. Rew, Procurement, for "the development of a new automatic data processing system which will reduce costs in providing a list of vendors who make direct sales to Langley Research Center and who are eligible to receive the Federal Government tax exemption."

George D. Ware, Research Models and Facilities, for "the design and installation of load cell protectors which will reduce the number of ruptured load cells which are used on the vehicle hangers at the Lunar Landing Research Facility."

Raye C. Mathis, Flight Vehicles and Systems, for "reducing costs by employing an IBM computer for developing computer program flow charts for program development and for obtaining flow charts of finished programs for inclusion into Langley working papers."

James E. Rammell, Instrument Research, for "the development of a special cart which will give the preamplifier of a semiconductor radiation detector more mobility and allow for easier adjustments in obtaining a proper height for running tests."

Dale A. Gwaltney, Mechanical Services, for "the development and implementation of a sprinkler flooding system for use around the hydrogen peroxide transport at the Lunar Landing Research Facility.

Clyde L. Tillotson, Flight Instrumentation, for "the development and construction of an automatic multiple turn core test jig for use in winding the required number of drive turns on a magnetic core."

Helen B. Talbott, Fiscal, received two honorary awards for "utilizing an IBM 1401 computer for setting up proper job orders and crediting proper accounts for electrical service contracts" and for "reduction of man-hour costs by machine printing of employees regular and overtime rate of pay on a Cost Time Sheet."

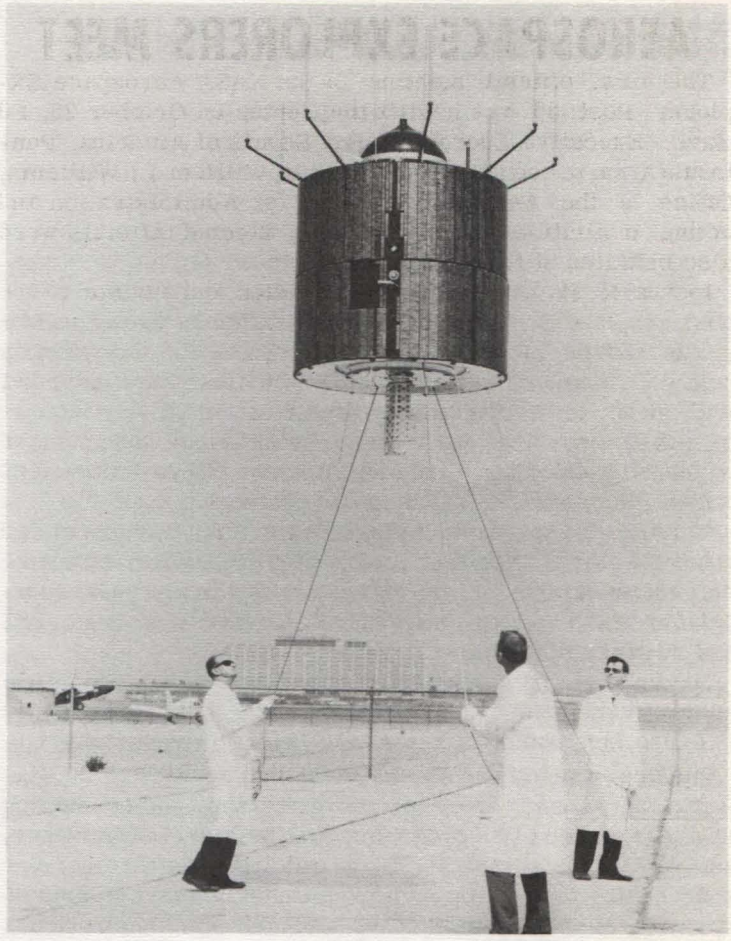
FOR SALE: TDC Model D projector with case. Zitzelberger, 898-5408.

WANTED: Driving combination from Glen Gardens area to W.A. on 8 shift. Preisser, 3561.

WANTED: Ride from Pine Chapel Village to W.A. on 7:30 shift. Pendleton, 4807 or 838-2600.

WANTED: Ride from Wythe or Southampton to E.A. on 8 shift. Powell, 2553.

FOR SALE: 13-pound bowling ball - $8. Bailey, 596-0236.



SPACE MAYPOLE -- Antenna pattern testing was conducted by engineers rotating the flight model of the Applications Technology Satellite. The third in a series of five Application Technology Satellites was launched from Cape Kennedy on November 5. The satellite was rotated to simulate its spinning in space while measurements were made of the output of its four antenna systems. The ATS carried a payload of experiments into a synchronous orbit 22,300 miles above the South American continent where it will photograph the Western Hemisphere weather patterns in color and conduct communication and navigation experiments. ATS is managed by Goddard Space Flight Center.

BOOKS FOR SALE

The following books are for sale at the NASA Exchange, Building 586, telephone 2209:

Mathematical Theory of Elasticity by Sokolnikoff.

Solid State Electronics by Shyh Wang.

Mathematics of Physics and Modern Engineering by Sokolnikoff and Redheffer.

Introduction to the Design of Servomechanisms by Bower.

Principles of Ideal-Fluid Aerodynamics by Karmacheti.

Elements of Gas Dynamics by Liepmann and Roshko.

Fundamental Concepts in the Design of Experiments by Hicks.

Applied Complex Variables by Dettman.

Switching Theory-Combinational Circuits by Miller.

Engineering Mechanics, Volume I: Statics by Shames.

Fundamental Concepts of Geometry by Meserve.

Structure and Properties of Polymers by Tobolsky.

Optimization Techniques with Applications to Aerospace Systems by Leitmann.

Organic Chemistry by Morrison and Boyd.

AEROSPACE EXPLORERS MEET

The first official meeting of the NASA Aerospace Explorer Post 36 was held at the Center on October 25. Ed Zack, Executive Secretary, Boy Scouts of America, Peninsula area, presented the charter to William L. Williams, Office of the Assistant Director for Administration and acting institutional representative. Elected officials were also installed at the meeting.

Joshua R. Foyles, Personnel Division and advisor to the post, explained the order in which different areas will be studied. This selection was made by the elected officials with the guidance of the advisor and the assistant advisor, Wilmer H. Reed, Dynamic Loads Division.

The first area to be studied will be instrumentation under the instruction of Archibald R. Sinclair, Flight Instrumentation Division. The broad area of instrumentation will be subdivided into electronics, computers, telescope and astronomy, and Nimbus. Assisting Sinclair in instructing the group will be Leon V. Taylor, Nicholas D. Murray, Thomas B. Ballard, Charles Husson, William E. Howell, and Frederick R. Morrell, all of Flight Instrumentation.

SAFE AND SANE WORK CLOTHING

Do not wear a tie when you work around machinery. The ends could get caught in a machine and pull you in after them.

Droopy or torn trousers can be dangerous. Trouser legs should be of ankle length and be without cuffs. If cuffs are worn, they should be sewn up so they cannot catch on a projection and cause you to trip, or they cannot catch foreign material.

Safety shoes are recommended in most jobs. The steel cap protects your toes. Instep protection is often required. Some safety shoes have a metal piece inside the sole that prevents a sharp object from puncturing your foot if you step on it. But even a safety shoe can be hazardous if the heel or sole is worn or loose.

Gloves protect your hands, and even improve your grip. But they should never be worn if you work around machinery in motion, including portable power tools. Neither should rings, or wrist watches. Rings and watches are especially dangerous if worn around electrical equipment-including storage batteries.

If you work outdoors in winter, wear warm but fairly lightweight clothing. It is warmer, generally, to wear two thin layers than one thick layer.

Women workers should wear slack suits or close-fitting, plain work dresses, with no sashes, full sleeves, or full skirts. Low-heel shoes are most comfortable while working and safest for walking. Women especially should always wear a cap or snood to protect their hair from being entangled in moving machinery.

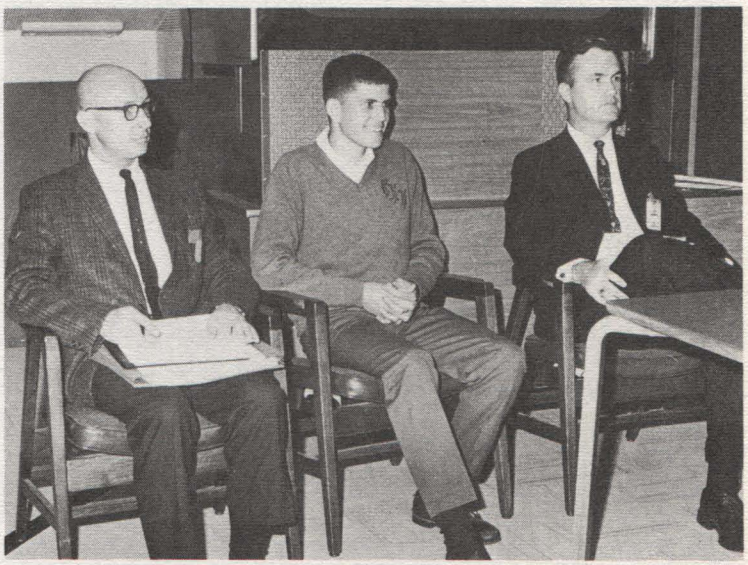
Wearing a washable cap is recommended, as it will also keep hair clean.

FOR SALE: Play pen - $8. Wagner, 723-4567.

FOR SALE: 3 aluminum 35-3/4 x 54-3/4 window screens, 4 35-3/4 x 38-5/8 screens - 50¢ each; 35-3/4 x 80-1/2 screen door - $5; 36 x 80-1/2 louver door - $7. Imig, 877-1723.

FOR SALE: Heavy duty Glideair house trailer hitch - axle mount - $25. Cain, 898-6490.

FOR SALE: Winco generator, 4,000 watts, 3 lines 110 volts, 1 line 220 volts - $200. Valentine, LY6-3770.



The first meeting of the NASA Aerospace Explorer Post 36 was held at the Center on October 25. Top photo - Ed Zack (right), Executive Secretary, Boy Scouts of America, Peninsula area, presents the charter to William L. Williams, acting institutional representative. Center photo - Twenty-six member of the new Explorer Post attended the meeting. Bottom photo - Christopher Wilson (center) was installed as president of the group. He is shown with Joshua R. Foyles (left), advisor, and Williams.

COST REDUCTION EFFORT PRAISED

In a recent letter to Dr. Floyd L. Thompson, Director, James E. Webb, NASA Administrator, wrote, "Dr. Seamans and I are pleased with the results of the NASA Cost Reduction Program effort during Fiscal Year 1967. I am sure that you derived a considerable amount of personal satisfaction from the fact that Langley Research Center achieved cost reductions of $14,346,340 during FY 1967. You are to be congratulated on having exceeded your goal by $6,346,340. Please pass along to all of your personnel my thanks for their contributions to the Cost Reduction Program."

In his letter Webb also stressed the importance of cost reduction in the current fiscal year by stating, "Our cost reduction efforts during Fiscal Year 1968 will be more important than ever before. The budgetary constraints which NASA faces in the next few years make it absolutely vital that we obtain maximum results with fewer dollars."

Word has been received from NASA Headquarters that the cost reduction goal assigned to Langley for FY 1968 is $8,450,000. This reflects Langley's commitment to the NASA Cost Reduction Program. This year's goal is higher than that assigned for FY 1967, but it is less than was achieved and reported for that period.

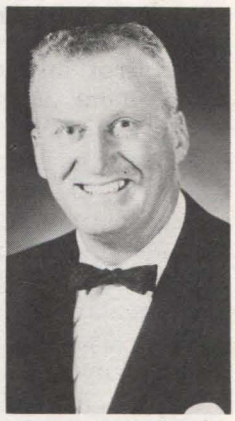
In a letter to OART Center Directors, Dr. Mac C. Adams, Associate Director for the Office of Advanced Research and Technology, stated, "Although we have been faced with similar situations in the past, the task of accomplishing our goal during the coming year will be more meaningful in view of our diminishing funding allocation. In the days ahead, plans to reduce the cost of every element of our operation must be given a priority that will enable us to regain some of the support which may have been denied us through the budgetary process. I am confident that the level assigned to Langley is another challenge that will command your personal leadership and direction, and, based on past performances, one which will be achieved."

In reviewing the current goal assignment Dr. Thompson stated that he is confident each member of the staff will respond to the challenge presented by the goal. He said, "I share Dr. Adams' thinking with respect to this year's goal, in that its achievement is a necessity to permit accomplishment of the Center's mission. I have stated before that one of the main benefits of the Cost Reduction Program has been that it permitted the Center to accomplish additional research with the money saved, but now it is most important that these savings take place in order for us to get the job done which must be accomplished - the urgent work to which the Center is committeed."

The role of the Center Cost Reduction monitors was highlighted by T. Melvin Butler, Cost Reduction Coordinator, when he urged that each assume a more vigorous approach to his job in this area. "Cost Reduction, if it is to be accomplished," Butler said, "is only effective if there is a continuous effort. It is not something that can be turned on and off and no one should be more aware of this than the monitors." Butler concluded by challenging the Cost Reduction monitors and each staff member by pointing out, "The first quarter of FY 1968 is already gone, and time is short. It is my hope that the Center's next quarterly cost reduction report, due in NASA Headquarters in January 1968, will reflect the extra effort of a large segment of the staff."

James E. Goodwin

Earl R. Blymiller


George D. Sands

PERFORMANCE AWARDS PRESENTED

Sustained Superior Performance Awards were recently presented to James W. Goodwin, Electrical Systems Division; Earl R. Blymiller, Mechanical Services Division; and Dr. George D. Sands, Applied Materials and Physics Division.

The citations read as follows:

Goodwin - "For his sustained superior performance demonstrated in the initiative, knowledge, and persistence in the selection and application of recording equipment and the computation involved in the design and construction of devices needed for metering an arc jet."

Blymiller - "For his outstanding skill and ingenuity in performing his assigned duties and for his superior performance in developing and designing non-conventional micro-electronic tooling devices for the Micro-Electronic Laboratory."

Sands - "For his leadership and technical guidance of the Subcommittee on Radiation Safety which led to a major revision and expansion of the 'Radiation Safety Manuel' to include safety regulations for high energy accelerators."

EXAMS OPEN FOR SUMMER JOBS

Four 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 date for examination are as follows: December 8 with exam scheduled January 13, January 5 with exam on February 10, and February 1 with exam on March 9.

Most of the jobs are in grades GS-1 through GS-4, depending on the applicant's education and experience.

The jobs are located in Federal agencies and installations throughout the United States. Most of the appointments will be made to fill jobs such as typist, stenographers, engineering and science aids, office machine operators, and clerks.

To apply for the exam Application Card Form 5000-AB should be mailed to Summer Employment Examination, U.S. Civil Service Commission, 1900 E Street NW, Washington, D.C. 20415.

Application Forms may be obtained from college placement offices, post offices, interagency board of examiners, and the U.S. Civil Service Commission.

FOR SALE: Apartment size refrigerator - $30, 2 complete cribs - $20 each. Council, 877-6697.

FOR SALE: 1964 Falcon, 6-cylinder. Conroy, 722-1891.

FOR SALE: Winchester target rifle Model 75 - $30. Rackley, 596-8026.

Langley Researcher

VOLUME 6, NUMBER 24 LANGLEY RESEARCH CENTER DECEMBER 1, 1967

TRAVELERS CHECKS - T. Melvin Butler, Assistant Director for Administration, is the first to take advantage of this newest of the varied services offered by the Langley Federal Credit Union. He makes his purchase from Wanda Wallace. Butler stated, "The travelers checks now available at the Credit Union are hard to beat for convenience, safety, and low cost. As a long-time member, I am pleased with the forward step they represent."

NASA CONTRACTORS SUPPORT LOCAL UNITED FUND CAMPAIGN

The NASA contractor representatives under the United Fund chairmanship of Edwin Russell, Ling-Temco-Vought, and the NASA service contractors, co-chaired by Marvin Forrest and Francis Hoban, have pledged a record total of $3,824 to the United Fund and deserve a special commendation.

The total of $3,824 is 128 percent of their goal of $3,000 and nearly $900 over last year's final result. Notable among the service contractors was the $1,062 contributed by employees of Ling-Temco-Vought and the $600 by Northrop employees.

Among the larger groups to achieve the coveted 100 percent participation were LTV, Northrop and the NASA Cafeteria employees. Generous contributions were also received from employees of Kalte Holt Company, Honeywell Inc., Hayes International, Westinghouse, Control Data, Lockheed, Garrett Corp., Kahoe Service, Computing and Software Inc., North American Rockwell, Consolidated Electrodynamics, Comcor Inc., and Hughes Aircraft.

Of particular note was the $450 corporate gift from The Boeing Company. Substantial company gifts were also received from LTV, Raytheon, McDonnell Douglas, B. D. Ashe Co., Lockwood Brothers, Klate Holt, Computing and Software, Kahoe Service, Martin Marietta, Hayes International and General Dynamics.

The contractors by their generous pledges and gifts which totalled the remarkable 128 percent of their goal earned the United Fund "Angel" award.

NASA SELECTS CREW MEMBERS FOR TWO APOLLO TEST FLIGHTS

NASA has named six astronauts to flight crews for the second and third manned missions in the Apollo lunar landing program.

James A. McDivitt was named commander of a crew which will fly late in 1968 in the first manned test of the Saturn V superrocket.

His flight will be the first space rehearsal involving all the equipment to be used on the flight which will carry Americans to the surface of the moon.

David R. Scott will join McDivitt as second in command in the Apollo command module and Russell L. Schweickart will be pilot of the lunar module, the moon-landing craft.

Frank Borman heads the second crew and he will be joinby Michael Collins and William A. Anders.

Borman's crew is expected to fly early in 1969 in an Earth orbital simulation of the lunar landing mission.

The first manned Apollo flight is to take place sometime next summer aboard a powerful smaller version of the mighty Saturn V which made its spectacular space debut last month.

Walter M. Schirra, the dean of the astronaut corps, will command that flight joined by Walter Cunningham and Donn F. Eisele.

Two of the astronauts named to the crew of the second flight have previous space experience. McDivitt was commander of the Gemini IV flight in 1965, and Scott was second man aboard Gemini VIII in 1966. Schweickart, an astronaut since 1963, will be making his first space trip.

The crew for the third manned flight also contains two space veterans and a rookie. Borman was command pilot of the two-week Gemini VII mission in 1965 and Collins was a crewman on the 1966 Gemini X flight. Anders is the rookie.

McDivitt

Scott

Schweickart

Borman

Collins

Anders

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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 herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

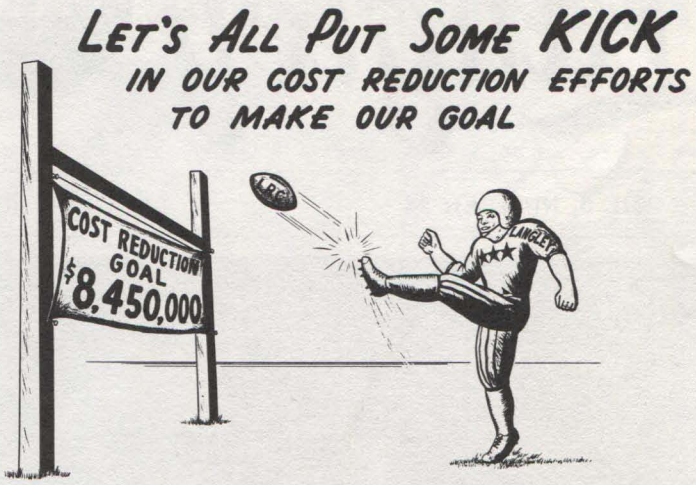
PROFESSOR TO VISIT. . .Dr. Fred De Jarnette, Virginia Polytechnic Institute, will visit the Center on December 8 to discuss radiation induced precursor flow fields ahead of reentering bodies with members of AMPD. He will also be available to discuss theses and graduate study programs with staff members. Persons wishing to consult with Dr. DeJarnett are requested to call Training Office, 2611.

IAM MEETING NOTICE. . .The NASA Lodge No. 892, International Association of Machinists, will hold its monthly meeting on Tuesday, December 5 at 7 p.m. at the Central Labor Union Hall, Newport News.

CHORAL SOCIETY. . .Several staff members will take part in the Peninsula Choral Society's annual fall concert which will be held tomorrow at 8:15 p.m. in Denbigh High School. Under the direction of George Bayley, the group will perform "A Ceremony of Carols" by Benjamin Britten and "Laud to the Nativity" by Respighi. Guest artists are Carmen Cleary, Mrs. W. Scott Downs, and Robin Roark. Admission is $1.50 for adults and 50¢ for students. Tickets may be purchased at the door or from Mary Catlett, Building 1236; Natalie Johnson, Building 1195-A, and Stan Pearson, Building 1230.

COIN CLUB. . .The Langley Coin Club will meet at 7:30 p.m., December 6 at the Activities Building. Hard time tokens, the raffling of an uncirculated Bridgeport commemorative half dollar, and an auction of 41 lots which will feature U.S. type coins and currency will highlight the meeting. Last month's raffle of an uncirculated Cleveland commemorative half dollar was won by Lois Taylor, Personnel Division. Duane McSmith discussed his recent visit to the Professional Numismatic Guild convention held in Chicago. New officers for 1968 will be elected at the December meeting and plans for the club's annual banquet to be held January 19 will be finalized.

FOR SALE: Comet class sailboat. Bavuso, 838-0606.
FOR SALE: 3-bedroom brick rancher, anchor fence, air conditioned. Hood, 595-4709.
FOR SALE: Car-top carrier and trailer hitch for 1500 or 1600 series Volkswagon. McCracken, 898-5253.
FOR SALE: 110 x 300 wooded lot in Edgehill, York County. Shackelford, 642-2057.
FOR SALE: Apartment size crib, ready to assemble. Schiess, 247-3097.



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 4:

Monday - Cream of potato soup, braised short ribs over noodles, grilled pork chops, Polish sausage, Spanish omelette. Snack bar - Soup, hot dog, hot pastrami on rye, French fries.

Tuesday - Cream of tomato soup, roast veal, chuckwagon steak, pork chop suey, chili con carne. Snack bar - Soup, chicken pattie on bun, veal steak sandwich, French fries.

Wednesday - Vegetable-beef soup, roast beef, stuffed shrimp, Salisbury steak, wieners and sauerkraut. Snack bar - Soup, hamburger, hot roast beef sandwich, French fries.

Thursday - Cream of mushroom soup, grilled steak, breaded scallops, beef stew, Austrian ravioli. Snack bar - Soup, ham and egg sandwich, steak sandwich, French fries.

Friday - Clam chowder, Spanish pot roast, broiled swordfish steak, baked meat loaf, fish cakes. Snack bar - Soup, fish sandwich, hot corned beef on rye, French fries.

The menu for the week of December 11 is as follows:

Monday - Puree of bean soup, Hungarian goulash, baked ham, fried fish sticks, grilled cheese sandwich. Snack bar-Soup, grilled cheese sandwich, baked ham sandwich, French fries.

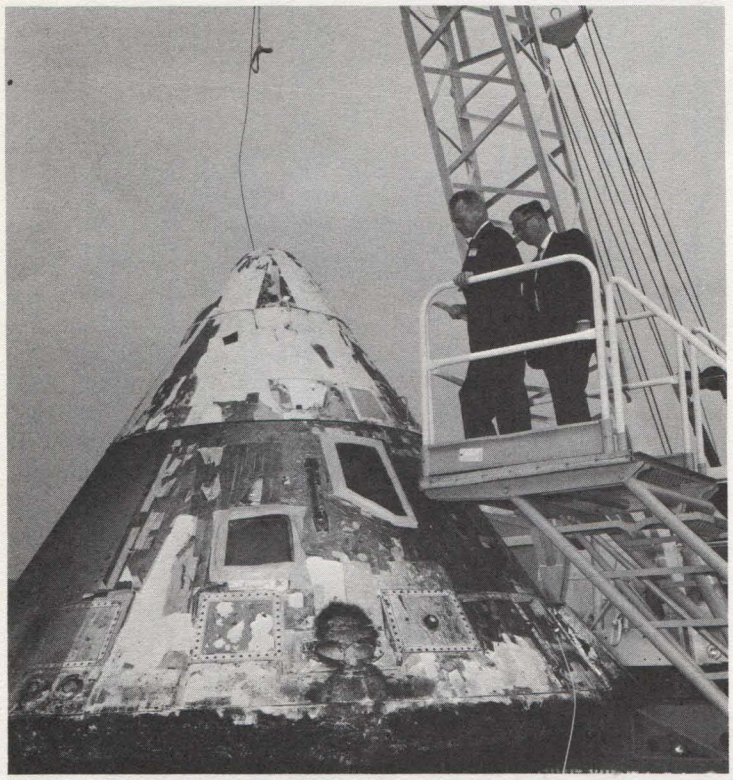
Tuesday - Split green pea soup, stuffed cabbage, barbecued pork chunks over rice, liver and onions, franks and beans. Snack bar - Soup, hot dog, hot pastrami on rye, French fries.

Wednesday - Chicken-rice soup, pepper steak, ham and noodle casserole, fried chicken, chili-mac. Snack bar - Soup, barbecued sandwich, steak sandwich, French fries.

Thursday - Vegetable-beef soup, roast ribs of beef, fried fish, spaghetti and meat sauce, western omelette. Snack bar - Soup, western omelette on bun, flying saucer, French fries.

Friday - Clam chowder, fried oysters, chicken pie, baked hash, broiled fish. Snack bar - Soup, sea dog, veal cutlet on roll, French fries.

WANTED: Passengers to or from Louisiana or enroute - leaving Dec. 22 or 23 and returning January 8 or 9. Creader, 3631.
FOR SALE: 1965 Volkswagon. Freire, 420-6757 Va. Beach.
FOR SALE: 15-foot high-speed inboard ski boat with 283-cubic-inch Chevrolet engine, tilt trailer. Burch, 826-6588.



Charles J. Donlan, Deputy Director, and Wilbur H. Gray, NASA Resident Manager, Apollo Spacecraft Program Office, (left photo) inspect the Apollo Command Module for Apollo 4 Mission upon its arrival at the Downey Plant of the North American Rockwell Corporation at Los Angeles, California. The close-up (right photo) shows Donlan with Don D. Davis Jr., AMPD, and Manned Spacecraft Center and North American Rockwell engineers examining the heat shield. William A. Brooks Jr., Structures Research Division, was also present. The Apollo Command Module was the first spacecraft to be launched by the Saturn V launch vehicle. The fact that the mission was completely successful, including and of special interest to Langley the performance of the heat shield in surviving reentry at a nominal velocity of 25,000 miles per hour, is gratifying to all who contributed to the Apollo program.

APPRENTICE HONOR ROLL

Fourteen apprentices completed the fall semester with an average of 96 or better. Members of the honor roll are as follows:

Roger K. Amick and John W. Raymond, Instrument Construction Shop; Robert B. Askew, 7 x 10-Foot Tunnel; Joseph P. Budik, Materials Processing and Development; James R. Clair, Pliant Model Development; Everette L. Davis, George L. Link, and Dallas Summerfield, Composite Model Development; George C. Firth, Research Projects and Models; Glenn A. Gates, Ground Support Systems; Alton C. Hall, Electronic Fabrication and Development; John F. Rogers, Fabrication Shop; Nelson L. Seabolt, Rendezvous Docking; and Michael E. Tall, Experimental Shop.

MYERS DIES AT AGE 50

Raymond C. Myers, Engineering Technician in Equipment Application Section, Electrical Systems Division, died Sunday at his home in Hampton.

Myers was born April 4, 1917 in Newport News. He attended Newport News High School and served in the U.S. Navy from September 19, 1936 to July 31, 1940 and from July 9, 1945 to June 9, 1946. He worked at the Newport News Shipbuilding and Dry Dock Company from 1941 to 1945 and joined the Center staff as an electrician on November 18, 1946.

He is survived by his wife, Mrs. Ruth P. Myers, a son, two daughters, his mother, four brothers, and three sisters.

STATUS OF WOMEN CITED

President Johnson recently issued an Executive Order prohibiting discrimination in Federal employment on the basis of sex. This order amends a September 1965 Executive Order that outlawed discrimination in Federal employment on the basis of race, creed, color, or national origin and is part of a program of renewed emphasis on the status of women in the Federal Government.

The new Executive Order strengthens the enforcement procedures against sex discrimination which were established by 1962 Civil Service Commission regulations and the 1964 Civil Rights Act.

The Civil Service Commission is now authorized to hear directly Federal employee complaints of discrimination based on sex. In addition, the existing hearing and investigation procedures of the Civil Service Commission, which cover discrimination complaints based on race, creed, color, or national origin, will now also govern complaints of discrimination because of sex.

FOR SALE: Rek-o-kut S-320 12-inch stereo pickup arm. Williams, 596-3395.

FOR SALE: 20-foot fiberglas Flying Dutchman, dacron sails, tilt trailer - $1300. Morris, 826-8905.

FOR RENT: 2 bedrooms for women - all house privileges. Goodwin, 595-4878.

FOR SALE: Kitchen table and 4 chairs - $25. Burtner, 838-3744.

WANTED: Driving combination from Gloucester Point to W.A. on 8 shift. Ingram, 4817.

AIAA GROUP MEETS DEC. 7

Frederick Varney

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will hold its dinner-meeting on December 7 at the Warwick Yacht and Country Club.

Frederick Varney, Consultant to the Office of High-Speed Ground Transportation, Department of Transportation, Wash., D.C., will be guest speaker. His talk will be concerned with the very real problem of the effects of the population explosion on existing transportation systems. This problem is already critical along the Atlantic seaboard where 20 percent of our 200 million people presently reside in an area that comprises less than two percent of the country's total area. He will present slides illustrating some of the advanced transportation schemes that have been proposed.

Prior to his association with the Department of Transportation, Varney was on the staff of the Director of Defense Research and Engineering, Office of the Secretary of Defense. From 1950 to 1954 he headed the operations analysis organization of the Air Defense Command, USAF, and during World War II he headed the research on countermeasures to torpedos and sonar in the Navy. He received his M.A. degree in Geology from the University of California in 1937.

The meeting will be preceded by a social hour at 6:30 p.m., followed by dinner at 7:30 and the business meeting at 8:30.

Reservations may be made by calling Brian O Hare, 877-3634; Bernard Spencer, 722-6478; or Conrad Willis, 838-0695.

Wives, guests, and non-members are invited to attend.

BOOKS FOR SALE

The following books are for sale at the NASA Exchange, Building 586, telephone 2209:

Contributions to the Theory of Nonlinear Oscillations by Cesart, LaSalle and Lefschet.

Quantum Theory of Molecules and Solids-Volume I by Slater.

Understanding Media: The Extensions of Man by Marshall McLuhan.

Vistas in Astronautics - Volumes 1 and 2, edited by Alperin and others.

Auditing Principles: Objective, Procedures and Working Papers by Stettler.

Fundamentals of Optics by Jenkins and White.

Reviews of Plasma Physics - Volume 3, edited by Leontovich.

WANTED: Driving combination from Maxwell Gardens to W.A. on 7:30 shift. Young, 3701 or 595-0078.

FOR SALE: 12-cubic-foot refrigerator. Weaver, 877-4255.

FOR SALE: 35 mm Kodak camera with electric eye - $35. Nelms, 877-8675.

"Yep-Here's One With Plenty of Interest!"

CHRISTMAS PARTY DECEMBER 10

The Activities Association's Annual Children's Christmas Party will be held on Sunday, December 10 at the Activities Building.

Two shows are scheduled with the first one starting at 1:30 p.m. and the second one planned for 3:15 p.m.

Featured on the program will be Ann Woodard and her Pussycat Puppet Theatre.

Santa will arrive in time for the party and will have his list with him.

Tickets are 25 cents each and must be purchased in advance from District Representatives. Adults must also have tickets in order to be admitted to the building.

NATIONAL DRIVERS TEST

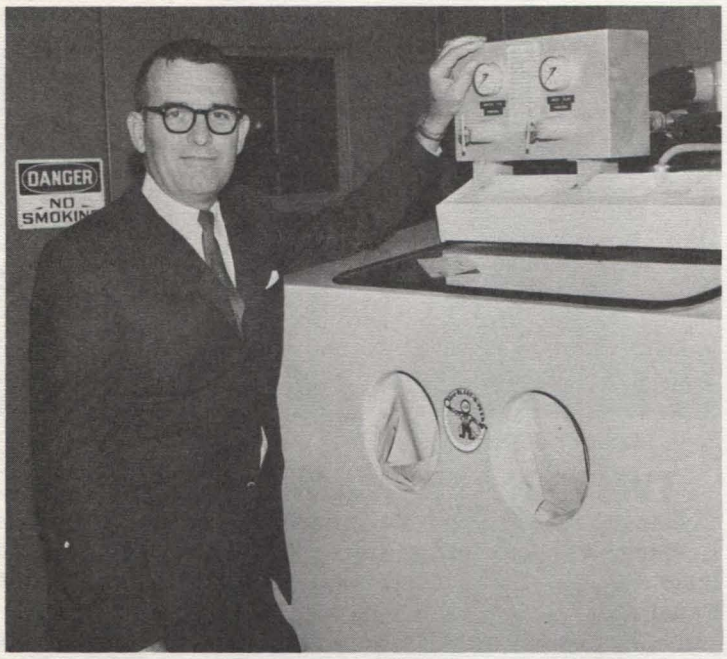
On December 5, just 20 days before Christmas, the driving public will have an opportunity to review the 1967 National Drivers Test.

The test will be televised in color over the CBS network at 10 p.m. Eastern Standard Time. Anchorman for the show is Walter Cronkite.

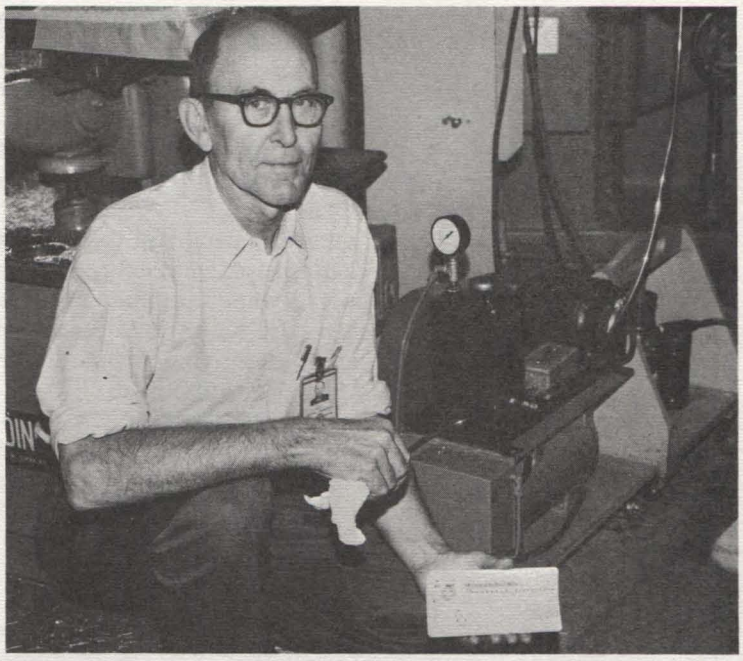
The three main objectives of the National Drivers Test are to persuade people to drive defensively, to enroll people in defensive driving courses, and to provide important data for future research projects.

The program, televised just 20 days before Christmas, is timely and should stimulate safe defensive driving techniques over this long holiday period. A large segment of the test is devoted to the special problems of winter driving.

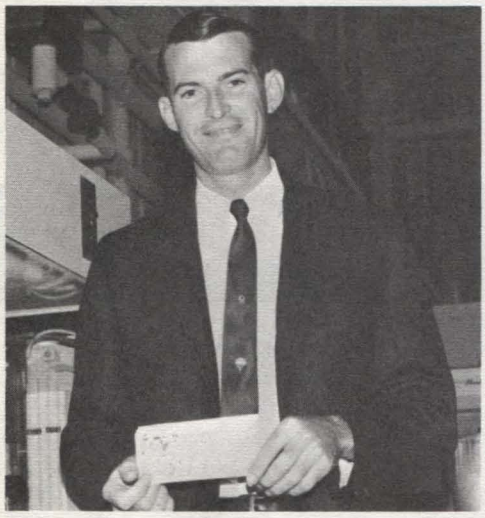
WANTED: Ride from Bristol area to Newport News on December 9. Shipp, 4483.



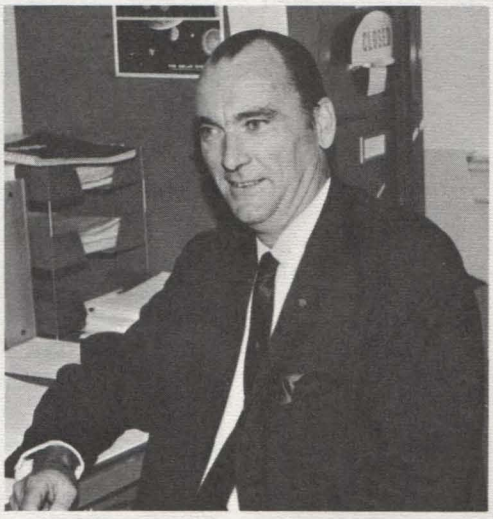
Charles E. Johnson



George M. Dudley



James S. Hicks



William F. Veatch

John W. Simpson

EMPLOYEES RECEIVE AWARDS

Several staff members recently received Suggestion Awards from the Incentive Awards Committee. The recipients and their suggestions are as follows:

Charles E. Johnson, Mechanical Services, received $35 for "the relocation of operating controls on the Zero Dry Honing Machine which will save operator time and concurrently improve the blasting quality of the machine."

George M. Dudley, Mechanical Services, $115 for "the development of a safety system and warning device for use on vacuum chuck systems."

James S. Hicks, Mechanical Services, $15 for "the development of a better and more accurate method for using log paper in plotting curves of data obtained from a Coulter Counter."

William F. Veatch, Applied Materials and Physics, $25 for "a new method of shrinking spaghetti on pyrotechnic plugs and leads which will reduce insulation burning, increase safety, and provide more efficient operations in working with electro-explosive devices."

John W. Simpson, Mechanical Services, $25 for "conveniently locating all operator controls on the Gorton mill which will simplify and automate the operating procedure."

Harold G. Robertson, formerly of Procurement, $25 for "the placement of a time zone map in the Langley telephone directory."

G. Gary Farnsworth, Mechanical Services, for "use of a standard outline form for improving communications between project engineers, supervisory shop personnel, and mechanics who are working on complicated tasks of test vehicle preparation." He received $15.

DeRonda M. Hudgins, formerly of Aero-Physics, for "the institution of a better method for improved maintenance of the Xerox machine in Langley's Unitary Plan Wind Tunnel." She received $20.

FOR SALE: Ludwig snare drum with case and stand - $45. Osborne, LY6-7866.

FOR SALE: 1966 encyclopedia with white leather cover, 32-B bilge pump, large canvass cockpit cover, Danforth anchor, oars, dual Costeau aqualung regulator, 24-inch steering light, sisal patio rugs, wrought iron desk, record cabinet. Mrs. Gilman, PA2-5847.

ORBITER INCENTIVE AWARD

An incentive fee of $1,811,611 has been awarded The Boeing Company, Seattle, for the fourth and fifth Lunar Orbiter missions by NASA.

The award completes the performance fee portions of the Boeing contract and makes a total of $6,809,053 in such awards for all five Lunar Orbiters.

Initial goal of the Lunar Orbiter program to support NASA's Apollo project by photographing potential sites for landing men on the moon was accomplished with the first three Lunar Orbiter missions. NASA then modified its contract with Boeing to send the fourth and fifth lunar satellites on more advanced scientific missions.

These missions required changes on the spacecraft within the planned launch schedule; therefore, NASA modified the contract to allow Boeing to earn, through outstanding performance, the remaining award fees not earned on previous flights. This was in addition to the original incentive fees established for flights IV and V.

In making the award, the board noted that:

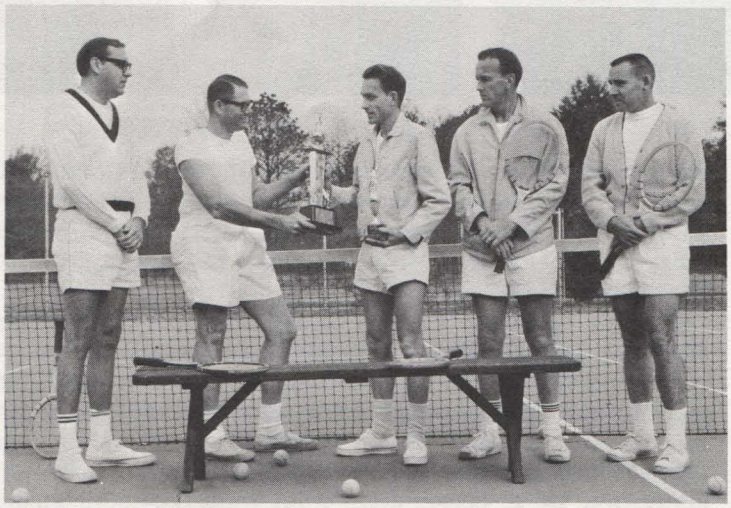
-Lunar Orbiter IV photographed the entire front of the moon and Orbiter V completed photography of the opposite side.

The objectives of these flights were met on the planned launch schedule.

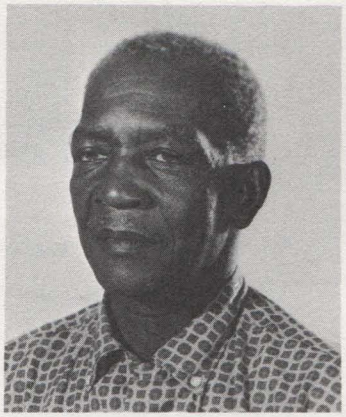
Incentive awards previously earned by Boeing on Orbiters I, II and III were $1,995,312; $1,948,725; and $1,053,405, respectively. The $1,811,611 award for Lunar Orbiters IV and V breaks down into $1,061,111 for Orbiter IV and $750,500 for Orbiter V.

Members of the Lunar Orbiter Incentive Award Board are Dr. Bernhardt L. Dorman, Assistant Administrator for Industry Affairs; Dr. Homer E. Newell, Associate Administrator; and Dr. Floyd L. Thompson, Director of Langley Research Center.

Langley managed the Lunar Orbiter project for the Office of Space Science and Applications, NASA Headquarters.



Arnold Mueller (second from left), president of the NASA Tennis Club, presents the Activities Association's tennis trophy to Richard Pincus, Research Models and Facilities, who won the recent singles tennis championship at the Center. Shown in the group are (from left): Bob Bolton, tournament director; Bob Murray, assistant tournament director; and Jim Mueller, ladder chairman. Staff members are reminded that ladder competition is still active and persons interested in joining the tennis club ladder may contact Jim Mueller, Mail Stop 130.



Isaac Robisson

George L. Burnette

TWO STAFF MEMBERS RETIRE

Isaac Robisson, Plant Maintenance Division, and George L. Burnette, Electrical Systems Division, have retired from the Center with a combined total of over 48 years of Federal service.

Robisson was born October 10, 1907 in York County. He worked for the Virginia State Highway Commission from 1937 to 1942 and joined the Center staff on September 29, 1942.

Burnette was born November 5, 1897 in Bedford. He attended Belspring High School in Belspring and served in the U.S. Air Force before joining NASA on February 4, 1944. He resigned in 1946 to go into business for himself and returned to the Center in 1947.

COUNTDOWN

EMBLEM CONTEST. . .Staff members are reminded that the Activities Association is sponsoring an emblem contest. The contest is open only to employees or members of their families and the prize will be a $25 U.S. Savings Bond. Entries must be sent to Arnold Mueller, Mail Stop 239, by March 1. Contest rules were published in the last issue of Langley Researcher (November 17).

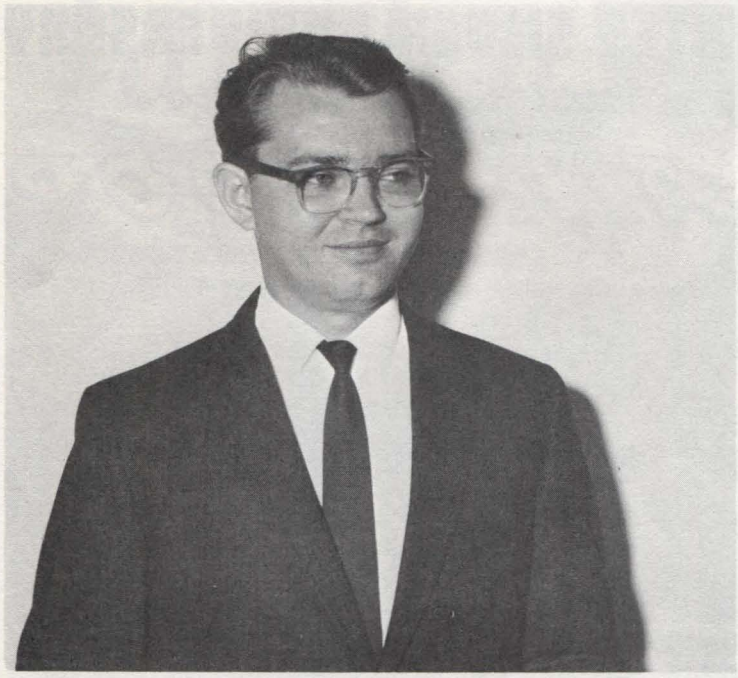
BASKETBALL. . .Nine teams have entered the NASA Basketball League and one more team is needed. Persons interested in playing are requested to contact Charles Clarke, 2631.

NEW YEAR'S DANCE. . .The New Year's Eve dance will be held on December 31 from 9 p.m. until 1 a.m. at the Activities Building. Music will be furnished by Charley Johnson and his band. Tickets will go on sale at the Activities Building on December 4 and the price will include set-ups and favors. Reservations may be made by contacting Bruce Amole, 4583.

SQUARE DANCING. . .Additional members are needed to form a square dance group at the Center. Persons interested in joining the group are requested to contact Joe Siefring, 3483.

AERO CLUB. . .Members of the NASA Flying Club will meet with the Tidewater Flying Club at Patrick Henry Airport on December 5. The purpose of the meeting will be to consolidate both clubs under the name of the Tidewater Flying Club. Interested persons are invited to attend. For further information call Dave Gregory, 4651.

WANTED: Driving combination from Wythe to W.A. on 7:30 shift. Regone, 3681.



Five staff members recently received cash awards from the NASA Incentive Awards Committee for applications that might result in the granting of a patent. Top left photo - Nelson J. Groom, Applied Materials and Physics, received $50 for his suggestion entitled "Pulse Duration Multiplier." Top right photo - Dr. John P. Raney, Dynamic Loads, was award $200 for "Buoyant Anti-Slosh System." He shared the award with David A. Evensen, formerly of Dynamic Loads. Lower left photo - A joint award of $100 was presented to Dan C. Popma (left) and Vernon G. Collins, both of Flight Instrumentation. Lower right photo - Reginald J. Exton, IRD, received $900 for "Contour Densitometer."

PROTECTIVE EQUIPMENT

EYE PROTECTION: Eye protection must be worn at all times on jobs or in areas that present the slightest danger to your eyes. It is up to the supervisor and the safety man to determine the proper eye protection for the specific hazard. It is up to you to take advantage of that protection-and even to insist upon it.

If your eye-protection gear is bent or damaged, check with your supervisor. He will arrange to have it adjusted or will provide you with fresh equipment.

FACE SHIELDS: Face shields protect you from moderate dangers. They afford more ventilation than other types of eyewear. They are frequently used with safety spectacles or goggles for greater all-around protection.

RESPIRATORS: Respirators are of many types. You will be given the right one for your job. Do not exchange it for someone else's respirator. Not only is this not sanitary, but the other respirator may be for a different use and not really do you much good.

GAS MASKS: Gas masks are for emergencies. Be sure you know where they are kept, when you should use one, and how to use it. Do not use one without instruction.

GLOVES: Gloves are needed for some work, such as hot work or handling sheetmetal, castings, or chemicals. Check with your supervisor to make sure you have the proper hand protection.

SAFETY HATS: If your job requires a safety hat, wear one. Make sure it is in good condition - both the shell and the suspension inside. If your hat is damaged, or even if it is uncomfortable, see your supervisor.

FOR SALE: Apartment size white refrigerator - $40. Ingram, 642-2563 Gloucester Point.

FOR SALE: 1964 Ford Fairlane 500, V-8. Clary, 826-5329.

WANTED: 20-inch tricycle. Crumbly, 851-2002.

WANTED: Ride from Big Bethel Rd. to E.A. on 8 shift - after Dec. 15. Hemeter, 2235 or 826-1455.

LANGLEY RESEARCHER CELEBRATES SILVER ANNIVERSARY

This year has been a big year at Langley for anniversary celebrations. The Langley Research Center is observing its "50 years of service to the nation" and with this issue Langley Researcher and its predecessors, LMAL Bulletin and Air Scoop, celebrate their 25th anniversary. This issue marks the 1133rd published since the inception of the LMAL Bulletin on November 30, 1942. (LMAL were the initials for Langley Memorial Aeronautical Laboratory which was the name of the Center at that time).

Since 1942 the paper has had four editors. It was first published under the editorship of Joe Doyle and was taken over by H. Lee Dickinson, Head of Office of Public Affairs, on June 5, 1943. In April 1944, Lee received his 'Greetings" and became a member of Uncle Sam's Navy. Tiny Hutton became the new editor. The present staff has been responsible for the publication since August 1946.

The LMAL Bulletin was first published every 10 to 14 days. On June 28, 1943, the publication started on a weekly basis with Saturday designated as the day for distribution. On November 5, 1943, the paper came out with a new masthead designed by Fred Rector, Photographic Division.

Since June 28, 1943, the Center paper has never missed an issue. This record is due largely to the cooperation of the Photographic Division which is responsible for the printing of the publication and to the interest of employees.

On December 1, 1944, the paper had a new face-lifting and the name was changed to Air Scoop. Designer of the new masthead was Dot Severance.

In 1945 the Scoop was mimeographed due to a shortage of lithographers and the pressure of work in the Reproduction Section. It was not until March 29, 1946, that the paper was again printed by offset.

On October 13, 1947, the Scoop came out with another new masthead. The new banner was drawn by Dalton Morris, Research Models and Facilities, and showed an airplane skywriting the words "Air Scoop."

Research continued at the Center with its many advances in aeronautics and before long the airplane on the masthead was out of date. In order to keep up with the changing times, Dave Willment, Technical Illustrators, designed a new heading with a wind tunnel and several aircraft in the background. This was first used on January 5, 1952.

When the National Aeronautics and Space Act was signed by President Eisenhower in 1958 it was felt that the masthead in use then was out of date. To keep up with advances in the space age, Wesley Berryman, Technical Illustrators, designed a new heading showing the Milky Way in the background.

In 1962 it was decided to change the name of the paper and to publish it on a biweekly basis. The first issue of Langley Researcher was published on September 28, 1962. Berryman also designed this masthead.

FOR SALE: 1961 Plymouth Belvedere and utility trailer. Walker, 826-3352.

FOR RENT: 1-1/2 story Colonial brick home with 3 bedrooms, 2 baths at 217 Pine Grove Rd., Newport News - $135 per month. Verser, 868-4731.

FOR SALE: 1953 Ford Victoria hard-top, V-8. Thornton, 596-4117.

FOR SALE: Chinese red rattan bar with black top, 2 swivel stools. Chaney, 851-2636.

FOR SALE: Relaxacizer - $50. Sharpes, 596-3227.

The Langley Researcher

At this holiday season, as we are initiating our second 50 years of service and look with confidence to the next half century— I want to express appreciation to the staff of the Langley Research Center for the cooperation and support so graciously given during our Anniversary year.

Through your efforts in helping to maintain this Nation's pre-eminence in aeronautics and space and in supporting worthwhile community endeavors, you are an important part of the tradition of accomplishment which has characterized Langley's activities over the years.

One of the many highlights of 1967 was the 50th Anniversary Celebration and Inspection, a successful effort to inform the public of our past achievements and to reveal some of our plans for the future. It was an extremely valuable self assessment and emphasized the importance of an effective program of advanced research and technology.

In pausing to reflect on the milestones since our establishment in 1917, and as we rededicate ourselves to the task of successfully meeting the challenges ahead, I take this opportunity to extend to members of the Langley staff and their families this sincere wish:

Merry Christmas and a Happy New Year.

Floyd L. Thompson

NEW YEAR'S DANCE DEC. 31

The Activities Association will close its 1967 social season with the annual New Year's Dance on December 31 at the Activities Building.

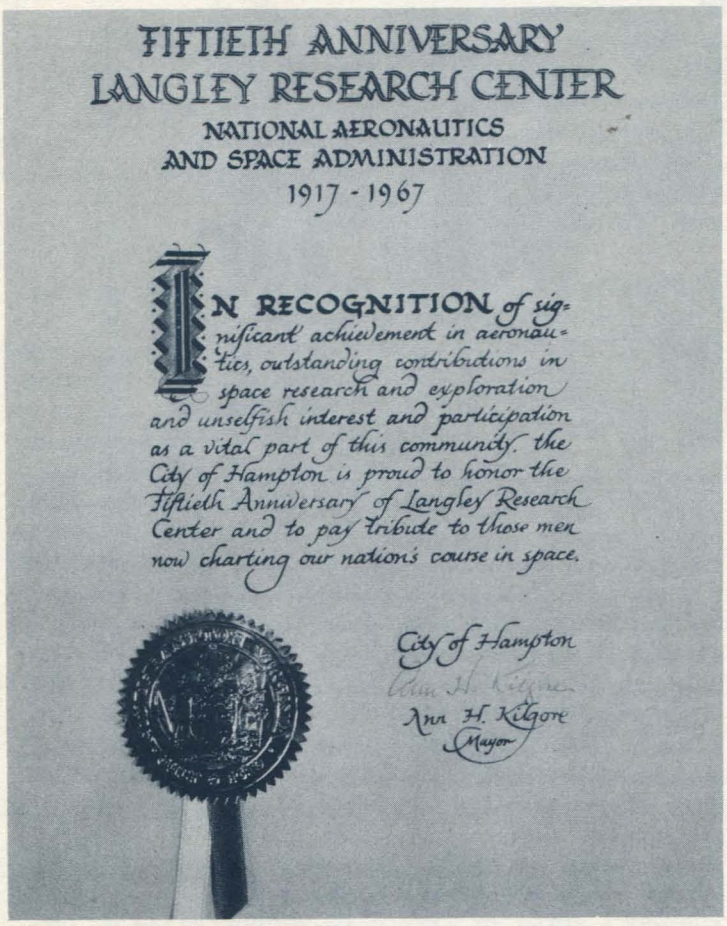
The affair will be semi-formal which means the ladies may wear long or short dresses and their escorts may wear business suits, tuxedoes, or tails.

Music will be furnished by Charley Johnson and his band.

The celebration will start at 9 p.m. and continue until the New Year is an hour old. At the stroke of midnight Father Time will make his exit and the New Year, accompanied by his helper Leap Year, will make his debut and take over the responsibilities for the next 12 months.

Only a limited number of tickets are available to the dance and they may be purchased at the Activities Building. Tickets are eight dollars a couple and the price includes free favors and setups. Table reservations may be made by calling Bruce Amole, 4583.

For the safety and protection of persons attending the dance, fireworks will not be permitted in the building.


FIFTIETH ANNIVERSARY
LANGLEY RESEARCH CENTER
NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION
1917 - 1967

IN RECOGNITION of significant achievement in aeronautics, outstanding contributions in space research and exploration and unselfish interest and participation as a vital part of this community, the City of Hampton is proud to honor the Fiftieth Anniversary of Langley Research Center and to pay tribute to those men now charting our nation's course in space.

City of Hampton
Ann H. Kilgore
Mayor

A framed citation in recognition of the Golden Anniversary of the Langley Research Center has been presented to the Center by the City of Hampton. The presentation was made to Dr. Floyd L. Thompson, Director, by Mrs. Ann H. Kilgore, Hampton Mayor, at a civic dinner sponsored by the City of Hampton on December 4 at the Hotel Chamberlin. The dinner was in honor of the Golden Anniversary of both the Langley Research Center and Langley Air Force Base, which were established at Hampton in 1917. The dinner was attended by officials of the City of Hampton and the two organizations being honored, and by other Peninsula community leaders.

Dr. Robert C. Seamans Jr., NASA Deputy Administrator who leaves NASA on January 1 to return to private life, visited the Center on November 29. Upon his arival (top photo) Dr. Seamans was greeted by Charles J. Donlan, Deputy Director. Making the trip to Langley with Dr. Seamans (lower photo) were Frank J. Sullivan (center), Director of Electronics and Control Division, Office of Advanced Research and Technology, and Dr. Barnhardt L. Dorman, Assistant Administrator, Office of Industry Affairs. The group visited a number of Langley research facilities.

WANTED: Lady age 20-25 to share Southampton apartment. Kim Hafley, 4717.

FOR SALE: 2 sofas, 3 chairs, 2 coffee tables, 2 end tables, marble top table, mahogany bedroom suite, Hollywood bed frame and headboard, maple desk, maple youth bed and mattress, drapery rod, 6 kitchenette chairs, pictures. Evans, 229-7445.

FOR SALE: 1963 Renault Dauphine. Champine, 851-3469.

FOR SALE: Wurlitzer spinet electric organ. Johnson, 723-2665.

FOR SALE: 1964 Rambler Classic, 4-door, air conditioned; also oil space heater with outside oil storage tank. Harris, 898-7086.

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

THE COVER. . .Our thanks to Nettie J. Chandler, Technical Illustrating Section, Research Reports Division, for designing and drawing the cover showing the Earth in the background and the words "Peace on Earth" in the foreground. Nettie has been a member of the Technical Illustrating staff since September 18, 1956.

NEW HEIR. . .Word has been received at the Center that Thomas L. Pressley, formerly of Flight Vehicles and Systems Division, recently became the father of an eight-pound son, Bradford. Tom is with the Department of Interior and is teaching the Navajos in New Mexico.

CALENDAR NOTICE. . .Officials of the Stock Section announced that requests for 1968 desk and wall calendars should be submitted by Monday, December 18. 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.

CORRECTION. . .The name of Homer F. Rush Jr., Research Facilities Service Section D, was inadvertently omitted on the Apprentice School honor roll for the fall semester.

NEWLYWEDS. . .Carol A. Majette, Structures Research Division, took her final vows on December 8 with Walter Gaylord Lockett, Hampton.

TOUCH FOOTBALL. . .Boozers won the NASA Touch Football League Championship by defeating Misfits 25-19 in a playoff game. ACD finished in third place followed by KNADS, Bombers, and Packers.

BASKETBALL. . .Persons interested in playing basketball this season are requested to contact Charles Clarke, 2631. Opening date for the season is January 10. Ten teams have entered the league.

FOR SALE: Lady's brown mouton coat, size 10. Dancy, 838-2666.

FOR SALE: Wardrobe for Bobby and Ken dolls - also doll house and car. Susan Comer, 877-1669 after 4 p.m.

FOR SALE: Revere 8mm movie camera and projector, B63 camera magazine load with 3 lenses and carrying case - $45; projector model 85 with case - $39. Samos, 244-7508.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 18:

Monday - French onion soup, beef stroganoff, roast pork, stuffed flounder, Spanish omelette. Snack bar - Soup, cheeseburger, hot roast pork sandwich, French fries.

Tuesday - Tomato-barley soup, roast beef, broiled ham, chicken pattie, grilled spiced luncheon meat. Snack bar - Soup, ham and egg sandwich, hot roast beef sandwich, French fries.

Wednesday - Minestrone soup, breaded veal steak, stuffed shrimp, Polish sausage, cheese omelette. Snack bar - Soup, hamburger, veal steak sandwich, French fries.

Thursday - Vegetable-beef soup, grilled rib eye steak, chicken shortcake, baked meat loaf, fish cakes. Snack bar-Soup, barbecued sandwich, steak sandwich, French fries.

Friday - Clam chowder, chopped steak, smoked pork sausage, broiled fish, deviled crab, macaroni and wieners. Snack bar - Soup, hot dog, deviled crab, flying saucer, French fries.

The menu for the week of December 25 is as follows:

Monday - C H R I S T M A S D A Y

Tuesday - Puree of bean soup, simmered corned beef, crab cakes, chicken-fried beef steakette, Austrian ravioli. Snack bar - Soup, hamburger, hot corned beef on rye, French fries.

Wednesday - Chicken-rice soup, pot roast of beef, liver and onions, fried chicken, chili con carne. Snack bar - Soup, hot dog, roast beef sandwich, French fries.

Thursday - Vegetable-beef soup, grilled steak, baked ham, chicken chop suey, Irish omelette. Snack bar - Soup, ham and egg sandwich, steak sandwich, French fries.

Friday - Clam chowder, braised beef tips, grilled pork chops, fried fish, franks and beans, Snack bar - Soup, minced barbecued beef sandwich, veal steak sandwich.

UNDERGRADUATE COURSES

Five undergraduate courses, sponsored by the College of William and Mary, are being offered for the spring semester. Classes will start February 5.

Courses offered are as follows:

Math 201 - Calculus with Analytic Geometry - 45 hours. Inequalities, absolute values and analytic through conics will be discussed. Sets, ordered pairs and functions leading to limits and derivatives of algebraic and transcendental functions including application to maxima, minima, plane motion and Law of the Mean Value will also be covered. The class will be taught by William Turner and the group will meet in Building 1149, Room 201, on Tuesday afternoons from 4:30 to 7:30.

Math 202 - Calculus with Analytic Geometry - 45 hours. The course will cover 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. Technique of integration, parametric equations, polar coordinates and vectors will also be included. Wayne Carter will teach this course in Building 586, Room 111, on Wednesday afternoons from 4:30 to 7:30.

Math 203 - Calculus with Analytic Geometry - 45 hours. The course will consist of sequences and series including Taylor's and Macluarin s series and convergence. Solid analytic geometry and partial differentiation with applications will also be included. Dr. Sidney H. Lawrence will teach this course on Wednesdays in Building 586, Room 110, from 4:30 to 7:30.

Math 410 - Vector Analysis - 45 hours. This course will cover topics from the algebra and calculus of vectors including addition and products of vectors, derivatives of vector functions, divergence and curl, integrals of vector functions. John G. Shearin will be instructor and the class will meet on Wednesdays in Building 1149, Room 201, from 4:30 to 7:30.

Basic Mathematics for College (Analytic Geometry) - 45 hours (non-credit). This will be a continuation of the fall semester course. The content will consist of straight lines, probabilities, determinants, surface and space curves. Instructor will be Lenwood G. Clark. The class will meet on Mondays in Building 1149, Room 201, from 3:30 to 6:30.

Application forms may be obtained from the Training Office, telephone 2611. The forms must be returned to the Training Office on or before January 5.

WANTED: Ride from Poquoson to W.A. on 8:30 to 5 shift. Smith, 4645.

WANTED: Driving combination from Beechwood to W.A. on 7:30 shift. Lightner, 3521.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Johnston, 4861.

FOR SALE: 20-inch bike for two - $20. Rumble, 722-6857.

FOR SALE: Lionel 027 steam locomotive and train set with table and many accessories. Wiley, 596-4427.

FREE: Kittens for Christmas - will keep until Christmas eve if desired. Joplin, 723-1897.

FOR SALE: Green brocade Regency custom made sofa with mahogany frame and floral slip cover, 4 wood and chartreuse leatherette dinette chairs, mahogany step table, rose mohair club chair with two 74-inch rose velvet cornices to match. Lichtenstein, 596-8484.

Samuel H. Melfi

Charles M. Southall

John P. Gapcynski

EMPLOYEES RECEIVE AWARDS

Samuel H. Melfi, Instrument Research; Charles M. Southall, Electrical Systems; and John P. Gapcynski, Structures Research, have received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Melfi received his award for "high quality work and superior performance on the development of gas parameter measurement techniques." He is a native of Charleston, South Carolina, and received his B.S. degree in Electrical Engineering from The Citadel and his M.S. degree in Physics from the College of William and Mary.

Southall was cited for "his sustained superior performance in coordinating the functions of the analog computers and associated equipment which control the research vehicle of the Lunar Landing Research Facility." He is a native of Hampton and graduated from the NASA Apprentice School in 1965 as an electrician.

Gapcynski received his award for "superior technical and administrative performance in formulation and development of procedures for analysis of tracking data, and for application of these procedures to data from Lunar Orbiter for determination of lunar gravitational field properties in support of Lunar Orbiter missions and for scientific purposes." He was born in Schenectady, New York, and received his B.S. and M.S. degrees in Aeronautical Engineering from Rensselaer Polytechnic Institute.

ANNUAL LEAVE NOTICE

As the 1967 leave year comes to a close, staff members are reminded that they have until January 13, 1968, to use the annual leave they earned this year.

For those who started this year with more than 30 days of accumulated annual leave, all the annual leave they earned during 1967 must be used by January 13 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.

FOR SALE: 36-inch electric stove, 54-inch cabinet sink - both for $35. Ahl, PA3-2074.

WRIGHT BROTHERS DAY DEC. 17

President Johnson has declared December 17, 1967, as Wright Brothers Day. In his proclamation President Johnson stated:

"December 17 will mark the 64th anniversary of powered flight.

"It is difficult to believe that two pioneering brothers, Orville and Wilbur Wright, made the first successful flight in a heavier-than-air, mechanically propelled airplane just a little over threescore years ago. Few developments in technology have been so rapid as that of flight-- from the frail craft at Kitty Hawk to the great jet planes and space capsules of today.

"The Wright brothers' epic flight-- in a plane they designed, built, and flew themselves-- lasted less than a minute. But their inventive genius revolutionized transportation, and gave rise to great new industries that have strengthened America's defense and economy.

"The names of Orville and Wilbur Wright symbolize American ingenuity and courage, and it is right that we should commemorate their achievements. To this end, the Congress by a joint resolution approved December 17, 1963 (77 Stat. 402), has designated the seventeenth day of December of each year as Wright Brothers Day and has requested the President to issue annually a proclamation inviting the people of the United States to observe that day with appropriate ceremonies and activities.

"Now, therefore, I, Lyndon B. Johnson, President of the United States of America, do hereby call upon the people of this Nation, and their local and national government officials, to observe Wright Brothers Day, December 17, 1967, with appropriate ceremonies and activities, both to recall the accomplishments of the Wright brothers and to provide a stimulus to aviation in this country and throughout the world."

MAKE THIS HOLIDAY A SAFE ONE

December should be the happiest and most joyous month of the year-- but for 9,950 families last year, it was a time of tears and tragedy, and for another 175,000, it was a period of pain and injury.

The Christmas holiday was never envisioned as a time that would be marked by death and injury, disability and hardship. But the rising number of traffic accidents every year has made it so.

Take patience along with you on your Christmas holiday driving trip. It's a valuable aid to safe driving, and one that's often forgotten, with tragic results.

Have the patience to keep a safe interval between you and the car ahead...the patience to extend the right-of-way... the patience to stay in pace with the traffic flow...the patience not to challenge or be challenged by less careful drivers...the patience to make this holiday an enjoyable and safe one for you and for your family.

FOR SALE: 1960 Plymouth Fury, 2-door, air conditioning - $550 or best offer. Messick, 851-3170.

FOR SALE: Thomas Beale maple drop leaf end table - $30, gold Early American wash stand - $20. Hodge, 595-1693.

FOR SALE: 1958 Vauxhall for parts. Emond, 826-0024.

FOR SALE: 1956 Ford, 4-door - $175. Pearce, 723-6804.

FOR SALE: 1958 Chevrolet, 4-door. Spencer, 723-5117 or 851-3705.

William J. O'Sullivan Jr., Staff Scientist in the Applied Materials and Physics Division, was recently honored by being selected by the alumni of St. Xavier High School in Louisville, Kentucky, to receive the first annual Outstanding Alumnus Award. The award, presented to O'Sullivan at a dinner at the school on December 2, consisted of a plaque and two silver loving cups. During O'Sullivan's visit to his native Louisville, he was presented the key to the city in the form of a lapel pin and a scroll which cited his accomplishments. The scroll presented "on behalf of its illustrious citizens" confers on O'Sullivan, "who, through distinguished deeds has exhibited the qualifications necessary, the commission of a Louisville Ambassador of Good Will, and the responsibility of furthering the fame of Louisville's business progress, civic accomplishments, cultural and intellectual achievement, and gracious living, wherever he may be." The citation was signed by Mayor Kenneth A. Schmied. O'Sullivan, well known for his role in the development of Echo I and for other research activities, graduated from St. Xavier High School in 1933 and from the University of Notre Dame in 1937. He joined the Langley staff in 1938.

PUBLICATIONS AVAILABLE

The following new publications are available at the Technology Utilization Office, Room 227, Building 1219, telephone 3281.

TECHNOLOGY UTILIZATION SURVEY

Thermal Insulation Systems, NASA SP-5027 148 pages.

Structural Design Concepts, NASA SP-5039 174 pages.

COMPILATIONS

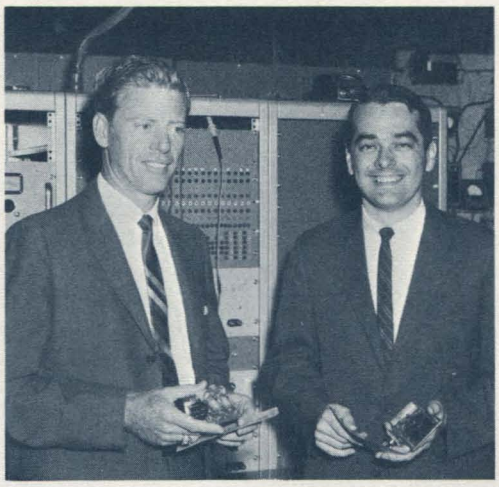
Selected Shop Techniques C-67-02.

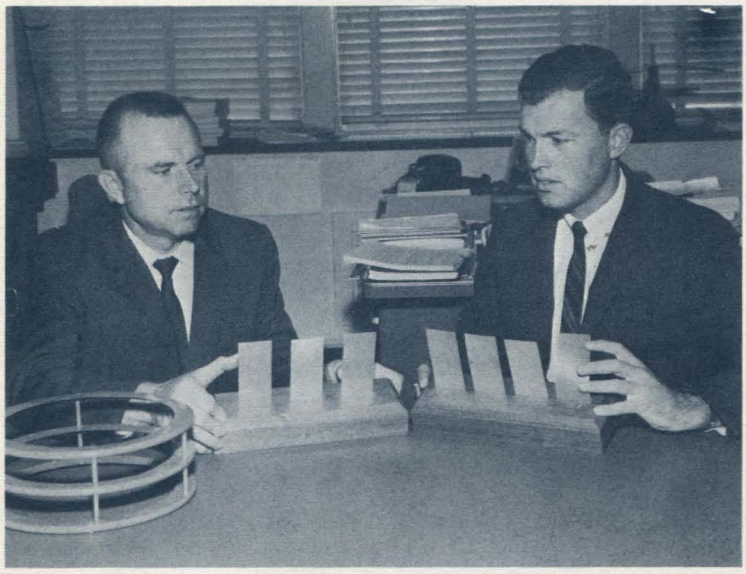
Piping and Tubing Technology C-67-03.

TECH BRIEFS

Materials Data Handbook, Inconel Alloy 718, Syracuse University Research Institute under contract to Marshall, B67-10282.

Materials Data Handbook, Aluminum Alloy 7075, Syracuse University Research Institute under contract to Marshall, B67-10301.





Seven staff members recently received cash awards from the NASA Incentive Awards Committee for applications that might result in the granting of a patent. Top left photo- Wilford E. Sivertson Jr., Flight Instrumentation, received $400 for "Adaptive Compression of Communication Signals." Top center - Eugene L. Kelsey (left) and H. Milton Holt, both of Electrical Systems, shared a $200 award for "Silicon Controlled Rectifier Blocking Pulse Gate Amplifier." Top right - John F. Newcomb, Applied Materials and Physics, was presented $100 for "Null Device for Hand Controller." Lower left - Dr. George W. Brooks (left) and David G. Stephens, both of Dynamic Loads, shared a $200 award for "Flexible Ring Slosh Damping Baffle." Lower right photo - Charles J. Donlan (left), Deputy Director, presents a check for $300 to Gordon Mercer, Research Staff Office, for "Automatic Balancer."

LANGLEY HOST TO CHIEF COUNSEL

The General Counsel and the Chief Counsel of the NASA visited Langley Research Center on Tuesday and Wednesday for a semiannual conference on legal matters of interest to NASA.

Thirty-five attorneys from nine NASA installations, including the General Counsel, Paul G. Dembling, NASA Headquarters, participated in the two-day conference.

Legal problems as they concern the conduct of aeronautical and space research, procurement, and Federal administration were subjects of lectures and round-table discussions during sessions held in the 7 by 10-Foot Wind Tunnels Building.

George T. Malley, Chief Counsel of Langley Research Center, was chairman of the conference planning committee and served as host to the visiting lawyers.

The conference opened Tuesday with a welcome address by Charles J. Donlan, Deputy Director, followed by introductory remarks by Dembling.

Other talks were given Tuesday by Neil Hosenball, NASA Deputy General Counsel, and R. S. Schwartz, attorney both of NASA Headquarters; E. J. Spielman, Chief Counsel of the Western Support Office; Edwin Ling, Acting Chief Counsel of Marshall Space Flight Center; J. H. Glazer Chief Counsel of Ames Research Center; and Malley.

Lectures were given Wednesday by Edward Earl, staff lawyer of Kennedy Space Center; William A. Brahms Chief Counsel, Lewis Research Center; Muriel M. Jarrett, Aerospace Technologist at Langley; and Malley.

WANTED: Driving combination from Hilton - Brando Heights area to W.A. on 8 shift. Buchanan, 4560.

WANTED: Portable stereo record player, Buchanan, 596 0643.

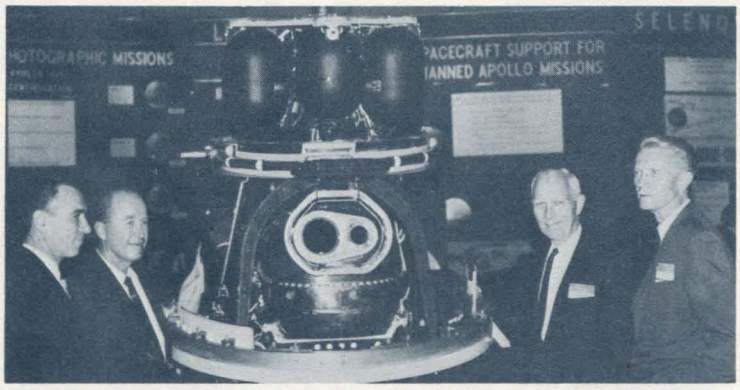
WANTED: Passengers from Florida to Hampton Dec. 30 or 31 - also ride to Norfolk Airport Dec. 22 between 11:3 a.m. and 1 p.m. Karen Rackley, 3741.

FOR SALE: American Flyer train set. Cox, 838-5449

LIFE AT LANGLEY RESEARCH CENTER DURING 1967

As we approach the end of another year which saw many outstanding advancements and accomplishments in the aerospace field, we pause to glance back over the headlines which will be recorded as NASA history for 1967.

January - Powered Flights of Lifting Bodies Planned. . . Annual Credit Union Meeting Held. . .Fourteen Staff Members Retire. . .Time Proven Aids Ease Fog Landings. . . Astronauts to Study Geophysics. . .Rocket-Motor Review Board Receives Award. . .Three-Man Apollo Crew Dies During Spacecraft Fire.



February - Lunar Orbiter III Successfully Launch. . . Humphrey Congratulates NASA on Gemini Success. . . Langley Negotiates Contracts for Research to Reduce Jet Noise.

March - Dr. Thompson Receives Civil Service League Award. . ."Automobile Tire Hydroplaning" Film Result of Langley Research. . .Rocket-Propelled Simulated Meteor Reenters Atmosphere at 38,000 MPH. . .W. L. Williams Heads Joint Campaign. . .NASA Staff ChangesAnnounced.

April - Four Scientists Receive Awards for Hydroplaning Research. . .Kitty Joyner Heads Savings Bond Campaign. . . Robert H. Kirby Receives Sloan Fellowship Award. . .Exhibits to Feature Wind Tunnel No. 1 Model. . .Langley Makes NASA Awards at Sixteen Student Science Fairs.

May - Lunar Orbiter IV Launched. . .Langley Participates in Langley Air Force Base's 50th Anniversary Open House. . .Langley Tests Parachute Design as Prelude to Mars Exploration. . .Youth Science Congress Held at Center. . .Surveyor III Tests Lunar Surface. . .Three-Man Apollo Crew Named.

June - New Fatigue Laboratory Placed in Operation. . . Webb Main Speaker at Prelude to Independence in Williansburg. . .Apollo 204 Review Board Presents Memento to Dr. Thompson. . .Charles Clarke Heads Activities Association. . .Arthur R. Friend Selected to Receive Career Education Award. . .Professors Assigned to Langley Under ASEE-NASA Program.

July - One-Man Pogo Flying Device Studied in Lunar Landing Research Facility. . .Langley Staff Members Receive Advanced Degrees. . .Large Balloon to Launch Langley Parachute Test. . .Twenty Candidates Named for Carnival Queen. . .Langley Has Role at EXPO '67.

August - '13' Lucky for Lewis Research Center and Langley in Lunar Orbiter Project. . .New Plant Safety Building Begins Operation. . .Dennis J. Martin Heads United Fund Drive. . .NASA Releases Extensive Map of Moon's Hidden Side. . .Dianne Adams Named Carnival Queen. . .Activities Association Sponsors Effort to Send Packages to Servicemen. . .Langley Sponsors NASA Aerospace Explorer Post... Thirteen Student Trainees Receive Bachelor Degrees.

September - October: An Appropriate Time for Commemoration. . .Langley's 50 Years of Service Recognized in Joint Resolution. . .Planetary Entry Parachute Program Concluded Successfully. . .Success of His Unmanned Flights Gave Langley Faith in Air Future.

October - Center Celebrates "Fifty Years of Service to the Nation". . .Pioneering U.S. Programs of Advanced Research and Technology Assure Supremacy in Aeronautics and New Knowledge of Universe. . .Langley, Birthplace of Mercury, Supports Major Space Programs. . .Award-Winning Research Team Accelerates Flight Progress. . .President, Aerospace Leaders Cite Langley's Service to Nation. . .Nelson Appointed Assistant Director. . .Forty-Two Apprentices Graduate.

November - 50th Anniversary Guests Praise Staff for Success of Inspection. . .Donlan Named Deputy Director... NASA Honors Staff Members at Washington Ceremony... $73,250 Donated to United Fund. . .Annual Awards Ceremony Held. . .RAM-C Successfully Launched by Scout from Wallops Island. . .Apollo-Saturn Successfully Launched.

December - NASA Selects Crew Members for Two Apollo Test Flights. . .NASA Contractors Support United Fund... Langley Researcher Celebrates Silver Anniversary. . . Seamans Visits Center.

Langley Researcher

VOLUME 6, NUMBER 26 LANGLEY RESEARCH CENTER DECEMBER 29, 1967

HIGHER HEALTH BENEFIT RATES WILL AFFECT MOST SUBSCRIBERS

Effective January 1, premiums will be increased for many of the plans participating in the Federal Employees Health Benefits program, the Civil Service Commission has announced. Some benefit changes are also being made in many of the plans. The effective date for the increased deduction for Center staff members will be January 14.

The Civil Service Commission has prepared a new pamphlet, Information About Plan Changes Effective January 1968, which describes the new changes. The pamphlets will be distributed to employees.

Changes in benefits of the participating plans are primarily improvements made to eliminate inequities or plug gaps in coverage.

One major change is in the Government-wide Indemnity Benefit plan (Aetna) which will now cover mental illness in the same way as other illness. The Government-wide Service Benefit plan (Blue Cross) made a similar change last year.

Most Federal employees now have plans which give substantially the same protection against the expense of mental illness as against the expense of other illness.

The overall premium increase under the program will be about 6.5 percent. The following premium increases will affect Center employees:

Service Benefit Plan (Blue Cross) - Self only, high option, will increase from $3.32 to $3.80; self and family, high option, an increase from $8.96 to $9.50; self only, low option, no increase; and self and family, low option, no increase.

Indemnity Benefit Plan (Aetna) - Self only, high option, and increase from $3.14 to $3.72; self and family, high option, an increase from $7.86 to $9.30; self only, low option, an increase from $1.30 to $1.46; and self and family, low option, an increase from $3.12 to $3.50.

According to the Commission, the premium increases are needed to meet the sharply rising costs of hospital and medical care. During the 12-month period which ended June 30, 1967, the Consumer Price Index for hospital care went up 22.8 percent and the index for doctors' care went up 9 percent. It is anticipated that a rising trend will continue in 1968.

The Commission, however, has kept the premium increases under the program at the absolute minimum estimated to be necessary to maintain the financial soundness of the respective plans. Many plans will, in the interest of keeping premiums as low as possible, use their reserves to defray part or all of the increase in the cost of medical care.

There will be no open season for changing enrollments this year. The last open season was held in November 1966. Under the regulations, the next one must be held no later than November 1969.

ASSOCIATION PLANS ANNUAL NEW YEAR'S DANCE DEC. 31

The outstanding social event of the year will be held on December 31 when the Activities Association sponsors its annual New Year's Eve Dance 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 Charley Johnson and his band.

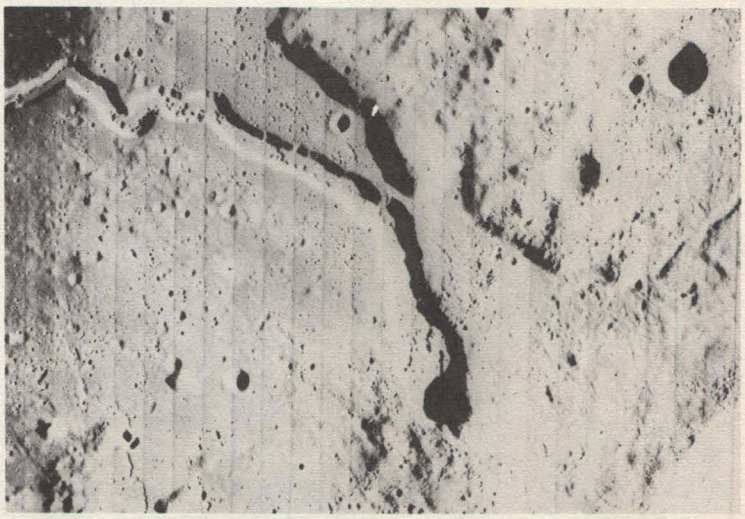
The evening events will start at 9 p.m. and continue until the New Year is an hour old. At the stroke of midnight Father Time will make his exit and the New Year will arrive with his helper Leap Year.

Only a limited number of tickets are available to the dance and they may be purchased at the Activities Building. Tickets are eight dollars a couple and the price includes free favors and setups. Table reservations may be made by calling Bruce Amole, 4583.

ANNIVERSARY OFFICALLY ENDS

The observance of the 50th Anniversary of Langley Research Center will terminate with the end of 1967. Use of marked letterhead or form letters, citing the 50th Anniversary of the Center will be discontinued as of December 29, 1967.

Unused stocks of such letterhead and form letters should be destroyed.



For the United States in space, 1967 was a year of many significant achievements. One of the major highlights of the year was the completion of the Lunar Orbiter mission to photograph the moon. Lunar Orbiter V, the last in the Orbiter series, took this photograph of site V-49. The area shown is Cobra Head, a depression in the large steep mound which is the source of the largest lunar sinuous rille, Schroter's Valley. Lunar Orbiter was at an altitude of 82 miles when it took the photograph on August 18.

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

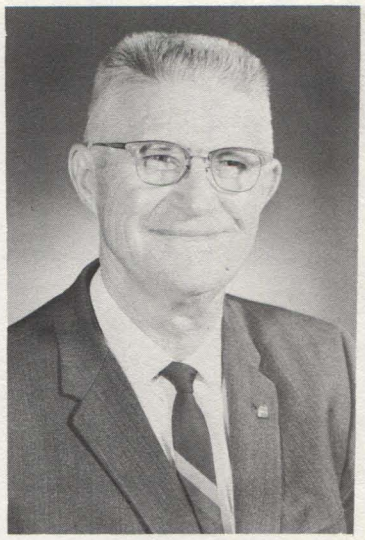
The privilege of advertising articles in this publication is restricted to employees of Langley Research Center. Articles advertised herein must be offered for sale or rent without regard to race, creed, color or national origin.

ANNOUNCEMENTS

ENGAGEMENT. . .Making plans to desert the bachelor ranks is Dennis L. Dicus, Flight Vehicles and Systems Division. He is engaged to Kathryn Elliott, Hampton, and plans call for a January 27 wedding.

NEW ARRIVAL. . .Passing out cigars and candy is James I. Richardson, Structures Research Division. He became the father of a daughter, Katherine Mae, on December 6.

EMBLEM CONTEST. . .Staff members are reminded that the Activities Association is sponsoring an emblem contest. The contest is open only to employees or members of their families and the prize will be a $25 U.S. Savings Bond. Entries must be sent to Arnold Mueller, Mail Stop 239, by March 1. Contest rules were published in the November 17 issue of Langley Researcher.



Wendell B. Alexander

Arnold P. White

STAFF MEMBERS RETIRE

Wendell B. Alexander, Mechanical Services Division, and Arnold P. White, Electrical Systems Division, have retired from the Center with a total of almost 56 years of Government service.

Alexander is a native of Jackson County, Ohio. He worked six years for the Newport News Shipbuilding and Dry Dock Company and 16 years for the Philip Carey Manufacturing Company in Lockland Ohio, before joining the Center staff on November 4, 1940 as a general mechanic. He retired November 30.

White was born March 23, 1908 in Gheens, Louisiana. He worked for the Norfolk Naval Shipyard before entering on duty at the Center on September 16, 1946 as an electrician. His retirement is effective today.

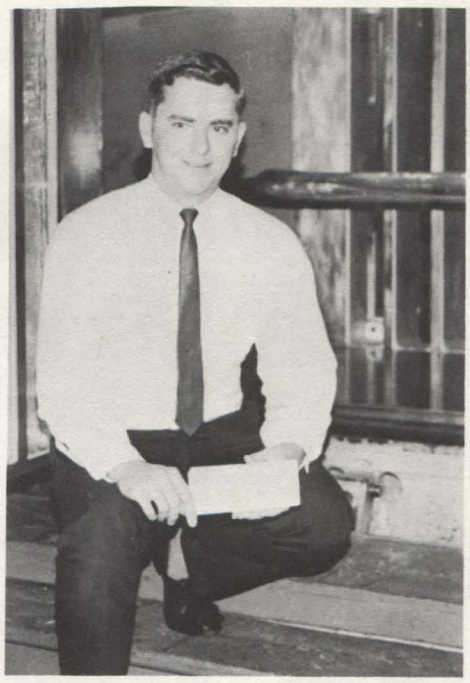
NASA BOWLING LEAGUES

Mets lead Group B in the NASA Tenpin League with 43 wins and 21 losses. Trailing in a close second are Cee Pees with 42 wins and 22 losses. Hotshot Tunnel is in third with 41 wins and 23 losses. Top bowlers for the week were Mike Squires with a 248 game and 701 set, Anne Leatherman with a 232 game, and Ann Harrison with a 581 set.

KNADS lead Group C with 41 wins and 15 losses. Question Marks are in second place with 38 wins and 18 losses. Question Marks rolled high team game with 1102 and the KNADS took high team set with 3061.

GROUP B			GROUP C		
Mets	43	21	KNADS	41	15
Cee Pees	42	22	Question Marks	38	18
Hotshot Tunnel	41	23	Hayze	33	23
Payloads	37	27	Greenhorns	33	23
Flight Engineers	35	29	Alley Cats	32	24
HMS	35	29	Galaxies	29	27
ABT	34	30	5 Rebels	29	27
Gas House Gang	32	32	Gliders	27	29
Pinwigglers	29	35	Hopeless 5	26	30
Astros	27	37	Class Kats	25	31
Flight	25	39	Bowling Belles	21	35
Sparkys	24	40	Hits & Misses	20	36
Woodnickers	23	41	Invaders	20	36
Dillys	21	43	Allies	18	38

William L. Grantham



Roland W. Lee

Joseph T. Guy

NASA BASKETBALL SCHEDULE

Jan. 3	5:00 p.m.	Raiders vs. Mirages
	6:15	No Name vs. ACD
	7:30	KNADS vs. Exciters
	8:45	Short Circuits vs. 8-Foot
Jan. 4	5:00 p.m.	8-Foot vs. Misfits
	6:15	Short Circuits vs. West Side
	7:30	Raiders vs. No Name
	8:45	Mirages vs. ACD
Jan. 10	5:00 p.m.	Exciters vs. West Side
	6:15	No Name vs. Short Circuits
	7:30	ACD vs. 8-Foot
	8:45	KNADS vs. Misfits
Jan. 13	10:00 a.m.	Short Circuits vs. KNADS
	11:15	8-Foot vs. Exciters
	12:30 p.m.	Misfits vs. West Side
	1:45 p.m.	Mirages vs. No Name
	3:00 p.m.	Raiders vs. ACD
Jan. 15	5:00 p.m.	Exciters vs. Misfits
	6:15	Mirages vs. 8-Foot
	7:30	KNADS vs. West Side
	8:45	Raiders vs. Short Circuits
Jan. 17	5:00 p.m.	Mirages vs. Short Circuits
	6:15	ACD vs. KNADS
	7:30	No Name vs. 8-Foot
	8:45	Raiders vs. Exciters
Jan. 18	5:00 p.m.	ACD vs. West Side
	6:15	Raiders vs. KNADS
	7:30	No Name vs. Exciters
	8:45	Mirages vs. Misfits
Jan. 22	5:00 p.m.	Raiders vs. 8-Foot
	6:15	ACD vs. Short Circuits
	7:30	Mirages vs. West Side
	8:45	No Name vs. Misfits
Jan. 24	5:00 p.m.	ACD vs. Exciters
	6:15	Raiders vs. Misfits
	7:30	No Names vs. West Side
	8:45	Mirages vs. KNADS
Jan. 31	5:00 p.m.	8-Foot vs. KNADS
	6:15	Mirages vs. Exciters
	7:30	Short Circuits vs. Misfits
	8:45	Raiders vs. West Side
Feb. 1	5:00 p.m.	No Name vs. KNADS
	6:15	8-Foot vs. West Side
	7:30	ACD vs. Misfits
	8:45	Short Circuits vs. Exciters

EMPLOYEES RECEIVE AWARDS

Three staff members have received Suggestion Awards from the Incentive Awards Committee. The recipients and their suggestions are as follows:

William L. Grantham, Flight Instrumentation Division, was awarded $40 for "improving antenna patterns of dielectric covered antennas by extending thin metallic walls from the antenna to the surface of the dielectric which thus reduces surface wave excitation."

Roland W. Lee, Mechanical Services Division, received $45 for "using nylon or teflon seal strips on the flooring in Section #2 of Langley's Unitary Plan Wind Tunnel which eliminate compression spring damage and insure the floor's sealing effect."

Joseph T. Guy, Mechanical Services Division, received $95 for "the redesign of a valve for the 1-inch square plasma accelerator which will eliminate valve damage due to the pyrotechnic quality of old cesium valves, extend the initial valve life, and concurrently allow more run time for the facility."

FOR SALE: Kitchen extension table and three chairs - $25. Miller, 595-0731.

FOR SALE: 1967 Cobia 20-foot cruiser, 120 Mercruiser I/O head, sleeps 2, D/F Cox tendem trailer with electric winch, many extras. Brown, 838-4758 after 6 p.m.

FOR SALE: 1967 305 Honda Scrambler - $550. Swaim, 826-5874.

FOR SALE: 3-bedroom house near shopping center in Newport News. Swartz, 596-0970 after 5 p.m.

PEGASUS STILL WORKING IN SPACE

Old spacecraft don't always die or fade away. Sometimes they keep right on working.

A case in point-- three Pegasus spacecraft launched by NASA which are still functional even though a one-year extension of their expected lifetime has come and gone.

The three have completed their assigned tasks-- measuring the meteoroid environment of near-earth space-and have telemetered back to Earth mountains of information on other subjects of vital interest to space scientists.

Planned lifetime for each satellite was 18 months. When the first of the trio passed this mark, the lifetimes of all three were extended for another year. And this extension expired on October 1, 1967. No longer being monitored by a crew of their own, the satellites are considered usable even though they are not in constant active use.

By operating far beyond their design lifetimes, the satellites have provided extra dividends in the form of additional information on Van Allen radiation belt, Earth albedo (reflectivity), the solar constant, orbital and gyroscopic motions of rigid bodies, degradation of surface coatings under space environment conditions, thermal control systems and the lifetime of electronic components in space operations.

Bonus information in the field of radiation has also been gathered as well as unique and extremely valuable data on the South Atlantic anomaly, that region where the Van Allen radiation belt dips nearest to the Earth.

Several satellites with charged particle detection systems more sophisticated than those on Pegasus have recorded data in this area, but all had relatively short lifetimes.

The third Pegasus carries 48 detachable "coupons" which could be removed easily by an astronaut in an extravehicular operation.

The coupons, each bearing about 40 small samples of various coatings, have been exposed to the meteroid environment long enough to have accumulated a sizable number of meteor-produced craters in their surfaces. If the location of these craters were known, it would help clear up uncertainties about the distribution of miscroscopic meteroids.

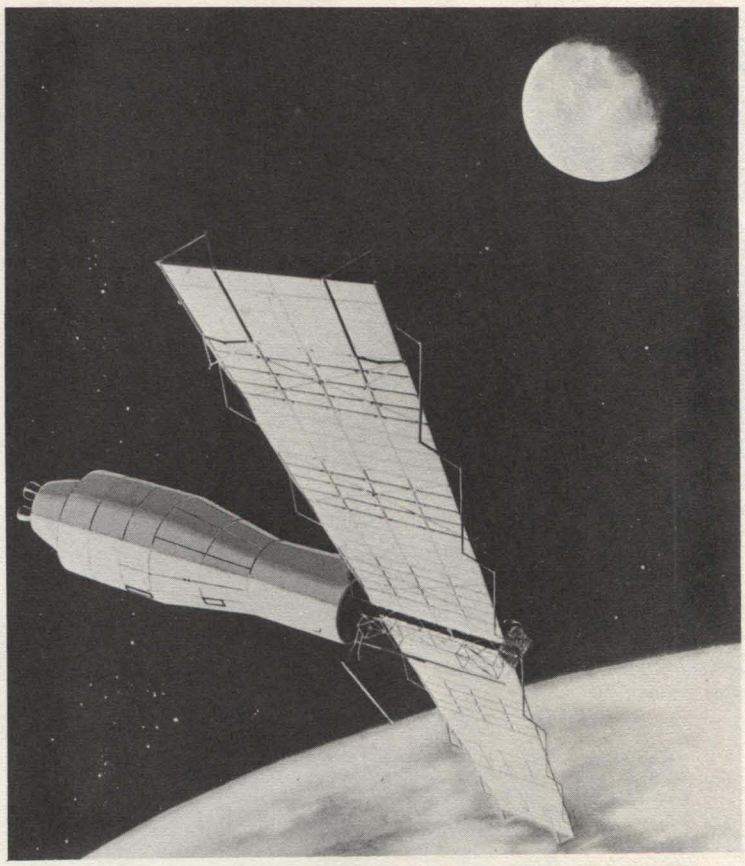
The combined operation time of the three-- a total of six years-- without any loss of prime experiment data due to electronic failure has proven again the advantage of a design concept using redundancy.

The reliability and length of operation of electronic subsystems have greatly exceeded all expectations. Each satellite has about 90 major electronic subassemblies, or about 270 for all three craft. Of these 270, only 10 subassemblies have failed.

In the few cases of failure of Pegasus II and III spacecraft parts, active alternate packages which had been designed into the system to permit rapid switching, corrected the deficiencies within minutes after failures were discovered.

Throughout the history of the space program the question of how the space environment affects electronic components has been explored constantly. The three Pegasus satellites offer an excellent opportunity to study such effects since the combined number of systems makes a statistically meaningful sample size.

WANTED: Room air conditioner. Youngblood, 877-1224.



PEGASUS SATELLITE: Shown in this artist's concept is the satellite-- three of which are still in orbit-- whose role in space was to measure the meteoroid environment of near-earth space for NASA.

CENTER AWARDS CONTRACT

Langley Research Center has selected Wyle Laboratories, Testing Division, Huntsville, Alabama, for negotiation of a contract to provide instrument repair, maintenance, and calibration services for the Center's research laboratories and facilities.

The contract to be negotiated will cover an initial one year period and will carry two renewal options of one year each.

Estimated value for the three-year period is about $3 million.

The company plans to build a local facility in the Hampton area in which the maintenance and repair work will be done.

NASA will negotiate a cost plus award fee-type of contract for the work with the term of the contract to begin in mid-February, 1968.

FOR SALE: Battery, dry charge, 21 x 11 x 10 inches, 150 plates, 12 volts. Breen, PA3-8929 after 5 p.m.

BOATING COURSE: Registration for a 13-week free boating course, sponsored by the Hampton Roads Power Squadron, will be held January 9 at 7 p.m. in the Ferguson High School cafeteria.

FOR SALE: 1967 305 Honda Scrambler with extra equipment and helmet - $600. Kyle, 595-3923.

WANTED: Glass lathe and glass annealing oven. Thompson, 722-5079.

FOR SALE: 7 acres on North River in Gloucester, 476-foot frontage - $16,500. Horsley, 693-3826.