DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 1 LANGLEY RESEARCH CENTER JANUARY 4, 1963

Col. Quentin J. Gross

IAS TO HEAR COL. GROSS

The Hampton Roads Chapter of the Institute of Aerospace Sciences will hear Col. Quentin J. Gross present a briefing on the Air Force Space Program on January 17.

The meeting will be held at the Chateau Restaurant on Pembroke Ave. A social hour will start at 6 p.m., dinner at 7, and the business meeting at 8.

Col. Gross will speak on the Air Force's space activity. He will review resources available for space exploration as they exist within the Air Force and briefly cover the activities of the divisions and centers of the Air Force Systems Command.

Col. Gross is presently assigned as Assistant to the Director of Information, Air Force Systems Command at Andrews Air Force Base in Maryland.

He was born July 9, 1920 in Glenfield, North Dakota. He has a B. S. degree from the United States Military Academy, a M. S. degree from the Georgia Institute of Technology and is a gra-

(Continued on page 2)

IAS FEATURES NASA PAPERS

Ten scientists on the staff of the Langley Research Center will report the results of a variety of NASA space and aeronautical research at the 31st annual meeting of the Institute of the Aerospace Sciences in New York on January 21 through 23.

Six papers prepared by nine Langley scientists on subjects ranging from helicopters to the lunar mission will be presented at the three-day meeting, to be attended by several hundred scientists and engineers representing the Government, industry, and educational institutions.

The tenth Langley participant in the formal program will be chairman of one of the 31 technical sessions scheduled during the meeting.

William H. Kinard, a scientist in the high-temperature materials branch of the Applied Materials and Physics Division, will present one section of a two-part paper at an aerospace forum at 2 p.m. on January 21 on "Development of Capacitance Type Micrometeoroid Sensors." He is co-author of the paper with J. D. Campbell of Space-General Corporation, El Monte, California, who will present the other part of the paper.

At a technical session on fluid mechanics to be held at 2 p.m. January 21, a paper will be presented by Dr. Leonard Roberts on "The Action of a Hypersonic Jet on a Dusty Sur-

(Continued on page 4)

14 PRESENTED NASA AWARDS

Dr. Hugh L. Dryden, NASA Deputy Administrator, recently presented six cash awards totaling $12,000 to 14 NASA employees for inventions, of which most are used in manned space flights. Recipients were personnel of Langley Center and the Manned Spacecraft Center.

Maxime A. Faget, a contributor of many of the original design concepts of the Project Mercury manned spacecraft, accepted the four awards to Manned Spacecraft Center personnel on behalf of his associates. Now Assistant Director for Engineering and Development at the Center, Faget has conceived other flight

(Continued on page 3)

CREDIT UNION MEETS IN JAN.

Langley Federal Credit Union will hold its annual meeting on Monday, January 21 at 7:30 p.m. in the Activities Building.

This will mark the 26th annual meeting of the organization and all members are urged to attend.

Included on the program will be an announcement of the 1962 dividends and presentation of the annual financial report. There will also be an election of 3 members to the Board of Directors and 3 members to the Credit Committee.

In recent years the dividend has varied from a low of 3.5 per cent to a high of 5 per cent. The

(Continued on page 3)

Larman Sherwood (left), blind lecturer, will be guest speaker at the annual meeting of the Langley Federal Credit Union on January 21. Sherwood is shown with Floyd L. Thompson, Director, during a recent visit to the Center.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW HEIR. . .Celebrating the birth of a son, Timothy Allan, on December 8 is Melvin H. Lucy, Applied Materials and Physics Division.

DECEMBER WEDDING. . .Gay House, formerly of Aero-Space Mechanics Division, and William Grossman Jr., Aero-Physics Division, were married December 21. The bride was given in marriage by her father Rufus O. House, Office of Director.

SICK BAY. . .Recuperating in Riverside Hospital from a broken hip is Eleanor Cole, Office of Associate Director.

DIAPER LINES. . .Arriving in time to make the income tax deadline was seven pound, twelve ounce Michael Emery, son of Howard W. Stone, Continuous Flow Hypersonic Branch. The new heir arrived on December 9. . .Passing out cigars and candy is Davis Braski, Structures Research. He became the father of a son on December 15.

WEDDING BELLS. . .Joining the ranks of newly weds is Joy Walston, Personnel Records. She was married December 21 to Archie White of Poquoson.

ENGAGED. . .Announcing her engagement is Sarah Blanchard, Personnel Records. She is engaged to Jennings Coley of Hampton and plans call for a fall wedding.

IAS MEETING

(Continued from page 1)

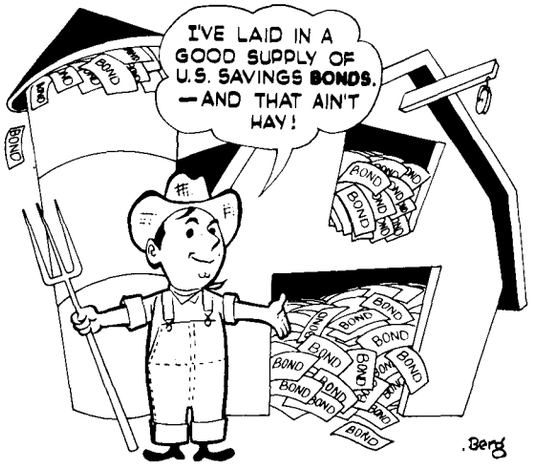
duate of the War College of the Air University.

A Command Pilot, he flew the P-47 in the Mediterranean Theater during World War II, completing a combat tour with the Twelfth Air Force.

Assignment since World War II included: Academic Instructor, U. S. Military Academy; Chief, B-62 Pro-Project Office, Hq. ARDC; and Assistant for Guided Missiles to Chief, Air Defense Group, Research and Development Directorate, HQ. USAF.

Reservations for the dinner may be made by calling Roger B. Stewart, 838-1917, John Mugler, 838-0569, or Conrad Willis, 838-0695.

FOR SALE: 1962 Renault - $1195. Quinn, 868-9756.
FOR SALE: Motorola stereophonic high-fidelity system in mahogany cabinet. Wiggs, 722-7513.
LOST: "Synchronous, Self-Synchronous Devices and Electrical Servomechanisms," by L. R. Crow. Miller, 4691.
FOR SALE: Goldleaf-frame mirror, 29-1/2 by 41-1/2 inches. Barnes, 838-2381.



X-15 SETS NEW RECORD

The X-15 rocket plane returned December 21 to Edwards Air Force Base, California from the highest altitude yet attempted with its big bottom fin removed.

A NASA spokesman said it was the first time the X-15 had gone high enough and fast enough without the ventral fin to meet conditions future spacecraft will encounter re-entering the atmosphere.

Preliminary information indicated a top speed of 3,886 miles an hour and an altitude of 157,000 feet.

At the controls was NASA test pilot Joseph A. Walker, who has reached 246,700 feet and 4,104 miles an hour with the ventral fin in place.

The large fin was designed to increase the stubby winged black sky dart's stability in atmospheric flights, but tends to cause it to roll in re-entry from extreme altitudes.

The December 20 flight was the seventh in a series of tests to analyze the X-15 performance without the fin. Some of these have gone as high as 140,000 feet.

The flight started with the X-15 dropping away from its B-52 carrier plane 45,000 feet over Mud Lake, Nevada, 185 miles northeast of the Flight Research Center.

Walker rocketed to peak altitude, then splashed back into the atmosphere with the nose of his plane tilted up at an angle of 15 degrees - a maneuver designed to brake descent.

Tilt angles of 25 degrees have been achieved in earlier tests.

The nine-minute flight ended when Walker streaked in for a 200 m.p.h. landing.

FOR SALE: Lace cocktail dress, size 11. Capone, 722-0429.
FOR SALE: Craftsman 6-in. lathe - $140. McConnell, LY 6-6447.
FOR SALE: Three formal dresses, size 10. Downing, CH 4-4088.
FOR RENT: Four-bedroom house at Queens Lake. Wall, CApitol 9-5497.
FOR SALE: Sailing Pram - $70; 14-foot boat - $40. Gilman, PA 2-5847.
FOR SALE: Set of golf clubs. Gompers, 877-3259.
FOR SALE: 1953 M.G. TD. Schultz, CH 4-2825.
FOR SALE: Three-bedroom home in Holly Court. Flom, 723-7903.
FOR SALE: 26-inch Schwinn bicycle. Early, PA 3-7543.

W. S. Blanchard

NASA AWARDS

(Continued from page 1)

systems and aerodynamic configurations. His service with NASA began in 1946 at the Langley Research Center.

The four Houston and one Langley awards were made under provisions of the National Aeronautics and Space Act of 1958, which authorizes monetary awards to any person or group (not NASA employees necessarily) for technical and scientific contributions having significant value to aeronautical and space activities. The other award presented in these ceremonies was authorized under the Employees Incentive Awards Act of 1954, which permits cash incentive benefits for inventions improving government operations.

The sum of $4,200 was awarded under the Space Act to a seven-man team for the design of the Mercury-type spacecraft. Included in this group were Faget, Andre J. Meyer, R. G. Chilton, Jerome B. Hammack, and C. C. Johnson, all of Manned Spacecraft Center. There were two other members of this group: W. S. Blanchard, still at Langley, where most of the Mercury design work was performed at the (then) Space Task Group; and A. B. Kehlet, until July of this year at Langley and now employed in private industry.

As was announced in the last issue of Langley Researcher, the following Langley staff members received awards in addition to Blanchard: Arlen F. Carter, George P. Wood, and Dr. Adolph Busemann, who shared an award for $1,200, and E. M. Bracalente and F. C. Woolson who shared an award for $2,000.

OBITUARIES

Everett C. Dunn, staff member of the Wind Tunnel Service Section, Mechanical Service Division, died December 22 in Chicago.

Dunn was born October 13, 1899 in Montgomery County, North Carolina. Before joining the Center staff he was employed by Selden's Dairy in Hampton.

He entered on duty at Langley on November 11, 1944 as a Fireman.

Frederick R. Posey, a foreman in the Maintenance Division, died unexpectedly on December 28.

Born January 8, 1908 in Buckhannon, West Virginia, he graduated from Buckhannon High School.

He started his career at the Center on October 22, 1941.

He is survived by his wife, Mrs. Mildred L. Posey, a daughter, and 4 sons.

FOR SALE: 14-inch G.E. table-model TV set. Watts, 245-5319.

FOR SALE: Dining-room table with fitted pad and four chairs - $50. Feller, PA 3-5278.

FOR RENT: Three-bedroom house in Green Oaks. Dunn, 596-1789.

FOR SALE: Baby crib - $10. Bradshaw, 826-2643.

BASKETBALL SCHEDULE

Teams will be requested to provide scorers and timers for each game. On evenings four games are to be played, each team playing the 5 o'clock game will provide one man for the 6:15 game. Each team playing the 6:15 game will furnish one man for the 5 o'clock game. Each team playing the 7:30 game will furnish one man for the 8:45 game and each team playing the 8:45 game will provide one man for the 7:30 game.

On evenings that only three games are to be played, the 5 o'clock and 6:15 game will use the same procedure as mentioned for four-game nights. The teams playing the 7:30 game will furnish their own scorers and timers.

Time	Jan. 7	Jan. 9	Jan. 10	Jan. 14	Jan. 16	Jan. 21
5:00	1-6	2-3	11-10	3-5	8-11	8-10
6:15	3-4	5-6	2-4	4-6	7-9	1-5
7:30	7-8	8-9	7-9	9-11	1-4	2-6
8:45	9-10	7-10	1-3	1-2	2-5	7-11
	Jan. 23	Jan. 24	Jan. 28	Jan. 30	Feb. 6	Feb. 7
5:00	4-5	10-11	7-10	8-10	7-11	3-6
6:15	9-10	8-9	1-3	9-11	8-9	9-10
7:30	3-6	1-2	5-6	1-4	2-4	7-8
8:45	7-8	3-4	8-11	2-3	3-5	1-5
	Feb. 11	Feb. 13	Feb. 18	Feb. 20	Feb. 21	Feb. 25
5:00	2-5	7-11	4-6	8-11	7-8	10-11
6:15	9-11	4-5	10-11	1-6	1-4	4-5
7:30	7-10	8-10	1-2	2-4	2-5	1-3
8:45	1-6	2-6	3-5	7-9	---	---
	Feb. 27	Mar. 4	Mar. 6	Mar. 7	Mar. 11	Mar. 13
5:00	3-4	7-11	8-11	8-10	Playoff Games	
6:15	9-11	2-6	4-6	7-9	Playoff Games	
7:30	7-10	1-5	9-10	3-6	Playoff Games	
8:45	5-6	8-9	2-3	Playoff Games		

TEAMS: Section A - 1. Hoteyes, 2. Scouts, 3. Kilowatts 4. Royals, 5. Packers, 6. 8-foot. Section B - 7. No Names 8. Short Circuits, 9. Misfits, 10. Roughnecks, 11. Greenhorns.

CREDIT UNION

(Continued from page 1)

Credit Union has never missed paying a dividend since it began in 1936.

Guest speaker will be Larman Sherwood. A native of Washington, he was blinded at birth. He received his elementary education at the Maryland School for the Blind and was awarded a diploma from the public high school at Cohoes, New York. He received a B. A. degree in literature, with honors, from Union College of Schenectady. Two years later he completed his work for a master's degree at the New York State College for Teachers at Albany.

He has taught in private and public schools and has lectured in the field of American life and taught at colleges and universities.

During the past 10 years Sherwood has devoted full time to lecturing on human relations. Last fall he spoke at the kick-off meeting of the Center's United Fund organization.

FOR SALE: Sears Go-Kart - sidewalk type - $70. Becker, PA 2-1293.

FOR SALE: 12- by 12-foot gray wool rug with pad and small rug (4- by 8-foot) - $90. Beverly, 723-5465.

WANTED: Girl's 26-inch bicycle. Connor, PA 2-6918.

FOR SALE: Les Paul guitar - $120. Iley, PA 3-7143.

FOR SALE: Electric stove. Anderson, 596-2778.

FOR SALE: 1962 Webcor three-speed Hi-Fi tape recorder - $130. Stone, 723-1437.

FOR SALE: 12-cubic-foot Amana freezer - $250. Franklin, 722-3940.

NASA PAPERS

(Continued from page 1)

face." Dr. Roberts is head of the mathematical physics branch of Theoretical Mechanics Division.

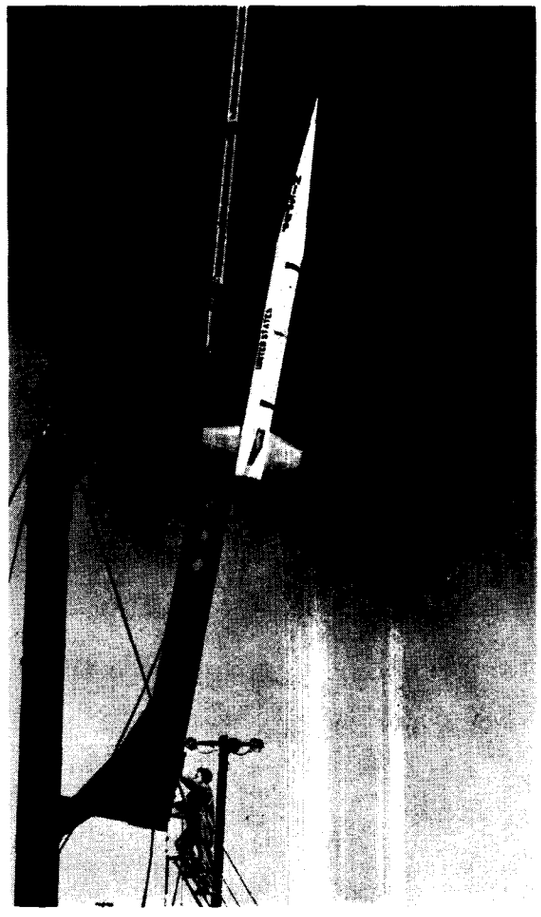
A meeting at 9 a.m. January 23 on helicopters, to be sponsored by IAS in cooperation with the American Helicopter Society, will feature a paper to be given by George E. Sweet. Title of the paper is "Results of Wind Tunnel Measurements on a Helicopter Rotor Operating Under Extreme Thrust Coefficients at High-Tip-Speed Ratios." Co-author of the paper is Julian L. Jenkins. Both are engineers in the VTOL (vertical takeoff-landing) branch of the Aero-Space Mechanics Division.

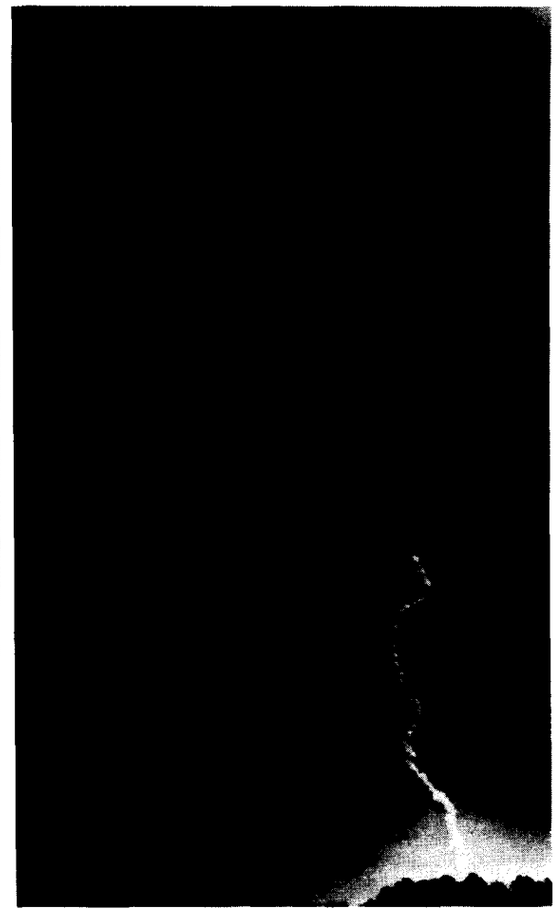
Highlight of another 9 a.m. meeting on Jan. 23 on the general subject of structural dynamics will be a paper by Herbert J. Cunningham, an aerospace engineer in the analysis section of the Dynamic Loads Division. Title of the paper is "Analysis of the Flutter of Flat Rectangular Panels on the Basis of Exact Linearized Supersonic Potential Three-dimensional Unsteady Flow."

Dr. John C. Houbolt, chief of the Theoretical Mechanics Division, will serve as chairman of a session on control and guidance for orbital and rendezvous problems beginning at 2 p.m. January 23. Two papers by Langley scientists will be presented at this meeting.

The first one will be on the "Visual Capability of Pilots as Applied to Rendezvous Operations." Jack E. Pennington, who is co-author along with Roy F. Brissenden, will make the presentation. Both are engineers in the guidance and control branch of the Aero-Space Mechanics Division.

The second paper will be given by Donald L. Mallick on "Crew Performance and Personal Observation on a Lunar Mission Simulation." Mallick and Harold Ream, co-authors of the paper, are research pilots in the Aero-Space Mechanics Division.





Winds and turbulence can have an important effect on a launch vehicle while it is flying through the atmosphere at the beginning of its journey. The Langley Research Center and George C. Marshall Space Flight Center are gathering better information on atmospheric turbulence through a joint program to obtain more than 75 detailed wind profile measurements by a smoke-trail technique. The profiles will supply basic information needed for structural, guidance, and control studies for large launch vehicles and missiles. Wind profiles are obtained from photographic measurements of a visible trail made by a rocket-borne smoke generator. The right panel shows such a trail. The rocket system uses a small solid-propellant motor carrying a nose cone filled with a smoke-producing chemical. (Left panel) as the rocket rises, the chemical is expelled into the air to form a visible, nearly vertical trail, while cameras on the ground record time-synchronized photographic plates of the trail. Complete and accurate wind profile measurements showing both short- and long-wavelength wind fluctuations provide a basis for more efficient launch vehicle design.

FOR SALE: Two-bedroom house in Cherry Acres. Link, PA 3-4723.
FOR SALE: Home in Holly Courts. Harris, PA 3-2112.

CIVIL SERVICE ACT

Federal agencies, employee groups, and public-spirited organizations across the country will observe the 80th anniversary of the Civil Service Act during January.

In response to the President's call for participation in the celebrations, Federal agencies are cooperating with citizen and employee organizations in a variety of community programs.

In his proclamation on the anniversary, President Kennedy urged "the people of the United States to participate in the observance."

Signed on January 16, 1883, the Act "has stood the test of time in providing the excellence in civil service which is required for successful execution of Federal programs and policies which have deep significance to all Americans and all citizens of the free world," he said.

Langley Researcher

VOLUME 2, NUMBER 2 LANGLEY RESEARCH CENTER JANUARY 18, 1963

T-33 GIVEN TO HAMPTON

Major Cecil D. Bailey, U.S. Air Force, Air Force Systems Command Liaison Office, Langley Research Center, recently presented a T-33 jet aircraft to the City of Hampton. The T-33 two-seat jet trainer built by Lockheed Aircraft for the Air Force will be placed in Hampton's Aero-Space Park located on Mercury Boulevard.

This type airplane was used by the Air Force to train aviation cadets in jet pilot techniques; it is now widely used to maintain flight proficiency in jet aircraft. This T-33 Jet Trainer (TR-9086) began flying in 1953 at what is now

(Continued on page 4)

NASA AWARDS VARC CONTRACT

Langley Research Center has awarded a contract to the Virginia Associated Research Center in connection with the establishment on the Peninsula of the NASA Space Radiation Effects Laboratory.

Floyd L. Thompson, Director, announced the award of the contract - which is in an amount not to exceed $88,000 and is for planning and assistance to NASA in connection with the establishment and operation of the laboratory.

The College of William and Mary, the University of Virginia, and the Virginia Polytechnic Institute make up VARC, which was

(Continued on page. 5)

CREDIT UNION MEETS JAN. 21

Members of the Langley Federal Credit Union are reminded that the organization will hold its 26th annual meeting on Monday, January 21 at 7:30 p.m. in the Activities Building.

Guest speaker for the meeting will be Larman Sherwood, a blind lecturer from Washington, D. C.

Included on the agenda of the business meeting will be an announcement of the 1962 dividends and presentation of the annual financial report. There will also be an election of 3 members to the Board of Directors and 3 members to the Credit Committee.

Nominated for the Board of Directors are: Emanuel

(Continued on page 4)

John V. Becker

BECKER NAMED FELLOW BY IAS

John V. Becker, Chief of Aero-Physics Division, has been named one of the 17 leading aerospace scientists to be elected Fellows of the Institute of the Aerospace Sciences for 1962.

Sharing the honor with Becker will be Walter C. Williams, formerly of the Langley Center and now a member of the Manned Spacecraft Center staff.

A native of Albany, New York, Becker has been a Langley research scientist since September 1, 1936. After receiving his B.S. degree in Mechanical Engineering from the New York University in June 1935, he was awarded his M.S. degree from the university in June of the following year.

Becker was appointed as Chief of Aero-Physics Division in July 1947. During his NASA service, he has been author of 30 research reports published by the NASA for use by the military services, other Government agencies, private industry and educational institutions. He is the author of an article on "Reentry

(Continued on page 4)

Major Cecil D. Bailey, Air Force Systems Command Liaison Office, presents a title and T-33 jet aircraft to Clarence E. Johnson, Hampton City Manager, and Paul C. Mingee, Assistant Director of Public Works, Hampton. The T-33 two-seat jet trainer will be placed in Hampton's Aero-Space Park on Mercury Boulevard.

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, Room 217, Building 587, telephone 2375.

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

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ANNOUNCEMENTS

ENGAGEMENT. . .Making plans to join the ranks of newly weds is Phyllis Wheless, Research Records Office. She is engaged to Charles Lewis Evans of Clifton Forge. The wedding will be held on February 2 in the Phoebus Methodist Church.

YACHT CLUB. . .The Langley Yacht Club is considering accepting a limited number of membership applications from civilians. Previous applicants must reapply. Anyone interested should contact a member of the Yacht Club for application forms.

NOTICE TO HORSEMEN. . .NASA employees and their dependents have been invited to use the stables on Langley Air Force Base. Plans are also being made to start a beginners class in horseback riding. The stables are located between the golf course and the lighter-than-air area. For additional information call Mrs. Fraser, Langley 7139.

NEW HEIR. . .Announcing the birth of a son on January 5 is John E. Nealy, Aero-Physics Division.

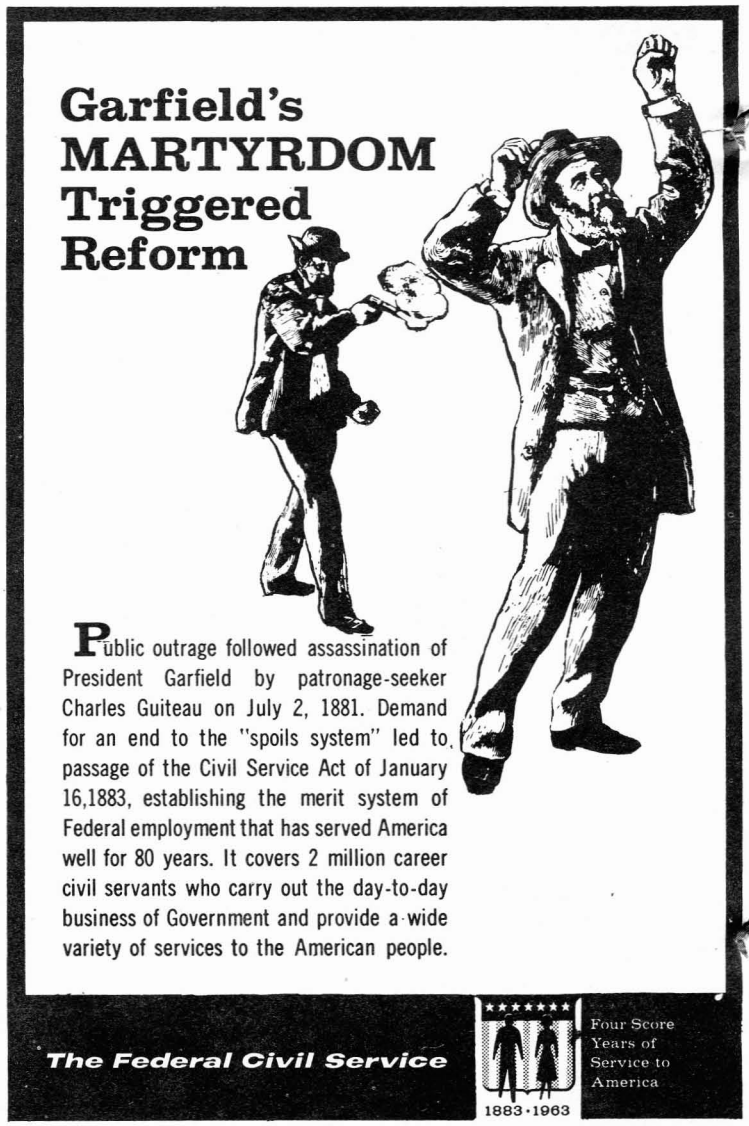
CAMERA CLUB. . .The Langley Camera Club will meet on Monday, January 21 at 7:30 p.m. in the Activities Building. Subject of the program will be "Pictorial Photography from the Chinese Viewpoint." Subject for the contest for both black and white prints and color slides will be landscapes. All persons interested in photography are invited to attend.

GUN CLUB. . .The Langley Rod and Gun Club will meet at 7 p.m. on Wednesday, January 30 at the club house. All members are urged to attend.

NEW PASS OFFICE OPENS

Effective Monday, a Pass Issuance Office will open in West Area in Building 1228 for the issuance of passes and vehicle identification cards to NASA contractor personnel. This office will be under the direction of the Security Office and will be open from 7 a.m. until 4:30 p.m. This activity was formerly under the Inspection Office in Building 1227.

FOR SALE: 2-place Cessna Model 120 airplane, completely renovated in 1960 and hangared since, relicensed to January 1964, full panel (3 gyros), full electrical system with landing lights, new tired, metal prop, 550 hours on C-85 engine. Cruising speed 115 mph with range of 500 miles, $2000 or will sell shares to form club. Paul Kurbjun, TR-71616.



APPRENTICE ALUMNI DANCE

The NASA Apprentice Alumni Association will honor the graduating class and their wives with a banquet and dance at 7 p.m. on Friday, February 8 at the Activities Building.

Members of the association may purchase tickets from Rudy Olive, 4866, Kelley Hinnant, 4611, or Richard Holt, 4483. Admission for the dinner and dance will be two dollars per person. Admission for the dance only will be two dollars per couple. The dance will begin at 9 p.m.

Tickets must be purchased before February 4.

NOTICE

All coordination activities involving shipment and receipt of cargo on the NASA airlift to Wallops Island and to Washington will be performed by the Shipping and Receiving Group, Procurement Division, in the same manner as this group handles other NASA cargo. Personnel having material for shipment on the airplane or those expecting receipt of material on an incoming flight are asked to contact David Buchanan, 4560, for instructions.

NOTICE: The Stores Branch has misplaced a 68-pound carton from the Computer Measurements Company, San Fernando, California, and a 115-pound carton from Laboratory Equipment Company, Benton Harbor, Michigan. If located please call Shipping and Receiving, 4545.

MARINER SETS MANY NEW RECORDS DURING FLIGHT

Scientists are still unfolding many secrets about Venus after Mariner II travelled 182 million miles to gather the information.

Launched from Cape Canaveral on August 27, Mariner II passed within 21,000 miles of Venus on December 14. The launch vehicle was an Atlas-Agena B.

Mariner set many firsts. During the long journey that extended almost halfway around the sun, the spacecraft set a long distance communication record of 36 million miles. It also performed the first successful guidance maneuver in space.

It carried six experiments. Four of these, turned on by ground command two days after launch, included: a magnetometer, an ion chamber-particle flux detector, a solar plasma detector, and a cosmic dust counter. They made numerous measurements during Mariner's curving trip toward Venus. They measured magnetic fields, radiations and dust particles when Mariner came nearest to Venus.

Two other experiments - a microwave radiometer and an infrared radiometer - scanned the surface and the atmosphere of Venus for 42 minutes.

Telemetry gathered during the flight was sent to ground receiving stations at the Deep Space Instrumentation Facilities located in Goldstone, California, Woomera, Australia and Johannesburg, South Africa.

Scientists in charge of the magnetometer experiment on board Mariner, announced that they have found no evidence of a Venusian magnetic field that could be detected at any point on the Mariner trajectory.

No rise in the average value of the magnetic field above the interplanetary value was observed, and the observed fluctuations in the field were, if anything, smaller in the vicinity of Venus than in the neighboring parts of interplanetary space.

This does not necessarily mean that Venus has no magnetic field. The solar wind, a low density ionized gas that continuously flows outward from the Sun, could confine a weak field to a limited region close in to the planet.

All that can be concluded from the observations is that the field does not extend out to the Mariner trajectory, for which the distance of closest approach from the center of Venus was approximately 25,000 miles.

The observations are consistent, however, with the possibility that Venus has no magnetic field.

Results from an experiment conducted with radar indicate that the cloud-covered planet may be rotating in a direction opposite from that of the earth.

Scientists at Jet Propulsion Laboratory who are analyzing the echos of signals bounced off Venus during the experiment say that there are several indications that point to a retrograde rotation of Venus. Moreover, the rate of rotation is very slow, perhaps once every 250 earth days.

This conclusion, however, is based on the assumption that Venus, which is continually hidden from view by a dense cloud-cover, is rotating on an axis that is perpendicular to the plane of its orbit.

Thus, if Venus does indeed rotate backwards, to a person living on the planet the sun would rise in the West and set in the East only two times in about 250 days. Looking down on our solar system from a point in space north of earth, Venus would be rotating in a clockwise direction. All other planets would be rotating in a counter-clockwise direction with the exception of Uranus, whose axis is almost parallel to the plane of its orbit, and Pluto, whose direction of rotation is unknown.

MICROMETEORITE SATELLITE

NASA has asked for proposals from industry for the design and construction of a large-surfaced micrometeoroid satellite to further study the hazards to space flight posed by meteoroids and micrometeoroids (tiny particles of solid matter flying in space).

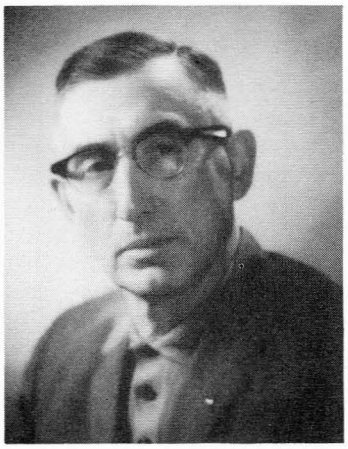
The new proposal involves an erectable satellite to be orbited in a near-earth environment and to be of a large surface size in order to provide useful data for designing large operational manned and unmanned systems in space within a few hundred miles of Earth.

The satellite will weigh more than 4,000 pounds and the surface area will be more than 2,000 square feet when erected. It is expected that the satellite will have a useful life of at least one year.

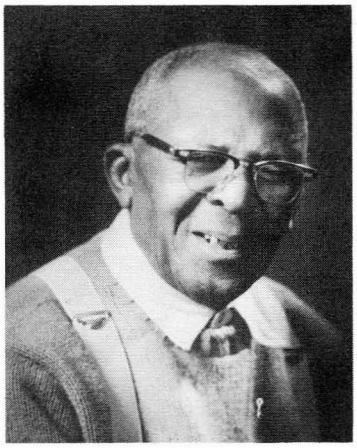
The large size will permit investigation of skin thickness greater than that normally used in small spacecraft. It has the further advantage of providing more data on meteorites - the study of distribution and the magnitude of meteoroid particles.

NASA's Office of Advanced Research and Technology plans to conduct the experiment as a secondary mission for the 8th and 9th Saturn test flights which will be under development with the Apollo service module on the rocket's second stage.

The new micrometeoroid satellite will be many times larger than the Explorer XVI which was launched on a Scout rocket for the same purpose on December 16.



Bela W. Thompson



Nelson Wilkinson

THREE RETIRE

Three staff members retired from the Center on December 31 with a combined total of almost 60 years of Federal service.

Bela W. Thompson, Experimental Machinist Leader in the Mechanical Service Division, was born August 24, 1899 in Cherryville, North Carolina. He graduated from Rutherford County High School, Rutherford, North Carolina and served his apprenticeship as a machinist from 1918 to 1922 at Caroleen Mills in Caroleen, North Carolina.

Before joining the Center staff on August 7, 1950 as a metal modelmaker, he worked for the Norfolk Navy Yard in Portsmouth and the Offices of Supervisors of Shipbuilding in Chicago and Seneca, Illinois. At the time of his retirement he had completed 15 and a half years of service with the Government.

Willie G. "Judge" Pullen, Warehouseman in the Procurement Division, was born December 24, 1892 in Scott, Georgia. He graduated from Scott High School and started his career with the Government in 1938 in the Department of Agriculture. He joined the Center staff on April 14, 1942 as a junior storekeeper. At the time of his retirement he had completed 24 and a half years of Federal service.

Nelson Wilkinson, Construction and Repair Section, Maintenance Division, was born December 28, 1892 in St. Francisville, Louisiana. He attended public schools in Louisiana and served in the U.S. Army from July 16, 1918 to April 4, 1919. He entered on duty at the Center on November 16, 1943 and had almost 20 years of service at the time of his retirement.

CREDIT UNION

(Continued from page 1)

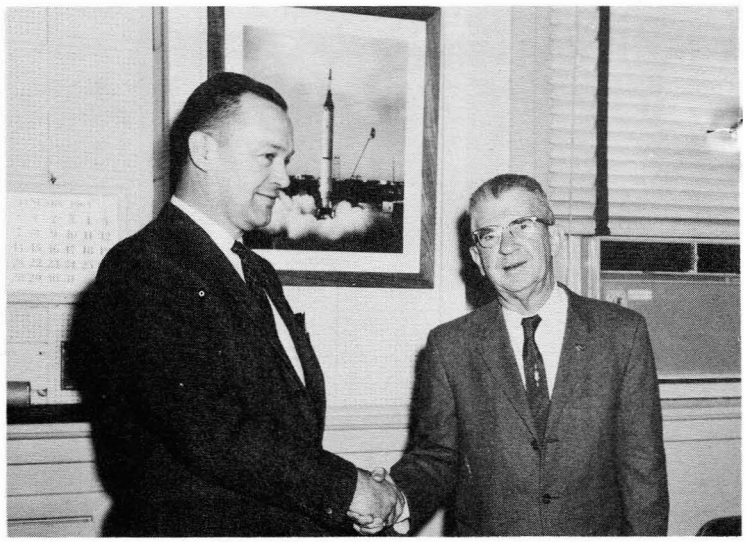
Boxer, Albert L. Braslow, Bernie Deem, and Cecil S. Hudgens. Nominated to the Credit Committee are the following: Thelma Cullum Roger W. Peters, and Lee Schilling. Nominations will also be accepted from the floor.

Twenty-six door prizes, valued at $750, will be given away during the meeting. Tickets for the prizes will be given out at the door to members. In order to receive a ticket, members will be requested to show their membership cards.

All members of the Credit Union are urged to attend this important annual meeting.

FOR RENT: Bedroom near Wythe shopping center. Dailey, CH 5-4359 before 11 a.m.

FOR SALE: 10-week-old male puppy - $5. Mason, PA 2-6880.



John Munick (left), Assistant Procurement Officer, extends best wishes to Willie G. "Judge" Pullen, Stores Branch. Pullen retired from the Center on December 31.

BECKER HONORED

(Continued from page 1)

from Space" which appeared in the Scientific American magazine in 1961.

The IAS selected Becker as winner of the Sylvanus Albert Reed Award for 1961 "for contributions to the advancement of aeronautical science at hypersonic speeds and for leadership in translating these advances into the design of manned, winged, hypersonic vehicles."

He has been an Associate Fellow of the IAS; member of the Aircraft Owners and Pilots Association; member of Tau Beta Pi, honorary engineering fraternity; and member of the Warwick Yacht and Country Club. In 1955 he was cited by New York University as one of the 100 outstanding graduates of its College of Engineering.

WANTED: Passengers or driving combination from Southampton to E.A. on 8 shift. Adcock, 2249.

FOR SALE: 8-foot fiberglas sail boat - $100. McRee, 838-0389.

WANTED: Driving combination or ride from Stuart Gardens to W.A. on 7:30 shift. Shipp, 4842.

AIRPLANE

(Continued from page 1)

McConnel Air Force Base, Wichita, Kansas, accumulating 5,438 hours of flight time over the past 10 years. In 1961, it was transferred to NASA Langley Research Center for use in research projects.

Major Bailey flew the T-33 on its last official flight that took him and a photographer to an altitude of 40,000 feet over Cape Canaveral to observe and photograph the first sub-orbital development launch of a 135-foot-diameter rigidized Echo II balloon being developed by Langley research scientists.

T-33 production ended several years ago and the airplanes are gradually being retired by the Air Force to make way for modern jet trainers.

WANTED: Ride from Victoria Blvd. and Kecoughtan Rd. to W.A. on 7:30 shift. Beltz, PA-33220.

FOR SALE: AKC registered Basset Hound pups. Bieri, 838-0391.

FOR SALE: Zenith portable stereo phonograph. Friend, PA 2-8385.

FOR RENT: Three-bedroom house in Riverside. Graves, 596-7520.

VARC CONTRACT

(Continued from page 1)

formed under authority of the Virginia General Assembly. The presidents of the three schools comprise the governing council of VARC.

VARC is expected to manage and operate the research laboratory, which will include a synchro-cyclotron and related research facilities, under contract to NASA. In addition, the three Virginia institutions plan to establish a graduate study program in cooperation with NASA at the site of the laboratory.

The NASA will utilize the laboratory in research in which investigations simulating the space environment can be performed and the results applied to increase the reliability and safety of spacecraft and space missions. The synchro-cyclotron will permit the simulation of high-energy electron and proton radiation encountered in orbits or trajectories of proposed NASA space vehicles and their systems.

NASA has made application to the General Services Administration for surplus Government land at Oyster Point as a site for the $12,382,000 laboratory.

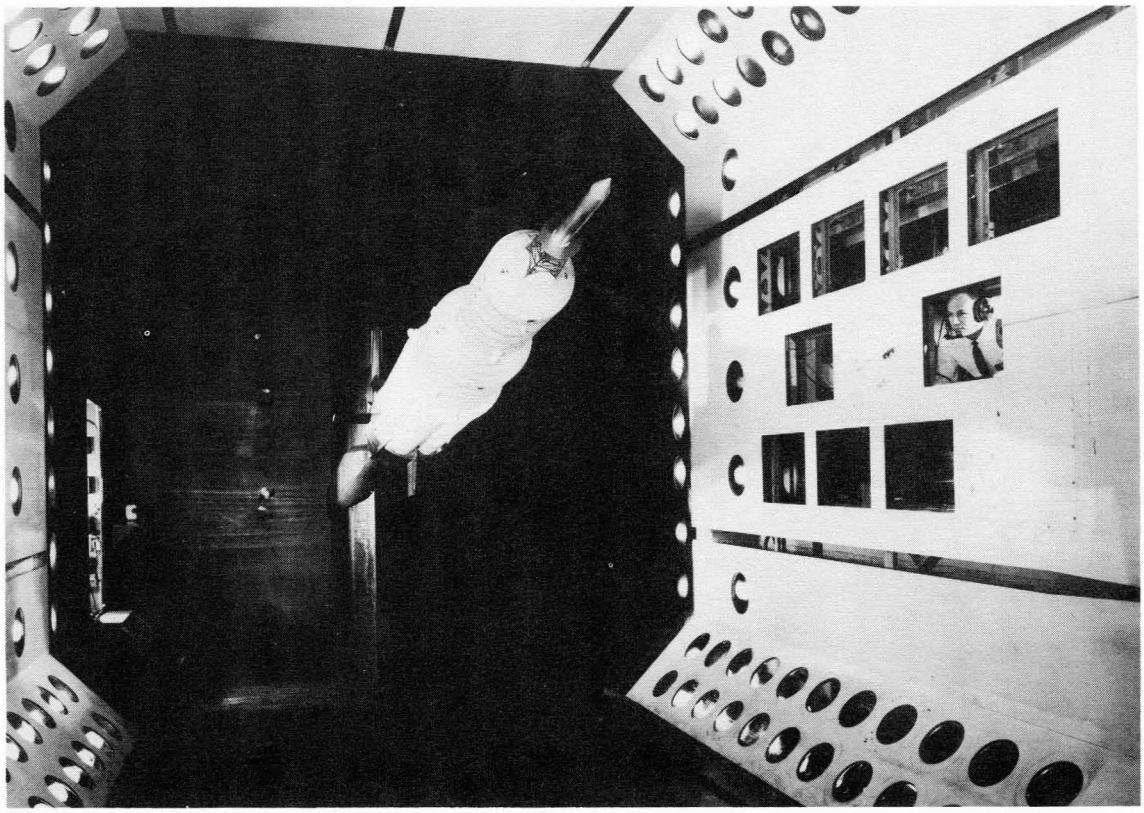
Langley procurement and engineering officials are presently negotiating a contract for architect and engineering services for the laboratory which will house the cyclotron. The cyclotron and other research equipment will be a separate design contract.

The laboratory is scheduled to go into operation in about 28 months.

XXXXXXXXX

WANTED: Alternate driver from Southampton to W.A. on 8 shift. Shideler, 4805.

FOR SALE: Singer portable sewing machine. Limburg, 596-9167.



Langley scientists are performing exhaustive wind tunnel investigations on launch vehicles to establish that they will withstand every flight condition from lift-off to escape velocity. Langley, in cooperation with Marshall Space Flight Center and Manned Spacecraft Center, is making buffeting studies on a Saturn-Apollo model with escape tower. A 1/12th aeroelastic scale model, made up of the S-1 and S-IV stages with the Apollo spacecraft atop the S-IV stage, is sting mounted in the test section of the Transonic Dynamics Tunnel where transonic buffet and aerodynamic damping are studied in the transonic speed range. Buffeting can occur on many aerodynamic shapes, and may lead to different kinds of structural response problems. Wind tunnel information is used to estimate the bending moments caused by buffet flows on the structure of a manned lunar vehicle during transonic flight.

HELICOPTER GROUP MEETS MONDAY

The Hampton Roads Section of the American Helicopter Society, will meet on Monday, January 21 in the Warwick-James-York Rooms, Officers' Club at Fort Eustis.

Guest speaker will be Ray Donavan, Sikorsky Aircraft Division. He will speak on "The Sikorsky S-64 Flying Crane."

A social hour will be held at 6:30 p.m. followed by dinner at 7:30.

For reservations call Robert Huston, 826-3724, or Ralph Aiken, TR 7-1311 by noon on January 18.

FOUND: Pair glasses in AMPD, 4436.

ISA MEETING JANUARY 30

The Hampton Roads Section of the Instrument Society of America will hear an address by William T. Bean Jr. at a meeting at 6:30 p.m. on Wednesday, January 30 at Earle's Restaurant.

Bean, who is one of the nation's leading authorities on strain gages and their application, will speak on The Interpretation of Strain Gage Data".

For additional information call Bruce Flagge, 4616.

WANTED: Ride from Norfolk to W.A. on 7:30 shift. Hampshire, 4861.

FOR SALE: 1952 Mercury. Bruce, 826-0783.

PROFESSORS PLAN VISIT TO CENTER

Dr. E. B. Reynolds, Dr. J. B. Raney, and Dr. J. W. Moore, Department of Mechanical Engineering at the University of Virginia, will visit the Center on Monday, January 21 to consult with students.

All employees planning to do graduate work in Mechanical Engineering at the University of Virginia and who have not submitted a program of study and those planning to attend the 1963 fall semester in residence should call the Training Office, telephone 2362, for an appointment.

FOUND: Diamond ring. Call Brady, 4790.

88 INSTITUTIONS RECEIVE GRANTS

The NASA has announced the selection of 88 colleges and universities to receive graduate training grants for the academic year 1963-64. Notification to the colleges was made in December.

The grants will go to predoctoral trainees who have chosen a graduate study research program which is space oriented. It is anticipated that approximately 800 graduate students will participate in the program.

The purpose of the grants is to help achieve the long range objectives of the national space program and meet the Nation's future needs for highly trained scientists and engineers. These skills are in short supply today and will be needed in increasing numbers over the next decade.

The institutions were selected not only because they have doctoral programs in space related science and engineering but because of their willingness to undertake a strengthening of their programs in these areas.

Candidates for graduate degrees participating in the program will be selected by the universities and will en- the program in September 1963. The number at each university will vary from two to 15, depending on the number and quality of doctoral programs available in the space-related areas, adequacy of facilities and extent of participation in other NASA programs.

Each graduate student selected for the training program will receive a stipend of $2,400 for 12 months of training. There is also an additional allowance for dependents of up to $1,000 per year to be paid according to the policy of the individual university administering the funds. The recipient is assured three years of graduate study providing he has a satisfactory record.

The project started in 1962 as one phase of a broad program by NASA involving participation by the Nation's colleges and universities in research and development in space.

About 100 students are receiving graduate training under grants to ten universities at the present time.

Administration of the present predoctoral training program is under the Office of Grants and Research Contracts, Headquarters.

RESA MEETS JANUARY 29

Thomas B. Sheridan, Professor in the Mechanical Engineering Department at Massachusetts Institute of Technical, will address the Hampton Roads Chapter of the Research Society of America (RESA) on Tuesday, January 29 in the Projection Room, East Area. The meeting will be held at 8 p.m.

Sheridan will discuss methods of measuring and predicting human response. In this field, he has made many original contributions ranging from studies of remote manipulation of robots to tests of driver alertness in a specially equipped test car.

Sheridan will be at the Center on January 30 as a consultant to discuss simulation problems concerning the Apollo mission.

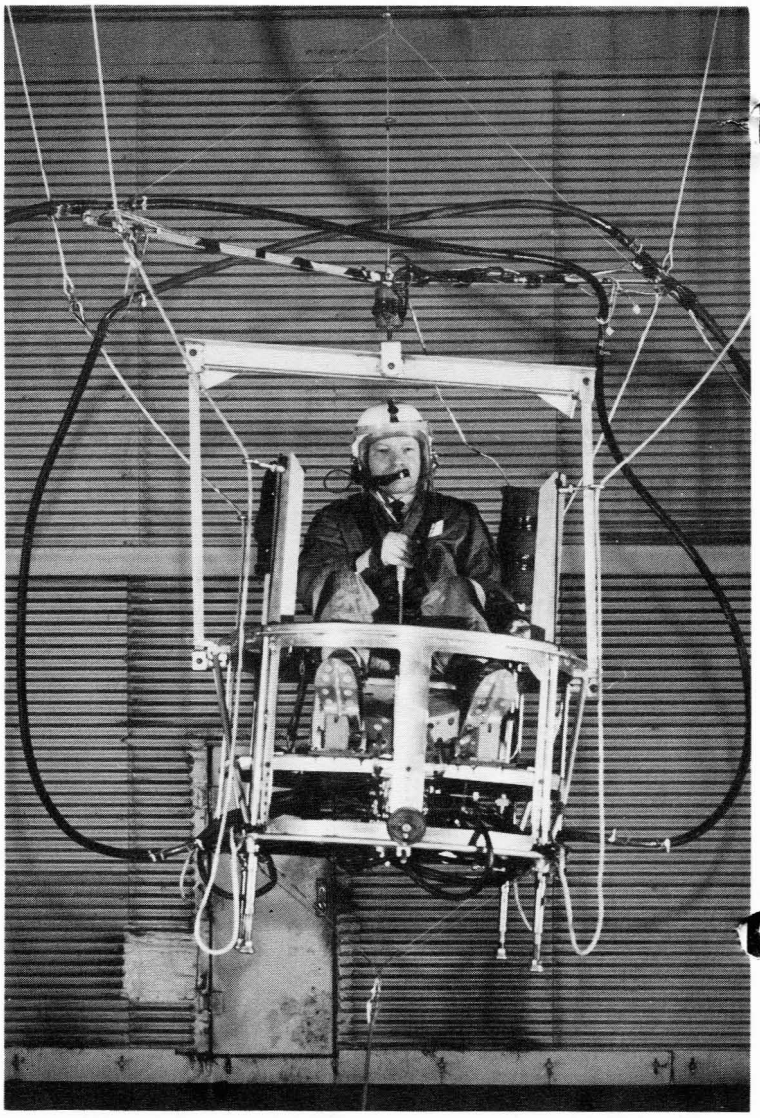
FOR RENT: Furnished room for gentleman. Watson, CH 4-1668.

FOR SALE: Brick rancher in Chesapeake Heights - 3 bedrooms. Horstmann, PA-36902.

WANTED: Ride from Chesapeake Ave. to E.A. on 8 shift. Foster, 2264.

FOR SALE: House in Holly Homes - 3-bedroom rancher. Mixson, PA-22054.

FOR SALE: Walnut table with pad and 4 chairs, $50. Feller, PA-35278.



John P. Reeder, Head of the Operations Branch, Aero-Space Mechanics Division, is shown preparing to simulate a moon landing with a pilot model of a Lunar Landing Research Facility which will be put into operation at Langley this year. The facility is designed to study the basic problems involved in the final phase of the landing approach and touchdown on the lunar surface. The $3,500,000 outdoor research facility - including supporting steel structure 400 feet long and 240 feet high - will have a two-man pilot's compartment mounted atop a propulsion module for simulated flights in the research program in support of lunar missions. The vehicle will be controlled by the thrust from its main rockets and a system of small maneuvering rockets, and will be suspended from a specially designed hoist which supports five-sixths of its weight at all times. In this pilot model an overhead cable attached to a hydraulically-driven servo-controlled drum supports the cockpit and allows vertical freedom of movement. The servo-control system maintains a constant tension in the cable equal to five-sixths the combined weight of the vehicle and pilot - simulating the moon's gravitational pull which is only one-sixth that of the earth. The unsupported one-sixth of the weight is counteracted by the pilot controlling the thrust of a downward-firing air jet. The angular position of the neutrally-stable cockpit is pilot controlled by attitude control air jets which provide pitch, roll, and yawing moments about the cockpit's center-of-rotation.

METEORITE NETWORK PLANNED IN SEVEN MIDWESTERN STATES

A network of 16 stations to photograph bright meteors will be established in 7 midwestern states.

The network will be set up by the Smithsonian Astrophysical Observatory under a $240,000 grant from the NASA.

This meteorite photography and recovery program, called the "Prairie Network" will concentrate on photographing bright meteors and recovering meteorites soon after they fall. Prompt recovery will then permit other scientists to study the chemical and organic structure of the meteorites and the effects of radiation on them.

Each station will be equipped with four automatic cameras and each station will be located about 150 miles from a neighboring station. Films from all stations will be processed and examined at the network's field headquarters in Lincoln, Nebraska, under the direction of Charles Tougas, Field Supervisor of the project.

The Smithsonian recovery teams will search areas of impact to locate meteorites for study and analysis at numerous laboratories in the United States. In addition, the photographs will yield valuable information on meteor luminosities, velocities, and orbits.

The cameras' F 6.3 lens are extremely wide angle, covering an 80 degree field. Four cameras at each location will be pointed north, east, south, and west and will effectively cover the entire sky, from horizon to horizon.

Stations will operate automatically. A photo-electric device, similar to that used to turn on street lamps will be used to sense darkness. This device will also turn on the electric power at the station. Another photoelectric sensor will seek out Polaris, the North Star. If the sky is clouded or weather conditions are adverse for photography, Polaris will not be visible, and the station will close. If the sensor can locate the North Star, then the camera will receive an electrical signal and the photographing will begin. If, during the night, clouds obscure the North Star for an extended period of time the station will cease operation until the sky clears.

The program is expected to provide new information about the physical processes in meteors, where entry velocities range from 8 to 40 miles per second, and help clarify the origin of these solid particles, some from comets and some from broken small planets, and possibly the Moon.

At present the 16 station sites have been leased; construction on 8 of the stations have been completed. To date, 12 local attendants have been selected to service and maintain the stations.

Stations are located at: Havana, Ill.; Milan, Mo.; Vinton, Iowa; Carroll, Iowa; Steinauer, Nebraska; Mullen, Nebraska; Alma, Nebraska; Neligh, Nebraska; Flandreau, South Dakota; Reliance, South Dakota; McPherson, Kansas; Pleasanton, Kansas; Garden City, Kansas; Woodward, Oklahoma and Hominy, Okla.

Dr. Fred L. Whipple is Director of the Smithsonian Astrophysical Observatory and Dr. Richard E. McCrosky is Chief Scientist on the meteorite project.

Shown above is an artist's conception of how an Apollo astronaut in his "moon suit" might appear following lunar landing and during the collection of samples of the lunar surface. A contract for the development of the "moon suit" has been awarded by NASA to Hamilton Standard, Division of United Aircraft Corporation, Windsor Locks, Connecticut.

TEN COMMANDMENTS OF SAFETY

This short check list of rules for promoting safety consciousness might be called the supervisor's "Ten Commandments of Safety."

1. Train my workers on a safe way.
2. Watch for, and correct immediately, unsafe working conditions.
3. Make sure that certain safety equipment is available and used.
4. Know and enforce all safety rules and make sure my people know the rules, too.
5. Correct all bad working habits - my own as well as those of my subordinates.
6. Maintain discipline; it's of top importance in safety enforcement.
7. Keep my work areas clean and free from rubbish, waste, and other material which may cause hazards.
8. Be certain all tools are in good working condition.
9. Get the cooperation of all employees in accident prevention.
10. Set a good example myself.

There are many more, but it all boils down to the fact that most accidents are caused by ignorance, carelessness, selfishness, or impatience and such accidents can be avoided.

FOR SALE: Ivy Farm home. Bradshaw, 596-3147.

FOR SALE: 1955 Ford sedan. Ingram. 838-2108.

FOR SALE: 1959 Opel. Call Warren, CH 5-3014.

FOR SALE: 1957 Chevrolet. Hudgens, LY 6-1997.

R. F. Pavley

IRE MEETING JANUARY 25

R. F. Pavley will present a paper on "The Recording, Reduction and Analysis of Radar Data" at the meet- of the Institute of Radio Engineers on January 25, at the Activities Building.

According to Pavley, many people consider a radar as a position measuring instrument only and ignore the information present in the received signal relative to target size, shape, and angular motion. He will attempt to indicate the powerful results obtainable by an examination of the received signal. He will discuss reflectivity properties of simple objects, various recording techniques, data processing considerations and data analysis.

Pavley is associated with the Mathematical Analysis Section of the Moorestown Data Reduction Center in Moorestown, New Jersey. At the present time he is a candidate for a Ph.D. degree in Mathematics from Syracuse University.

He has had ten years of experience as a mathematician in the data processing field. His mathematical specialities include numerical analysis, orbital analysis, stochastic processes, and design of numerical filters. He has supervised projects in the fields of missile trajectories, simulation studies, automatic control and numerical analysis.

The meeting will start with a social hour at 6 p.m. followed by dinner at 7:15 and the meeting at 8:30.

For reservations please call W. H. Fuller, 4616.

BOWLING NEWS

DUCKPIN LEAGUE

Hopefuls lead the league with 37 wins and 23 losses. Strike Outs and Light Machine No. 1 are tied for second place with 36 wins and 24 losses each. High team game for the year was rolled this week by Strike Outs with 609. High scores were rolled by Bill Letko with a 148 game, Mary Carmines with a 135 game, Alberta Insley with a 319 set, and Albert Insley with a 388 set. Insley's set is high for the season.

STANDINGS

Team	Won	Lost
Hopefuls	37	23
Strike Outs	36	24
Lt. Mach. 1	36	24
Rebel Bomber	34	26
Pin Poppers	32	28
Count Downs	32	28
Jets	31	29
Double Dots	27	33
Ten Spots	26	34
Doodle Bugs	25	35
ICS	23	37
Lt. Mach. 2	21	39

NOTICE

Employees planning to attend the 1963 Spring Semester at the College of William and Mary should contact the Training Office, telephone 2326, at once and request an application for Graduate Study Leave.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Kennedy, 4557.

FOR SALE: 32 calibre Smith and Weston revolver and 22 calibre semi-automatic pistol. Byars, 838-1684.

FOR RENT: Furnished 3-bedroom house. Gaskins, PA-31230.

U.S.-RUSSIAN AGREEMENT

The bilateral cooperative program between the United States and the Soviet Union announced recently in the United Nations calls for peaceful, scientific exploration of outer space in the fields of meteorology, a world geomagnetic survey, and a passive communications satellite, Echo II.

The program had its inception as the result of an exchange of views between President Kennedy and Soviet Chairman Khrushchev on cooperation in space activities following the successful orbital flight of American Astronaut John H. Glenn last February.

James E. Webb, NASA Administrator, commenting on the bilateral program, stated:

"This is an important step toward cooperation among nations of the world to increase man's knowledge and use of his spatial environment. The careful preparation for such a joint cooperative effort made by Academician A. A. Blagonravov and Dr. Hugh L. Dryden is a sound basis on which to proceed. The United States will make every effort to facilitate this undertaking."

Notification of Soviet approval was contained in a letter from M. V. Keldysh, President of the Soviet Academy of Sciences, to Webb.

Representatives of the U.S.S.R. and the U.S.A., headed by Academician Blagonravov, of the Soviet Academy of Sciences, and Dr. Dryden, Deputy Director of NASA, met in Geneva in June concurrently with the meetings of the Technical Subcommittee of the U.N. Committee on Peaceful Uses of Outer Space, to discuss potential areas of cooperation, and as a result of their discussions agreed upon recommended programs to be forwarded to their respective governments.

The program of cooperation between the U.S.A. and the U.S.S.R. scientists provides that:

In the field of meteorology, the two satellite launching nations shall contribute their capabilities toward establishment of a global weather satellite system for the benefit of other nations.

The two nations will cooperate on the compilation of a map of the earth's magnetic field using satellites for the further exploration of space and the advancement of the science of earth magnetism.

The two nations will cooperate on a passive communications experiment with Echo II.

Consideration is to be given to future cooperation in joint experiments using active repeater satellites.

REPORT INJURIES WITHIN 48 HOURS

In order to be eligible for compensation benefits, an employee must follow the rules and regulations of the Bureau of Employees' Compensation.

One of the most important of these regulations states that whenever any injury is sustained by an employee of the Government while in the performance of his duty, he shall immediately give written notice to his official superior. Unless written notice of injury is given within 48 hours or unless the immediate superior has actual knowledge of injury, compensation may be refused.

Form CA-1 is provided for filing written notice of injury. This form is available at either the East or West Dispensaries or the Health Unit Office, Building 587.

Other information concerning the Federal Employees Compensation Act may be obtained by telephoning or visiting these locations.

Langley Researcher

VOLUME 2, NUMBER 3 LANGLEY RESEARCH CENTER FEBRUARY 1, 1963

LANGLEY PLANS CONTRACT AWARD

Langley Research Center has announced the selection of the Boeing Company, Transport Division, Renton, Washington, and the Lockheed-California Company, Burbank, California, with which to negotiate two aircraft study contracts expected to total $1,000,000.

The studies will complement other programs being carried out by the NASA and the Federal Aviation Agency in a national effort to provide the technology necessary for the development of a supersonic commercial air transport capable of speeds up to 2,000 miles an hour.

Boeing and Lockheed were among five firms submitting proposals for the study of four aircraft configurations which are among several potential approaches being investigated by NASA in its supersonic transport research program. Each of the two companies is expected to receive a $500,000 contract.

Purpose of the studies is to evaluate four concepts investigated by NASA - including three at the Langley Research Center and one at Ames Research Center. It is planned that each of the two contractors will make a comprehensive study of all four concepts.

NASA expects the industry studies to provide information on the feasibility and the practicability of these concepts through engineering investigations encompassing all facets of a commercial design - including airworthiness requirements, structures, and

(Continued on page 8)

40 APPRENTICES GRADUATE FEB. 8

Forty apprentices will receive certificates for completion of their apprenticeship at the Center's twenty-first annual apprentice graduation exercises at 1:30 p.m. February 8 at the Activities Building.

Henry Holland, president of the Cardwell Machine Company, Richmond, will be guest speaker.

Floyd L. Thompson, Director, will preside at the exercises. The invocation will be delivered by Rev. William P. Milne, pastor of Orcutt Avenue Baptist Church. Ernest J. Phillips, Heavy Machine Shop, will speak for the graduating class.

Special music will be furnished by the Tactical Air Command Band under the direction of Captain Carl Costendbader. Chief War-

(Continued on page 8)

NASA REQUESTS NEARLY $64 MILLION, 271 NEW EMPLOYEES FOR LANGLEY

Funding requests to support the activities of NASA during the fiscal year 1964 include nearly $64 million for Langley Research Center, according to the President's budget submitted to the Congress.

The budget includes $54,015,000 for operating and personnel funds for Langley, an increase of $3,301,000 over the total for fiscal year 1963 which ends June 30.

A total of $9,768,000 is listed for the construction of new facilities to be located in West Area. Langley's estimated plant value is presently $250,000,000.

The permanent Langley staff is budgeted for an increase to 4,296 for fiscal 1964 as compared to the present fiscal year's authorized total of 4,025 - a rise of 271.

The current Langley payroll is $31,420,000, a figure which is expected to increase if the request for a larger permanent staff in fiscal 1964 is approved by Congress.

The total NASA budget for 1964 would be $5,712,000,000, compared to $3,673,000,000 for the current fiscal year.

The following is a listing of the proposed new Langley construction and the amount requested for each project:

Electronic instrument laboratory, $2,850,000, for advanced research and development of measurement devices and techniques vital to progress in space technology.

Hot gas radiation research facility, $2,620,000, for studying the characteristics of thermal radiation from the hot gas cap which forms in front of a reentry body as it travels through the atmosphere at higher than satellite speeds.

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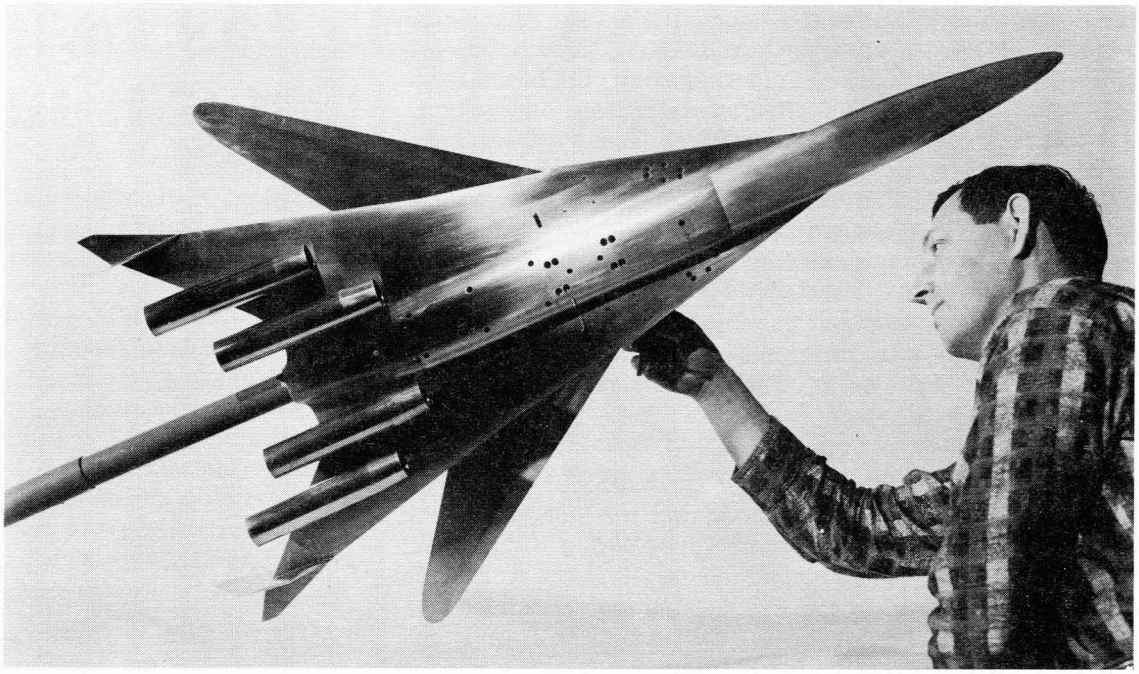


SCAT-15 is one of three Langley supersonic commercial air transport concepts which will be studied by industry. Shown here as a wind tunnel model, SCAT-15 features the principle of variable wing sweep to aid efficient operation at low, medium and high speeds.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIAPER LINES. . .Thomas Kurtyka, Heavy Machine Shop, became the father of a daughter on January 14. . .A new heiress was delivered to the Robert McWithey household on January 13. The father works in Structures Research Division. . .Barry Sidney, Aero-Physics Division, announces the birth of a daughter on January 14. . .Celebrating the birth of a daughter on January 18 is David Vann, Instrument Research Division.

WEDDING BELLS. . .Deserting the bachelor ranks on Saturday, January 26 was Sullivan R. Donadio, Heavy Machine Shop. He was married to Tessia Margaret Lamb, Hampton, in the Hampton Roads Baptist Church. Ronald B. Amole, Fabrication Shop, served as an usher.

NEW HEIRS. . .Announcing the birth of a son on January 12 is Donald Progar, High-Temperature Materials Branch. . . Word has been received at the Center that Barbara Evans, formerly of Office of Public Affairs, became the mother of an eight pound, two ounce son on January 23. . .William T. Lucy, High-Temperature Materials Branch, became the father of a son on January 10.

CAMERA CLUB. . .Members of the Langley Camera Club who are planning to attend the slide-of-the-year dinner and contest are requested to contact Sid Hall, 2240, today for reservations. The dinner and meeting will be held tomorrow night at 7 o'clock at Earle's Restaurant. Judge for the contest will be Henry Sharp, James River Camera Club.

SWING YOUR PARTNER. . .The Merry Mixers Square Dance Club, in cooperation with the Newport News Recreation Department, announces the fourth bi-annual square dance class for couples and single persons from 12 years of age and up. The first lesson will be held on February 7 at 8 p.m. in Deer Park Elementary School on Clyde Morris Boulevard. The course will consist of 20 lessons.

ALUMNI NOTICE. . .Members of the NASA Apprentice Alumni Association are reminded that the club will honor the graduating class and their wives with a banquet and dance at 7 p.m. on Friday, February 8 at the Activities Building. Members of the Association may purchase tickets from Rudy Olive, 4866, Kelley Hinnant, 4611, or Richard Holt, 4483. Admission for the dinner and dance will be two dollars per person. Admission for the dance only will be two dollars per couple. The dance will begin at 9 p.m. Tickets must be purchased before February 4.

NOW YOU CAN TAKE YOUR INCOME TAX REFUND IN U.S. SAVINGS BONDS

For the first time, you can take your income tax refund in Series E United States Savings Bonds. All you have to do is check a box on your 1962 tax return.

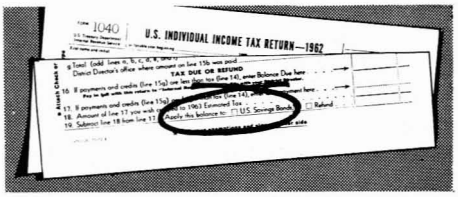
This is an easy convenient way to hold on to money *you have already saved.* You won't get any cash which you'd be tempted to spend. Your refund comes as Bonds which will return you 4 dollars for every 3 at maturity.

Tens of millions of Americans build their financial strength through U.S. Savings Bonds. And their strength is the strength of the nation—so important in these crucial times to us and to free people everywhere.

If you have a refund coming on your '62 tax, think it over before deciding how to take it. And when you decide to take it in Savings Bonds, see if you don't feel pretty good about it.

Quick facts about U. S. Savings Bonds

• You get 3¾% interest to maturity • You get your money anytime • Your Bonds are replaced free if lost, destroyed, or stolen • You can save automatically on Payroll Savings



The 1962 Tax Return gives you a choice of taking your refund in cash or U.S. Savings Bonds. Full details are in the instruction form.

Keep freedom in your future with

U.S. SAVINGS BONDS

INCREASE REQUESTED FOR LANGLEY

(Continued from page 1)

Addition to the vehicle antenna test facilitiy, $1,758,000, to provide facilities for research and development work on transmitting and receiving equipment used in space research.

Fatigue research laboratory, $1,291,000, to permit Langley to extend its research designed to prevent the failure of aircraft and space structures by fatigue, a weakening or deterioration of metal or other material ocurring under repeated loads.

Utility installations, $1,249,000, including a project for the extension of the existing utilities tunnel to serve new facilities; and a paved road leading to the area where the Lunar Landing Research Facility is under construction.

WANTED: Two or three passengers to share expenses to Des Moines, Iowa, February 16 to February 24. Bright, 722-1197 between 4 and 5:30 p.m.

WANTED: Ride from Todds Lane and Turner Terrace to W.A. on 7 shift. Pittman, 4656.

SEMESTER STARTS FOR APPRENTICES

The Spring Semester of the Apprentice School will start on Monday, February 4 and classes will be held in the Apprentice classrooms located on the first floor of Building 586.

Courses which are being offered and the instructors are:

Monday - Geometry, A. R. Vanasse; Mathematics (E and E) II, J. C. Young, Machine Shop Theory, S. E. Devan, Inst. Const.; Electronic Shop Theory, R. H. Coultrip.

Tuesday - Geometry, J. H. Belveal; Mathematics (E and E) II, F. L. Dickinson; Machinist Shop Theory, H. F. Pabst; and Electronic Shop Theory, K. N. Cole.

Wednesday - Physics I, V. G. Collins; Machinist's Handbook II, J. W. Cheely, Engineering Drawing II, M. A. Weiner, and Physics II, L. P. Kopia.

Thursday - Engineering Drawing I, J. G. Hudson, Trigonometry, R. B. Holt; Essentials of Radio II, A. L. Jones; Eng. Drawing II, W. M. Cook; Transistors I, R. O. Staib; and Algebra, G. E. Moore.

Friday - Direct Current Fundamentals I, H. B. Caldwell; Trigonometry, J. A. Walker; Engineering Drawing II, C. P. Eichelberger, and Plastic Theory, W. A. Wright.

FOR SALE: Three-bedroom rancher in Wythe. Richardson, 723-0289.

FOR SALE: Bozak B-199A woofer, B-209 mid-range speakers and 3-way crossover network, with or without cabinet. Call Kantarges, 596-7423.

FOR SALE: Remington 22 caliber automatic rifle, model 241 speedmaster. J. S. Stodghill, 898-5277.

FOR SALE: Three bedroom house in Warwick Villa. Wirt, LY 5-0242.

Astronaut Walter M. Schirra Jr., (left), who made six orbits of the Earth last October 3, recently visited the Center. Showning him the three-axis motion simulator in the Hangar are Roy F. Brissenden and William H. Phillips, Aero-Space Mechanics Division.

CREDIT UNION

The Langley Federal Credit Union held its 26th annual meeting at the Activities Building on January 21.

At the meeting it was announced that a five percent dividend had been declared by the Board of Directors for 1962. Last year the organization also paid five percent dividends.

Three new directors were elected at the meeting: Albert L. Braslow, Bernie Deem, and Cecil S. Hudgens.

Elected to the Credit Committee were: Thelma Cullum, Roger W. Peters, and Lee Schilling.

Certificates in recognition of their outstanding work with the Credit Union were presented to Peter F. Korycinski and Cecil S. Hudgens.

FOR SALE: High chair - stroller, and youth bed with mattress. Vahl, 877-2495.

NOTICE

Additional facilities are now available in the States of Virginia and Maryland for the processing of supplemental benefit claims under the Service Benefit Plan.

The following offices have joined the list of local organizations processing such claims:

Maryland Medical Service, Inc., Maryland Hospital Service, 7800 York Rd., Baltimore 4, Maryland.

Virginia Hospital Service Association, 4010 W. Broad St., Richmond 30, Virginia.

Virginia Hospital Service Association, 320 W. Freemason St., Norfolk 10, Va.

FOR SALE: Ulmer penguin sail, tilt-top drawing board on stand with drawer, power boat steering wheel and steering wheel post and fittings; large plate glass mirror. PA 2-5847.

WANTED: Four-drawer file cabinet. Miller, 722-8993.

OBITUARY

Richard S. Schultz, 29, a photographer in the Photographic Division, died early Saturday morning from injuries received in an automobile accident in Newport News.

Schultz was born in Los Angeles and was a veteran of the Korean War. While serving in the U.S. Air Force at Langley Air Force Base, he was employed in the photographic department of The Daily Press, Inc., on a part-time basis. Following his discharge in 1957 he became a full-time photographer.

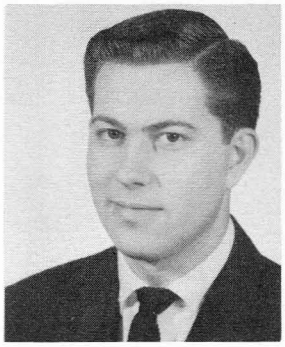
He resigned from the Daily Press December 12, 1961 to join the Langley Center.

He is survived by his wife and a daughter.

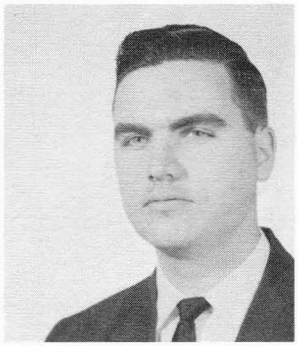
FOR SALE: 31 x 42-inch drawing table with parallel ruler. Leaumont, 826-0119.

FOR SALE: 1952 Dodge in good condition. Call Crain, LY 6-2157.

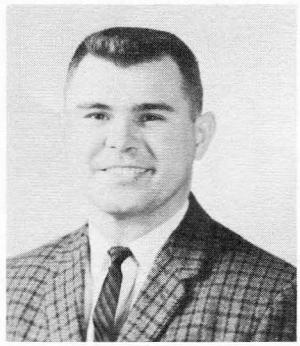
FORTY LANGLEY APPRENTICES GRADUATE FEBRUARY 8



JOHN T. BARCLAY
NEWPORT NEWS, VA.
MACHINIST
HEAVY MACHINE SHOP

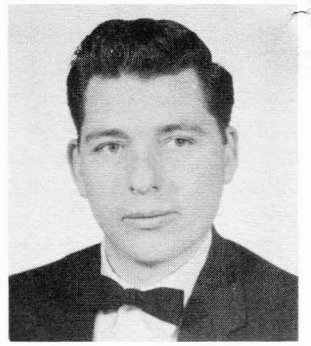


ROBERT W. BARFOOT
NEWPORT NEWS, VA.
MACHINIST
HEAVY MACHINE SHOP

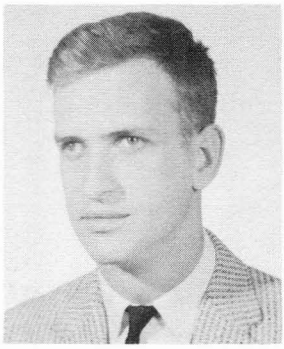


GARLAND R. BEDSAUL
WOODLAWN, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

NEWELL H. BLAYTON JR.
NEWPORT NEWS, VA.
MACHINIST
HEAVY MACHINE SHOP



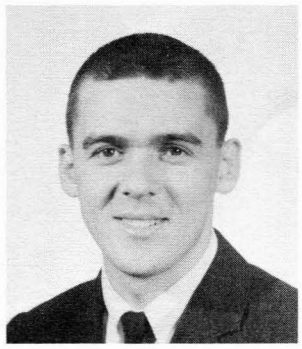
RICHARD E. BLOXOM
NEWPORT NEWS, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP



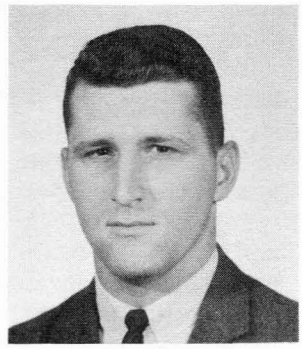
D. GENE BOWEN
PRESCOTT, ARKANSAS
MACHINIST
HEAVY MACHINE SHOP

RALPH H. CALDWELL
MONTGOMERY COUNTY, VA.
MACHINIST
HEAVY MACHINE SHOP

JAMES W. CAMPBELL
HAMPTON, VA.
ELECTRONIC INST. MAKER
IRD -ISSI

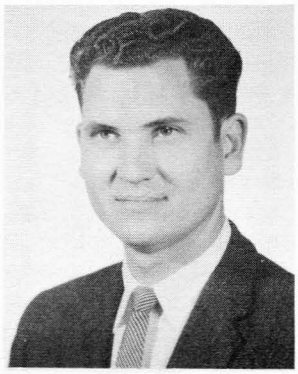


WILLIAM J. DEBNAM JR.
BALTIMORE, MD.
ELECTRONIC INST. MAKER
IRD - GMI



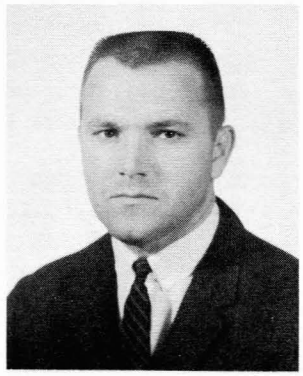
SULLIVAN R. DONADIO
NEWTON, N. J.
MACHINIST
HEAVY MACHINE SHOP

WILLIAM G. DRUMMOND
NEWPORT NEWS, VA.
SHEETMETAL WORKER
FABRICATION SHOP



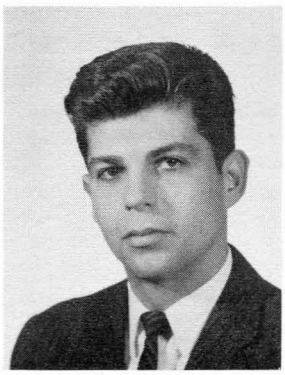
DONALD L. EWTON
FORT MYERS, FLA.
MODELMAKER
MODEL AND PLIANT STRUCTURES

ROBERT L. FERGUSON
BRIDGEPORT, CONN.
ELECTRONIC INST. MAKER
IRD - SENSOR DEV.

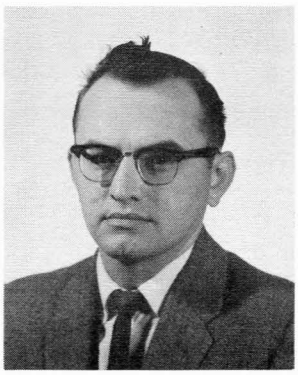


JACK F. GAYLE
NEWPORT NEWS, VA.
SHEETMETAL WORKER
FABRICATION SHOP

RICHARD B. GEISSINGER JR.
HUNTINGTON, PA.
MODELMAKER
MODEL AND PLIANT STRUC.

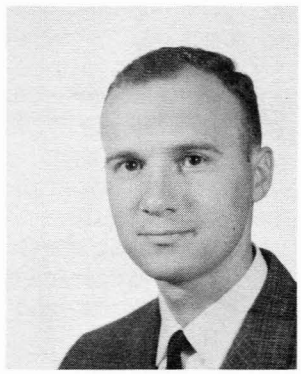


JAMES W. GORMSEN
LIBERTY, N. Y.
ELECTRONIC INST. MAKER
IRD - INST. PHYS. RES.



E. MICHAEL GREGORY
PORT ANGELES, WASH.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

ROBERT A. GRIZZLE
JAMESTOWN, N. Y.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

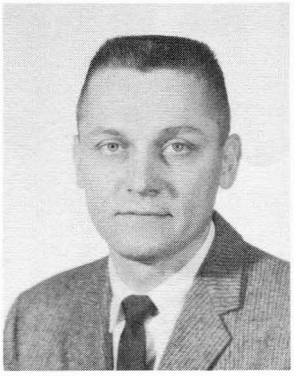


ALLAN C. HANRAHAN
RALEIGH, N. C.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

ARCHIE L. JOHNSON
FOX HILL, VA.
MACHINIST
HEAVY MACHINE SHOP

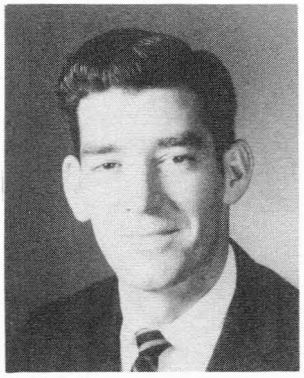
SAMUEL D. JOHNSON
CONCORD, N. C.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

BENJAMIN J. KEETER, JR.
NEWPORT NEWS, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

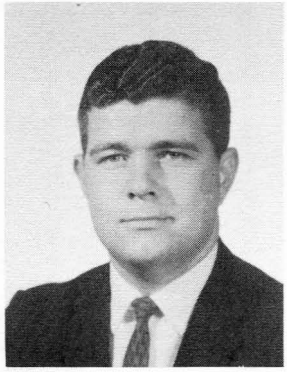


PHILLIP J. KLICH
NEWPORT NEWS, VA.
ENGINEERING DRAFTSMAN
SPACECRAFT STRUCTURES

J. ADRIAN MARSHALL JR.
NEWPORT NEWS, VA.
MACHINIST
INST. CONST. SHOP



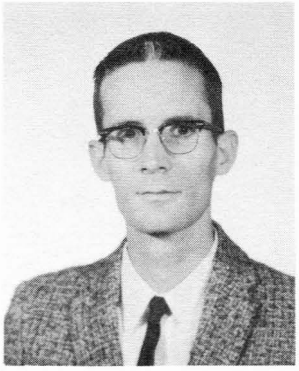
JAMES C. MATTHEWS
NEWPORT NEWS, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP



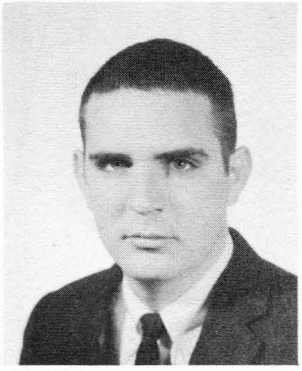
STANLEY L. PEARCE
FORT MONROE, VA.
ENGINEERING DRAFTSMAN
DYNAMIC VEHICLES

ERNEST J. PHILLIPS
HAMPTON, VA.
MACHINIST
HEAVY MACHINE SHOP

WILLIAM L. POOLE
THOMASTON, GA.
ELECTRONIC INST. MAKER
IRD - COMM. RESEARCH



DAVID B. ROBELEN
RICHMOND, VA.
MACHINIST
INST. CONST. SHOP



BILL R. ROUSE
WALLACE, N. C.
ELECTRONIC INST. MAKER
IRD - TOIS

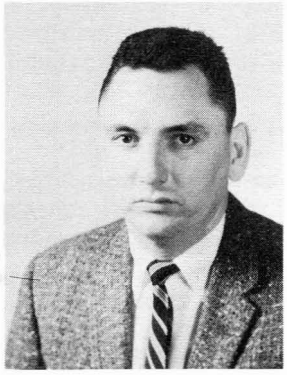
WILLIAM E. SANDERS
HARRISBURG, PA.
SHEETMETAL WORKER
FABRICATION SHOP

JAMES W. SHIRES JR.
NEWPORT NEWS, VA.
SHEETMETAL WORKER
FABRICATION SHOP

DAVID S. VANN
NEWPORT NEWS, VA.
ELECTRONIC INST. MAKER
IRD - GFII

KENNETH L. WALLACE
ELIZABETH CITY CO., VA.
SHEETMETAL WORKER
MAT. PROC. AND DEV.

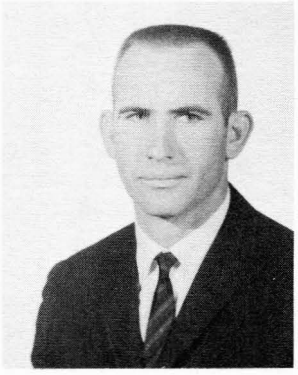
YATES W. WEBB
WILSON, N. C.
SHEETMETAL WORKER
FABRICATION SHOP



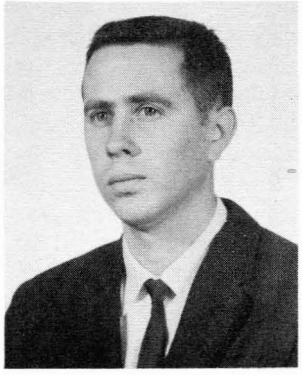
RONALD L. WEBER
HAMPTON, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

DOUGLAS W. WHIPPLE
NEWPORT NEWS, VA.
ELECTRONIC INST. MAKER
ELECTRONIC SHOP

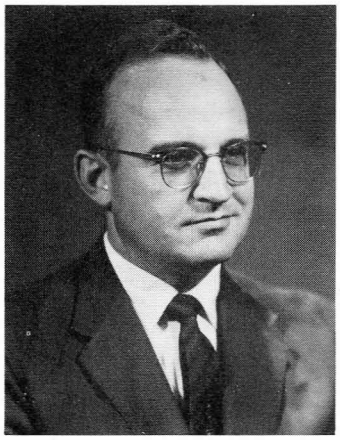
DOUGLAS E. WHITT
RADFORD, VA.
MACHINIST
HEAVY MACHINE SHOP



LELAND E. WILKINSON
KOOSHAREM, UTAH
SHEETMETAL WORKER
FABRICATION SHOP



JAMES B. WILLIAMS
GWYNN, VA.
ELECTRONIC INST. MAKER
IRD - COMM. RESEARCH



Francis B. Smith

SMITH ATTENDS CCIR MEETING

Francis B. Smith, Chief of Instrument Research Division, is in Geneva, Switzerland, where he is attending a meeting of the International Radio Consultative Committee (CCIR) of which he is a member.

The Committee, which will meet through February 22, is empowered to study and make recommendations on technical radio questions and operating procedures, the solution of which depends principally on considerations of a technical radio character. The Committee was established at the Madrid Conference in 1932.

The CCIR meets in plenary assembly at intervals of about 3 years to consider the specific recommendations submitted by its study groups, and to forward suggestions which have been adopted to the appropriate conference within the International Telecommunications Union for deliberation and possible action.

Purpose of this meeting, the tenth plenary session, is to prepare technical recommendations for the extraordinary administrative conference of the International Telecommunications Union which will be held in Geneva in September to amend existing international radio frequencies and to decide what frequencies to be allocated on an international basis for space research purposes and for use by communications satellites of the future.

Smith will present a paper at the meeting on "Satellite Instrumentation Systems."

Smith was born December 2, 1922 in Piedmont, South Carolina. He received his Bachelor of Science Degree in electrical engineering in 1943 from the University of South Carolina where he was elected to Phi Beta Kappa. Smith remained as an instructor in electrical engineering at his alma mater until September 1944, then served in the Navy until April 1946.

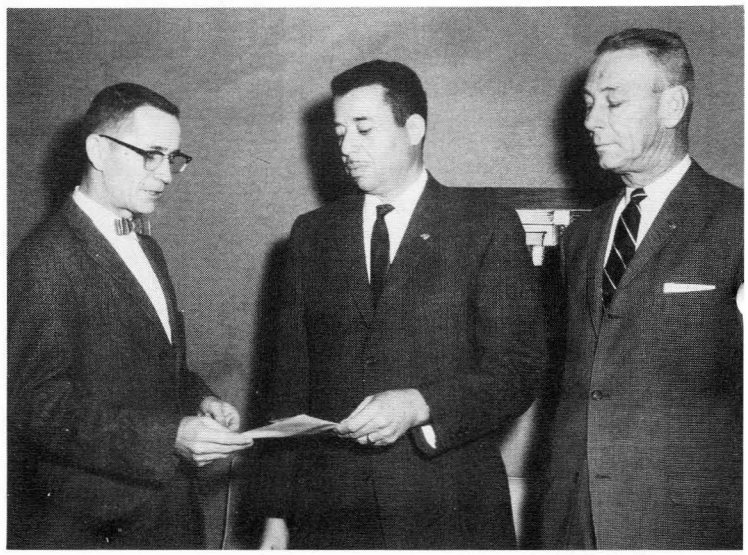
Smith joined the Langley staff in October 1947, becoming an expert in several fields including radio telemetry, radar, electronic tracking systems, and missile and range instrumentation.

BOWLING NEWS

DUCKPIN LEAGUE

The Duckpin League had its mid-season sweepstakes Monday night. Prizes will be awarded to the persons bowling the top eight high games and high sets with no person winning more than one prize. The top games were rolled by Bob Keller, 157; Chuck Whitcomb, 156; Jim McCann, 143, and Bill Suit, 141. The top sets were bowled by Helen Stubblefield, 412; John Dupere, 406; Joe Guy, 397, and Durwood Davis, 376.

Team	W	L
Hopefuls	40	24
Strike Outs	37	27
Lt. Machine 1	37	27
Count Downs	36	28
Rebel Bombers	34	30
Pin Poppers	34	30
Jets	34	30
Doodle Bugs	29	35
Double Dots	27	37
Ten Spots	27	37
ICS	26	38
Lt. Machine	23	41



Top photograph - William B. Mayo (left), Chief of Mechanical Services Division, presents a check in the amount of $100 to Oce W. Johnson, Model and Pliant Structures Shop Section, for his adopted suggestion involving use of an improved spray gun nozzle. Bottom photo - T. Melvin Butler, Chairman of the Langley Incentive Awards Committee, recently presented a letter of commentation and check for $250 to Vernon S. Courtney (center), Plant Maintenance Division, for sustained superior performance. Courtney was cited for exceptional service during the period April 1, 1962 through October 31, 1962. Marvin Forrest (right), Assistant to the Chief of Technical Services views the presentation.

GRADUATE COURSES

In addition to the courses listed in the memorandum on graduate study dated December 21, the following courses will be offered provided a sufficient number of students enroll:

E.E. 29.371 - Feedback System Design, under the University of Virginia, with Edwin C. Foudriat as instructor.

As.E. 614 - Magnetoaerodynamics, under Virginia Polytechnic Institute, with Dr. Adolf Busemann as instructor.

All employees interested in enrolling in these courses should contact the Training Office, telephone 2326, as soon as possible.

SPACE STUDIES REPORTED BY LANGLEY SCIENTISTS

Life in the necessarily cramped quarters of a three-man spacecraft during a seven-day lunar mission need not impair the alertness and skill of the crew, according to research results reported by Langley scientists to the 31st Annual Meeting of the Institute of the Aerospace Sciences in New York last week.

Realistic seven-day tests, employing highly skilled research pilots, found them fully capable of completing precise maneuvers needed for atmosphere entry and landing at the end of the week, according to Donald L. Mallick, Pilots Office. He and his co-author, Harold E. Ream, presented a technical paper on "Crew Performance and Personal Observations on a Lunar Mission Simulation." Both are research pilots who participated in the experiments.

The research study was made in a simulator fitted with an instrument panel and other appropriate equipment on which realistic piloting tasks were presented to the crew. They flew their simulated spacecraft through a lunar landing and a lunar orbit rendezvous after three and one-half days of confinement and, after seven days, through a successful reentry to an Earth landing.

Results of the study will be helpful in future simulation work as well as to the actual manned lunar expedition. For example, it was found that the proper arrangement of the spacecraft instrument panel is very important to enable the man-vehicle combination to function together efficiently. The value of exercise was demonstrated by a physical fitness program which the pilots who made the study followed for two months before the simulated "flight." During the mission, the pilots exercised in a special area inside their spacecraft and maintained peak physical condition throughout the seven-day confined mission. Recorded music, originally provided for the off-duty relaxation area in the spacecraft, was later fed into the earphones of the pilot navigator and provided a welcome relief from the tedium of hours of coasting flight.

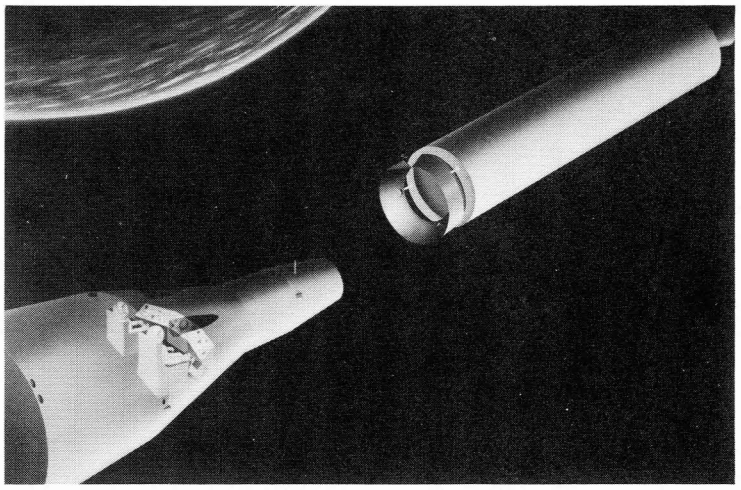
One interesting result of the experiment, which was conducted by NASA under a contract with the Martin Marietta Corporation (Baltimore Division), was the adoption of a 26-hour day for the spacecraft crew. They found that two four-hour sleep periods separated by a nine hour wake period were much more satisfactory than the usual 16 awake, eight asleep pattern.

Another report to the same panel of the IAS told of experiments to find out whether pilots are capable of completing a rendezvous in space by visual means. The report, entitled "Visual Capability of Pilots as Applied to Space Rendezvous Operations," was written by Jack E. Pennington and Roy F. Brissenden, aerospace scientists of guidance and control branch of Aero-Space Mechanics Division.

Pennington and Brissenden assert that visual rendezvous will make maximum use of the remarkable capabilities of the human pilot, thereby requiring a minimum of complex automatic equipment and increasing the opportunities for success. They recognize that an efficient rendezvous requires performance in the space environment of visual judgments considerably more precise than those needed in everyday living. But, they hold, a pilot can sight the target vehicle with which he plans to rendezvous, perhaps from as much as 200 miles away, if it is lighted by the sun or carries a bright, flashing beacon. And then, by estimating its rate of motion, he can successfully brake his own spacecraft along a path that will lead to interception.

When the rendezvous is nearly complete, their research indicates, a pilot's ability to estimate short distances is entirely adequate to complete the last ten or fifteen feet of a gentle, final docking maneuver.

Although they recommend further studies, particularly in a real space environment, the authors state: "...it should be kept in mind that man, if not overloaded, can be the most reliable and versatile element in the system. Optical and electronic aids can considerably reduce the workload of the pilot, making it easier for him to discharge his prime responsibility to exercise judgment and control. Devices selected on this basis, that do not subordinate the pilot to the equipment, are suggested."



Artist's Conception of Manual Docking Maneuver

In an earlier session on Fluid Mechanics, another Langley scientist, Dr. Leonard Roberts, head of the mathematical-physics branch of Theoretical Mechanics Division, discussed a problem that could cause difficulties for the first men to land on the moon - the dust cloud that may be raised by the rocket engine of their descending spacecraft.

Although exact knowledge of the surface of the moon is lacking, many scientists think it probably has a dust layer several inches deep. A spacecraft landing there will cause erosion and possibly even dust storms, although both effects will differ from those familiar on Earth because the moon is airless. Dr. Roberts' research is an effort to form a general idea of what may happen, and it will later be changed and enlarged as more is learned about the moon. His methods are mathematical, and are based on the large store of knowledge NASA and others have accumulated about hypersonic gas flows as well as on meteorological studies of dust storms and wind erosion on Earth. His results will be used to guide and help evaluate a series of vacuum chamber experiments now going on.

Visibility, Dr. Roberts concludes, should not be appreciably reduced because the rocket exhaust striking the lunar surface will be deflected outward and away from the spacecraft and air will not be present to recirculate the dust in an enveloping cloud. He expects that the experimental program now in progress will improve our understanding of the problem and will help importantly to reduce the landing hazards faced by the first United States manned lunar expedition.

NASA AWARDS CONTRACT FOR TWO VEHICLES

NASA announced that a contract with an estimated cost of $3,610,632 has been awarded to Bell Aerosystems Company, a division of Bell Aero-Space Corporation, Buffalo, N. Y., to design and construct two manned lunar landing research vehicles to be used in conjunction with Project Apollo.

The contract was awarded by Flight Research Center where the program will be conducted in direct support of Project Apollo which is under the general direction of Manned Spacecraft Center.

The first research vehicle is to be delivered in 14 months and the second within 16 months.

The free-flight test devices will be capable of taking off and landing under their own power, attaining an altitude of about 4,000 feet, hovering, and horizontal flight.

The program is planned to investigate extensively the problems that may be encountered in landing a manned vehicle on the surface of the moon. The proposed vehicles will permit studies of piloting and operational problems involved in the final phase of a lunar landing and the initial phase of a lunar take-off. Areas of interest include controls, pilot displays, visibility, orientation, systems, control of propulsion and dynamics of flight and landing.

The results of these studies with help in the preparation of flight crew training devices.

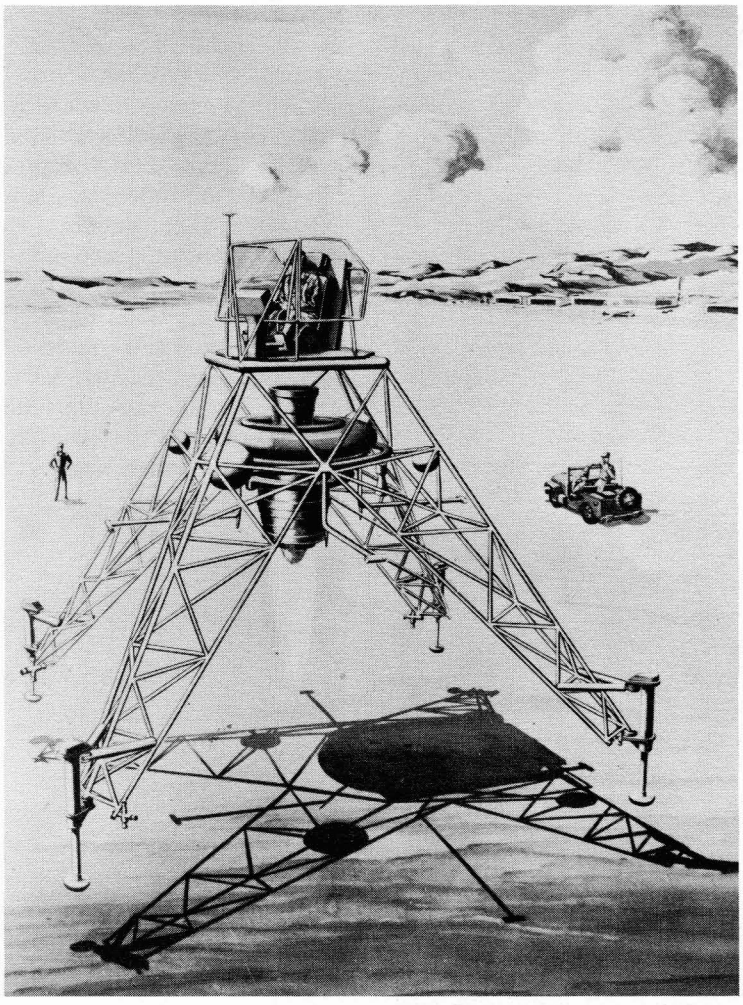
The research vehicles will be capable of carrying one man and about 200 pounds of research equipment. It will also be possible to convert the vehicle for a two-man crew. Ejection seats will be provided for the pilots.

The lunar landing test vehicles will be powered by two separate propulsion systems. A jet engine will be utilized for take-off and to compensate for the gravitational force of the earth. By gimbaling the engine it will remain in a vertical position, regardless of the vehicles attitude, directing its thrust upward which, during a simulation maneuver, will equal five-sixths of the earth's gravity, thus simulating the lunar gravity.

Rocket engines will be used to perform horizontal maneuvers and to decelerate the vehicle as it approaches the ground.

An attitude control system, using small rocket motors and similar to that used in the X-15 research aircraft, will be incorporated in the vehicles.

The vehicles will stand about 20 feet high and will be supported by four legs, equipped with shock absorbing feet.



Shown above is an artist's sketch of a manned lunar landing research vehicle. Flight Research Center has awarded a contract to Bell Aerosystems Company to design and construct two of these vehicles to be used in conjunction with Project Apollo.

WANTED: 2 alternate drivers from Winchester-Patrician Manor area to W.A. on 8 shift. Quinn, 4519.

WANTED: Man to share furnished apartment. Call Coffey, CH 4-8358 or 3379.

WANTED: Driving combination from Norfolk to W.A. on 7:30 shift. Haynes, 4766.

LOST: "Journal of Aerospace Sciences," Vol. 28, 1961. Thompson, 3451.

CONTRACT AWARD

(Continued from page 1)

operating problems.

The two studies are to be conducted in sufficient depth to assure that an adequate degree of confidence in the gross weight and range-payload characteristics will be obtained and to determine whether continued exploitation of the design approach would be of interest.

The broad evaluation is expected to provide a basis for making configuration comparisions - and will serve as a guide to help define future NASA supersonic transport research programs, which thus far have represented a major effort in advanced aerodynamics.

The two companies will be required to complete their studies nine months after the award of the contracts, which will be administered during this period by the Langley Center.

Information generated by the studies will be made available to United States industry and Government agencies for use in the development of a safe, reliable, and economically competitive supersonic transport.

APPRENTICES

(Continued from page 1)

rant Officer Eugene Dieter is assistant director.

The certificates of completion will be presented by S. Walter Hixon Jr., Supervisory Employee Development Officer.

Pictures of the graduates are shown on Pages 4 and 5.

WANTED: Driving combination from Ivy Farms to W.A. on 7:30 shift. Dunkum, 4851.

WANTED: Driving combination from Hallwood to W.A. on 8 shift. Mulcahy, 3326.

FOR SALE: 1956 Chevrolet hardtop. Lawson, 722-8450 after 5 p.m.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 4 LANGLEY RESEARCH CENTER FEBRUARY 15, 1963

JOINT MEETING TO HEAR KAPLAN

A joint meeting of the Hampton Roads Section of the American Institute of Aeronautics and Astronautics and the Engineers' Club of the Virginia Peninsula will be held on Wednesday, February 20 at 8 p.m. at Jefferson Davis Jr. High School. The Institute of the Aerospace Sciences and the American Rocket Society recently merged to form the AIAA.

Dr. Joseph Kaplan, Chairman, U.S. National Committee, International Geophysical Year, University of California, will speak on "Upper Atmosphere-Space Physics". Dr. Kaplan will discuss the results obtained during the International Geophysical Year as well as the evolving pattern of international programs in science that is emerging as a result of the IGY.

Dr. Kaplan was former president of the International Association of Geomagnetism and Aeronomy, an association which is active in the fields of the earth's magnetism, the upper atmosphere and related solar, planetary and interplanetary problems. He is also a charter member of the new international space committee of the International Council of Scientific Unions, known as COSPAR. He is currently vice-president of the International Union of Geodesy and Geophysics.

Dr. Kaplan attended the Johns Hopkins University and received his B.S. degree in Chemistry in 1924, and his M.A. and Ph.D. degrees in Physics in 1926 and

(Continued on page 3)

Clarence D. Cone

CONE TO PRESENT TECHNICAL PAPER IN ARGENTINA

Clarence D. Cone, General Aerodynamics Branch of Full-Scale Research Division, will present a paper on "An Index For Predicting Flight Reliability Of Sailplanes In Thermal Soaring" at the Ninth International Technical Congress of the Organisation Scientifique et Technique Internationale du Vol a Voile which is being held in Junin, Argentina. The Congress started February 13 and will continue through February 24.

Cone will present his vortex-shell theory of thermal convections and their use in soaring flight. The paper discusses the primary features of the thermal theory and presents a statistical procedure in which aerodynamic characteristics of soaring planes are quantitatively related to thermal properties so as to attain maximum reliability or certainty in thermal soaring.

(Continued on page 3)

LIFE SUPPORT SYSTEM PROPOSALS ASKED BY LANGLEY RESEARH CENTER

In a continuing effort to conduct research and advance the technology needed to sustain men in space for long time periods, the Langley Research Center has requested proposals from a number of industrial firms for design and construction of a prototype six month life support system for four men.

The request for proposals is being made under the programs of the NASA Headquarters Directorate of Biotechnology and Human Research, Office of Advanced Research and Technology.

After careful evaluation, the proposals received from industry are planned to lead to a contract for designing, building, testing, and delivering a complete long-term life support system to be used for further research and experimentation.

Langley officials pointed out that the life support system successfully used in Project Mercury is designed for 24 to 30 hours of service, and simple extension for much greater durations would require excessively heavy equipment. Before extended space missions with multiple crews are attempted, the present scope of technology must be enlarged, and the research called for in the new life support program will contribute to that end.

The proposals asked will be concerned with a complete operating prototype systems, with all necessary controls and instruments and capable of weightless operation in space.

Major emphasis will be placed on maximum reliability, imperative in a manned space mission, and on minimum weight, volume, and power requirements.

Prospective contractors for the life support system are given specific guidelines on several basic items. It must provide for a four-man crew to live in 2,600 cubic feet of cabin space. The system supporting them must be able to operate for six to 12 months, with resupply at 60 to 90-day intervals. A "shirt-sleeve" environment must be provided at a pressure between 10 and 14.7 pounds per square inch. (Normal Earth sea level pressure.)

Each crew member is assumed to use two pounds of oxygen each day, producing carbon dioxide at a rate of two and one-fourth pounds a day and producing water through breathing and perspiration at the rate of 2.20 pounds per day. About three and one-half pounds of human waste is assumed for each man per day.

Among the many items the contractor will have to determine will be the amount of drinking and washing water required, as well as food needs and water for preparing dehydrated foods. The contractor must likewise determine ways for reclaiming used oxygen and water, and must weigh the effectiveness of such techniques against the problem of resupply. Safety and reliability will be at a premium, although crew comfort will be considered an important factor for long mission times.

Deadline for submitting proposals to Langley Research

(Continued on page 4)

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIAPER LINES. . .Announcing the birth of a daughter on January 31 are Sylvia, Fiscal Division, and Will Lawson, Office Services Division. . .Passing out cigars and candy is Oakley Gilmer, Heavy Machine Shop. He became the father of a daughter on February 1. . .Celebrating the arrival of a daughter on January 30 is Donald Riley, Theoretical Mechanics Division.

BRAINBUSTERS. . .The Brainbusters Model Club will meet on Tuesday, February 19 at 8 p.m. in the Activites Building. All modelers interested in free flight competition are invited to attend. Included on the agenda will be discussions on the newly formed Virginia Association of Aero-Modeling, the March indoor model record trials, the international model team selection program for 1963, and other topics of related interest.

ENGAGED. . .Making plans for an early spring wedding is Carlena Rasnick, Classification Section. She is engaged to Cartier Ward, Poquoson, and the wedding will take place on March 30.

NEW HEIRS. . .A son was delivered to the Aubrey Cross household on January 27. The father works in Instrument Research Division. . .Announcing the arrival of a son on January 30 is Louis Tosti, Aero-Space Mechanics Division.

WEDDING BELLS. . .Dan Cupid scored a victory when Phyllis Wheless, Research Records, took her final vows with Charles Lewis Evans, of Clifton Forge, on Saturday, February 2 at the Phoebus Methodist Church.

MORE ENGAGEMENTS. . .Nancy Robb Mundie, Instrument Research Division, announced her engagement to Marion Gordon Garnett Jr., Hampton. Plans call for an early spring wedding. . .Making plans to desert the bachelor ranks is William J. Debnam Jr., Instrument Research Division. He is engaged to Anne Page Decker of Hampton. The wedding will take place in April.

FOR SALE: 50 gallon Frigidaire hot water heater - $75; Maytag washing machine - $50; Tappan range - $150; Hot Point refrigerator - $50; Ziegler space heater with circulating fan - $150, and Hot Point TV set - $50. Slade, LY6-9397.

WANTED: Driving combination or ride from Dare to E.A. on 8 shift. Mulqueen, 898-6327.

FOR RENT: Two bedrooms including kitchen privileges. Girls only. Trivellin, 838-2566 after 5 p.m.

PAYROLL SAVINGS MAKES DREAMS PAY OFF

GET WITH IT – STAY WITH IT!

TAX REFUND SAVINGS

The new plan to give U.S. taxpayers the opportunity to take tax refunds in Savings Bonds is one that should prove a boon to individual citizens, as well as a constructive step in the direction of easing the Nation's debt management problem.

Public interest in this plan has been evident for a long time. A recent survey indicated that a significant number of taxpayers who received refunds last year might have taken them in Bonds if given the option. Individual taxpayers can benefit from the plan by making it a method of insuring that their refunds are not simply absorbed into household money, to vanish in day-to-day spending. The plan will permit the setting aside of the nucleus of a special fund for educating their children, planning for retirement, and the like. And for all taxpayers it represents an opportunity to own a real share in America while earning a good return on their money.

Just as the Payroll Savings Plan has appealed to many people because it is an automatic way of saving, it is expected that the new tax refund plan will be popular for much the same reason. The Treasury hopes so.

It would be well for all citizens who are expecting tax refunds this year to consider seriously taking them in Savings Bonds - to benefit themselves and their country. A check mark in the proper place on the new tax forms can put you in an active role in supporting the Nation, and feathering your own nest at the same time.

WANTED: Driving combination or ride from Patrician Manor to W.A. on 7 shift. Snyder, 4626.

WANTED: Alternate driver from Todds Lane to W.A. on 7:30 shift. Youngblood, 4691.

Morton J. Stoller

STOLLER WINS NASA AWARD

Morton J. Stoller, former member of the Langley Research Center staff and now head of NASA's Office of Application in Washington, has received the Medal for Outstanding Leadership.

Stoller was cited for his "outstanding and dynamic leadership."

In awarding Stoller the medal NASA Administrator James E. Webb said Stoller had contributed much "in planning, developing and directing a complex scientific organization, whose notable achievements have significantly contributed to the preeminent position of this country in the space sciences, the space technology and the practical application of such research and development."

Stoller has directed such U.S. space efforts as Echo, Telestar, Relay, Tiros, and the forthcoming Sycom project which is scheduled to be launched from Cape Canaveral in mid-February.

In his present position, he is responsible for the development and application of meteorological and communications satellite systems. It is his responsibility to recognize and develop areas of future application for space aeronautical technology.

JOINT MEETING

(Continued from page 1)

1927. He spent one year at Princeton University as National Research Fellow in Physics.

He was appointed assistant professor of Physics at the University of California in 1928, associate professor in 1935, and professor in 1940. He has served as chairman of the Department of Physics at UCLA; he organized and directed the Institute of Geophysics; he has taught Astrophysics in the Department of Astronomy, and helped to establish the program which developed UCLA's distinguished Department of Meteorology.

The meeting will be preceded by a social hour at 6 p.m. and dinner at 6:30 at Eli's Restaurant. Dinner reservations may be made by calling John Mugler at 838-0569 or Roger Stewart at 838-1917 on or before Tuesday, February 19.

□□□□

Stoller joined the Langley Center in 1939 as an aeronautical engineer. At the time of his assignment to Headquarters in 1958 he was Assistant Chief of Instrument Research Division. His first Headquarter's assignment was Chief of the Space Sciences Program.

A native of New York, Stoller earned his B.S. degree in Electrical Engineering from the College of the City of New York in 1938. He was awarded his M.S. Degree in Electrical Engineering from the University of Virginia in 1952.

He is a member of the American Institute of Electrical Engineers, the Institute of Radio Engineers, American Geophysical Union, and the Association for Computing Machinery.

LOST: Report on "Lunar Program Review" N90058. Carden, 3300.

TECHNICAL PAPER

(Continued from page 1)

Cone's theory was originally published in Soaring and American Scientist, and later in Scientific American.

Cone's paper will be presented at a special joint session of the Scientific and Technical Divisions of OSTIV. It is the only paper so honored. It is also the only U. S. representation out of approximately 30 technical papers and 20 scientific papers from various countries around the world.

Three other NASA representatives are attending the Congress in various capacities. Floyd Sweet, NASA Headquarters, is chairman of the technical sessions, Dr. Jachim Kuettner, Marshall Center, is chairman of the scientific sessions, and Paul Bikle, Director of Flight Research Center and president of the Soaring Society of America, is attending.

The World Soaring Championships are held in conjunction with the Congress and the most aerodynamically perfect aircraft developed by each country compete for the international title. Some of the European sailplanes have achieved lift-drag ratios as high as 42 and represent the highest degree of aerodynamic efficiency yet achieved in flight vehicles.

OSTIV has responsibility for all international functions concerning low speed aerodynamics and motorless flight. Beverly Shenstone, president of the Royal Aeronautical Society, is director of OSTIV publications.

Cone received his Associate of Arts degree in Chemistry, graduating summa cum laude, from Armstrong College in Savannah, Ga., and his Bachelor of Chemical Engineering, graduating with highest honors, from Georgia Institute of Technology in 1954.

He joined Langley Center in September 1956 and obtained his M.S. degree in Aeronautical Engineering from the University of Virginia in 1959.

CREDIT UNION NAMES OFFICERS

At a recent meeting of the Board of Directors, Langley Federal Credit Union, Robert Girouard, Flight Vehicles and Systems Division, was reelected President.

Other officers for the year are: First Vice President, Bernard Ellis, Electrical Services Division; Second Vice President, Col. A. B. Buck, Air Force; Secretary, Bernie Deem, Air Force, and Treasurer, Cecil S. Hudgens, Liaison Office.

HEALTH PLAN OFFICIAL TO VISIT CENTER

Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health Benefit Program, will visit here on February 21 at 1 p.m.

Slinger will be available for consultation on individual claim problems and to answer general questions concerning coverage under the indemnity plan.

He will be located in the Employee Services Section Office, Room 101, Building 587, during his visit.

Employees having problems or questions concerning the Indemnity Benfit Plan may call Linda Hale, 2323, for an appointment.

WANTED: Ride or passengers from Harpersville Rd. and Warwick Blvd. to W.A. on 7:30 shift. Drake, 4766.

FOR SALE: Upright piano. Garula, 722-0472.

NEW NASA-DOD GEMINI AGREEMENT

The Secretary of Defense, Robert S. McNamara, and James E. Webb, NASA Administrator, have announced a new agreement to provide the most effective utilization of Project Gemini, an experimental program to advance the technology of manned space flight, including rendezvous, docking, and the study of the effect of weightlessness for periods up to two weeks.

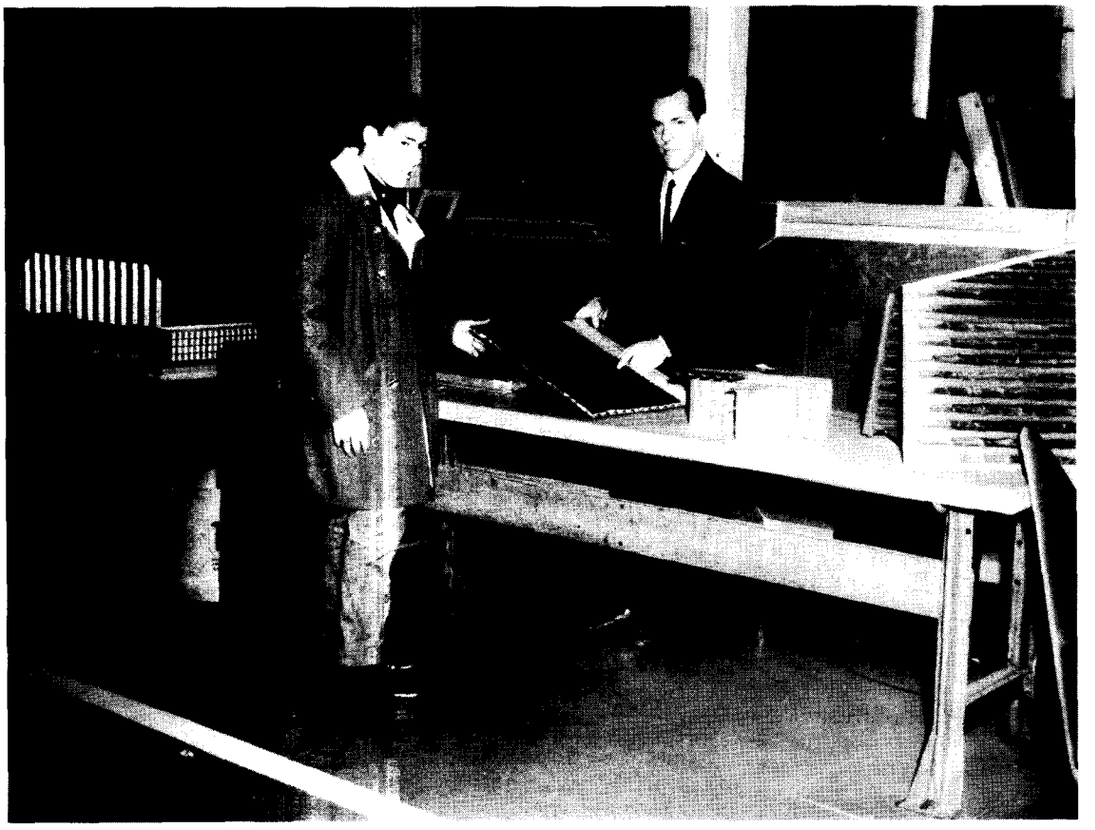
A Gemini Program Planning Board is established under the new agreement. Dr. Robert C. Seamans Jr., NASA Associate Administrator, and Dr. Brockway McMillan, Assistant Secretary of the Air Force for Research and Development, are appointed co-chairmen.

This agreement supplements the NASA/USAF Gemini management agreement that has been in effect since the spring of 1962. NASA will continue to be responsible for managing the Gemini Project.

The Planning Board will delineate NASA and DOD scientific and technological requirements and monitor the Gemini program to insure that experiments are planned and the results of experiments are analyzed and disseminated to insure maximum benefit to both the NASA and the Department of Defense. It is expected that the DOD will furnish fund support to assist in the attainment of Gemini objectives. Amount of such support will be determined on the basis of recommendations submitted by the Board.

Webb and McNamara joined in stressing the national character and importance of the Gemini Project. "It represents a great National resource," they said. "We are determined to insure that it is utilized in the national interest, and to avoid unnecessary duplication of effort in this area as in all others."

Agreement between NASA and DOD on management of the Atlantic Missile Range and earlier agreement on the X-15 aircraft and National Launch Vehicle Program were cited as additional examples of similar inter-agency cooperation.



Jorge Guzman, a Mexican exchange student at Newport News High School, recently toured a number of research facilities at the Center. Guzman is an exchange student of the Americas Technical School, Mexico City, Mexico. Richard Pride, Structures Research Laboratory, shows him an exhibition in the Structural Laboratory.

PROFESSORS PLAN VISIT

Dr. James B. Eades, Head of the Aerospace Department, Virginia Polytechnic Institute, and Francis J. Maher, professor in the Engineering Mechanics Department, will visit here on Thursday, February 21.

Employees wishing to discuss their graduate program with either of the professors should contact the Training Office, telephone 2326, for an appointment.

LIFE SUPPORT SYSTEM

(Continued from page 1)

Center is February 26. Evaluation and selection of the successful contractor will be made by NASA staff scientists and administrative officials of Langley and NASA Headquarters Office of Advanced Research and Technology. The contract will cover 18 months of research, design, construction and testing by the contractor.

FOR SALE: Encyclopedia Britannica, 14th edition - $75. Bainbridge, PA26793.

WANTED: Driving combination from Ivy Farms to E.A. on 8 shift. Libby, 2325.

FOR SALE: Three-bedroom house in Ivy Farms. Whitmer, 596-6888.

FOR SALE: Wooded lot in Marlbank Farm. Morris, 898-6318.

FOR SALE: Cosco nylon play pen and pad. McDonough, 838-1989.

FOR SALE: 45 watt Pierce-Simpson ship-to-shore radio. Blanchard, PA3-7329.

FOR SALE: 1948 Chevrolet - $50. Green, PA30687.

WANTED: 16 or 18-foot fiberglas boat to sleep two. Lawson, 868-4611.

FOR RENT: Room for man. Spence, PA3-0576.

FOR SALE: Heathkit Model MI-10 depth sounder. Call Blanchard, PA3-7329 after 5 p.m.

LOST: Glasses in Warehouse parking lot. Moody, 4608.

WANTED: Ride from Victoria Blvd. and Chesterfield Rd. to W.A. on 8 shift. Dudley, 4477.

FOR RENT: Room for man. Byrum, CH4-7465.

FOR SALE: 1955 Dodge convertible. Samet, LY6-3585.

SKYWATCHERS MEET FEB. 19

The Skywatchers Astronomy Club will hold its first meeting for the year on Tuesday, February 19 in the Activities Building. The meeting will start at 7:30 p.m.

Guest speaker for the affair will be David Adamson, Space Physics Group, Aero-Physics Division. Adamson is a native of Sunderland, England. He served his apprenticeship in shop work from 1935-1940 at Vickers Armstrongs Limited, Newcastle-on-Tyne in England and received his B.S. degree in Mechanical Engineering from King's College, Durham University, England in 1943.

Following graduation he went to work for the Royal Aircraft Establishment in Farnborough.

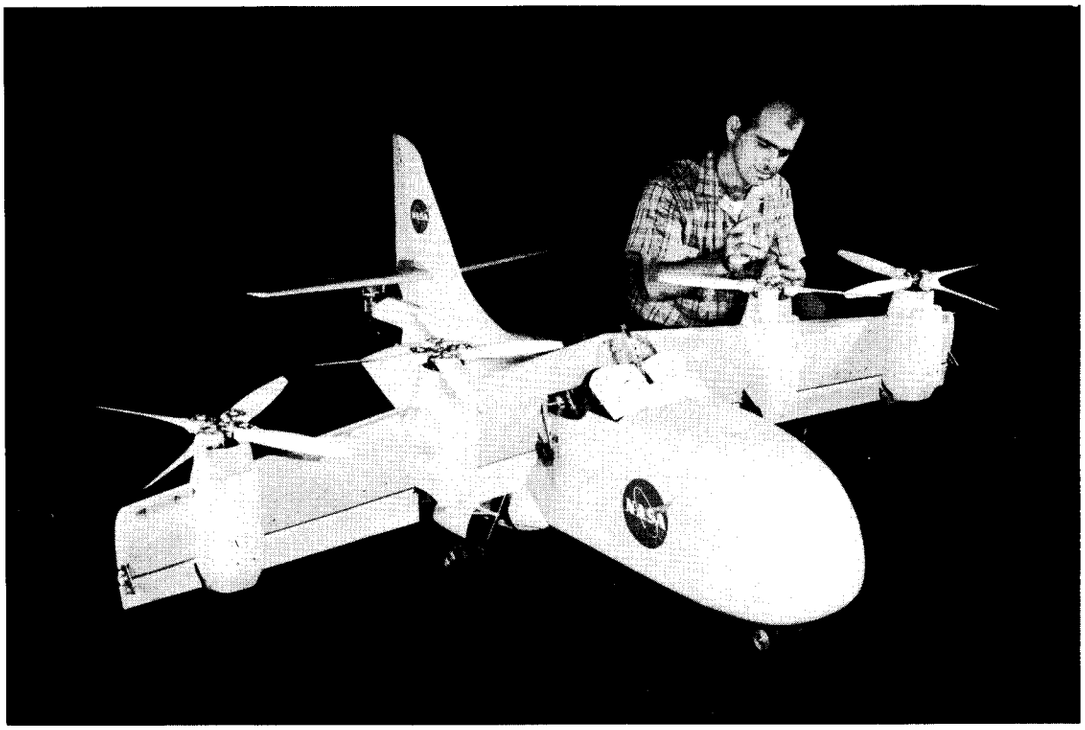
In September 1948 he was selected to come to the United States and work for 15 months at the Langley Research Center on an interchange basis. He was assigned to the 9-inch Supersonic Tunnel.

He returned to England in January 1950 and decided to file for U.S. citizenship in 1951. He was employed by Brown University and the Applied Physics Laboratory at Johns Hopkins University before joining the Center staff on December 1, 1954 as an Aeronautical Research Scientist.

All persons interested in astronomy are invited to attend the meeting. Light refreshments will be served. For additional information call M. F. McNear at 4483.

FOR SALE: Three-bedroom brick rancher with attached garage. Smith, 838-2518.

WANTED: Driving combination or ride from Mercury Blvd. and Big Bethel Rd. to E.A. on 8 shift. Muraca, 2312.



A Langley technician prepares a free-flying one-ninth scale model of the XC-142 Tri-Service V/STOL tiltwing airplane for flight. Langley scientists are studying the dynamic stability and control characteristics of the aircraft during transitions, vertical and short take-off and landings, and hovering flight. Transition is accomplished by tilting the wing from the 90 degree vertical position used for hovering to a nearly horizontal position for conventional cruising flight. The model flight tests are one aspect of the basic research in V/STOL being conducted by NASA.

OBITUARY

Ellis R. Burbank, 61, retired employee died unexpectedly February 4 in the Dixie Hosiptal.

A native Hamptonian, he attended school in Hampton and entered on duty at the Center on April 1, 1925 as a helper. He retired on June 18, 1958 after serving more than 33 years with NASA.

While at Langley he work-in Flight Operations, Full Scale Tunnel, Stability Research Division, the Propeller Research Tunnel, Internal Aerodynamics and Heat Treating.

He is survived by his wife, Mrs. Beulah M. Burbank, and a daughter, Miss Betty M. Burbank, both of Hampton.

FOR SALE: 1935 Ford. J. Smith, CH-45980.

LOST: Four manuals entitled "Safety Practices and Health Practices", Volumes I, II, III, and IV dated 1949. White, 4562.

EXPLORER XIV NOW WORKING

NASA has announced that Explorer XIV satellite has resumed normal operations after being out of operation for fourteen days due to trouble in the satellite's encoder system.

First indications that the satellite had resumed normal operations were confirmed by Goddard Center. Goddard personnel believe a temperature change, a change in space weather, or a change in the spacecraft's alignment to the sun may have opened a stuck binary which had been suspected as the cause of the malfunction. A binary is an automatic switching device controlling the order in which information is fed into the radio transmitter.

Explorer XIV was launched October 2, 1962 for the primary purpose of charting the boundaries of the Earth's magnetosphere and to measure the particle population and energies of electrons and protons and how they are influenced by magnetic fields. It performed flawlessly for 100 days prior to the malfunction.

NOTICE: Will the person who borrowed "Astrophysical Quantities" by Allen please return it to Morrell, 2377.

WANTED: Ride from Newport News Ave. to W.A. on 8 shift. Maddalon, 4705.

FOR RENT: Two-bedroom furnished apartment - $60 per month. Hosier, 722-0089.

WANTED: Alternate driver from Buckroe to W.A. on 8 shift. Ott, 4505.

FOR SALE: 14' MG freezer, $60. LY6-9397.

WANTED: Passengers from Portsmouth to E.A. or W.A. on 8 shift. Clarke, 4419.

ATLANTIC MISSILE RANGE AGREEMENT

The Department of Defense and NASA have reached a new agreement setting forth management responsibilities for operations in the Cape Canaveral area.

In general, the agreement signed by Defense Secretary Robert S. McNamara and NASA Administrator James E. Webb says DOD will continue as the single manager of the Atlantic Missile Range which extends from the Cape to the Indian Ocean.

Also, the Air Force, under DOD authority, will continue as the host agency at the existing 15,000-acre launch area at Cape Canaveral.

NASA, however, through its Launch Operations Center there will manage and serve as host agency at the new 87,000-acre Merritt Island Launch area north and west of Cape Canaveral.

The Merrit Island site is being developed primarily to handle very large launch vehicles such as NASA's Advanced Saturn which will boost the Apollo spacecraft to the Moon.

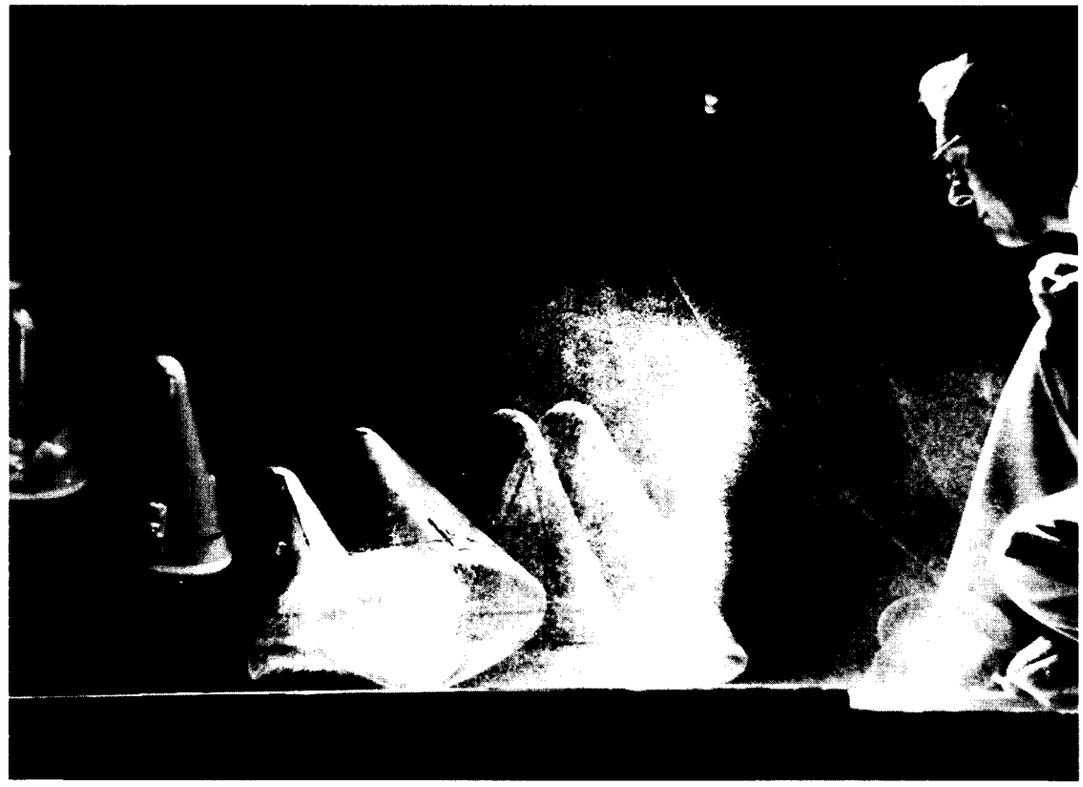
In their respective areas, DOD and NASA will be responsible for their own logistics and administrative functions such as maintenance, water, fire protection and security.

Most of the specific mission functions such as preparation, checkout, launch and test evaluation will be performed by NASA and DOD in their own behalf regardless of location.

Certain fundamental range functions will continue to be the responsibility of DOD in both areas. These include scheduling of launches, frequency control and analysis, flight safety, air traffic coordination, range sea surveillance, range search and sea recovery, underwater salvage, downrange airlift, downrange station operation and logistics, and Port Canaveral operations.

The agreement provides that NASA Launch Operations Center, headed by Dr. Kurt Debus, will be the focal point for all NASA relations with the Atlantic Missile Range. The Atlantic Missile Range is operated by the Air Force Missile Test Center under command of USAF Major General Leighton I. Davis.

Merritt Island will be the site of an immense launch complex, including a 52-story Vertical Assembly Building as well as an industrial support area of some 40 buildings. Grading is underway for the first NASA building which is to go up in the new area, a $7 million Apollo operations and check-out building for NASA's Manned Spacecraft Center.



Langley Research Center conducts tests on a 1/10-scale model of a proposed manned spacecraft landing on the sand at Langley's Impacting Structures Facility. The landing conditions for this test using an Apollo-type model included vertical and horizontal velocities of 30 feet per second, simulating a parachute letdown to landing. Tests were conducted to determine motions during sand landings of proposed spacecraft after reentry. These and other studies are designed to provide basic information required by NASA in the conduct of manned round-trip flights to the moon.

SCHEER APPOINTED TO NEW POSITION

James E. Webb, NASA Administrator, announced the appointment of Julian Scheer as Deputy Assistant Administrator for Public Affairs. Scheer has been serving as consultant to George L. Simpson Jr., Assistant Administrator for Public Affairs, since November 21, 1962.

Scheer is a former North Carolina newspaperman. A native of Richmond, Virginia, he began his newspaper career there in 1939 and has been associated with newspapers and other news media ever since, with the exception of three and a half years as an officer in the merchant marine during World War II. For the past nine years he was a columnist and political writer for the Charlotte (N.C.) News.

He formerly owned and operated a newspaper feature syndicate and was assistant director of sports information at his alma mater, the University of North Carolina.

He has contributed to many national magazines and is the author of five books. One of his books, "First Into Outer Space," is the story of the Air Force lunar probes. He has covered much of the space activity at Cape Canaveral for the Charlotte News.

FOR SALE: 1963 Valiant Signet 200 at sacrifice price. Call 596-9439 after 5 p.m.

FOR SALE: Winchester 52-C rifle with accessories - $135. McClellan, LY6-1944.

PHILCO TO DEVELOP CONTROL CENTER

NASA will negotiate with the Philco Corporation for a contract to develop and equip the Manned Flight Mission Control Center at Manned Spacecraft Center.

Gemini rendezvous and Apollo flights will be directed by the new Mission Control Center just as Project Mercury flights have been run by the Mercury Control Center at Cape Canaveral. Until the new center goes into operation in 1964, early Gemini flights will be conducted from the Mercury Control Center. However, Mercury Center is not designed to handle the later and more complex Gemini missions involving rendezvous nor any of the Apollo missions.

The Mission Control Center will be the complex focal point for the entire ground operational support system. From it, the manned spacecraft themselves and network of world-wide tracking stations will be directed.

The Center will consist of several major electronic sub-systems - communications, displays, simulation and training, and computers. Philco would design and develop much of this equipment and tie the entire complex together into a highly integrated operational system.

The new control center, containing two mission control rooms, will be housed in a 200-foot square, three-story building, the foundation of which is now under construction.

A computer complex and communications center will be on the first floor. Identical mission control rooms will be on the second and third floors. Two mission control rooms are required because of the detailed control preparations that will go into Gemini and Apollo missions, the frequency and length of missions, and extensive training programs that are essential to mission success.

Fewer than 20 controllers will be in the mission control room during a flight, but upward of 250 technical and administrative people will be involved in carrying on supporting functions in adjacent rooms. These include recovery control, recovery communications, the trajectory data, meteorology, network support, simulation equipment and the monitoring devices for life support and vehicle systems.

Estimated cost of Philco's effort is $30 million. This amount excludes the computer complex, but includes some $18 million worth of other electronic equipment to be installed.

BOWLING NEWS

DUCKPIN LEAGUE

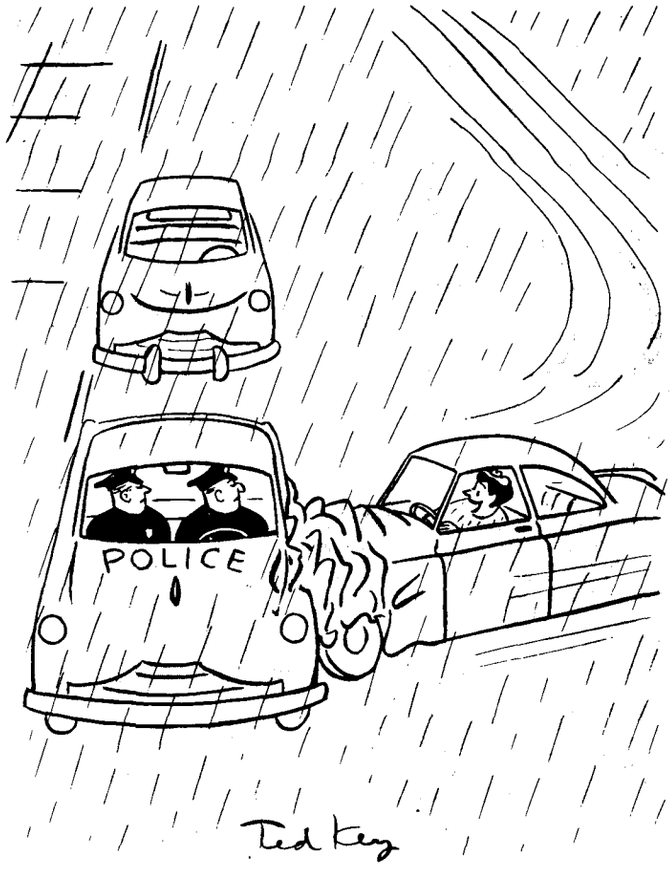
In last week's bowling new records were set for team set by Light Machine I with a 1719 set and high set for the women by Helen Dupere with a 376.

In this week's bowling John Dupere had a 397 high set and C. Fields had a 147 high game. For the women, Helen Dupere bowled a 116 high game and Liz Patterson had a 310 high set.

Rebel Bombers bowled a 599 game which came within 10 points of the 609 high game record held by Strike Outs.

STANDINGS

Team	W	L
Lt. Mach. I	45	27
Hopefuls	44	28
Rebel Bombers	41	31
Jets	41	31
Strike Outs	38	34
Count Downs	36	36
Pin Poppers	34	38
Ten Spots	34	38
Doodle Bugs	32	40
ICS	31	41
Double Dots	31	41
Lt. Mach. II	25	47



"Isn't the rain dreadful?"

NASA TO PURCHASE RESEARCH PLANE

NASA's Flight Research Center announced that it has awarded a $1,325,000 contract to the Lockheed-Georgia Company of Marietta, Georgia for the purchase of a Lockheed-Jet Star aircraft.

The aircraft, to be used for research purposes only, will be modified to include a variable stability control system that will permit the aircraft to fly as a variety of future advanced aircraft.

Designated the General Purpose Airborne Simulator (GPAS), it will be used in many of the research projects that will be carried out by the Flight Research Center to investigate such areas as aircraft flying qualities, automatic and manual control systems, pilot instrument displays and pilot training.

Special emphasis will be placed on the simulation of these characteristics expected to be found on a supersonic transport.

An airborne simulator is used in flight research primarily to present the pilot with the most realistic environment and total sensory cues possible, since the pilot may not always be aware of all the many factors he uses in controlling an airplane. The new simulator will have the flexibility to vary these factors as the project demands.

Delivery of the aircraft is expected in March and simulator components will be added later in the year.

WANTED: Ride from Elizabeth Rd., Southampton to W.A. on 8 shift. Ghivizzani, 4468.

FOR SALE: Ice cream-type Frigidaire freezer - $50. Culotta, PA3-6142.

NASA AWARDS SPACE RADIATION EFFECTS LABORATORY CONTRACT

Two contracts totalling $891,189 have been awarded by NASA for services required in the establishment by NASA of a Space Radiation Effects Laboratory and synchro-cyclotron near the Langley Research Center.

One contract was to the joint venture partners of Giffels and Rossetti, Detroit, Michigan, and Marcellus Wright and Son, Richmond, Va. The two firms will provide architect-engineering services for the laboratory. The contract is for $209,931.

The second contract was awarded to William M. Brobeck and Associates, Berkeley, California, for the engineering design of a 600-million electron volt synchro-cyclotron and associated equipment which will be housed in the Space Radiation Effects Laboratory. Amount of the contract is $681,258.

The laboratory and cyclotron, expected to cost approximately $12,382,000, will be used by NASA in simulating space radiation for research investigations in support of space flight programs. The NASA has applied to the General Service Administration for surplus Government land at Oyster Point as a site for the research facility, scheduled to be completed in mid-1965.

It is planned that the College of William and Mary, the University of Virginia, and the Virginia Polytechnic Institute, serving jointly as the Virginia Associated Research Center will operate the laboratory under contract to the Langley Research Center. VARC also plans to establish a graduate study program in cooperation with NASA at the laboratory site.

BRIAN DUFF JOINS NASA

Brian Duff, for the past three years a Washington correspondent for the Copley Newspapers of California and Illinois, has joined the NASA. Duff will work in the Special Communications Division.

Before joining the Copley Washington Bureau in 1960, he was a staff reporter for the San Diego Union, a Copley paper at San Diego, California. Prior to that he had worked for the Associated Press in San Francisco and Sacramento and for newspapers in Michigan.

FOR SALE: Three bedroom house in Meadowbrook. Call York, 826-5322 after 6.

FOR SALE: 1951 Morris Minor - $150. Long, LY-63586.

FOR SALE: 5 metal files for 35 mm slides - $2 each. Ellis, PA3-6735.

BASKETBALL

The NASA Basketball League is divided into two divisions this year. The top four teams in each division will play in a tournament at the end of the season. As of February 9 the Misfits and 8-foot were leading in their respective divisions.

STANDINGS

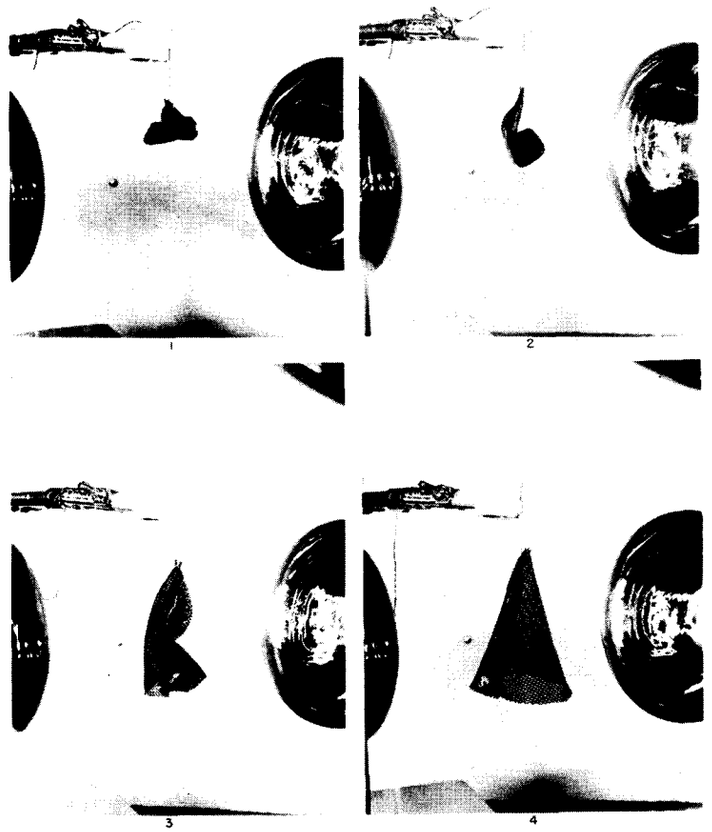
DIVISION A

Team	W	L
8-foot	7	0
Packers	6	2
Scouts	6	2
Hoteyes	4	5
Royals	2	6
Kilowatts	0	10

DIVISION B

Team	W	L
Misfits	8	2
Greenhorns	6	2
Roughnecks	5	4
Short Circuits	3	7
No Names	1	8

WANTED: Driving combination from Wythe to W.A. on 8 shift. Jones, 4478.



Langley Center is investigating the basic details of the "memory effect" of certain plastics. These photographs show a cone made of a grid of polyethylene which has been irradiated in a flat condition so that, when warmed, it will always "remember" that it was flat and attempt to return to that condition. In this case, it is prevented from doing so by its cut shape and the seam which holds it in the form of a cone. In the first picture, it has been warmed, folded, and cooled. On the application of heat (succeeding photographs), it quickly "remembers" its previous shape and unfolds to a cone in less than four minutes. For use in space, thermal coating could be applied to absorb the sun's energy, heating the grid; then the coating would boil away, permitting the grid to cool. If the grid were aluminized, it would cool and rigidize. This phenomenon offers a possible way to expand erectable space structures without the need of any inflation material. The radiation induced "memory effect" for certain plastics has wide potential use for carrying latent energy into space. This latent energy can be released by thermal initiation, i.e., by raising the temperature of the plastic for a short time. When polyethylene plastic is irradiated, it becomes crosslinked (vulcanized) and the molecular chains of the polymer are partially fixed in their relative position to each other. When the irradiated polymer is heated to 212°F., it can be deformed without breaking or yielding. If the deformed plastic is quickly cooled to room temperature, the polymer chains are "frozen" in a strained condition which is stable at room temperature almost indefinitely. When reheated, the polymer chains are able to relieve their internal strain and the deformed piece of plastic will return to its original shape, that is, the shape it had when it was irradiated.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 5 LANGLEY RESEARCH CENTER MARCH 1, 1963

William E. Hutcheson

HUTCHESON HEADS JOINT CAMPAIGN

William E. Hutcheson has been appointed chairman of the joint fund raising campaign for the National Health Agencies and the Federal Service Joint Crusade, it was announced by Floyd L. Thompson, Director.

The campaign will be conducted at the Center from March 15 through March 29.

Included in the campaign will be seven health agencies and three crusade agencies.

The health agencies include the National Multiple Sclerosis Society, National Society for Crippled Children and Adults, American Cancer Society, National Society for the Prevention of Blindness, the American Heart Association, Arthritis and Rheumatism Foundation, and Muscular Dystrophy Associations.

The crusade agencies include CARE, Radio Free Europe and the American-Korean Foundation.

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

(Continued on page 3)

REPORT PREPARED BY JOINT GROUP

The U.S. Standard Atmosphere, 1962, -- a new 278-page report -- was prepared under the joint sponsorship of the NASA, U.S. Air Force, and the U.S. Weather Bureau, and it reflects the combined effort of 29 scientific and engineering organizations. A team of Langley Research Center personnel, working under the specifications of the Working Group of the U.S. Committee on Extension to the Standard Atmosphere (COESA), compiled the document. The atmospheric model arrived at in the U.S. Standard Atmosphere, 1962,

(Continued on page 6)

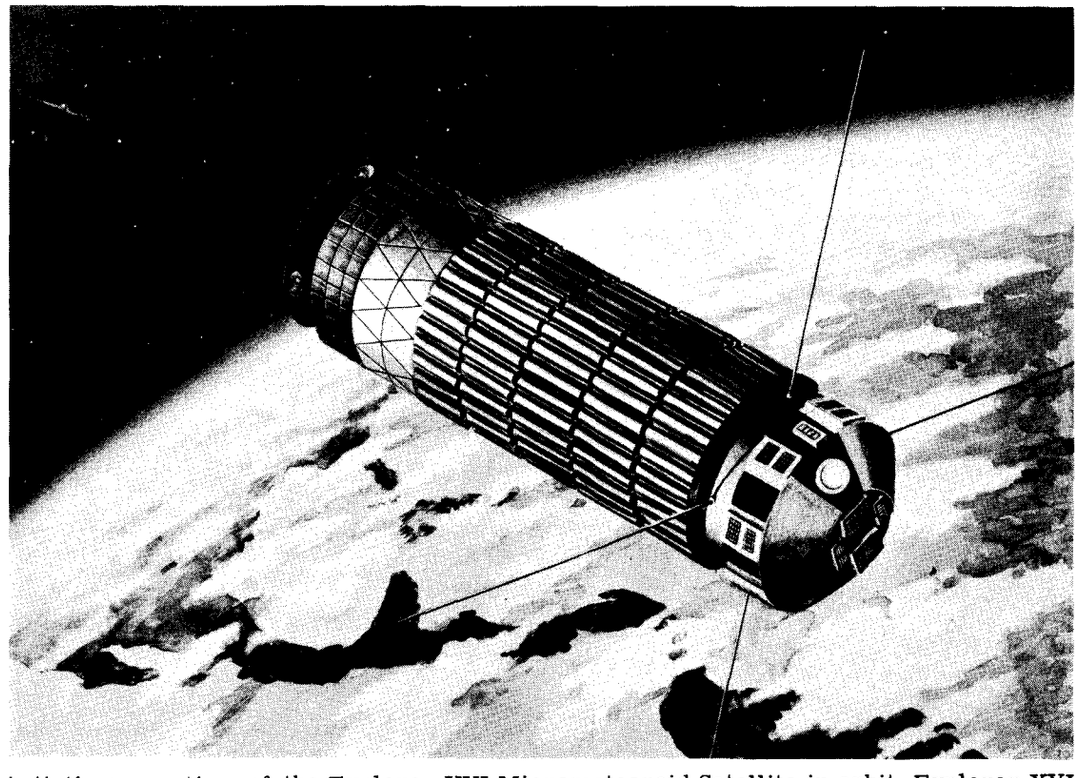
SATELLITE REPORTS PUNCTURES BY MICROMETEOROID PARTICLES

Explorer XVI, launched December 16, 1962, to gather information on micrometeoroids, was punctured 16 times during its first 29 days of flight, according to the first data reported by scientists of Langley Center. Other hits, not strong enough to penetrate, were recorded on sensitive sounding board devices, but the information on counting rates is still being analyzed.

The satellite is a joint effort by three NASA Centers under direction of the Office of Advanced Research and Technology (OART), with project management by Langley. Its aim is to find out whether micrometeoroids, minute bits of solid matter which exist in space, are hazardous to space vehicles, both manned and unmanned.

Ten punctures were recorded in a group of one-thousandth inch thick beryllium-copper pressurized cells. One occurred in a similar cell two-thousandths of an inch thick, but identical cells five-thousandths of an inch thick reported no punctures. The pressurized cell experiments were developed by Langley.

(Continued on page 7)



Artist's conception of the Explorer XVI Micrometeoroid Satellite in orbit. Explorer XVI carries five kinds of highly sensitive detectors providing micrometeoroid impact and penetration information, all installed around the fourth stage of the Scout launch vehicle which placed it in orbit on December 16, 1962. Scientific data being telemetered to ground receiving stations are being analyzed to aid in planning for design and operation of future manned and unmanned spacecraft.

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, Room 217, Building 587, telephone 2375.

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

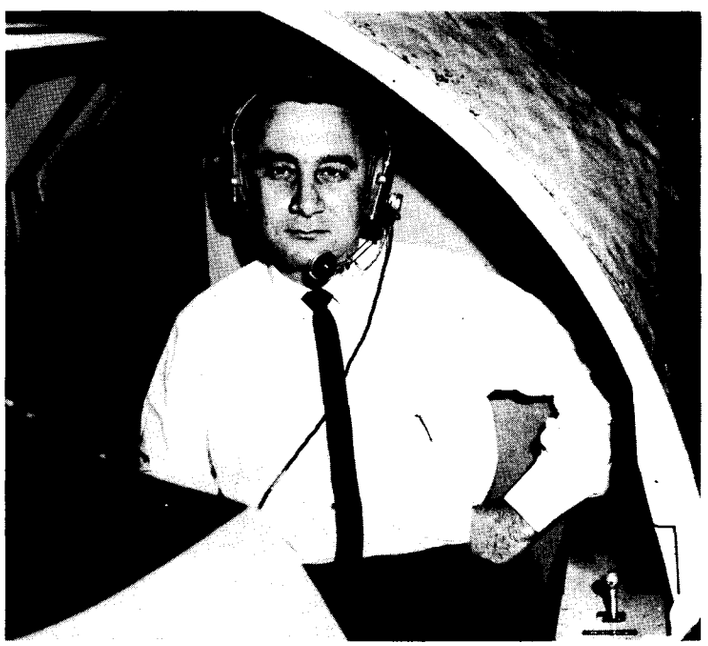
Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ENGAGED. . .Making plans for a summer wedding is Beth Hickerson, Analysis and Computation Division. She is engaged to John P. Weidner, Aero-Physics Division. . .Announcing her engagement is Sandra Moore White, Procurement Division. She is engaged to William Sidney Patrick, Poquoson, and plans call for a July wedding.

NEW HEIRS. . .Announcing the arrival of a son, Brady Walsh, on February 3 is Hugh Mahanes, Procurement Division. . .Word has been received at the Center that Mary Stooks, Data Processing Section, became the mother of a 9 pound, 12 ounce son on February 16. . .Passing out cigars and candy is Wallace R. Conway, Flight Vehicles and Systems Division. He became the father of a son on February 11.

ALUMNI MEETING. . .The NASA Apprentice Alumni Association will hold its first meeting of the year on Thursday, March 7 at 7:30 p.m. in the Activities Building. All past members, present members and new graduated are urged to attend. Refreshments will be served following the business meeting.



Astronaut Virgil "Gus" Grissom visited the Langley Center last week. Here he is shown in the Rendezvous Docking Simulator which is located in the Hangar in West Area.

Evelyn Huffman, Research Models and Facilities Division is shown with thirteen ribbons which three of her Siamese cats recently won in a show in Glen Burnie, Maryland.

EMPLOYEE'S CATS AWARDED THIRTEEN RIBBONS IN SHOW

Evelyn Huffman, Research Models and Facilities Division, is quite proud of her brood of cats and rightly so. She entered three of her Siamese cats in the first annual show of the Chesapeake Cat Club of Baltimore recently and walked away with thirteen ribbons. The show was held in Glen Burnie, Maryland, and over 200 cats were entered.

All of Evelyn's cats bear the prefix or suffix of Da-Glo in their names. Winning the ribbons were Da-Glo's Barbie Doll, a nine-month old lilac point Siamese female; Da-Glo's Nee Bo, a five-month old (kitten) chocolate point Siamese female, and Blue-Iris Pepe of Da-Glo, an eighteen-month old chocolate point Siamese male.

Barbie Doll won best novice in the all breed class, best novice in the specialty class and best of color in the specialty class. She won best novice over a field of approximately 60 contestants, best novice in the specialty class of short hair breeds, and best color in the lilac point Siamese division.

Nee Bo was entered in the kitten class and won best of color over all breeds and best of color in the specialty class.

Blue-Iris Pepe won second best novice in the all breed category and second best novice in the specialty class.

NOTICE: The Radio Control Model Club will meet on Tuesday, March 5 at 8 p.m. in the Activities Building. All memare urged to attend.

FOR SALE: 47-foot house trailer with 12 x 28-foot room addition. Lawson, 868-9380 after 5:30.

FOR SALE: Full-size electric stove - large oven. Call Anderson, CH4-7119.

Dr. Raymond L. Bisplinghoff, Director of the NASA Office of Advanced Research and Technology, visited the Langley Research Center recently to confer with Langley officials concerning various research programs being conducted here. He was accompanied by two other officials of OART-- Boyd Myers II, Director of Program Review and Resources Management, and Milton B. Ames, Director of Space Vehicles. Floyd L. Thompson (right), Langley Director, greets Dr. Bisplinghoff upon his arrival at Langley Headquarters. Look-on are (from left) Myers, Charles J. Donlan, Langley Associate Director, and Ames.

WALLOPS TEAM PARTICIPATES IN WEST COAST LAUNCHING

A 104-pound scientific payload carrying experiments to obtain information on hazards which may be encountered by satellite and spacecraft, manned and unmanned, as they pass through the radiation belts surrounding the earth, was launched by Goddard Space Flight Center from Point Arguello, California, on February 11.

The payload was powered by a four-stage Argo D-8 vehicle called the Journeyman, and reached a peak altitude of 990 statute miles during a 27-minute flight.

The experiment was a joint project of Goddard Center and the University of Michigan.

A team of Wallops Station engineers and technicians, headed by William L. Lord of the Technical Liaison Section, went to the West Coast to assemble and check out the vehicle and assist with the launching. Included on this team were Durwood Dereng, Forrest Mooney, Tom Cutler, Garmon Justis, and Ed Weatnerman of the Vehicle Preparation and Launching Branch and Bob DeLucia of the Range Safety Section.

WANTED: Ride from 622 Sun Court, Brentwood, to W.A. on 8 shift. John Lamar, 4479.

WANTED: Passengers from vicinity of Newmarket to W.A. on 7:30 shift. King, 4691.

WANTED: Alternate driver from Newport News Ave. to W.A. on 8 shift. Maddalon, 4705.

JOINT CAMPAIGN

(Continued from page 1)

ing.

Last year Center employees contributed a total of $3,549.35 to the health agencies and $1,359.35 to the joint crusades.

Hutcheson is a native of Portsmouth. He graduated from Woodrow Wilson High School in Portsmouth and served in the U.S. Navy from June 1944 to May 1946. Before joining the Center staff on April 1, 1959 he was employed at the Norfolk Naval Shipyard. He is head of Purchase Branch, Procurement Division.

WANTED: Alternate driver from Hampton High School to W.A. on 8 shift. Eichenbrenner, 4424.

WANTED: Passengers to Southern Texas April 10 to April 21. Hector, 4766.

25 APPRENTICES ON HONOR ROLL

According to Training Office officials, 25 apprentices completed the fall semester with an average of 97 or better.

Members of the honor roll are as follows:

Robert N. Barnes, Transonic Dynamic Tunnel; Leland E. Bryant, Material Processing and Development; David R. Brooks, 16-foot Tunnel; Douglas M. Brown, Research and Development Support; Mercer D. Burt, Polymer Laboratory; James I. Clemmons, Electronic Shop; Charles E. Cockrell, Material Processing and Development; Joseph B. Davenport, Heavy Machine; Earl P. Conkling, High Temp. Fluid Mech; Earl S. Knight, Heavy Machine; Virgil Laney, Electronic Shop; Joseph Lupton, Dynamic Model; Frankie B. McLaughlin, Electric Arc Facility; Daniel J. Milburn, Heavy Machine.

Roy Parrish, Instrument Construction; John Peterson, 4-foot; Thomas Pressley, Magnetoplasmadynamics; Vincent L. Pritchett, Inst. Const.; James L. Puffenberger, Heavy Machine; Frank Shemenski, Research and Development Support; Harold V. Stanley, Heavy Machine; Ralph R. Stoddard, Material Processing and Development; Kenneth Test, Continuous Flow Tunnel; Darrell A. Wood, Fatigue Branch, and Edgar Yarrington, 9 x 6 Thermal Struct.

BLOODMOBILE

The Red Cross Bloodmobile unit will visit the Center on Wednesday, March 6, and will be in operation at the Activities Building.

There is a continual need for new blood donors. Employees wishing to register to take part in this program may contact the East Dispensary, Building 584, telephone 2243.

NASA SIMPLIFIES NAMES OF SATURN

NASA recently announced slight changes in the names of Saturn launch vehicles in the interest of simplification.

The original member of the family of three Saturn vehicles, known from its conception as Saturn C-1, will hereafter be called "Saturn I." The Saturn C-IB will now be known as "Saturn IB," and the Saturn C-5 (often called the Advanced Saturn) becomes "Saturn V."

These rockets are being developed for the Office of Manned Space Flight under the direction of Marshall Center. All three will be used in the Apollo Manned Lunar exploration program.

Saturn I will be used to place the command module of the Apollo spacecraft, bearing a three-man crew, into earth orbit for up to two weeks. Saturn I has a first stage (called S-I) that is 21-1/2 feet in diameter, 80 feet in length and generating 1.5 million pounds thrust from eight H-1 engines. The rocket's second and final stage will be the S-IV, 18 feet in diameter, 41 feet in length and generating 90,000 pounds of thrust from six RL-10 engines.

The second vehicle, Saturn IB, will likewise be used in early development and training phases of project Apollo. It will be capable of placing the complete Apollo spacecraft into earth orbit. This vehicle consists of the same first stage used on Saturn I, plus a different second stage, the S-IVB. The S-IVB will be 21-1/2 feet in diameter, about 58 feet in length, and will be powered by a J-2 engine developing 200,000 pounds of thrust. Saturn IB will be capable of placing 16 tons into earth orbit, compared to 10 tons for Saturn I.

John G. Lowry (center), Full-Scale Research Division, is presented a check for $400 and a letter of commendation from the NASA Inventions and Contributions Board by Floyd L. Thompson, Director. The award was made in recognition of the intangible benefits which will accrue to the Government from Lowry's patent entitled "Variable Sweep Delta-Plan Aircraft". Observing the presentation is Donald D. Baals, Assistant Chief, Full-Scale Research Division.

Largest of the three vehicles, the Saturn V, is the Apollo moon rocket. It consists of a first stage (S-IC) 33 feet in diameter, 138 feet in length and powered by five F-1 engines generating 7.5 million pounds of thrust; a second stage (S-II) 33 feet in diameter, 82 feet long and developing one million pounds of thrust from five J-2 engines; and a third stage which is the same S-IVB stage used on the Saturn IB. This rocket will be able to place about 120 tons into earth orbit and send 45 tons to the vicinity of the moon. It will be used for manned lunar landings.

WANTED: Driving combination from Norfolk to W.A. on 7:30 shift. Hillard, 4547.
WANTED: Passengers from Norfolk to W.A. on 8 shift. Charles Kennedy, 587-3578.
FOR SALE: 1958 Dodge Royal hardtop - highest offer. King, CH7-3817.

ROCHEN APPOINTED TO SNAP-50 POST

Herbert D. Rochen, Office of Advanced Research and Technology, has been appointed NASA Deputy to the Program Manager of the SNAP-50 Program Office, established by agreement of NASA, Atomic Energy Commission and Department of Defense. He will report to Col. Elwood M. Douthett, USAF, Project Manager of the newly established office.

As NASA deputy manager, Rochen will provide liaison for the nuclear electric power programs in SNAP-50/SPUR, a projected advanced nuclear electric power plant in the 300-1000 kilowatts electric power range.

Rochen will be responsible for supplying data from NASA programs for the power plant, which is planned to be capable of operation for extended periods of time unattended, and to weigh less than 20 pounds per kilowatt without shielding. Scientists hope to develop the SNAP-50 power package into a useful power source in operating spacecraft.

Rochen comes to his new position from experience of more than a year in the Office of Advanced Research and Technology, Nuclear Systems Directorate, where he was program manager for NASA's part in SNAP-8 project. Prior to that time he supervised research in power plants for the same office. For two years he was secretary of the NASA Research Advisory Committee on Mechanical Power Plant Systems.

Before he joined the NASA Headquarters staff in 1958 as an aeronautical research engineer, Rochen worked for the Navy Department

MARION TO BUILD NASA CRAWLER

NASA has selected the Marion Power Shovel Company of Marion, Ohio, to design and build a gigantic crawler-transport vehicle which is to:

Pick up a fully assembled Apollo lunar spacecraft mated to a three-stage Saturn V launch vehicle, weighing 500,000 pounds, plus necessary launch equipment, towering 400 feet high and weighing some 12 million pounds;

Haul it a little over two miles, all the while keeping it within 1/10 of a degree of true level, and deposit it gently on a Merritt Island, Florida, launch pad.

The crawler must be able to perform this feat in winds of at least 45 knots.

The crawler itself will weigh some 5.5 million pounds but it will be able to lift and carry more than twice its weight. The squat 130-foot long, 115-foot wide behemoth, only 20 feet tall, would cover the infield of a major league baseball diamond.

The crawler is one of the key elements of planning for NASA Launch Operations Center's Complex 39 from which manned lunar Apollo missions will be launched. Plans call for Apollo-Saturn V to be assembled in a 520-foot tall Vertical Assembly Building and transported via crawler to a launch pad for fueling, final tuning up and boarding by astronauts.

Apollo-Saturn V, which must reach a velocity of some 24,000 miles an hour to achieve a lunar mission, will travel its first few miles to the pad at a velocity of not more than one mile an hour. Top speed of the crawler will be two miles an hour.

NASA plans to buy two crawlers to serve the three or more pads that will be built at Complex 39. The vehicles will cost between $4 and $5 million each. The first should be undergoing test runs at the new NASA Merritt Island Launch Area by late 1964.

Here are some of the crawler's vital statistics:

Each of its four crawler trucks, measuring about 24 by 40 feet, will feature a pair of steel link belts. There will be a total of 16 electric driving motors, two driving each of the eight link belts. The motors in turn will be powered by two 2800-horsepower diesel generators.

The crawler will shoulder its load at each corner on a unique system of four hydraulic cylinders grouped around a rigid 48-inch diameter guide tube. The leveling system is to maintain the chassis within 1/10 of one degree of level at all times, even while climbing a five per cent grade.

It will be able to turn at the rate of 10 degrees a minute and be operated from identical control cabs at either end by two men.

The company plans to build the major crawler components at its plant in Marion and transport them by rail to Merritt Island for final assembly.

WANTED: Witnesses to the December 14 accident behind the West Area Main Gatehouse involving a red 1963 Corvette Sting Ray. Rohrbach, 4611 or UN8-2151.

NOTICE: Will the person who has the bound volume of "Journal of Rational Mechanics and Analysis" Volume 4, 1955, please contact McComb, 4860.

FOR SALE: 14-foot Halsey runabout with 30 hp electric Johnson motor, remote controls, and trailer - $390. Bob Dennis, 14 Beverly St.

FOR SALE: 1959 Plymouth and 24-inch Hot Point TV set. Clayton. PA2-7154 after 5.

BOWLING

DUCKPIN LEAGUE

High scores for the night of February 18 were rolled by Jim Link with a 377 set; Al Insley with a 135 game; Mary Carmines with a 346 set and a tie for high game between Alene McCann and Helen Dupere with 119.

In this week's bowling, Eddie Eggleston rolled a 148 high game and 389 high set for the men. Tops for the women were Helen Dupere with a 339 high set and Liz Patterson with a 131 game.

STANDINGS

Team	W	L
Hopefuls	51	29
Lt. Machine 1	49	31
Strike Outs	44	36
Rebel Bombers	43	37
Jets	42	38
Ten Spots	41	39
Count Downs	39	41
Double Dots	37	43
Pin Poppers	36	44
ICS	35	45
Doodle Bugs	33	47
Lt. Machine 2	30	50

BASKETBALL

With the final week of play and the tournament coming up, 8-foot and Misfits are still setting a torrid pace and will probably finish first in their respective divisions.

8-foot features a balanced scoring attack which is averaging over 45 points a game. The Misfits are led by high scoring forward Ronnie Weber.

The tournament figures to be very interesting in light of the rash of late season upsets and near upsets which have occurred.

DIVISION A

Team	W	L
8-foot	11	0
Packers	9	3
Scouts	7	6
Hoteyes	5	8
Royals	4	8
Kilowatts	0	11

John O. Windham

MSFC RESIDENT ENGINEER HERE

John O. Windham, former member of the Langley Research Center staff, has assumed the position of Marshall Space Flight Resident Liaison Engineer at Langley. In this position, he will act as observer, coordinator, and expediter to better accomodate the technical information interchange between the two Centers.

His services are available to all divisions and offices at Langley. He is located in Room 105, Building 1218 (formerly Gust Tunnel) and his telephone number is 3211.

Windham attended Georgia Military College and received his B.S. degree in Aeronautical Engineering from Alabama Polytechnic Institute in 1947. He served in the U.S. Air Force from 1942 to 1945 and joined the Langley staff on April 21, 1948 as an Aeronautical Engineer at Tank No. 2. He transferred to Marshall Center on January 19, 1957.

DIVISION B

Team	W	L
Misfits	10	2
Greenhorns	8	4
Roughnecks	8	4
Short Circuits	3	10
No Names	2	11

FOR SALE: 15-foot Flying Saber plywood boat. Call Cleary, 868-9545.

REPORT PREPARED

(Continued from page 1)

is an idealized, middle latitude one (45 degrees North Latitude) under medium solar conditions between times of maximum and minimum sunspot activity.

The document is dedicated to the late Dr. Harry Wexler, who until his death on August 11, 1962, was Director of Meteorological Research for the Weather Bureau and Co-chairman to the COESA, and he had led other similar efforts for nearly 15 years.

Shortly after the first international standard atmosphere was published, a need became apparent for the extension of the tables to greater altitudes. The atmospheric standard as revised and extended by Langley Research Center in 1955 was adopted by the International Civil Aviation Organization (ICAO).

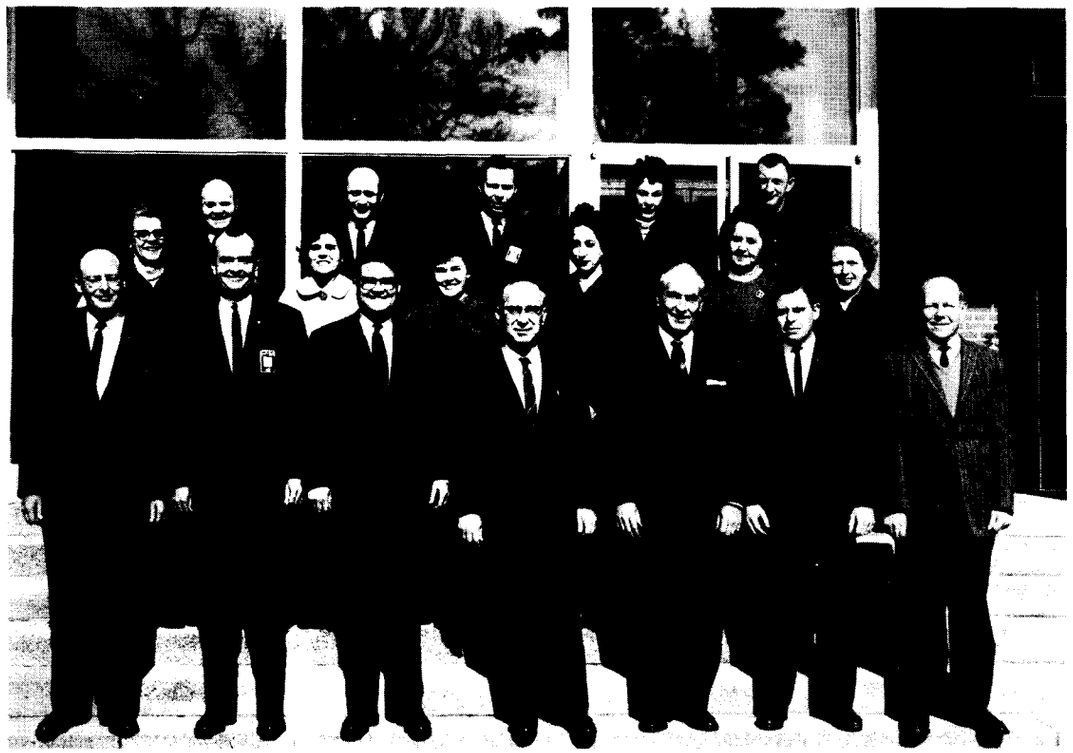
Scientific progress quickly rendered the 1955 standard atmosphere obsolete, since orbital periods of the first Sputnik indicated that densities at the upper altitudes were in error by more than an order of magnitude (tenfold). Reliable measurements by rockets and satellites made possible experimental determinations of important atmospheric properties to altitudes of 700 kilometers (435 miles).

The report provides, in systematic tabular form and at regular intervals from five kilometers below sea level to 700 kilometers above sea level (minus 3 to plus 435 miles) such basic atmospheric parameters as temperature, sound speed, pressure, density, particle speed, molecular weight, etc., and basic equations and curves for these properties also are given.

The new work is divided into four altitude regions. The first, from -5 to plus 20 kilometers (-3.1 miles to plus 12.4 miles) is designated standard. The second region, from 20 to 32 kilometers (12.4 to 19.9 miles) is designated proposed standard. The third region, from 32 to 90 kilometers (19.9 to 55.9 miles) is called tentative, and the fourth region, from 90 to 700 kilometers (55.9 to 435 miles) is labeled speculative.

Several years of observations at satellite altitudes also led to increased understanding of the effects of solar activity and sun position. Hundreds of rocket firings provided data above balloon altitudes, where many thousands of measurements were made.

The U.S. Standard Atmosphere, 1962, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. The price is $3.50.



Members of the NASA Langley Research Center team who compiled and computed the new U.S. Standard Atmosphere, 1962, to specifications of the Working Group of the U.S. Committee on Extension to the Standard Atmosphere (COESA) sponsored by the NASA, the U.S. Air force, and the U.S. Weather Bureau. First row (from left): William J. O'Sullivan Jr., COESA Working Group member and NASA editor; R. A. Hord, alternate COESA Working Group member, Task Group II Liaison and contributing author; Dr. J. E. Duberg, Consultant and Task Group III Liaison; I. E. Garrick, Consultant; Dr. S. L. Seaton and J. A. Mullins, scientific editing and manuscript preparation, and H. B. Tolefson, Task Group I Liaison. Second row: Vera Huckel, computational checking; Jean Mason, curve fitting; Shirley Crockett, typing; Lillian Boney, computer programing; Ida Young and Lois Klinefelter, technical editing. Third row: D. A. Willment and W. T. Berryman, art and illustration; C. W. Williams, Ruby Felker, and W. C. Johnson, photographic negative preparation. Not included in the photograph is R. V. Butler, computer programing.

FOR SALE: 1952 Plymouth sedan with new tires, radio and heater. Hansen, LY-6-7784.

FOR SALE: 1962 proof coin set. Crockrell, 826-4168.

FOR SALE: Baby crib and mattress, Carmines, 826-2894.

FOR SALE: 12-cubic-foot Westinghouse refrigerator, $25. Taback, LY6-8128.

FOR SALE: Large maple tester bed with springs and foam mattress. Lawford, LY6-2242.

--Buy U.S. Savings Bonds--

CAMERA CLUB

The Langley Camera Club held its annual slide-of-the-year contest and dinner at The Earle Restaurant.

First place was won by Hugh Frazer with a slide of the Jamestown ships taken at sunset. A total of 50 slides were entered and were judged by Henry Sharp who is a professional photographer and member of the James River Camera Club.

Other winners were: second place, "Joshua Tree" by Sid Hall; third, "The Great Pumpkin" by Harry Carlson; fourth, "Judy II" by Paul Yeager; fifth "Carol" by Charles Leeper, and sixth, "Lilly's Beauties" by Leeper.

A group of Center employees were recently presented safe driving awards. The period covered January 1, 1962 to December 31, 1962. Receiving awards were front row (from left): Vernon S. Courtney, George Brooks, Clarence Brooks, James Hill, Thomas Diggs, Horace Bunting, Thomas Frances, Ernest Dennis Jr., John Mitchell, James Russell, John Perry, and Lloyd Fletcher. Back row: T. Melvin Butler, Assistant Director for Administration who presented the certificates; T. Aubrey Harris, Chairman of the Executive Safety Committee; Harry H. Hamilton, Chief of Photographic Division; Edward T. Maher, Secretary of the Incentive Awards Committee; E. E. Pettigrew, Publications Printing; Earlie F. Smith, Transportation; M. E. Cook, Chief of Maintenance Division; Guy Boswick, Office Services Division; Robert Jackson, and Joseph Parker. Absent when the picture was taken was Thomas Harper.

MICROMETEOROID SATELLITE

(Continued from page 1)

Two foil gage detectors furnished by the Lewis Research Center were punctured during the 29-day reporting period. Each was protected by a one-thousandth inch thick skin of stainless steel. Similar detectors covered by three- and six-thousandth inch steel skins did not report any punctures.

One of two cadmium sulfide cells carried on Explorer XVI indicated that its thin outer covering had been perforated three times. The cells were developed by Goddard Space Flight Center. Another set of Goddard detectors, consisting of fine copper wire wound on rectangular cards, reported no micrometeoroid impacts.

Explorer XVI data which have been analyzed indicate that the penetrating capability of micrometeoroids may be many times less than some predictions, but still much greater than others. By continuing to collect direct experimental evidence, the 222-pound satellite will further narrow the great uncertainty which has existed. Highly reliable experimental data on micrometeoroid penetrations are essential to the proper selection of spacecraft skin thicknesses.

Information gathered by Explorer XVI is telemetered by ground command to a station in the NASA Minitrack Network operated by Goddard Center. Magnetic tapes on which the information is stored are then shipped to Langley where electronic computing machines extract scientific data in usable form. Material in the report just issued came from 26 separate interrogations of the satellite, the last reported data being from the 391st orbit of the Earth on January 13.

Explorer XVI is continuing to telemeter valuable data and all experiments are reported working well. It is the third spacecraft placed in orbit from Wallops Station by the Scout launch vehicle.

At the end of January, the satellite had an apogee (highest point) of 732 statute miles. Its low point, or perigee, was 466 statute miles. The orbit is tilted 52 degrees to the Earth's equator and the satellite completes one full circuit every 104.3 minutes. Velocity at apogee is 16,000 miles per hour and at perigee 16,940 miles per hour.

Further reports will be issued to scientists and spacecraft designers as additional information becomes available.

FOR SALE: Italian antique marble-top mahogany dresser with separate mirror - $140; two matching commodes - $190; antique English desk and chair - $85. Ross, 723-4492 after 5 p.m.

FOR SALE: 200 x 100-foot corner lot in Edgehill, York County - $2500, Ward, 596-8757.

WANTED: Mobile "ham" station - trade50 watt, number 80 through 6 fixed station. Staggs, 244-8379.

FOR SALE: 9 x 7 4-panel garage door - $25. McRee, 838-0389.

FOR SALE: 14-foot outboard hull - $40. PA 2-5847.

LARGE SATELLITE CONTRACTOR NAMED

NASA will negotiate with Fairchild Stratos Corp. of Hagerstown, Md., on a contract to build a giant Meteoroid Detection Satellite for launch late next year.

The two-ton satellite will be launched on the eighth and ninth test vehicle flights of the Saturn I rocket as part of the expanding meteoroid detection study directed by the Office of Advanced Research and Technology. The Marshall Center will have project management responsibility.

Under the contract, Fairchild Stratos will design and construct two flight models of the huge spacecraft. It is anticipated the final contract will be on a cost-plus-fixed-fee basis and will cost some $5 to $10 million.

The earth orbit is expected to range from 300 to 800 miles altitude and a lifetime of at least one year is planned.

During launch from Cape Canaveral, the satellite will be housed in the 10-foot diameter boilerplate Apollo service module which the Saturn I will carry on top of its S-IV second stage. After injection into orbit and separation of the command module and part of the service module, the huge satellite will be deployed.

In orbit, the meteoroid satellite will remain attached to the S-IV and will deploy two large flat wings-each ten feet wide with a total span of 96 feet - by a system of scissor-like links driven by an electric motor. The wings will be covered with thin aluminum sheets of varying thicknesses of up to 16 thousands of an inch and separated by Mylar.

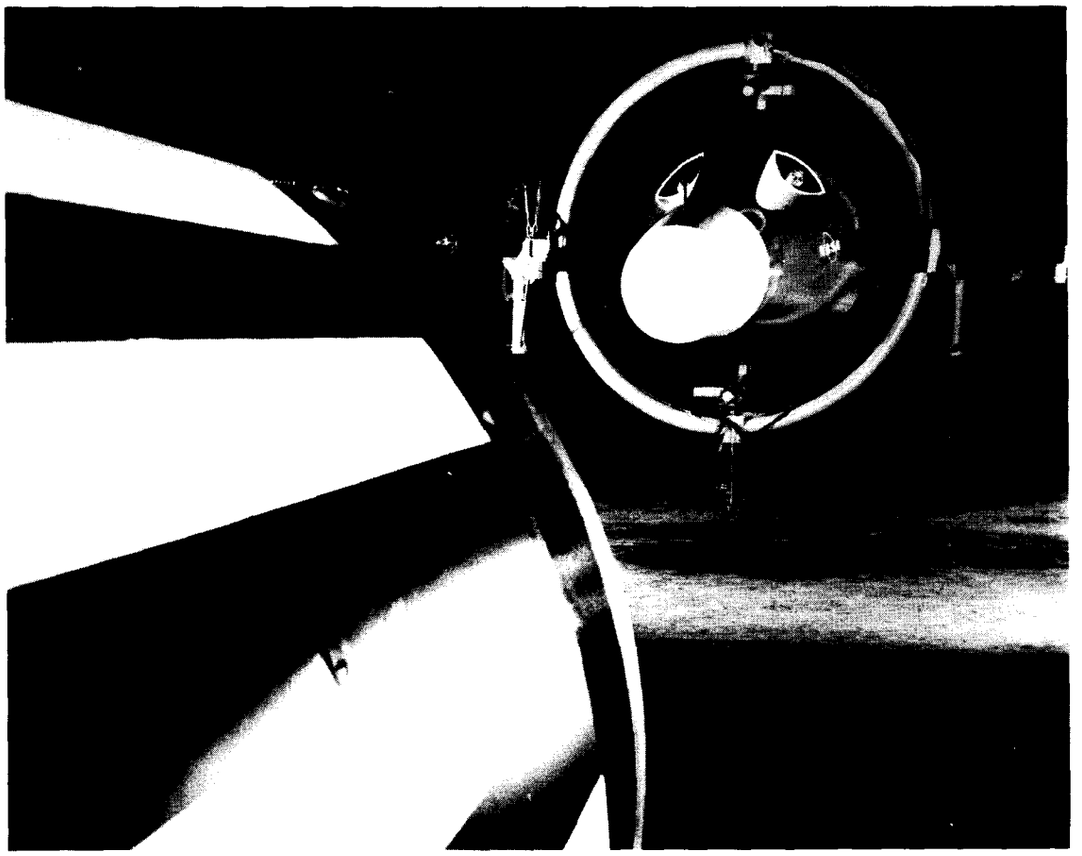
The outer skin is electrically charged to make it a huge capacitor. Each time it is penetrated by a meteoroid, the material removed by the impact is vaporized and forms a conducting gas which discharges the capacitor. The pulse is stored in a memory circuit to be transmitted to a ground station on command.

When deployed, the satellite will expose an area of more than 2,000 square feet contrasted with Explorer XVI, launched from Wallops Station on December 16, which exposes an area of 25 square feet.

Scientists and engineers need more information on the hazard of penetration by meteoroids in space for the design of manned spacecraft, fuel tanks and radiators which will be exposed in space for long periods. Explorer XVI, the first meteoroid detection satellite, is providing very useful data on smaller meteoroids, but does not have a big enough surface area to give sufficient statistical information on larger meteoroids. Larger meteoroids are less numerous and so require a larger target surface for a given number of detections.

Meteoroids are particles of solid matter flying in space. They range in size from microscopic particles to huge fragments. It is the hazard posed by these particles that this satellite seeks to measure.

As another element of the meteoroid detection program, NASA has announced establishment of a network of stations in the Prairie States to photograph bright meteors. Detection by radio monitoring is also being planned. Results of these studies will be correlated with the results of flight experiments to provide an adequate understanding of meteoroids and the extent to which they constitute a hazard to space flight.



Night photo by Robert E. Nye, Langley Researcher staff photographer. This picture appears as a color cover on the February issue of Astronautics and Aerospace Engineering, which features a special section on Manned Orbital Operations. Shown in the full-scale model of the Gemini spacecraft are Gary P. Beasley (left) and Roy F. Brissenden, both of Aero-Space Mechanics Division. A paper entitled "Visual Capability in Rendezvous" by Jack E. Pennington and Brissenden is included in the magazine. On February 1, the American Institute of Aeronautics and Astronautics officially came into existence, capping more than a year of study and negotiation between officials of the American Rocket Society and the Institute of the Aerospace Sciences. The first issue of the new AIAA magazine carries brief histories of IAS and ARS, and includes a guest editorial - Space Progress, 1962 - by Robert R. Gilruth, Director of Manned Spacecraft Center, Houston.

FOR SALE: 13' Kelvinator refrigerator with top freezer. Royster, 723-0691.
FOR SALE: Kirby vacuum cleaner. King, CH7-3817.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 6 | LANGLEY RESEARCH CENTER | MARCH 15, 1963

Dr. John E. Duberg

ASME TO HEAR DR. J. E. DUBERG

Dr. John E. Duberg, Technical Assistant to the Associate Director of Langley Research Center, will give an illustrated lecture on the NASA Space Radiation Effects Laboratory at the meeting of the Eastern Virginia Section of the American Society of Mechanical Engineers on March 21 at 8 p.m. at the Holiday Inn.

The Space Radiation Effects Laboratory, which is to be located at the Oyster Point Ammo Storage area in Newport News, will be operated jointly by the College of William and Mary, the University of Virginia, and the Virginia Polytechnic Institute under contract to the Langley Center.

One of the main points to be covered in Dr. Duberg's lecture is the 600 Mev, proton synchrocyclotron which will be one of the main pieces of equipment of the laboratory.

Dr. Duberg was born November 30, 1917, in New York City where he attended public schools and Manhattan College-- graduating with

(Continued on page 6)

JOINT DRIVES START TODAY

The 1963 Federal Service Campaign for the National Health Agencies and the Federal Service Joint Crusade commences officially today and ends March 29.

Employees received contribution envelopes with pay checks yesterday. All donations should be turned in to attendance clerks who will send them to division secretaries.

In view of the short duration of the campaign this year, employees are urged to give utmost considerations in donating in a timely manner.

In connection with donations this year, W. E. Hutcheson, Campaign Chairman, has issued the fol-

(Continued on page 4)

NASA PRESENTS AWARDS IN AREA SCIENCE FAIR

NASA has presented awards for outstanding achievement in six fields of science to senior high school students who entered exhibits in the 12th annual Tidewater Science Congress held in Norfolk Saturday.

Floyd L. Thompson, Langley Research Center Director, in announcing the award winners, reported that this marks the beginning of an annual NASA awards program to be conducted in conjunction with the Tidewater Science Congress and at regional fairs in four states.

Four members of the research staff at Langley participated as judges in the all-day science fair held at Norview High School. They included Dr. Samuel Katzoff, chief NASA judge; Wilmer H. Reed III, Gerald D. Walberg, and Howard B. Edwards.

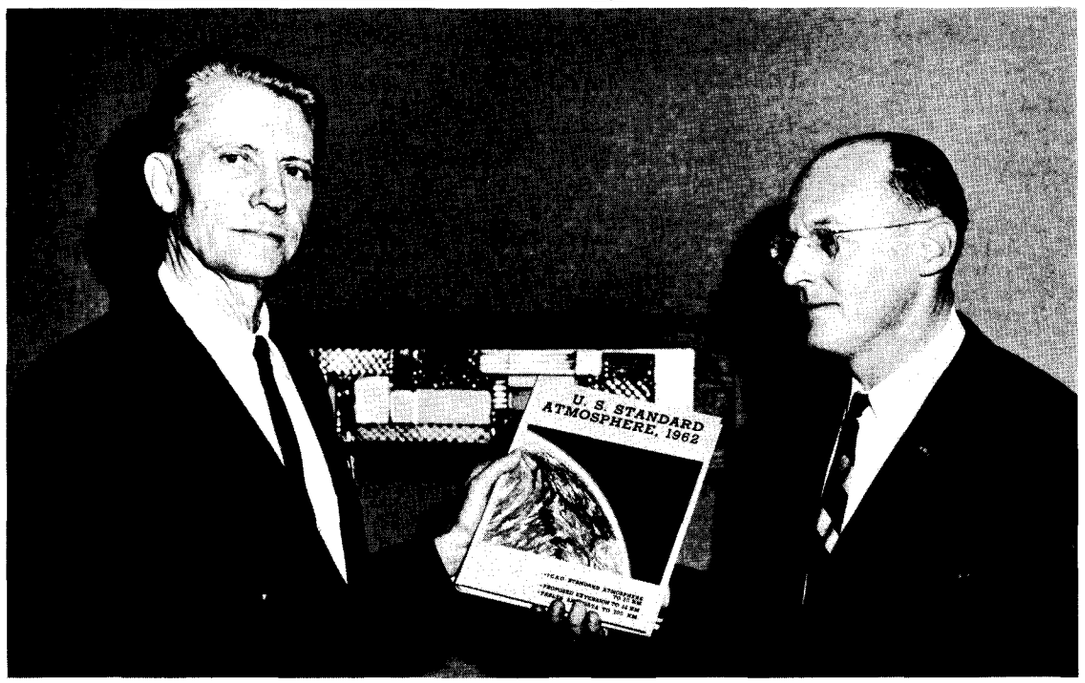
The six categories in which NASA Certificates of Outstanding Achievement were presented are:

Aerodynamics - as related to space flight out through the atmosphere and return.

Space Vehicles - vehicle configuration, materials, and structures and systems for stabilization, navigation, guidance and control of aircraft and manned and unmanned space vehicles.

Space Flight and Propulsion - chemical, electric, and nuclear propulsion systems.

(Continued on page 8)



William J. O'Sullivan Jr., NASA Editor for the U.S. Standard Atmosphere, 1962, presents a copy of the report to Floyd L. Thompson, Langley Director. The 278-page report was prepared under the joint sponsorship of the NASA, U.S. Air Force, and the U.S. Weather Bureau. Copies of the report have been distributed to branch offices for use by research personnel. Additional copies may be obtained from Walter Lee, 3337.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW HEIRS. . .Charles Eichelberger, Flight Vehicles and Systems Division, became the father of a son on February 16. . .Eric Carl arrived at the C. Norwood Robeson household on February 28. The father works in Instrument Research Division. . .Announcing the birth of a son, Robert Anthony on February 20 is Robert A. Schmitz, Scout Project. . .Herbert Schippell, Applied Materials and Physics Division, became the father of a son on February 1. . .A son was delivered to the Virgil Laney household on February 26. The father works in Electronic Shop.

ENGAGED. . .Making plans for a June wedding is Sara Frances Shields, Aero-Space Mechanics Division. She is engaged to Lynn Robert Lindberg, Liverpool, New York. Peggy Lewis Beltz, Instrument Research Division, has announced her engagement to Thomas George Holden, Newgulf, Texas. The wedding will take place in the summer.

NEW ROCKETTE. . .Announcing the birth of a daughter on February 27 is Thomas McKee, Applied Materials and Physics Division.

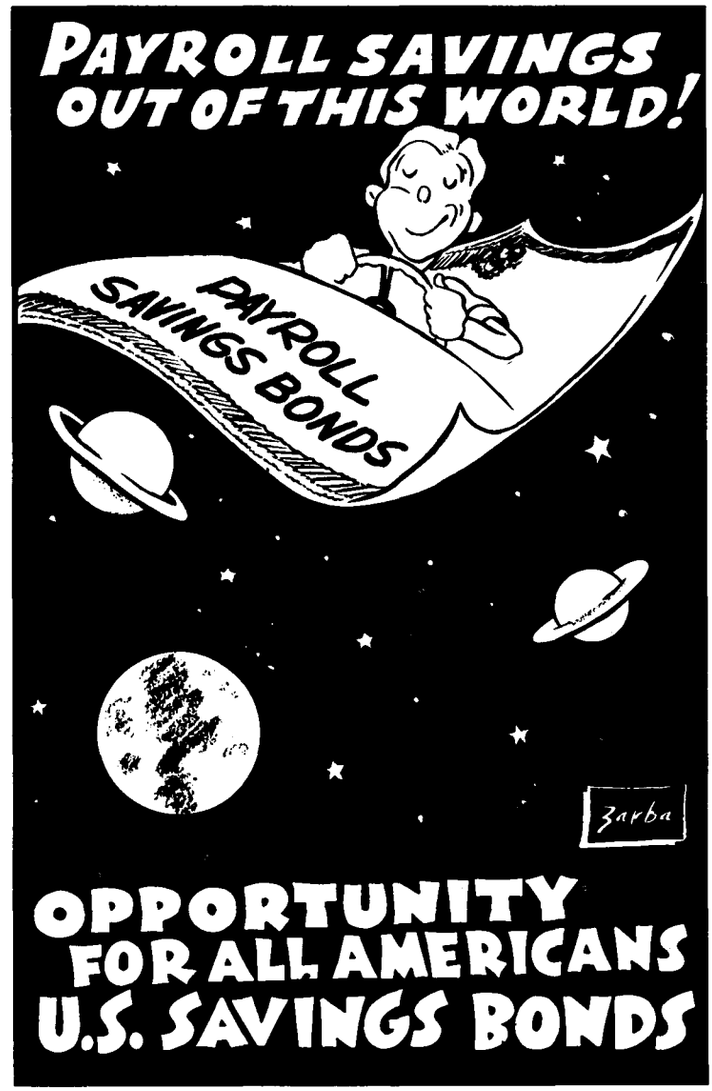
JUNE WEDDING. . .Making plans to desert the bachelor ranks is Charles David Hubbard, Mechanical Service Division. He is engaged to Nancy Ann Stanley, Clarendon, North Carolina, and the wedding will take place on June 22.

SOFTBALL NOTICE. . .All teams planning to enter the NASA Softball League are requested to have a representative contact C. M. Pittman, 4891.

AUTO LICENSE. . .Both Virginia State and Hampton City automobile tags will be sold at the Phoebus Amoco Station, 201 Mellen St., from March 15 through April 16. The office will be open daily including Saturdays from 8 a.m. until 6 p.m.

CAMERA CLUB. . .The Langley Camera Club will meet on March 18 at 7:30 p.m. in the Activities Building. The subject for the contest for both black and white prints and color slides will be portraits.

WANTED: Fourth driver from vicinity of Hampton High School to W.A. on 8 shift. Eichenbrenner, 4424.
NOTICE: Will the person who borrowed "Dangerous Properties of Industrial Materials" by N. Irvin Saxs please return it to the Safety Office.
WANTED: Driving combination from Stuart Gardens to W.A. on 8 shift. Cordle, 4818.



NOTICE: Any person or persons who saw a vehicle skid into a red Volkswagon parked in Front of NASA Building 584 on Thursday morning, February 28 are asked to contact C. S. Hudgens, 4793.

NOTICE: M. Lowell Collier, Assistant Professor of Engineering Mechanics at Virginia Polytechnic Institute, has accepted summer employment at Langley Research Center. He owns his own home in Blacksburg and would like to trade houses for the summer with someone from NASA who will be attending VPI for both summer school terms. Anyone interested may contact Collier in care of the Engineering Mechanics Department, VPI.

WANTED: Ride from Poquoson to W.A. on 8 shift. Mrs. Tatianawaslyk, 3342.
WANTED: Driving combination from Greenwood Farms to W.A. on 8 shift. Baradell, 4609.
WANTED: Alternate driver from Warwick Gardens to W.A. on 8 shift. Goering, 4826.
WANTED: Driving combination from 622 Sun Court, Brentwood to W.A. on 8 shift. Lamar, 4479.
WANTED: Alternate drivers from vicinity of Whealton Rd. to W.A. on 7:30 shift. Clark, 4503.
WANTED: Driving combination from Stuart Gardens to E.A. on 8 shift. Batten, 4568.

MASKE TO SPEAK TO AIAA GROUP

E. B. Maske, General Dynamics Corporation, will report on "The Technical Challenge of the F-III (TFX) Program" at a meeting of the Hampton Roads Chapter of the American Institute of Aeronautics and Astronautics (AIAA) at 8 p.m. on Tuesday, March 19 at Vic Zodda's Restaurant in Newport News. The meeting will be preceded by a social period at 6 p.m. followed by dinner at 7.

This will be the first meeting since the Institute of the Aerospace Sciences and the American Rocket Society merged to form the AIAA.

Maske will give a resume of the challenges presented by the F-III (TFX) program in the fields of aerodynamics, propulsion and structures. The impact of the bi-service concept and the areas of compromise caused by it will be discussed. The implication of the F-III on future aerospace vehicle programs will be examined and tentative conclusions drawn. The talk will be supplemented with slides.

After receiving his B.S. degree in Aeronautical Engineering from Louisiana State University in 1942, he served three years in the U.S. Army as an Ordnance Officer. He received his M.S. degree in Aeronautical Engineering from California Institute of Technology in June 1946 and joined General Dynamics in Fort Worth, Texas, in July 1946. As an Aerodynamicist, he assisted in the design of the induction system on the XB-53, did first exploratory work on GEBO I studies and was responsible for the aerodynamic aspects of the proposal for a medium bomber. For three years he was Aerodynamics Group Engineer responsible for the Performance Group.

E. B. Maske

From 1951 to 1959 Maske was Chief of Aerodynamics and was responsible for directing all activities of the Performance, Aero-Analysis, and Wind Tunnel Groups. He was made Chief of Aerospace Technology in 1959 and Director of Aerospace Technology in 1961 where he is currently responsible for all flight and structural sciences and for aero-testing. He has served as a member of the NACA Subcommittee on Propellers for Aircraft and as a member of the Ad Hoc Committee on Propeller Dynamometer for the AEDC Propulsion Wind Tunnel of the USAF Industry and Education Advisory Board.

Dinner reservations may be made by calling John Mugler, 838-0569, or Roger Stewart, 838-1917, on or before noon on Monday, March 18. Wives and guests are invited to attend.

FOR SALE: Deluxe Savage over and under rifle, $45. Winn, PA2-2426.

FOR SALE: 12 gauge Fox double barrel shot gun and 50 rounds of ammunition, also McGregor tennis racket. Mullis, 725-3502.

FOR RENT: House trailer in Blacksburg for spring semester. DeAtkin, PA2-2786.

FOR RENT: Two-bedroom apartment with living room, dining room and screened porch. Spain, CH4-8515.

WINGLESS M-2 TESTED AT AMES

A wingless, maneuverable spacecraft capable of orbiting the earth and landing like an airplane is ready for full-scale flight research as a result of extensive wind tunnel testing and analysis by a team of scientists at the Ames Research Center.

Known as the M-2 "lifting body", the spacecraft represents a complete departure from conventional and current spacecraft. Ames scientists say the craft could give an astronaut over 1,000 miles of lateral maneuverability after entering the earth's atmosphere from space flight, and allow him to land horizontally at almost any suitable area within the United States.

Consisting of a somewhat slender half-cone body with a blunted nose, this M-2 version of the lifting body concept has a boattailed rear portion. It has no wings. Elevons, landing gear, vertical fins, and a canopy or "cockpit greenhouse" are its only identifiable features.

Such spacecraft are highly maneuverable, have a high amount of useful payload volume, and are re-useable after their horizontal landing. The lifting body concept is viewed as a major step forward in the evolution of operationally flexible and efficient space vehicles.

"This configuration and other lifting body shapes have been studied and tested at Ames Research Center for more than three years," said research scientist George Edwards, who supervised the low speed testing of the vehicle. "Our extensive results show that a wingless lifting entry body, properly configured and equipped with controls, can have a horizontal landing capability equal to or better than the X-15 hypersonic research aircraft. This means that an astronaut could accurately choose his landing point following a space mission, and land horizontally."

"And our results indicate that deceleration stress on the astronaut during atmosphere entry would be reduced from about eight times the force of gravity to less than two times the force of gravity," added Clarence Syvertson, who coordinated the hypersonic test series at Ames.

"A full-scale vehicle is now under construction for manned piloted low speed and landing flight research," according to Ames scientist George Kenyon, who carried out the low speed wind tunnel testing. "It will have an enlarged canopy and a dorsal fin for safety purposes. The first piloted tests will take place at Flight Research Center, Edwards, California, in the early spring."

In discussing the project, Dr. Alfred J. Eggers, Jr., Assistant Director for Research and Development Analysis and Planning at Ames, and originator of the idea of lifting bodies in 1957, said, "the M-2 configuration is one of the first steps in demonstrating a concept. We are now carrying our research further, here at Ames and elsewhere, in the hopes of advancing the lifting body concept to its fullest possible extent."

FOR SALE: 36-inch Westinghouse electric range and 6.5 cubic-foot Westinghouse refrigerator. Mathis, 722-6998.

FOR SALE: DX-100 amateur transmitter in excellent condition. Perdue, 898-5105.

FOR SALE: Kenmore automatic washer - 6 years old - $35, scientifically designed console cabinet for component set, gray - $30. Bowen, 1516 Roanoke Ave.

FOR SALE: Seven-month old male Beagle Hound. Smoot, 4510 Kecoughtan Rd., PA3-5735.

JOINT CAMPAIGN STARTS TODAY

(Continued from page 1)

lowing appeal to all staff members:

"I sincerely hope you will consider the many wonderful and vital services performed by the participating agencies in this campaign. Their work is of the utmost significance to each of us as well as our families and friends. Think seriously of that fact that someday you may have to call upon one of the participating agencies for help yourself. Statistics listed in pamphlets distributed with your contribution envelop are indicative of what your voluntary contributions can enhance."

Included in the campaign are seven health agancies and three crusade agencies.

The health agencies include National Multiple Sclerosis Society, National Society for Crippled Children and Adults, American Cancer Society, National Society for the Prevention of Blindness, the American Heart Association, Arthritis and Rheumatism Foundation, and Muscular Dystrophy Associations.

The crusade agencies include CARE, Radio Free Europe and the American-Korean Foundation.

President Kennedy has urged all Federal establishments to support this joint campaign effort. Concerning the Federal Health agencies he stated, "These national health organizations belong to the public. They need our generous support in order to serve us effectively. I believe that everyone will want to make a substantial contribution to the National Health Agencies campaign."

In his message supporting the joint crusades the President stated, "There is no finer evidence of your humane concern for the welfare of all men than your increased support of the three private international agencies of the Federal Service Joint Crusade."

Multiple Sclerosis Society is an organization of 170 chapters concerned with an estimated 500,000 Americans suffering from multiple sclerosis and related diseases of the central nervous system. The Peninsula Chapter attempts to provide for the needs of persons suffering with multiple sclerosis by providing direct patient aid and care.

National Society for Crippled Children and Adults is a nationwide federation of 1,655 affiliates in all 50 states. Among the services provided in the Peninsula area are hospitalization, medical care, diagnosis, convalescent care, aids and appliances, physical therapy, speech therapy, occupational therapy, vocational training and many others.

The American Cancer Society attacks cancer in three ways - research to find the answers to this disease, service to help alleviate the pain and suffering of cancer patients, and education to help people protect themselves from cancer. These programs help save more and more lives from cancer year after year.

The Society for the Prevention of Blindness is committed to a total program for preventing blindness through research, service and education. The Society is constantly promoting eye safety in industry, school labs and shops, children's play and among the general public.

The Heart Fund supports nationwide programs of research, professional and public education and community service. The Association, its affiliates and chapters, seek to reduce and eventually control heart and circulatory diseases, which are now responsible for 54 per cent of all deaths in the United States.

Miss America, Maria Beale Fletcher, of North Carolina, makes the V for victory sign with the Sword of Hope - symbol of the American Cancer Society.

The Arthritis and Rheumatism Foundation is concerned with finding help for the 12,000,000 Americans who are victims of our nation's greatest crippler. Plans are underway to open a clinic on the Peninsula about April 1. Donations to this organization will be used locally to establish and operate the clinic.

The Muscular Dystrophy Association is dedicated to the scientific conquest of neuromuscular diseases through research into nerve, muscle and metabolism. It supports a worldwide program of scientific grants, maintains a unique research facility, the Institute for Muscle Disease, and assists patients through therapy, service programs and clinics.

CARE fights hunger in many ways: CARE packages bring the personal aid of individual American donors to recipients in many hungry and oppressed countries. Through CARE, food from U.S. farm abundance reach needy families in many lands, with the cost of distribution borne by voluntary contributions from the American public.

Each week Radio Free Europe broadcasts almost 3,000 program hours of news, information and entertainment to 80 million captive people in Poland, Hungary, Czechoslovakia, Romania and Bulgaria. These people depend on RFE's words of truth to kindle a spark of hope in their despair.

The American-Korean Foundation is fighting fear and poverty in war-shattered Korea through its varied programs in the field of health, education, welfare, agriculture and economic development. AFK-supported medical teams from four Korean universities are fighting disease in rural areas. A $1,187 AKF grant enabled 96 medical students to treat 8,380 patients during the 1962 summer season.

AIRCRAFT SIMULATOR STUDIES PLANNED AT LANGLEY CENTER

An aircraft flight simulator wil go into operation in November at the Langley Research Center for use in a program to study the problems to be expected in integrating future supersonic commercial air transports into air traffice control systems.

The research program, a cooperative effort by NASA and the Federal Aviation Agency, has a two-fold purpose: to provide NASA with information on how the design and operation of the supersonic transport will be affected by the air traffic control system; and to give FAA information on how the air traffic control system will be affected by the introduction of supersonic commercial air transports.

The NASA ground-based simulator to be located in a laboratory of the Langley Center will have a cockpit arranged like that of a modern jet transport-- with accommodations for a four-man crew, a communications system, and instrumentation modified for the higher speed and altitude range of the supersonic transport.

The NASA simulator will be electrically connected to the center's analog computing system, which will be programmed to provide realistic performance characteristics for several prospective supersonic transports, and permit meaningful studies of crew and airplane operational characteristics in simulated air traffic control systems.

The simulator will be operated by NASA both singly, and in conjunction with air traffic control simulation facilities at the FAA's National Aviation Facilities Experimental Center at Atlantic City, N.J. The NASA simulator, while it is tied in with the FAA facility at Atlantic City, will be operated in a simulated real-time air traffic environment. The FAA air traffic control simulation facilities will be used to represent terminal area air traffic environment and control procedures for both present situations and future concepts.

The studies will be carried out over a two-year period beginning with the completion of the NASA simulator in November. Basically, the simulated flights will consist of an imaginary supersonic transport in a metropolitan air terminal area such as New York and surrounding communities.

Arrival studies will be initiated while the simulated transport is at cruise altitude-- proposed to be at from 60,000 to 80,000 feet-- and terminate when the aircraft is on final landing approach. In departure studies, the problem will being with the transport awaiting takeoff clearance-- and end after the vehicle has climbed to cruise altitude.

In the flight study program, NASA research pilots will man the NASA simulator, with assistance from FAA and airline pilots as required. The air traffic control simulation facilities to be operated at Atlantic City in conjunction with the research program will be designed and manned by FAA.

It is anticipated that four different supersonic transport concepts will be subjects of research in the simulated flight program. The four have already been extensively investigated in NASA laboratories. Three originated from research at Langley and one from work at the Ames Center.

The four concepts are now being evaluated by industry to provide information on their feasibility and practicability through engineering studies encompassing all facets of a commercial aircraft design. The information accumulated in these studies will be available for use in the simulated flight program.

The aircraft flight simulator to be located at Langley for the supersonic transport flight program is being designed and developed for NASA by the Electronics Division, Curtiss-Wright Corporation, Wood-Ridge, N. J.

"Lovely car, comes equipped with everything but brains."

IEEE GROUP MEETS FRIDAY

D. J. Parker, Manager of RCA Applied Research, Defense Electronic Productions, Camden, N.J., will present a paper on "Optical Communications" at the meeting of the Institute of Electrical and Electronic Engineers on March 22 at 8:30 p.m. at the Chateau Restaurant.

Parker received his B.S. degree in Optics from the Institute of Optics, University of Rochester in 1950 and has been with RCA since that time.

Parker's past experiences include the development of many types of military and commercial optical systems such as optics for the first color TV cameras, color film broadcast equipment, large screen TV and color kinescope recording; airborne infrared search and tracking equipment, IR bomber defense systems, radar-IR seekers, television gun-sights; high resolution scaning of color separations, TV aerial reconnaissance and radar recording.

He is a member of the Optical Society of America, the Society of Photographic Engineers, the Society of Motion Picture and Television Engineers, the American Physical Society, and a senior member of the Institute of Radio Engineers.

The meeting will be preceded by a social hour starting at 6 p.m. followed by dinner at 7:15. Reservations for the dinner may be made by calling W. H. Fuller, 4616. Guests are invited to attend.

ASME MEETING

(Continued from page 1)

highest honors in 1938 with a B.S. degree in Civil Engineering.

Dr. Duberg was awarded a M.S. degree in Engineering with honors in 1940 at Virginia Polytechnic Institute; following this he accepted a research assistantship at the University of Illinois before joining the Langley science staff in March 1943 in the Structures Research Division.

In 1946, he returned to the University of Illinois to complete the requirements for his Ph.D., receiving a doctorate in engineering 2 years later. He resumed his duties at Langley in 1948 and was appointed as Chief of the Structures Research Division, serving in that capacity until 1956.

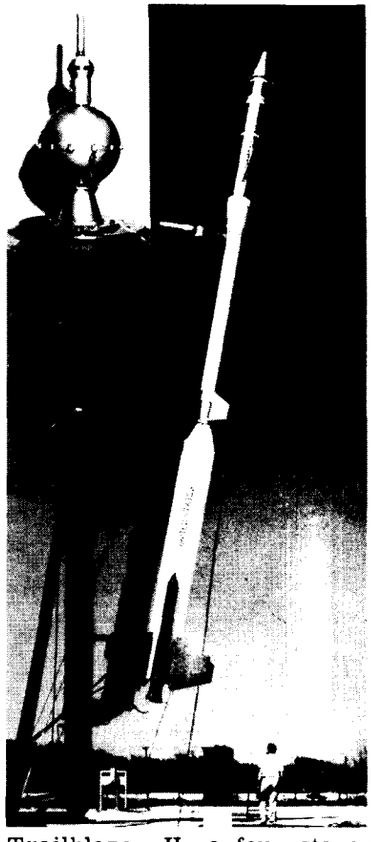
During the period he headed the Structures Research Division, this group developed the techniques of high-temperature structures research testing that are now standard throughout the nation.

Dr. Duberg resigned from the Langley staff in August 1956, serving about one year as Director of Aeromechanics, Aeronutronics Systems, Inc. in Glendale, California; and two years as a professor at the University of Illinois where he conducted and reported original research.

Upon his return to Langley in June 1959, he was named Assistant Chief of Theoretical Mechanics Division. In addition, he assisted the Associate Director in connection with a variety of aerospace research problems. He was appointed to his present position December 1961.

A recognized authority in the field of structural analysis, Dr. Duberg is the author or co-author of a number of NASA and other publications and has served as a reviewer of publications for various organizations and publishers. He has served on several technical committees at Langley and has lectured extensively.

Dr. Duberg is a member of Tau Beta PI, Phi Kappa Phi, Sigma Xi, the American Institute of Aeronautics and Astronautics, and the Society for Industrial and Applied Mathematics. He is a member and past president of the Engineers' Club of the Virginia Peninsula.



Trailblazer II, a four-stage solid propellant rocket vehicle, is a project of Langley Research Center. It is used in a joint program by Langley and the Massachusetts Institute of Technology's Lincoln Laboratories to study the characteristics of flight through the hotter-than-the-sun temperatures of atmosphere reentry. A Thiokol XM-33 first stage and TX-77 second stage solid fuel rocket boost the remainder of the vehicle to 200 miles altitude. From that height an Alleghany Ballistics Laboratory X-248 rocket and an NASA-developed 15-inch spherical rocket fire downward through the atmosphere. By using two additional stages, an NASA-developed five-inch diameter spherical rocket and a shaped explosive charge accelerator, a test object was propelled into the atmosphere at 32,000 miles per hour, believed to be the highest reentry speed ever achieved by a man-made object. A reentry trace is shown at right.

FOR SALE: H. Selmer "A" clarinet, completely reconditioned and Conn "B" flat tenor saxophone, Satterthwaite, UL3-6454, Norfolk.

BARGES LOANED TO NASA

The Army Transportation Corps has loaned 20 barges to NASA for use in the space vehicle development program.

Eight barges are supposed to leave the Charleston, S. C., storage area for New Orleans soon. The barges are being transported "piggy-back" style and will be tied up at an Army facility in New Orleans.

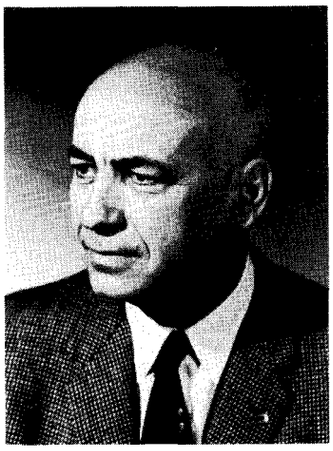
The all-steel barges, a standard 120 feet long, are sea-going types. They will be used initially to haul supplies to the Mississippi Test Operations.

Later, liquid hydrogen and liquid oxygen tanks will be mounted on the barges for fueling Saturn S-IC boosters for static testing. The propellants will be hauled a short distance from tanks to the Mississippi area.

The sea-going barges have built-in strength to accommodate the tanks, Each vessel will be capable of handling 93,000 gallons of liquid oxygen or 200,000 gallons of liquid hydrogen.

After the tanks are mounted, the barges will be parked in the MTO inland waterway.

FOR SALE: 1961 Chevrolet Impala sports coupe with many accessories. Clark, 826-3260.



Robert R. Gilruth

GILRUTH APPOINTED VISITING PROFESSOR

Robert R. Gilruth, Director of Manned Spacecraft Center and former Langley staff member, has been named as a visiting professor of Aerospace Engineering at Texas A & M College.

Gilruth, who served as director of Project Mercury and was awarded the NASA Distinguished Service Medal in 1962 by President Kennedy, will begin a series of lectures in the fall of 1963. He will serve as visit-professor without compensation.

In accepting the appointment Gilruth said, "I share A & M's interest in updating both students and staff in the changing engineering requirements of the space age and welcome this opportunity to help in this most important area."

Gilruth receceived both his B.S. and M.S. degrees in Aeronautical Engineering from the University of Minnesota and has received honorary Doctor of Science degrees from Indiana Institute of Technology, University of Minnesota, and George Washington University. He won international recognition in the 40's for his research on the characteristics of aircraft in flight while with Langley Research Center.

SIEPERT TO FILL LOC DEPUTY POST

Albert F. Siepert, NASA Director of Administration since the agency was established in 1958, has been appointed Deputy Director of Launch Operations Center, Cape Canaveral, effective about April 1.

As immediate deputy to LOC Director Dr. Kurt Debus, Siepert will be responsible for the organization and overall management of Center operations. He will have a special responsbility in maintaining effective working arrangements with local communities, the Air Force Missile Test Center, the Corps of Engineers, other NASA field centers which assign flight missions to Cape Canaveral, and various contractors which support NASA programs.

As Director of Administration for NASA for five years, Siepert played a key role in the basic organization of the agency. He developed agency management policy in such fields as procurement, personnel administration, financial, and security management.

In 1949, Siepert was designated chief negotiator in arranging the transfer of the German rocket team from the Army to NASA. This included the resources and staff of the Missile Firing Laboratory headed by Dr. Debus, the group which now forms the nucleus of the Launch Operations Center in its preparation for development and operation of the extensive Merritt Island Launch Area.

A native of Peoria, Ill., Siepert was graduated from Bradley University. Later he took graduate study at American University.

FOR SALE: McIntosh MR-55A AM-FM tuner. G. T. Kantarges, 596-7423.

BOWLING NEWS

DUCKPIN LEAGUE

Last week, Al Insley set a new record for the year with a 425 set with games of 158, 147, and 120. For the women, Liz Patterson rolled high game of 125 and high set of 315.

This week Rebel Bombers set a new high team record with a 1726 set. Tops for the men were Stanley Trimble with a 149 game and Richard Hill with a 410 set. Leading the women were Alberta Insley with a 114 game and Alene McCann with a 307 set.

Ellis Hogge was awarded a National Duckpin Bowling Congress "Triplicate Award" for bowling three consecutive games of the same score in sanctioned league play.

STANDINGS

Team	W	L
Hopefuls	56	32
Lt. Machine 1	52	36
Ten Spots	48	40
Rebel Bombers	47	41
Strike Outs	46	42
Jets	45	43
Double Dots	43	45
Count Downs	42	46
Pin Poppers	40	48
ICS	37	51
Doodle Bugs	36	52
Lt. Machine 2	36	52

AGE LIMIT CITED FOR GROUP PLANS

Employees are reminded that when a child reaches 19 years of age, he is no longer eligible for coverage under the Federal Employees Health Benefits group plans unless he is incapable of self-support because of physical disability.

When this occurs, and the individual is interested in converting, he should immediately apply to the nearest office of the plan in which he is enrolled for information concerning a non-group contract for that family member.

Written application for conversion to a non-group contract normally must be made and the first premium must be paid to the carrier of the group plan within 31 days after eligibility to continue under the group plan ends. Converted non-group contracts become effective at the end of the 31st day of the temporary extension of coverage.

BLOODMOBILE

Staff members donated a total of 192 pints of blood during the Bloodmobile visit to the Center last week.

Reaching the five-gallon mark was Robert MacLachlan, Budget Office. Completing their donations for four gallons were H. Neale Kelly, Richard J. Moberg, Jules Miller, and Charles Edmiston.

John M. Sain received a three-gallon pin and two-gallon pins were presented to Thomas A. Harris Jr., John Worth, James Haas, Thomas H. King, Frederick Eubank, Ulysse Blanchard, Madeline Johnson, Paul A. Hunter, Dick Cole, Richard Stell, Paul Geiger, Ashley Smith and William Martz.

Receiving one-gallon pins were Charles Brooks, Elizabeth Gillis and Sylvester Kubalak.

Assisting during the visit were Dr. A. A. Creecy, Dr. N. Cohen and Dr. A. M. Saunders.

FOR SALE: 40-inch Frigidaire electric range - $ 75; play pen and jump chair - $7.50. Maiers, 723-0565.

FOR SALE: Hallicrafter X-38E all-band receiver - $35. Rainey, LY6-9402.

FOR SALE: 17-foot Barbour 1960 boat with Cox trailer and 1962 Evinrude 40 hp motor. Ed Kruszewski, LY-68373 after 5 p.m.

FOR SALE: 14-foot boat and trailer. Call Williams, 826-4793.

FOR SALE: House located at 3 Sinton Rd. Wirt, LY-50242.

NASA PRESENTS AWARDS

(Continued from page 1)

Space Life Sciences - application of chemistry, biology, medicine, behavioral sciences and related scientific disciplines to problems of space experimentation and manned and unmanned space exploration.

Space Physical Sciences - application of astronomy, meteorology, and physics and related scientific disciplines to problems of space exploration and manned and unmanned space exploration.

Space Electronics and Communications - space-applied communications and electronics, including tracking for earth satellites and deep-space probes, data acquisition and reduction.

The names of the NASA winners, their schools, and exhibits are as follows:

Aerodynamics: Robert A. Baals, Warwick High School, wind tunnel and study of low-drag shapes.

Space Vehicles: Rod Fombell and Cecil Jenkins, Great Bridge High School, a robot for exploration of the moon.

Space Flight and Propulsion: Chad Rayfield and Carlton Morgan, Warwick High School, radio frequency plasma-torch.

Space Life Sciences: Miss Pat Tischler, Maury High School, a study in genetics.

Space Physical Sciences: Don Robinson, Churchland High School, research on the properties of gamma radiation.

Space Electronics and Communications: Edward Volkstorf, Churchland High School, a transistorized digital computer.

As a part of NASA's nationwide participation in regional science fairs affiliated with the National Science Fair-International, Langley will present NASA Outstanding Achievement awards in the six categories in the four-state area of Virginia, West Virginia, North Carolina, and South Carolina. Other NASA centers will take part in regional fairs in their areas.

Thus far this year, Langley has been advised by state and regional fair directors that students in the three senior high school grades will compete for the six NASA awards at affairs at Hopewell and Roanoke, Virginia; Athens, Montgomery, and Salem, West Virginia; Raleigh and Charlotte, North Carolina; and Spartanburg, Orangeburg, Greenville, and Columbia, South Carolina. Langley staff members will serve as judges in the NASA-sponsored competition at most of these fairs, which are preliminary to the 14th National Science Fair-International to be held in May at Albuquerque, New Mexico.

In addition to the state and regional participation, NASA will select two finalists for the six NASA categories at the National Science Fair-International. Each winner on the national level will receive a NASA Certificate of Merit and will be invited to spend a week at an NASA research center, selected on the basis of the interests of the award recipients. Each student will be permitted to select a teacher to make the visit with him.

WANTED: Ride or driving combination from Norfolk to W.A. on 8 shift. Greenwood, UL3-1742, Norfolk.

FOR SALE: H0 scale train layout with table, 2 engines, cars, etc. - $50. Locke, LY6-7532.

NOTICE: Will the person who borrowed "Introduction to Heat Transfer" by Brown and Marco call Allred, 4817.

Ingrid B. Bloxom

Omar W. White

TWO RETIRE

Ingrid B. Bloxom, Experimental Facilities Mechanic Foreman in Wind Tunnel Services, and Omar White, Construction Management Engineer in Research Model and Facilities Division, recently retired from the Center with a combined total of over 62 years of Federal service.

Bloxom was born May 21, 1897, in Battery Park, Virginia. He served his apprenticeship as a machinist at the Bloxom Shipyard in Battery Park and served in the U.S. Army from March 14, 1918 to June 16, 1919. He worked for the Quartermaster Corps at Ft. Monroe from 1933 to 1935 and was assigned to the Panama Canal Zone from 1936 to 1939. He joined the Center staff on June 6, 1939 as a machinist in the Full-Scale Tunnel. He was made Shop Superintendent of 7 X 10-Foot Wind Tunnels in 1944. His retirement was effective on March 1.

White was born July 25, 1901 in Chicago, Illinois. He graduated from Post Creek High School in Post Creek, Montana and received his B.A. degree from the University of Montana in 1922 and his B.S. degree in Civil Engineering from the University of Wisconsin in 1932. Before entering on duty with NASA he worked for about eleven years for the U.S. Bureau of Public Roads and the U.S. Forest Service. He joined the Lewis Center staff on February 5, 1942 as an Associate Structural Engineer. He left in 1943 for a tour of duty with the U.S. Army. Following his discharge, he reported to the Langley Center on April 20, 1944 as a Structural Engineer. His retirement was effective on February 25.

EXAM NOTICE

The Executive Secretary of the U.S. Civil Service Board of Examiners at the Langley Research Center announced that the examination for Mathematics Aid, GS-2 to GS-5, $3560 to $4565 has been amended.

The amendment shows a new policy regarding the minimum age limit. The minimum age limit for the positions is 18, however, this age limit is waived for high school graduates. They may be appointed when they reach their 16th birthday.

Further information may be obtained from the Board of U.S. Civil Service Examiners, NASA, Langley Research Center, Hampton, Virginia.

FOR SALE: Spare parts for 1958-1960 Taunus 17M. Call Peters, LY6-3689.

FOR SALE: Girl's 20-inch. bicycle. Guy, LY6-5909.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 7 | LANGLEY RESEARCH CENTER | MARCH 29, 1963

AIAA MEETING SET FOR APRIL 11

Colonel P. E. LeComte, French Air Ministry, will discuss recent French experience with V/STOL aircraft at a meeting of the Hampton Roads Chapter of the American Institute of Aeronautics and Astronautics on Thursday, April 11 at 8 p.m. at Eli's Restaurant.

The meeting will be preceded by a social hour at 6 p.m. and dinner at 7.

Colonel LeComte will present an account of French experience with V/STOL airplanes. He will discuss in particular the development flight tests of the Breguet 940 and 941 deflected slipstream STOL airplanes. He will also present whatever flight test information is available on the Dassault Balzac jet VTOL airplane which has recently begun flight tests. Colonel LeComte will be introduced by John P. Reeder, Aero-Space Mechanics Division.

Colonel LeComte is chief engineer and head of Gen-

Colonel LeComte is chief engineer and head of the General Studies Section of the Aeronautical Technical Service of the Air Ministry, a position he has held since 1959. He has the Air Ministry responsibility for new aircraft projects such as the Breguet 940, 941, the Dassault Balzac, and Mirage III V. He is in the United States to present a paper at the SAE-ASNE National Aero-Nautical Meeting and Production Engineering Foum on April 8 in Washington, D. C.

Reservations for the din-

(Continued on page 7)

EMPLOYEES ACT AS JUDGES FOR SCIENCE FAIRS

As part of NASA's nationwide participation in regional science fairs affiliated with National Science Fair-International, Langley staff members are serving as judges in the NASA-sponsored competition in state and regional participation. The fairs are preliminary to the 14th National Science Fair-International to be held in May in Albuquerque, New Mexico.

The fairs are open to senior high students and those who enter exhibits are presented an outstanding achievement award by NASA.

Robert N. Parker, Flight Vehicles and Systems Division, and Manuel Queijo, Theoretical Mechanics Division, served as judges at

(Continued on page 7)

JOINT CAMPAIGN CLOSES TODAY

The Joint Fund Raising Campaign for the National Health Agencies and the Federal Service Joint Crusade ends at the Center today.

William Hutcheson, chairman of the Center's effort, urges that employees give their contributions to the attendance clerk who in turn will sent them to the division secretary.

Included in the campaign are seven health agencies and three crusade agencies.

Last year Center employees contributed a total of $3,549.35 to the health agencies and $1,359.35 to the joint crusades.

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

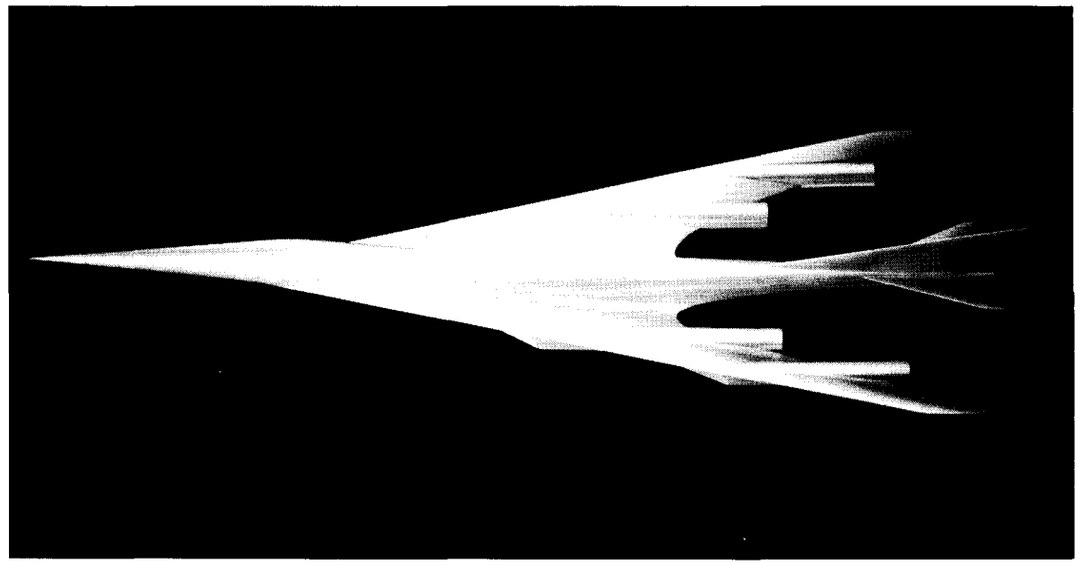
NASA SEEKS SITE BIDS

Langley Research Center has invited interested firms to bid on a contract for preparing the site for the Space Radiation Effects Laboratory to be built at Oyster Point, in Newport News, about 10 miles west of the Langley Center.

Work to be done under the contract will include clearing and grubbing, placing fill material at the location of the laboratory building to be constructed, rough grading the area, building an access road, and installing an 8-inch water main from a meter pit near the edge of the tract to the laboratory area.

Under U.S. Government procurement practices, the job will be awarded to a small business firm. Ap-

(Continued on page 7)



SCAT-4 is one of three Langley supersonic commercial air transport concepts which will be studied by industry. The studies will complement other programs being carried out by NASA and the Federal Aviation Agency in a national effort to provide the technology necessary for the development of a supersonic commercial air transport capable of speeds up to 2,000 miles an hour. SCAT-4 features a highly swept-back wing with many aerodynamic refinements for efficient operation in the 2000-mph range.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW HEIRS. . .This seems to be the month for sons. A son arrived at the Judson Moore household on March 6. The father works in Mechanical Service Division. . .Vernon Collins, Instrument Research, became the father of a son on March 6. . .Herbert Leybold, Structures Research, announced the birth of a son on March 12. . .Luther R. Gentry, Light Machine Shop, celebrated the arrival of a new heir on March 11. . .Harold E. Poole, Instrument Research, became the father of a son on March 9. . .A new heir was delivered to the Linyear Woolard household on March 19. The father works in Mechanical Service Division.

WEDDING PLANS. . .Making plans to desert the bachelor ranks is Charles Hudson, Structures Research Division. He is engaged to Jean Creasy, Roanoke, and the wedding will take place on June 29.

ROCKETTES. . .Beulah Russell Garel, Publications Printing Branch, became the mother of a daughter on March 19. Charles R. Manning, Structures Research, announced the birth of a daughter on March 5. . .A girl was delivered to the Benferd Schilling household on March 6. The father works in Structures Research Division.

BOOK SALE. . .The Hampton Branch of the American Association of University Women will have its annual book sale on Friday, April 5 and Saturday, April 6 at Brittingham's Furniture Store in Hampton. Hours will be from 8:15 a.m. to 9 p.m. on Friday and 8:15 a.m. to 3:30 p.m. on Saturday. Proceeds go to the association's Fellowship Fund. Persons having books to donate for the sale are ask- to contact Mrs. Ross Levin, 838-1189.

RED CROSS THANKS STAFF

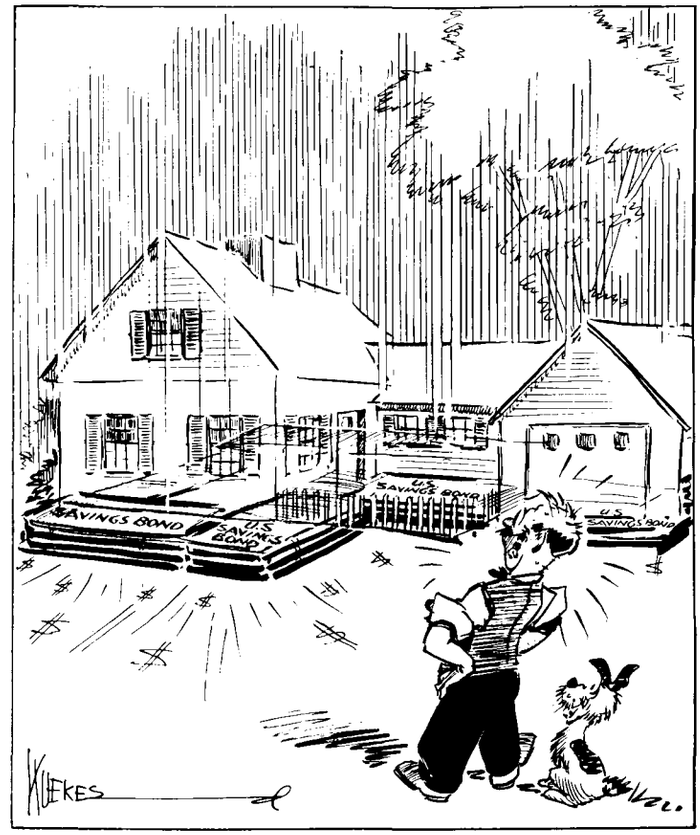
Mrs. J. Kenneth Carr, Executive Director of the Hampton Chapter of the American Red Cross, has sent the following letter of appreciation to Center employees:

"We would like to express our sincere appreciation for your splendid support of the Red Cross blood program.

"In this crucial period of determining the future of the Peninsula communities to remain in the present free blood program, we are pleased with the warm response to the March 6 Bloodmobile visit. It has been noted with pleasure that the NASA employees rallied to reduce the Hampton Chapter's deficit by 42 pints.

"We acknowledge this tremendous contribution with deep appreciation."

Employees interested in registering to participate in the blood program are requested to call East Dispensary, 2243.



EVEN A DREAM NEEDS A GOOD FOUNDATION

CAFETERIA MENU

The following menu will be served in the East and West Cafeterias during the week of April 1:

Monday - Split green pea soup, braised beef tips and noodles .45, baked ham .40, Salisbury steak .40, fish cakes and cole slaw .25.

Tuesday - Cream of tomato soup, pot roast of beef .50, breaded veal cutlet, parmesan .45, fried liver and onions .35, baked hash .25.

Wednesday - Bean soup, oven roast of beef .50, grilled pork chops .45, fried chicken .35, hot dogs .20.

Thursday - Vegetable-beef soup, grilled rib-eye steak .65, barbecued beef chunks on steamed rice .45, smoked pork sausage .35, grilled cheese and bacon sandwich .25.

Friday - Clam chowder, simmered corned beef and cabbage .45, stuffed flounder .50, broiled halibut steak .35, pizzaburger .30, meatless ravioli .25.

The menu for the week of April 8 is as follows:

Monday - Tomato-barley soup, swiss steak .50, grilled ham slices .40, porcupines .40, chili con carne .25.

Tuesday - Cream of potato soup, Spanish pot roast .50, chuckwagon steak with onion gravy .45, meat loaf .40, tuna-noodle casserole .25.

Wednesday - Minestrone soup, roast rib of beef .50, grilled pork steak .40, ham and noodle casserole .35, cheeseburger .25.

Thursday - Vegetable-beef soup, baked stuffed whole rock cornish hen .85, grilled steak .65, crab cakes with cole slaw .45, beef stew .40, baked hash .25.

Friday - Clam chowder, broiled lobster tail $1.00, pot roast of beef .50, broiled fish .35, fried fish .35, Austrian ravioli .25.

HOLMES NAMES TWO DEPUTIES

D. Brainerd Holmes, Director of NASA's Manned Space Flight Office, recently named two Deputy Directors - Dr. Joseph F. Shea and George M. Low - in a realignment of the Manned Space Flight Office structure.

Under the new organization, Shea, who formerly headed the OMSF Systems Directorate, becomes Deputy Director for Systems. Dr. William A. Lee, Director of Systems Studies; John A. Gautraud, Director of Systems Engineering; and James E. Sloan, Director of Integration and Checkout, will report to Shea.

Reporting to Low as Deputy Director for OMSF Programs will be the Director of Launch Vehicles, Milton Rosen; the Director of Space Medicine, Dr. C. Roadman; and the Director of Spacecraft and Flight Missions, a post to be filled but currently headed by Low.

William E. Lilly, Director of Administration, will provide administrative support in both major areas.

Previously, all the major directorates reported directly to Holmes. Holmes said the changes are designed to provide speedier action channels and generally strengthen the OMSF organization. Further, it will permit Holmes to administer more effectively operational and institutional matters of the three NASA centers primarily associated with manned space flight. They are the George C. Marshall Space Flight Center, Manned Spacecraft Center and the Launch Operations Center.

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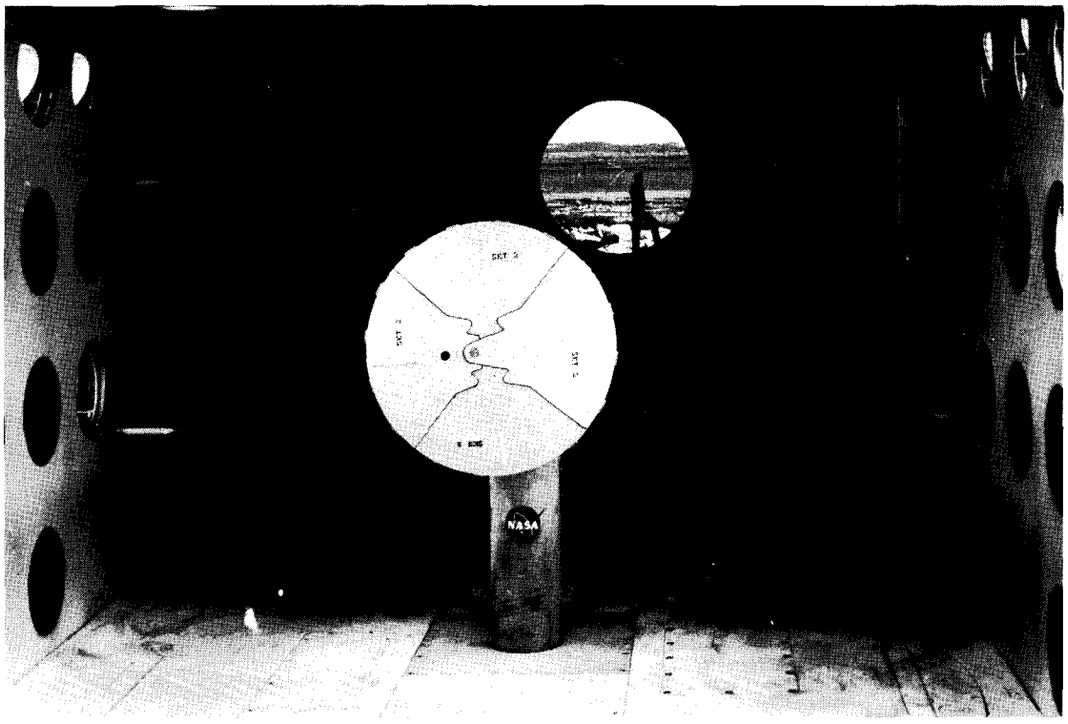
FOR SALE: 6400 btu Welbilt air conditioner, thermostat and fresh air damper. Newcomb, 596-8241.



This full sized wind tunnel model of the Project FIRE reentry package, is mounted in the 9- by 6-foot Thermal Structures Tunnel on a special support motorized to spin it like the actual reentry package will spin in flight.

EXAM OPENED

The Board of U.S. Civil Service Examiners at the Langley Research Center has announced the opening of an examination for Dynamic Modelmaker (Wood) WB-12, $3.20 per hour.

No written test is required. Applicants' qualifications will be rated on a scale of 100 and will be judged from a review of their experience, education and training on corroborative evidence secured by the Commission.

Applications may be filed with the Board of U.S. Civil Service Examiners, NASA, Langley Research Center, Langley Station, Hampton, Virginia.

WANTED: Passengers to Florida April 10. Clark, 4891.

WANTED: Passengers to New York City and Albany leaving on April 18. Strehle, 4811.

WANTED: Driving combination from Swansea Manor to W.A. on 8 shift. Call Trusty, 596-0596.

PROJECT FIRE

x- ub made

Langley Research Center scientists are developing a blunt body like the one in the photograph above to take direct measurements of the intense heat which will surround a returning lunar spacecraft as it reenters the Earth's atmosphere. This research effort is known as Project FIRE.

Project FIRE is a flight reentry research project at very high speeds -- about 25,000 miles per hour -- managed by the Langley Research Center. It is intended to measure heating rates, radio signals "blackout" and materials performance during actual atmosphere entries, with information being gathered by telemetry, radar and optical tracking.

The main temperature readings to be obtained by Project FIRE will be taken by three special instruments known as calorimeters. They are made of beryllium and are instrumented with thermocouples. The first calorimeter will take temperature readings at the beginning of the reentry and will then be destroyed. Beneath it, a special phenolic asbestos heat shield will cover the second calorimeter. At a programmed time, the heat shield will be jettisoned to expose the second calorimeter. Beneath it will be a second heat shield and a third calorimeter.

In this way, scientists will obtain temperature readings during three periods of the reentry heat pulse. The success of the experiment depends on the mechanism for jettisoning the heat shields, and the wind tunnel tests conducted at Langley are to check its operation.

The four interlocking heat shield sections are jettisoned by springs located near the rim of the reentry package. A pyrotechnic device, fired at the proper instant, releases a latch and allows the springs to eject the heat shield segments. The wind tunnel tests were made in a large blowdown wind tunnel at Mach 3 and simulate the correct air pressures FIRE will experience in flight.

NASA-FRENCH AGREEMENT

The NASA and the French National Center for Space Studies (CNES) announced the signing of a Memorandum of Understanding for a cooperative program to investigate the propagation of very low frequency electromagnetic waves at altitudes above 46 miles.

First part of the program is the launching from Wallops Station in 1963 of NASA sounding rockets carrying French instrumented payloads built by the French National Center for Telecommunications. They will probe the characteristics of the region between 46 and 62 miles through simultaneous measurements of electric and magnetic VFL field strength and local electron density.

If, based on the results of the flights, these experiments prove to be scientifically and technically feasible, the two organizations will proceed to a second phase-- the launching into earth orbit of a scientific satellite to investigate the VLF characteristics above 62 miles. The satellite will be entirely constructed under CNES responsibility, scientific experiments being directed by CNET. It will be launched by a NASA Scout vehicle.

No exchange of funds is contemplated in implementing this program. The experimental results will be made freely available to the world scientific community.

FOR SALE: 1955 Thunderbird. Harris, 596-2028.
FOR SALE: Scott stereo FM tuner with case, $140. Schryer, UN 8-9182.
LOST: Masonic ruby ring. Stewart, 2281.
LOST: Leather address book. Klinefelter, 3327.
FOR SALE: 41-foot boat. Wineman, 595-1046.

George R. Fluker

FLUKER RETIRES

George R. Fluker, Painter Leader in Plant Maintenance Division, retired on March 22 after serving over 30 years with the Government.

Fluker was born October 27, 1897 in Jackson, Alabama. He served in the U.S. Army from July 5, 1917 to April 25, 1919.

Before joining the Center staff he worked a number of years for the Department of Army and the Department of Commerce.

He started his career at the Center on September 1, 1944 as a Painter.

PROFESSORS PLAN VISIT

Dr. J. A. Friedericy and Dr. Eppink, Civil Engineering Department, University of Virginia, will visit the Center on April 1 to consult with employees interested in taking graduate courses in Applied Mechanics and Civil Engineering at the University.

On April 2 Dr. George Matthews and Dr. A. R. Kuhlthan of the Department of Aerospace Engineering at the University of Virginia will visit the Center.

Employees wishing to consult with these professors may call the Training Office, 2326, for an appointment.

NASA PUBLISHES SUMMARIES

The two-volume report of the proceedings of NASA's University Conference on the Science and Technology of Space Exploration has been broken down and republished as 16 separate reports.

Now available from the Government Printing Office, each publication develops the "state of the art" in one of the 16 fields of aerospace covered by the delivery of technical papers at the NASA Conference in Chicago last November.

In handy, magazine-size format, each publication is a package of current knowledge in areas ranging from celestial mechanics to electric propulsion for spacecraft. The papers were written by scientists in the several NASA research centers and program offices most intimately concerned with each of the fields covered.

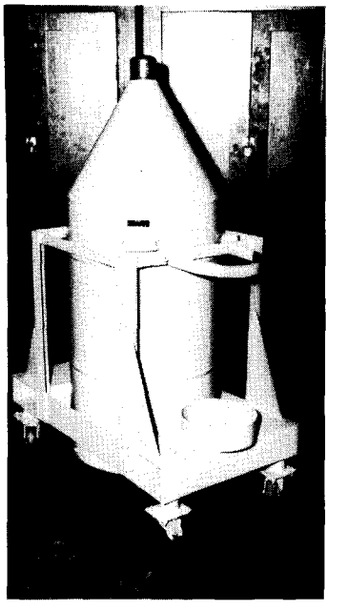
The original two-volume publication is available from the GPO at $5.50. However, the separate monographs are available at prices ranging from 25 to 35 cents each. Publications and prices are:

NASA SP-13, Geophysics and Astronomy in Space Exploration, 35¢.
NASA SP-14, Lunar and Planetary Sciences in Space Exploration, 55¢.
NASA SP-15, Celestial Mechanics and Space Flight Analysis, 35¢.
NASA SP-16, Data Acquisition from Spacecraft, 40¢.
NASA SP-17, Control, Guidance and Navigation of Spacecraft, 40¢.
NASA SP-18, Bioastronautics, 30¢.
NASA SP-19, Chemical Rocket Propulsion, 40¢.
NASA SP-20, Nuclear Rocket Propulsion, 45¢.
NASA SP-21, Power for Spacecraft, 25¢.
NASA SP-22, Electric Propulsion for Spacecraft, 35¢.
NASA SP-23, Aerodynamics of Space Vehicles, 40¢.
NASA SP-24, Gas Dynamics in Space Exploration, 40¢.
NASA SP-25, Plasma Physics and Magnetohydrodynamics in Space Exploration, 50¢.
NASA SP-26, Laboratory Techniques in Space Environment Research, 40¢.
NASA SP-27, Materials for Space Operations, 35¢.
NASA SP-28, Structures for Space Operations, 45¢.

The publications may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

NOTICE: According to the provisions of Base Regulation 125-9, all motorists are requested to pull over to the right and stop when a weapons convoy is approaching. All convoys are led by an air police vehicle with a flashing red light. Future violations of this requirement will be cited by Air Police for failure to yield right of way.

WANTED: Ride from Ridgecrest Dr. to W.A. on 8 shift. Bowles, 3343.
WANTED: Driving combination from Norfolk to E.A. on 8 shift. Cox, 2233.
FOR SALE: Halicrafter HT-32 transmitter, SX-101 receiv- with speaker and accessories. Lingle, PA 2-0623 after 5.
FOUND: Man's 1957 high school graduation ring from Richwood High School - found in Building 647. Hall, 2277.
FOR SALE: 1957 Cushman Eagle motor scooter, $140; Hot Point air conditioning unit, 3/4-ton, 110 volt, casement type - $50. Braski, LY 6-4502.



Floyd L. Thompson (left), Director, presents checks of $15 each to Charles A. Hardesty and Leonard S. Mayo, both of Instrument Research Division, for designing a metal cart (right photograph) for transporting liquid nitrogen flasks around the laboratory. Looking on are Howard B. Edwards (second from right), Assistant Chief of Instrument Research Division, and T. Melvin Butler, Assistant Director for Administration.

STEVENSON LEAVES POST

The resignation of Earl P. Stevenson as Chairman of the Industrial Applications Advisory Committee of NASA was announced by James E. Webb, Administrator.

Stevenson asked to be relieved of the chairmanship because of the demands of other responsibilities he has assumed since the committee was formed. However, he will continue to serve as a member of the committee.

Stevenson will be succeeded by Walter L. Lingle, Deputy Associate Administrator for Industrial Affairs, NASA. Lingle was Executive Vice President of Procter and Gamble before joining NASA on June 25, 1962.

The committee was appointed by Webb to advise and assist him "in an organized effort to broaden the application of scientific and technical knowledge resulting from the NASA's research and development program."

Floyd L. Thompson, Director, presents checks under the NASA Incentive Awards Plan to Rosemary J. Neubaum, Aero-Space Mechanics Division, and James L. Hudgins (third from right), Research Models and Facilities Division. Rosemary received $25 for suggesting that the Center purchase manifold sets of numbered vellum-carbon sets for report typing. Hudgins received $35 for suggesting the incorporation of plans of East and West Areas to show the location of the proposed job in all contract specifications. Observing the presentation are John P. Campbell (third from left), Assistant Chief of Aero-Space Mechanics Division, Ray Hooker (second from right), Chief of Research Models and Facilities Division, and T. Melvin Butler. Persons interested in submitting suggestions under the NASA Incentive Awards Plan are requested to send them to Jess G. Ross, Executive Secretary, Incentive Awards Committee, Awards Program Office, Room 114, Building 587.

NASA-DOD AGREEMENT

NASA and the Department of Defense have signed an agreement establishing a working arrangement between the two agencies concerning non-military applications of the Transit navigation satellite system.

Under the agreement the NASA will determine the suitability of Transit navgational equipment to meet non-military requirements and will develop additional equipment as needed for non-military uses in navigation.

The Navy will continue to conduct research and development to meet and to support military navigation requirements of the Transit system and will have full responsibility for technical direction of the system. Navy also will continue development of military navigation equipment and will have full responsibility for determining the suitability of such equipment to meet military requirements.

Navy will provide NASA with specifications or information needed to prepare specifications for non-military navigation equipment compatible with the Transit system. The Navy will also review, as requested, specifications and plans prepared by NASA to meet non-military navigation requirements and will provide NASA with equipment and information for use in meeting non-military requirements.

The NASA will provide Navy with information on its plans, results of tests of non-military navigation equipment of interest to Navy, and equipment developed by NASA which may meet military navigation requirements.

FOR RENT: Two-bedroom house. Cole, PA 2-1505.

BOWLING NEWS

In this week's bowling Marty Moul took top honors for the men with 146, 144 and 106 games for a high set of 396. For the women it was Georgene Miltonberger with games of 121, 120 and 84 for a high set of 325.

Last week Oce Johnson took top honors for the men with a 152 game and 379. Tops for the women were Liz Patterson with a 124 game and Helen Dupere with a 339 set.

The manager of the Century Lanes announced that during the summer the alleys will be converted to half duckpin and half tenpin bowling. In view of this change, there was some question as to whether the NASA Duckpin League can have 12 alleys on any night.

A meeting will be held to discuss this after completion of bowling Monday.

Team	W	L
Hopefuls	61	35
Lt. Machine 1	57	39
Ten Spots	51	45
Jets	51	45
Strike Outs	50	46
Rebel Bombers	49	47
Count Downs	49	47
Double Dots	48	48
Pin Poppers	41	55
ICS	40	56
Lt. Machine 2	40	56
Doodle Bugs	39	57

NASA TO ESTABLISH DEEP SPACE TRACKING FACILITY IN AUSTRALIA

NASA, in agreement with the Australian government, announced it will establish a deep space tracking facility about 11 miles southwest of Canberra, a manned space flight and scientific satellite tracking station at Carnarva in Western Australia, and a smaller station at Darwin.

The deep space facility will be located in the Tidbinbilla Valley in the Australian capital territory will be an additional unit of the deep network which presently consists of stations near Woomera, South Australia; Johannesburg, South Africa, and Goldstone, California. It will be used in connection with the U.S. program of space exploration to the moon and beyond to the planets. Its function will be to track spacecraft on their journeys into space and to receive telemetered information from instruments carried in the spacecraft.

The facility will consist of an 85-foot diameter parabolic antenna, associate equipment for the control of the antenna, and electronic equipment for the transmission, reception and processing of radio signals to and from spacecraft. The station will be operated by the Australians under contract with NASA.

The stations at Carnarven and Darwin will be concerned with the man-in-space program which involves a series of extended orbits around the earth to investigate the effects on humans of long-term missions in space and ultimately to develop the technique of rendezvous in space. This will be known as Project Gemini. The stations also will be used for the Eccentric Geophysical Observatory (EGO) and the Orbiting Astronomical Observatory (OAO). The station at Darwin is expected to operate intermittently as needed.

The Tidbinbilla Valley station will be operated under the agreement between the Australian and U.S. Governments which was signed on February 26, 1960. This agreement was designed to facilitate cooperation in space flight operations contributing to the advancement of mutual scientific knowledge of man's special environment and the application of this knowledge to the direct benefit of mankind. The agreement has been amended to include and to specify new space stations in Australia.

The Department of Supply is the Australian Commonwealth authority responsible for the management, operation and staffing of this station on behalf of NASA. The Department's Research Establishment already operates for NASA the Space Research Station at Island Lagoon and the manned space flight tracking stations at Red Lake, near Woomera, and Muchea. Costs of operating the station and for the buildings and services needed will be met by the U.S., which will also provide station equipment.

NASA is particularly appreciative of the cooperation given by the Australian authorities concerned in all aspects of selecting a site.

FOR SALE: Golf clubs - 4 woods, 8 irons, putter, wedge, bag, cart and balls - $65. R. A. Jones, 596-8310.

FOR SALE: One-ton Hot Point air conditioning unit, 220 volts - $50; 1960 9-cubic-foot refrigerator - $25. Call J. P. Voros, LY 6-4548.

FOR SALE: Electric sewing machine in walnut cabinet - $40. Kabana, 838-2264.

FOR SALE: Wooded corner lot in Nicewood, located corner of Menchville Rd. and Nicewood Dr. Holt, CH 4-1285.

Texie Belle Miller

OBITUARY

Texie Belle Miller, former Langley employee and wife of Jules M. Miller, Research Staff Office, died Sunday in Dixie Hospital after an illness of 3 weeks.

Born February 21, 1921 in Boykin, she received a A.B. degree in Mathematics from Longwood College in 1942 and joined the Center staff on July 1, 1942 as an Assistant Computer in Full Scale Tunnel. She transferred to East Computers on May 21, 1945 and resigned October 1, 1946.

Mrs. Miller was an active member of the Hampton Baptist Church where she had served as president of the Woman's Missionary Union. At the time of her death she was superintendent of an adult department at the church. She also was a member of the Executive Board of the Goodwill Center of the Peninsula Baptist Association.

She was an active member of the Parent-Teacher Associations of Armstrong School, H. Wilson Thorpe Junior High School and the Hampton High School. She also served as chairman of the Character and Spiritual Life Committee of Hamp-Federation of the PTA.

She was a member of the Hampton Woman's Club, the Merrimac Shores Garden and Civic Club, and the Peninsula Chapter, Longwood College Alumnae Association.

In addition to her husband she is survived by three sons, John Malcolm, Jerald Felts and Warren Scott.

SITE BIDS

(Continued from page 1)

proximate value of the contract will be $100,000. Interested companies have until April 5 to file bids with Langley procurement officials. It is estimated the work will require about two and one half months to complete.

At the Oyster Point site, Langley Research Center will construct a laboratory housing a synchrocyclotron to be used by NASA scientists in simulating space radiation for research investigations in support of space flight programs. The installation is expected to cost about $12,382,000 and is scheduled to be completed by mid-1965.

SCIENCE FAIR

(Continued from page 1)

the Central South Carolina Region II Science Fair held in Columbia, S.C., March 15 and 16.

E. Barton Geer, Flight Vehicles and Systems Division, and D. William Conner, Dynamic Loads Division, were judges at the Palmetto State Science Fair in Orangebury, S.C. which was held March 21, 22, and 23.

Judges at the South Piedmont Science Fair held in Charlotte, N.C. on March 23 were Don D. Davis Jr., and Conner.

Albert E. Gribble, Analysis and Computation Division, judged Salem College Science Fair held in Salem, West Virginia on March 27, 28, and 29 and the Pocahontas Region III Science Fair held in Athens, W.Va. March 27 and 28.

CONTRACT SIGNED TO DEVELOP LEM

The NASA has signed a $387,900,000 contract with Grumman Aircraft Engineering Corp, of Beth Page, N.Y., to develop the lunar excursion module (LEM) of the Apollo spacecraft.

The contract spells out the terms under which Grumman, on a cost-plus-fixed-fee basis, will design, fabricate and deliver 9 LEM ground test vehicles and 11 LEM flight vehicles. The contract also covers operational support to be provided NASA by Grumman.

The selection of Grumman for contract negotiations to develop the LEM, a spacecraft designed to land American astronauts on the moon this decade, was announced on Nov. 7.

Grumman and its subcontractors will produce all major sub-systems of LEM, except for the navigation and guidance system which will be developed for NASA by the Instrumentation Laboratory of Massachusetts Institute of Technology and its industrial support contractors.

The LEM is one of 4 modules being developed for the Apollo spacecraft configuration. The other 2, the command module and the service module, are being developed by North American Aviation, Inc., Downey, Calif.

When the LEM is detached from the Apollo command and service modules to decend to the surface of the moon it will weigh about 12 tons. The two-man cab will be 10 feet in diameter. Mounted on 5 skid-type legs, LEM will stand about 15 feet high. The legs and descent engine will serve as gantry and remain on the lunar surface when LEM takes off to join the mother spacecraft. LEM will weigh about 4 tons when it leaves the moon's surface.

DIXON RESIGNS

Dr. Robert C. Seamans, NASA Associate Administrator, has announced the resignation of Thomas F. Dixon as deputy Associate Administrator.

In accepting the resignation, Dr. Seamans said he did so with reluctance but that he respected Dixon's desire to return to private industry. No successor has been named.

Dixon has served as Deputy Associate Administrator since November 1961. He had the responsibility for institutional management of NASA field installations other than those primarily engaged in the manned space flight programs.

He joined NASA in September 1961 when he was named Director, Office of Launch Vehicles. Prior to joining NASA, he was Vice President for Research and Engineering of Rocketdyne Division of North American Aviation, Inc., where he directed the development of liquid propellant rocket engines for such missiles as Atlas, Thor, Jupiter, and Redstone.

AIAA MEETING

(Continued from page 1)

ner may be made by calling Roger B. Stewart, 838-1917, or John Mugler, 838-0569, on or before Wednesday noon, April 10. Wives and guests are invited.

SECURITY NOTICE

Employees are reminded that all classified material should be locked in storage cabinets and vaults that have been approved by the Security Officer.

FOR SALE: 1962 Plymouth Sports Fury. Call Gompers, TR 7-1311 extension 23558.
FOR SALE: 40-inch electric range. Call Huffman, PA 2-8401 after 5 p.m.
WANTED: 1957 Ford - 2-door. Evans, PA 2-4676.

MARYLAND UNIVERSITY CONDUCTS BEHAVIOR STUDY FOR SPACE FLIGHT

A unique study of human behavior in a controlled environment involving prolonged isolation is being conducted for NASA by the University of Maryland.

The experiment by the University's Department of Psychology is intended to provide basic information for planning future space flights for prolonged periods of time.

The experiment is part of an advanced program of research in the life sciences being conducted on a NASA grant to the University. Its primary objective, according to Dr. Eugene B. Konecci, Director of Biotechnology and Human Research, NASA's Office of Advanced Research and Technology, is to obtain basic information on how man performs under certain conditions of stress, and methods to deal with such problems so that astronauts of the future will be able to perform their duties at highest efficiency.

The study is being conducted in a specially designed chamber within the Space Laboratory building on the University campus at College Park. Subject of the experiment is a 35-year old research assistant, Whilden P. Breen Jr., who volunteered for the arduous task and met the physical and mental qualifications for it. Dr. John D. Findley is the principal investigator.

The program under which the subject lives in his confined space has been arranged to provide everything he needs for health, contentment and efficiency. He is required to perform certain tasks within the program in order to carry on his daily activities.

Although Breen has no direct view of the outside world nor of any person other then himself, he does have frequent communication by teletype, and sometimes by voice, with the experimenters stationed outside. He is under constant surveillance 24 hours a day. He has been inside his quarters on the experiment since November 17, 1962.

Although university scientists have not set a time for terminating the experiment, Breen can complete the study at any time. He will continue in the experiment as long as scientists can gain useful information.

Dr. Findley stressed that though Breen has been doing this work for many weeks, time is not the primary parameter of the experiment, nor is it a test of endurance. The subject was not selected because of any unusual personality or other qualifications, nor is there anything extraordinary about his diet, clothing or atmospheric conditions.

Dr. Findley, a graduate of Baylor University who obtained his Ph.D. degree at Columbia University in 1954, has been engaged since that time in psychology research. From 1955 to 1958 he was research psychologist for the Navy School of Aviation Medicine at Pensacola. He joined the University of Maryland staff as a senior research associate in the Laboratory of Psychopharmacology and assistant professor in the Department of Psychology. He is the responsible investigator for the University's Space Laboratory.

Breen joined the staff of the Psychology Department in November 1961. He was given psychiatric, medical and motivational tests before being selected for the experiment. He aided in the construction of the chamber and thoroughly understood the nature of the experiment before undertaking it. He made trial tests of a few days duration several times before he began. He is a native of Birmingham, Alabama, and a 1955 graduate of the University of Alabama.

"If we get out of this alive, Stupid . . ."

DELTA MOST RELIABLE BOOSTER

Delta became a member of the national launch vehicle family four years ago. At that time it was intended to be a temporary or "interim" booster. The NASA contract signed with Douglas Aircraft Company in April 1959, called for 12 Deltas. No more were contemplated.

Delta's launch debut in May 1960 at Cape Canaveral, offered little hope for its longevity in the family of space boosters. Its first job was to orbit an Echo communications satellite.

The "Delta 1, Launch Attempt Number 1," on May 5, ended with a "scrub" because Delta had a loose power connection. On May 13, the NASA-Douglas team tried again. This time, except for a five-minute "weather hold," countdown and liftoff were normal. But Delta's third stage didn't ignite and the Echo satellite ended up in the Atlantic Ocean instead of in orbit. This ill-fated first performance tended to confirm Delta's "interim" role.

By mid-summer, the second Delta was ready for another Echo launch attempt. Twice - on August 8 and August 9 - the launch was scrubbed because something went wrong with Delta. However, on its third try on August 12, Delta 2 performed as planned and Echo I, an inflated sphere passive communications satellite 100 feet in diameter, went into orbit, ultimately to be seen by millions of people around the world.

This first success seemed to be all Delta needed. Its Echo I performance grew into a string of 15 consecutive successful missions. In the words of NASA Administrator James E. Webb, Delta became "NASA's most reliable launch vehicle." The initial order for 12 boosters has been increased to 40 and Delta has "joined the family" and is staying well in the forefront.

Langley Researcher

VOLUME 2, NUMBER 8 LANGLEY RESEARCH CENTER APRIL 12, 1963

ENGINEERS, CLUB MEETS APRIL 23

Dr. Robert F. Frosch, Director of the Hudson Laboratories of Columbia University, will speak at a meeting of the Engineers' Club of the Virginia Peninsula on Tuesday, April 23 at 8 p.m. at Ferguson High School which is located at Shoe Lane and Route 60. The subject of Dr. Frosch's talk will be "Underwater Sound Transmission".

The Hudson Laboratories were founded in 1951 to perform research on marine physics with the hope that the knowledge uncovered will lead to improvements in undersea warfare. A major portion of the research is devoted to fundamentals of underwater sound as a scientific discipline with special emphasis on its application to sonar systems. The Laboratories are the prime contractors for Project Artemis, a research and development program for the Office of Naval Research concerned with improvements in long-range sonar.

The Laboratories are also doing research in oceanographic problems including chemistry of sea water and deep water motions. Field work is performed with the assistance of the USNS Josiah Willard Gibbs and the USS Alleghany.

Dr. Frosch is a graduate of Columbia University and has been connected with the Hudson Laboratories since its founding. He has served as its Director since 1956. He is a Phi Beta Kappa and member of the American

(Continued on page 3)

SPRING PROM OPENS SEASON

The Activities Association will open their spring social season with a Spring Prom on Friday, April 26 at the Activities Building.

Music for the informal affair will be furnished by Charlie Johnson and his Combo. Dancing will be from 9 p.m. until 1 a.m. and admission will be two dollars per couple.

Tickets may be purchased from the District Representatives to the General Assembly.

Couples are urged to get a group together and enjoy the evening with members of their section or branch. Groups of six couples or more may make reservations by calling 4583.

SA-4 LAUNCHED SUCCESSFULLY

NASA's fourth Saturn I space vehicle (SA-4) was successfully launched from Cape Canaveral on March 28.

While the SA-4 flight plan was similar in many respects to that of earlier Saturns, there were several significant departures. The principal addition was an experiment to confirm the capability of the "engine-out" which was designed into the Saturn I booster system. At approximately 100 seconds following lift-off, one inboard engine - Number five - was shut down.

This was the first such experiment known in roc-

(Continued on page 3)

EASTER EGG HUNT SUNDAY

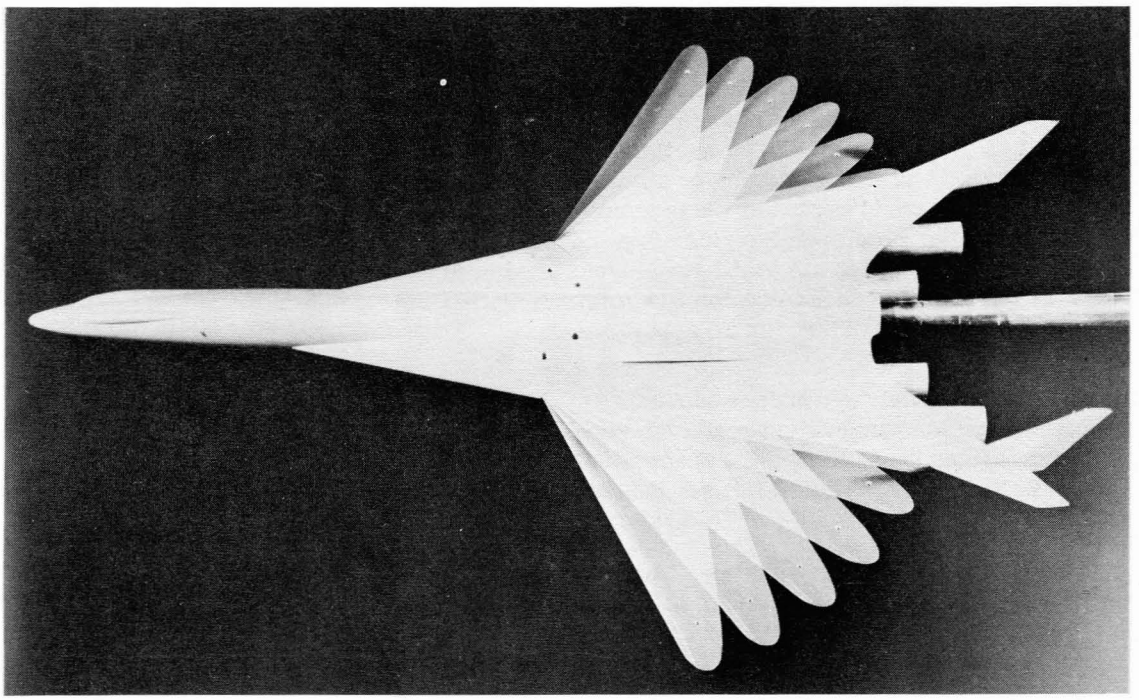
The Activities Association's Annual Easter Egg Hunt for children of NASA families will be held Sunday at 2 p.m. in the Actities area.

The annual event is free for NASA children and a special area will be roped off for the very small tots.

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.

Special prizes will be awarded to the children find-the most eggs in the different age groups. Reserve Sunday for the Egg Hunt.



This multiple-exposure photograph of the SCAT-15 by Bob Nye, Langley Researcher staff photographer, appeared on the cover of the April 1 issue of Aviation Week, which features an article on the Supersonic Commercial Air Transport. The photograph shows the variable sweep wing in six positions illustrating transition from low to high sweep. In flight, probably only three wing positions would be utilized: low sweep for take-off, loiter, and landing; medium-sweep for transonic flight; and high sweep for supersonic cruise.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW ROCKETTES. . .The girls out numbered the boys this week. A daughter arrived at the Claude Cullum household on March 26. The father works in Heavy Machine Shop. . . Janet Ann, new daughter of Asa Yeamans, Analysis and Computation Division, weighed in at eight pounds, three ounces on March 23. . .James Yarrington, Instrument Research Division, became the father of a new heiress on March 31. . .Richard Reid, Aero-Space Mechanics Division, announced the birth of a daughter on March 28.

WEDDING BELLS. . .Carlena Rasnick, formerly of Personnel Division, became the bride of Cartier Ward, Poquoson, on Saturday, March 30 at the Poquoson Methodist Church. . .Pat Glenny, Internal Aerodynamics Branch, took her final vows with Paul Reagon on March 22.

DIAPER LINE. . .Samuel D. Johnson, Electronic Shop, became the father of a son on March 31. . .A son was delivered to the Paul H. Woodell household on March 13. The father works in Instrument Research.

INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health benefit Program, will visit the Center on April 17 at 2 p.m. He will be available for consultation on individual claim problems and to answer general questions concerning coverage under the indemnity plan. He will be located in the Employee Services Section Office, Room 101, Building 587, during his visit. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

WORD OF THANKS. . ."Words cannot express our deep appreciation for the sincere concern and rememberances of our many friends during the recent illness and death of Texie Belle Miller." -Jules Miller, Research Staff Office

CAMERA CLUB. . .The Langley Camera Club will meet on Monday, April 15 at 7:30 p.m. in the Activities Building. An open category contest will be held for black and white prints and color slides.

GIRLS SOFTBALL. . .Plans are being made to organize a NASA Girls Softball League. Persons interested are requested to attend a meeting at 4:45 on Thursday, April 18 at the Activities Building. Persons who are unable to attend the meeting are requested to call Carolyn Christenbury, 3308, or Sandra Dennis, 3346.

CAFETERIA MENU

The following menu will be served in the East and West Cafeterias during the week of April 15:

Monday - Cream of tomato soup, oven roast of beef breaded veal cutlet, beef goulash on egg noodles, and cheese omelette.

Tuesday - Vegetable-beef soup, half-pound chopped sirloin steak, Polish sausage with corn fritters, stuffed peppers, and fish cakes and cole slaw.

Wednesday - Bean soup, pot roast of beef, baked ham fried liver and onions, and franks and beans.

Thursday - Chicken-noodle soup, grilled steak, meat pot pie, fried chicken, and barbecued sandwich.

Friday - Clam chowder, fried clams, Swiss steak, broiled fish, fried fish, and baked hash.

The menu for the week of April 22 is as follows:

Monday - Split green pea soup, chuckwagon steak, roast fresh ham, beef stew, and hamburger.

Tuesday - Tomato-rice soup, roast beef au jus, chicken pot pie, grilled pork chops, and meat croquettes.

Wednesday - Vegetable-beef soup, braised short ribs of beef, grilled ham slice, meat loaf, and western omelette

Thursday - Minestrone soup, grilled steak, baked Smithfield ham, spaghetti with meat sauce, and grilled cheese and bacon sandwich.

Friday - Clam chowder, pot roast of beef, stuffed flounder, ham loaf with horseradish sauce, broiled fish, and franks and beans.

□□□□

FOR SALE: 3-bedroom brick rancher on dead-end street in Riverdale - fireplace, built-in kitchen, 1-1/2 baths, and converted garage. Powell, 838-0761.

SA-4 LAUNCH

(Continued from page 1)

ketry.

The burning time of the other seven engines was extended somewhat to compensate for the loss of thrust. As expected, the performance was about the same as that of an ideal eight-engine flight.

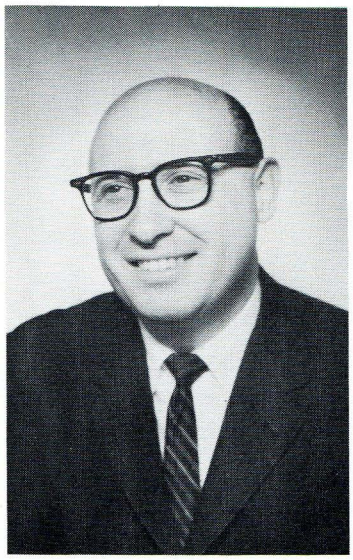
Several other changes in the vehicle will contribute to the development of the Block II (SA-5 and beyond) version of Saturn: Components of future Saturns were attached in "kits" to the inert second stage, accelerometers were used for the first time, a stabilization platform which will be used actively beginning with the seventh Saturn was flown, a MISTRAM System transponder was flown on a passenger basis, a "Q-Ball" angle of attack device was mounted on the nose cone, and new heat shield insulation at the tail section was tested.

The SA-4 launch was the fourth in a series of ten research and development flights planned for Saturn I, the largest rocket presently being tested in the Unit-States. By late 1964, the vehicle is expected to be ready for its role in flight testing the three-man Apollo spacecraft.

This was scheduled as the final booster-only test of the rocket. The next Saturn (SA-5), to be launched later this year, will have a live second stage and will have the capability of placing 20,000 pounds in Earth orbit.

The other three Saturn vehicles launched to date have made perfect flights, a rather unusual record, considering the size and complexity of the vehicle and the state-of-the-art advancements made in its development.

--Buy U.S. Savings Bonds--



Dr. Robert F. Frosch

ENGINEERS' CLUB

(Continued from page 1)

Physical Society, Fellow of the Acoustical Society of America, member of the American Association for the Advancement of Science, Senior Member of Institute of Electrical and Electronic Engineers and a member of Sigma Xi.

He has served as a member of the U.S. Navy Underwater Sound Advisory Group and is currently Chairman of the U.S. Navy Undersea Warfare Research and Development Planning Council and Chairman of Technical Committee on Underwater Acoustics, Acoustical Society of America.

Guests and wives are invited to attend.

EXAM OPEN

The U.S. Civil Service Board of Examiners has announced that the examination for Machinist, WB-10, $2.82 per hour, at the Langley Research Center, has been amended to remove the suspension on receipt of applications.

Applications for this position will be accepted by the Executive Secretary, Board of U.S. Civil Service Examiners, NASA, Langley Research Center, Hampton, Virginia, until the needs of the service have been met.

SCIENCE CONFERENCE HELD

Approximately 150 leading Americans attended the nation's first Space, Science, and Urban Life Conference which was held March 28-30 at the Dinsmuir House in Oakland, California. The purpose of the conference was to discuss the impact of space-age technology on metropolitan areas.

Prominent government figures, distinguished aerospace industrialists, eminent scholars, and leading research scientists working on the frontiers of knowledge discussed the political, sociological, physical, and economic effect of their massive space and scientific research and development programs on the average American and his community.

The participants considered the question of specific implications that expanding technology may have on the problems of metropolitan areas. They covered, for example, applications of advanced scientific knowledge to such urban problems as air pollution, water supplies, and public health. They also examined technical developments which will affect the transportation, communication, power resources, and construction industries in the immediate future.

President Kennedy's scientific advisor, Dr. Jerome B. Wiesner, delivered the opening dinner speech for the conference. James E. Webb, NASA Administrator, delivered the conference's closing speech, and the Chairman of the House Committee on Science and Astronautics, George P. Miller, presented a keypaper during the first session of the conference.

Webb stated that he feels it is heartening that the Space, Science, and Urban Life Conference should attempt to assess the problems of urban environment as they relate to the space age. "The problems of achieving pre-eminence in a wide range of space endeavors," he said, "present a challenge to the American people, on a national scale, not unlike the problems inherent in urban transformation. Both require care carefully formulated and steadily carried-out planning on a large scale and over a variety of fronts. Both require the creative abilities and services of scientists, engineers, technicians, and other professional people of many disciplines. Both require top level managerial talent. Most important, both must have the patience and understanding of people in all walks of life, cooperating intelligently, regardless of political differentation, for the common good."

Congressman Miller identified the challenge confronting the conference as determining how we can "translate into jobs the gains made in this modern age through scientific research. If we go forward uncovering new scientific truths in the defense and space effort how can we best apply these in the peacetime economy." He congratulated the conference sponsors for taking the initiative in providing steps for the translation of the new concepts into reality.

SECURITY NOTICE. . .THE Security Office now has a number of neck chains available for members of the fairer sex to use for hanging their identification badges around their neck rather than attaching them to clothing. These chains are available at the Security Office, Building 586, or the Contractor Badge and Pass Office, Building 1288.

WANTED: Ride from Bethel Park to W.A. on 8 shift. Call Gerrity, 4403.

NEW OFFICE ESTABLISHED

A NASA Office of Assistant Administrator for Technology Utilization and Policy Planning has been established by Administrator James E. Webb.

The office will emphasize the program which NASA has been developing for the past year to make more readily available the scientific and technological advances resulting from the space program for use in the nation's economy.

Dr. George L. Simpson, NASA's Assistant Administrator for Public Affairs since September 1962, will fill the new post. His public affairs duties will be expanded to include direction of the Industrial Applications division of the Office of Applications. The division is redesignated the Office of Technology Utilization under the new organization.

A Professor of Sociology at the University of North Carolina before joining the NASA, Simpson brings a social sciences background into close working relationship with NASA's physical sciences effort and affirms the agency's awareness of the socio-economic impact of the space program in both national and regional aspects.

Along with the four program offices, Simpson will be responsible for developing close working relationships between universities and industry to return the results of space research to the economy on a regional basis and enhance the nation's technological growth.

Establishment of the Office of Technology Utilization under Simpson's direction will result in closer coordination of its identification of industrial applications with the dissemination activities of the Office of Scientific and Technical Information.

Julian Scheer, Deputy Assistant Administrator for Public Affairs, becomes Deputy Assistant Administrator for Technology Utilization and Policy Planning.

Louis B. C. Fong who has directed the Industrial Applications Division becomes Director of Technology Utilization.

Other offices continuing under Simpson's direction are: Office of Public Services and Information, the Office of Educational Programs and Services, and the Office of Program Development.

PROFESSOR PLANS VISIT

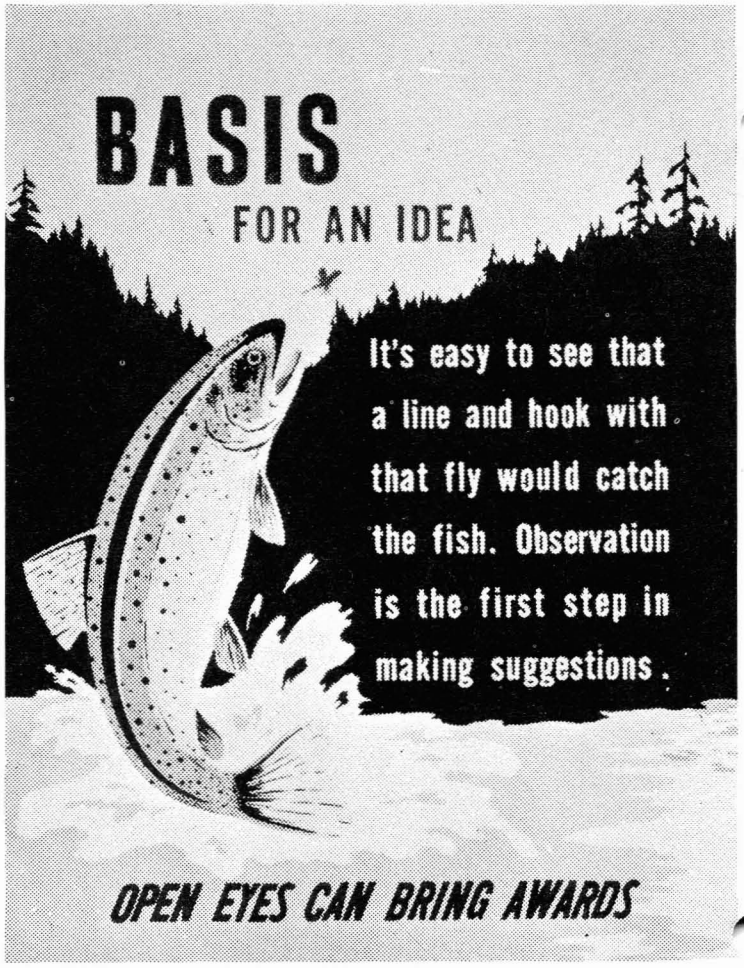
Dr. James B. Eades, Head of the Department of Aerospace Engineering at Virginia Polytechnic Institute, will visit Langley Center on Monday, April 22 to consult with employees interested in graduate work at VPI.

Dr. Eades is interested in talking with all employees who plan to attend VPI in residence during the 1963 summer and fall sessions.

Arrangements have been made for a group meeting for those interested at 9 a.m. in the Projection Room of Building 587.

Other employees wishing to discuss individual problems with Dr. Eades should make an appointment by calling the Training Office, telephone 2326.

FOR SALE: Three bedroom house. Collins, LY 50242.
WANTED: Driving combination from Holly Court to W.A. on 8 shift. Wells, 4871.
WANTED: Drivers from vicinity of Norfolk to W.A. on 8 shift. Hilton, 4521.
WANTED: Passengers from Sinclair Farm to W.A. on 7:30 shift. Haeger, 4766.



INVENTORY NOTICE

Procurement Division personnel will conduct the annual inventory of all stores stock starting on April 23 through April 26. The stock issuing rooms in the Warehouse Building and Instrument Research Laboratory will be closed on these days.

Supervisors are requested to procure in advance such materials as will be required for their work operations during this period.

Should emergencies arise, additional supply items may be procured during the period the stockrooms are closed by applying directly to the Head of the Stores Branch.

CONTRACT AWARDED BY LEWIS

A $2,143,900 contract to design a 100 by 200-foot cylindrical space environment chamber for Lewis Research Center's Plum Brook Station near Sandusky, Ohio, has been awarded to Kaiser Engineering Division of the Kaiser Co., Oakland, California.

The new facility itself will cost approximately $23 million and when completed will be the largest of its kind in the world.

The space chamber will simulate pressure and temperature conditions existing at altitudes up to 100 miles above earth. It will be used for evaluation and development testing of complete spacecraft, including nuclear electrical power generation and propulsion systems. Problems that may occur during ignition, power setting changes, endurance runs, and shutdown in space will be studied.

The contract specifies that the design be completed within a year.

APPRENTICE EXAM OPENED

The U.S. Civil Service Board of Examiners announced the opening of an examination for Apprentice, first year, WB-2, $1.81 per hour, at the Langley Research Center.

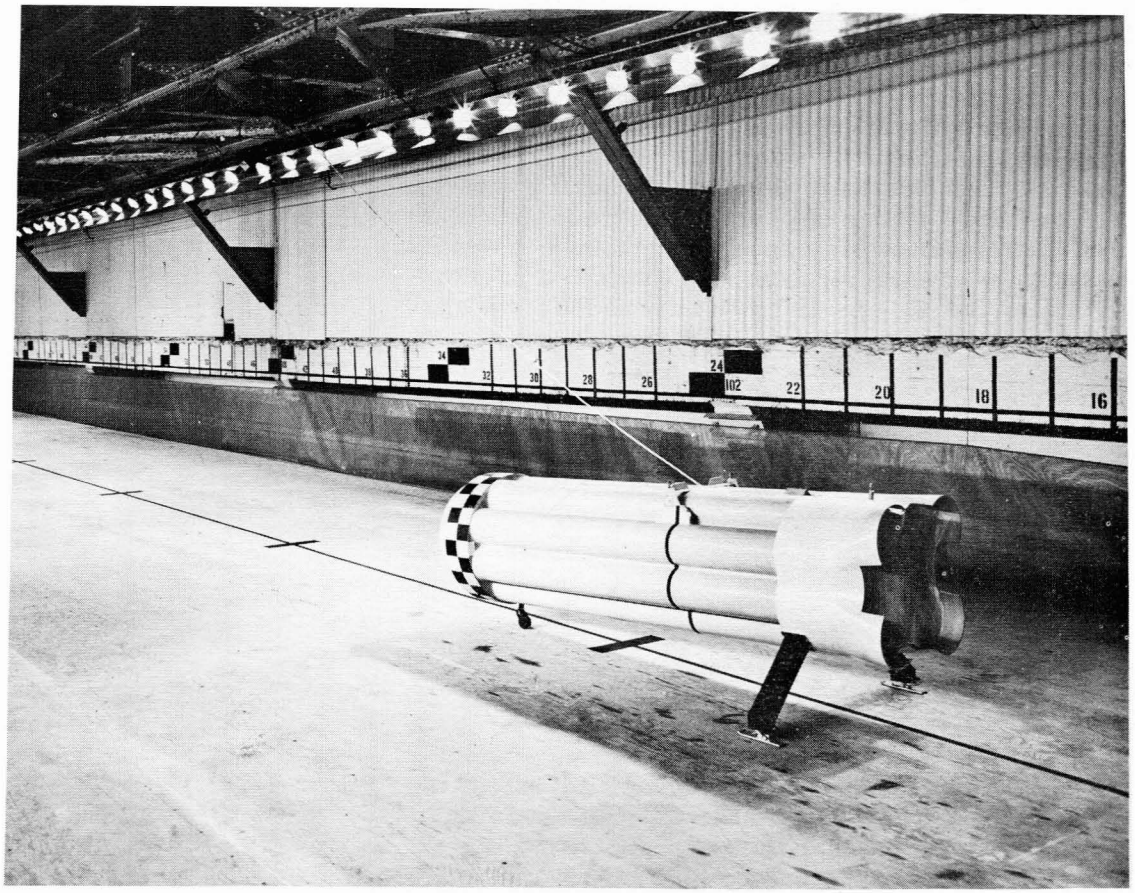
Competitors will be required to pass a written test of aptitude for apprenticeship training. The test will be given at Langley Air Force Base. Applicants will be notified of the time and place to report for the test.

The list of eligibles resulting from this examination will be combined with the register established in 1962. Persons rated eligible under Announcement No. 3-131-5(1962) need not apply under this new announcement, but they may do so if they desire to try to raise the numerical rating obtained under the previous announcement.

Apprentices will be appointed in the following trades and applicants will have an opportunity to express trade preference at the time of appointment: Aircraft Mechanic, Electrician, Electronic Instrument Maker, Test Facility Mechanic, Wood Modelmaker, Machinist, and Sheet-metal Worker.

The normal length of apprenticeship in these trades is four years. Upon completion of three years of apprenticeship in some of these trades, those who have shown the required aptitude and ability will be afforded an opportunity to receive an additional two years of training and complete apprenticeship in one of the following occupations: Metal Modelmaker, Instru-Maker, Engineering Draftsman, and Aviation Metalsmith. A total of five years of training is required for completion of apprenticeship for these four occupations and additional salary increases are provided for those employees who advance beyond the fourth year.

Applications must be filed with the Executive Secretary, Board of U.S. Civil Service Examiners, NASA, Langley Research Center, Hampton, Virginia, not later than April 30. Applications received after that date will not be accepted unless they are received by mail and bear a postmark on or before April 30.



As larger launch vehicles take their place in the United States space exploration program, it has become increasingly desirable to recover them for repeated use. The experiment shown here is an attempt to learn more about the possibilities and problems of recovering the first stage of the giant Saturn C-1 launch vehicle. Scientists at Langley Research Center are using a one-fourteenth scale model of the Saturn C-1 first stage fitted with skid-type landing gear to measure the forces and motions which might be expected during a hard landing on a prepared surface. Although a flexible wing paraglider is not attached, the research model is launched from a catapult to simulate a paraglider-type landing. Sensitive instruments within the model and high-speed motion picture cameras measure the accelerations and record the motions during the landing sequence.

WALLOPS TESTS EOGO EQUIPMENT

An experiment to flight test the basic components of equipment to be flown aboard the EOGO (Eccentric Orbiting Geophysical Observatory) Satellite, scheduled for launch in approximately one year, and to obtain measurements of propagation of VLF (very low frequency) signals through the ionosphere was launched by NASA from Wallops Island Station on April 3.

The 174-pound payload was flown on an Aerobee launch vehicle and reached an apogee of about 147 statue miles. Impact occurred 56 statute miles downrange from the launch site. No attempt was made to recover the payload.

The flight was a joint project of the Stanford Research Institute, Menlo Park, Calif., and NASA's Goddard Space Flight Center. L. H. Rorden is the Stanford Project Scientist, Jon R. Busse is the Goddard Vehicle Manager, and Robert T. Long is the Wallops Project Engineer.

WANTED: Driving combination from Bellview Terrace to W.A. on 8 shift. Young, 4427.

FOR SALE: 1960 Renault, $450. Sandidge, 826-3754.

FOR SALE: Music Master turntable and 2 Heath Kits A7E amplifiers. Langhans, 118 Clyde St.

WANTED: Ride or driving combination from Fontaine Rd. to E.A. on 7 shift. Whitehead, 596-9172.

FOR SALE: 1951 Ford Convertible. Peterson, 838-2064.

MICROFILM PROGRAM STANDARDIZED

The Atomic Energy Commission and NASA have taken steps to improve the availability and usability of scientific and technical report information generated by programs in the two agencies.

The two agencies have agreed to a standard reduction ratio and size for microcopy of miniaturized forms of the reports. This pioneering agreement between two of the largest governmental producers of scientific text in microcopy form will allow users of the information to view and reproduce AEC and NASA material with the same equipment.

Use of the microcopy with reading and reproducing equipment makes information available in the shortest possible time, eliminating delays inherent in the process of obtaining reproduction from original documents at some remote location.

Combination readers and reproducers, or readers only, are available from various microfilm equipment manufacturers.

The techniques of reducing full-size copy to a miniaturized form has gained widespread acceptance throughout the scientific and technical community faced with problems of storage and retrieval in the rapidly expanding areas of nuclear and aerospace sciences.

AEC and NASA have adopted a reduction ration of 18 to 1 and an image frame size 16 millimeters high and 23 millimeters wide. A precise separation of 0.5 millimeters between frames has been adopted. Frame separation is necessary for the automatic reproduction process.

The Department of Defense also has studied the standard reduction ratios and hopes to adopt the 18-to-1 ratio after further internal standardization of reports.

THIRD ANNIVERSARY OF TIROS

TIROS, NASA's first meteorological satellite, was launch- from Cape Canaveral three years ago on April 1 to begin an unbroken series of successes unmatched by any other NASA spacecraft system.

The accomplishments of TIROS, six launches out of six, with the last two - TIROS V and VI - still in operation after more than nine and six months in orbit respectively, have earned the United States a firm place in scientific space and meteorological research and development. Original life expectation of the TIROS spacecraft was for from three to four months. TIROS I lasted 78 days and transmitted almost 23,000 cloud cover photographs of which more than 19,000 were usable for weather analysis and forecasting around the world.

To date, all six spacecraft have sent back to earth more than 222,000 cloud cover pictures.

As the pioneer spacecraft in the meteorological satellite program, TIROS I opened a new era in weather observation by providing data covering vast areas of the earth's cloud cover which previously could not be observed for weather research and analysis purposes. As a result of the work with the first satellite and knowledge gained as a result of later launchings, procedures for interpreting, depicting, and disseminating weather information have been developed.

TIROS V has sent back more than 50,000 cloud cover pictures and observed all major tropical storms--both hurricanes and typhoons--that occurred in the 1962 season.

"I said, 'Quiet, Father's asleep.'"

SOFTBALL SCHEDULE

	Monday		Tuesday		Wednesday		Thursday	
Field	A	B	A	B	A	B	A	B
Apr. 22	8-6	7-9	5-2	10-4	9-3	12-6	11-1	4-3
Week	1*	1*	7*	7*	11*	11*	12*	12
Apr. 29	4-2	11-9	12-3	7-1	8-1	11-7	9-5	10-6
Week	6	6	8	8	3	3	4	4
May 6	12-10	3-1	11-6	12-5	7-2	8-4	2-1	8-3
Week	2	2	4	4	5	5	10	10
May 13	11-5	10-8	9-6	11-2	12-4	10-5	7-4	12-2
Week	7	7	1	1	3	3	9	9

TEAMS: 1. Slowpokes, 2. Ballbusters, 3. Greenhorns, 4. ESS, 5. Roughnecks, 6. Eastsiders, 7. Duffers, 8. Hasbenns, 9. ACD, 10. Packers, 11. IRD, 12. Finks.

*Team supplying one umpire for each game. Field A is nearest the Activities Building. Anyone wishing to join a team should call Frank Roach, 4677.

WANTED: Driving combination from Forest Pk. area to W.A. on 8 shift. Stroup, 4667.

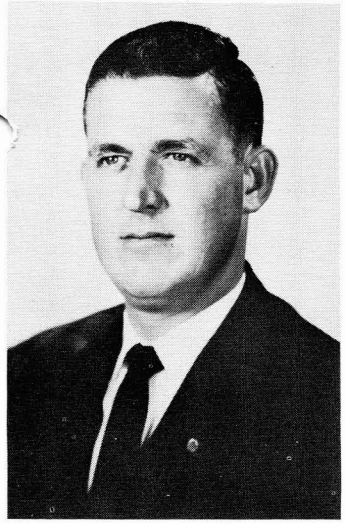
WANTED: Ride from East Queen and College Place to W.A. on 7:30 shift. Holley, 4640.

WANTED: Driving combination from Brentwood to W.A. on 8 shift. Redwine, 4811.

WANTED: Driving combination from Pine Grove to W.A. on 7:30 shift. Jacobs, 4691.

WANTED: Ride or driving combination from Warwick High School area to W.A. on 8 shift. Woods, 4705.

FOR SALE: 5 x 7 utility trailer. Marshall, 596-2935.



James J. Tart

CREI HONORS JAMES TART

James J. Tart, Instrument Research Division, has been named one of five recipients of the Second Annual E. H. Rietzke Achievement Awards presented by the CREI Alumni Association. The awards, named in honor of the founder and president of CREI, recognize outstanding achievements of members of the Alumni Association of the Capitol Radio Engineering Institute, Washington, D.C.

Tart was singled out for his work in helping overcome a space communications "blackout" that occurs when space satellites reenter the atmosphere. He was cited for devising and building a 9,000 megacycle telemetering system from an X-Band radar.

CREI was founded in 1927 and maintains a residence school at 3224 Sixteenth St. N.W., Washington, D.C., which offers an Associate Degree Program in electronic engineering technology.

A native of Erwin, North Carolina, Tart entered on duty at the Center on October 12, 1959 as an Electronic Instrument Maker.

FOR SALE: Brick Cape Cod house at 1812 Canterbury Rd. Lovelace, 838-2536.

BOWLING NEWS

This week Light Machine I pulled into a first place tie with Hopefuls. High scores were bowled by Jim Sommer with a 146 game and a 395 set. Georgene Miltonberger was tops for the women with a 115 game and 320 set. Ray Goodman won a ham for bowling six consecutive spares in a game.

Last week the top scores were rolled by John Dupere with a 145 game, Al Insley with a 368 set and Betty Mugler with a 108 game and 312 set.

The management of the bowling alley announced 20 alleys would be retained for duckpin bowling and the league can expand from 12 to 14 teams next year. All teams or individuals interested in bowling next season are asked to call Jim Link, 4428; Al Insley, 3451, or Liz Patterson, 2249.

Team	W	L
Hopefuls	63	41
Lt. Machine I	63	41
Ten Spots	57	47
Strike Outs	56	48
Jets	54	50
Rebel Bombers	53	51
Double Dots	53	51
Count Downs	50	54
Lt. Machine II	46	60
Pin Poppers	43	61
Doodle Bugs	42	62

FOR RENT: Three bedroom house. Morgan, 722-6500.

FOR SALE OR RENT: Two bedroom house. Dunn, 320 Darly Ave.

FOR SALE: Power lawn mower - $15. Huffman, PA 3-7008.

FOR SALE: 1951 Ford. Call Anderson, 838-2745.

FOR SALE: 1954 Ford convertible. Myers, 826-2333.

FOR SALE: RDO receiver, tunes 30 to 100 mcs, RDP Pandaptor, 10 mcs sweep - $75. Cubbage, 838-0993.

FOR SALE: Plott Hound pups. Wells, PA 3-8913.

WANTED: Chain hanging wood porch swing. Berryman, LY 6-3988.

STUDIES ON SIX BIO-SATELLITES

NASA has asked industry to study the feasibility of using a series of earth satellites to conduct biological experiments upon plants and animals under an extended weightless environment.

Ames Research Center has asked for proposals on from two to four study contracts of six weeks duration. These are of space vehicle systems that would be suitable in the event a flight program is authorized.

Phase I, the only phase now approved, envisions a study of a series of six bio-satellites, to be launched during a period of 18 months, with flight durations of from three to 30 days. A decision on the flight program will be made following an evaluation of the Phase I studies.

Each of the payloads of such bio-satellites would be recovered and returned to the experimenters for post-flight study. NASA has received about 60 suggestions of experiments that might be performed.

Under the study contracts, all aspects of the project are to be considered, but primary emphasis will be placed on the spacecraft. Other special aspects include environmental control and life support systems, spacecraft stabilization, re-entry nose cone, and sensing, recording and telemetry systems.

Such a bio-satellite project would be suited to studying biological responses to periods of weightlessness more prolonged than those obtainable by rocket flights or other short-duration tests.

The bio-satellite project would fill a long-standing need of the scientific community for a recoverable earth-orbiting biological laboratory.

Typical experiments would be expected to have such objectives as determining:

1. The reactions of animals to prolonged periods of weightlessness.

2. The effects of weightlessness or removal from the earth's rotation on the biological rhythms and cellular processes of plants and animals.

3. Whether the condition of weightlessness has an effect on the susceptibility of plant and animal specimens to radiation damage.

EMPLOYEES JUDGE SCIENCE FAIRS

Last week several Langley staff members served as judges in regional science fairs affiliated with National Science Fair-International. This is part of NASA's nationwide participation in state and regional participation. The fairs are preliminary to the 14th National Science Fair-International to be held in May in Albuquerque.

Frank H. Mershon, Flight Vehicles and Systems Division, served as judge of the Piedmont South Carolina Science Fair held April 4, 5, and 6 at Wofford College, Spartanburg, S. C., and the Western South Carolina Science Fair held April 5 and 6 at Furman University, Greenville, S.C.

Robert N. Parker, Flight Vehicles and Systems Division, was judge at the North Carolina Science Fairs held at N.C. State College in Raleigh, N.C., on April 5 and 6.

Wilmer H. Reed III and Roy Steiner, both of Dynamic Loads Division, were judges at the Ninth Kanwawka Valley Regional Science Fair at West Virginia Institute of Technology in Montgomery, W. Va. on April 6.

Robert L. Gungle, Flight Vehicles and Systems Division, served as judge at the South-Central Virginia Regional Science Fair held on April 6 at Hopewell High School.

SWANSON AWARDED SLOAN FELLOWSHIP FOR STUDY

Andrew G. Swanson, Assistant Head of the Vehicle Performance Branch, Applied Materials and Physics Division, has been awarded an Alfred P. Sloan fellowship in executive development at the Massachusetts Institute of Technology.

Swanson was one of 45 outstanding young business executives both in the United States and abroad who were named to study for a full year in the field of management beginning in June at MIT. Swanson's selection was announced by Dean Howard W. Johnson of MIT's school of industrial management.

A native of Detroit, Michigan, the 35-year-old Swanson has been on the Langley staff since he graduated "with distinction" from Purdue University in 1951 with a B.S. degree in aeronautical engineering. He completed his requirements for an M.S. degree in aeronautical engineering at Purdue in 1956 and 1957. He was on military leave from the Langley Research Center in 1954, serving one year on active duty with the Army.

Swanson supervises research in and development of rocket vehicles for various types of aerodynamic and space research and for sounding rocket applications. He is manager of a Langley project to fly reentry research experiments at speeds in excess of 20,000 miles an hour and he heads several activities aimed at extending the flight reentry program to higher speeds. Information obtained in such flight experiments are useful in providing the technology required for the design, development, and operation of space vehicles.

Swanson is a senior member of the American Institute of Aeronautics and Astronautics; member of the Aircraft Owners and Pilots Association; member of the Williamsburg Twentieth Century Art Gallery; and a member of Gamma Alpha Pho, aeronautical engineering honorary society.

Sloan fellowships for participation in this program are considered among the highest honors which can come to young men during their business careers. The fellows, in their 30's, were carefully selected by MIT from a group of exceptionally able executives whose employers nominated them for admission to the program because they showed marked promise of growth for major executive responsibilities.

The selected Sloan fellows will move with their families to the Cambridge, Massachusetts area in June, to spend twelve months at MIT, studying in depth the fundamentals that underlie sound management decisions. Many will complete MIT's requirements for the degree of Master of Science in industrial management.

"The men designated as next year's Sloan fellows are among the most promising of our country's young executives," according to Peter P. Gil, Director of Executive Development Programs at MIT. "Chosen early in their industrial careers, these men have a long future of service to industry ahead of them."

The program at MIT is made possible by grants of the Alfred P. Sloan Foundation, Inc.

FOR SALE: Match stick bamboo roll-up curtains - size 10 x 6 and 8 x 6 - $8. Wilson, UN 8-9284.

FOR SALE: Boy's 24-inch bicycle. Field, PA 3-6679.

LANGLEY MAKES CONTRACT AWARD

Langley Research Center announced that week that E. W. Muller Contractor Inc., of Newport News is the apparent low bidder for preparing the site for NASA's Space Radiation Effects Laboratory to be constructed at Oyster Point in Newport News.

Muller submitted a bid of $85,987 and promised to complete the site-preparation project in two and one-half months. Work to be done under the contract includes clearing and grubbing, placing fill material at the location of the proposed laboratory, building an access road, and installing an eight-inch water main from a meter pit near the edge of the tract of the laboratory.

The NASA laboratory will house a synchro-cylotron and associated equipment to be used by scientists in simulating space radiation for research investigations in support of space flight programs. The installation is expected to cost approximately $12,382,000 and is scheduled to be completed by mid-1965.

FOR SALE: Heathkit DX-40 transmitter with Conelrad beacon, Hallicrafters S-53A receiver with Q-multiplier - $90. Averett, 838-2345.

FOR SALE: Council piano. Hayes, 877-3384.

NASA DISCUSSES EXHIBIT PLANS

Paul R. Screvane, President of the Council of New York City, conferred with NASA Administrator James E. Webb in Washington recently concerning the possibility of having NASA loan to the New York World's Fair a 361-foot inflatable Saturn V rocket replica. The exhibit area would include about 10,000 square feet of models and exhibits.

For sometime NASA has been considering, for its traveling exhibits program, a full size inflatable Saturn V replica which would rest horizontally on the ground so that visitors could walk through the rocket, viewing displays enroute, from the engine compartment to the Apollo Spacecraft including the Lunar Excursion Module.

Screvans said the World's Fair Committee would appear before the New York City Board of Estimates and present a proposal for an appropriation for a building at the Fair site to be used as a permanent Hall of Science. He asked NASA to consider permitting the first showing of the proposed NASA Saturn replica, which is planned for use in its education program over the rest of this decade, at the World's Fair and adjacent to the Hall of Science.

Webb emphasized that the plan for the NASA Saturn replica is still under consideration and no estimates have been made for its cost. However, he assured Screvane consideration will be given to his request.

NASA will cooperate with other governmental agencies in a federal pavilion at the New York World's Fair.

WANTED: Ride from Harpersville Rd. and Hull St. to E.A. on 8 shift. Young, 2201.

Langley Researcher

VOLUME 2, NUMBER 9 LANGLEY RESEARCH CENTER APRIL 26, 1963

AXEL T. MATTSON SELECTED JUDGE OF SCIENCE FAIR

Axel T. Mattson, Langley's Research Assistant for Manned Space Administration, will be among the group of NASA scientists who will be judges at the 14th National Science Fair-International scheduled to be held May 6-11 in Albuquerque, New Mexico.

Two winners will be selected in each of the following 6 categories: Aerodynamics, Space Vehicles, Space Flight and Propulsion, Space Life Sciences, Space Physical Sciences, and Space Electronics and Communications.

Each of the winners, accompanied by a teacher of his choice, will receive an expense-paid trip to a NASA installation. The facility to be visited will be selected on the basis of the winner's interests and the geographical location of his residence.

In order to compete in the National Science Fair-International, the high school senior first had to win an award in state and regional competition.

As a preliminary to the National Science Fair-International, Langley Center provided judges and awarded certificates of outstanding achievement in fifteen state and regional fairs in Virginia, North Carolina, South Carolina, and West Virginia.

The Fair is the annual Mecca for aspiring scientific youth who develop and exhibit experiments, collections, and hobbies based

(Continued on page 3)

ANNUAL ELECTION SET FOR MAY 7

The Activities Association's annual election for District Representatives to the General Assembly will be held at the Center on Tuesday, May 7. No primary election will be held and representatives elected to the General Assembly will serve from July 1, 1963 to June 30, 1964.

The Center is divided into districts of approximately 70 to 100 employees and representatives will be elected by and from each district.

Candidates must be nominated by use of an official nominating petition. Each petition must be signed by 10 employees from the district and approved by the candidate's section, branch head, or division chief. The

(Continued on page 4)

NASA NAMES NEW ADVISORY GROUP

The creation of a Management Advisory Committee for Manned Space Flight within the NASA has been announced by Administrator James E. Webb.

The Committee will advise D. Brainerd Holmes, Deputy Associate Administrator (for manned space flight centers), in the areas of organization and management of the NASA Manned Space Flight Program.

Chairman of the committee will be Dr. Mervin J. Kelly, the retired President and Chairman of the Board of Bell Telephone Laboratories. Dr. Kelly, of Short Hills, N.J., holds many national and international honors in research and technology, and has

(Continued on page 2)

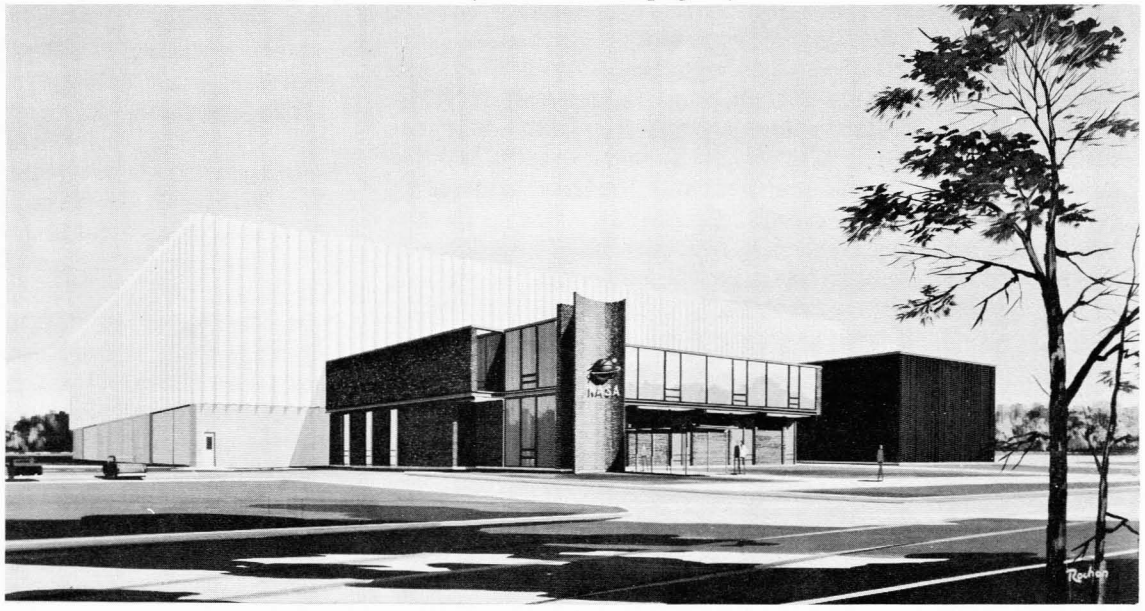
DANCE SET FOR TONIGHT

Center socialites are reminded that the Activities Association will open the spring social season with a Spring Prom tonight in the Activities Building.

Music for the informal affair will be furnished by Charlie Johnson and his Combo and dancing will be from 9 p.m. until 1 a.m.

Admission is two dollars per couple and tickets may be purchased from District Representatives to the General Assembly or at the door.

Couples are urged to get a group together and enjoy the evening with members of their section or branch. Groups of six couples or more may make reservations by calling 4583.



Architects' conception of the Space Radiation Effects Laboratory which is to be constructed near Langley Research Center. The building will house a synchro-cyclotron to permit Langley to study the effects of high energy particles, both electrons and protons, on space vehicles and their systems. Present plans call for the College of William and Mary, the University of Virginia, and the Virginia Polytechnic Institute to serve jointly as the Virginia Associated Research Center in managing and operating the research laboratory under contract to NASA, and in establishing a graduate study program in cooperation with NASA at the site of the synchro-cyclotron. The Laboratory will cost an estimated $12.3 million.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIAPER LINE. . .Passing out cigars and candy is Bruce Kendall, Instrument Research Division. He became the father of a son on March 31. . .Benjamin Updike, Research Models and Facilities Branch, became the father of a son on April 7. . .Announcing the birth of a daughter on April 1 is Dan Popma, Instrument Research.

ENGAGED. . .Making plans for a summer wedding is Barbara J. West, Personnel Records. She is engaged to Samuel Sain, Newport News.

ARCHERY. . .The Warwick Bowmen will hold their Fourth Annual Silver Bow Tournament on April 28 at the range located on Route 17. Virginia's top archers will be competing and the event will start at 9 a.m. and close at 4 p.m. On April 27 the group will hold Fellowship Day which will be devoted to practice rounds. Five national instructors will be on hand to teach different phases of archery to interested guests. Archery classes are held on the range every Saturday.

NEW BABIES. . .George W. Jones, Dynamic Loads Division, became the father of a daughter on April 14. . .Announcing the birth of a son on April 13 is Percy E. Garrington, Mechanical Services Division. . .A new heir was delivered to the Gene Wagner household on April 16. The father works in Mechanical Services Division. . .Passing out cigars and candy is John L. Hudson Jr., Research Models and Facilities Branch. . .Walking the floor nights is Thomas Pepe, Electrical Service Division. He became the father of a daughter on April 15.

BOOKS FOR SALE: "Chemistry Problems in Jet Propulsion" by S. S. Penner, "Quantum Mechanics" by Mergbacher, "Strength of Materials" by Timoshenko, "Space Flight, Volume II" by Ehricke, Math 22.01 Books, "Introduction to the Principles of Communicative Theory" by Hancock, "Ionized Gases" by Spitzer, "Basic Electronics" by Cooke, "Radio Telemetry" by Nichols and Rauch, Scales (Detailer), House Furnishing Template, "Analog Computor Techniques" by Johnson, "Odessey" by Homer, "Illiad" by Homer, Communication System Calculator, "Time-Harmonic Electromagnetic Fields" by Harrington, Indicator Glasses, "Mechanical Drawing" by French and Svensen, "Correlative Neuroanatomy and Functional Neurology" by Chusid and McDonald, "Free and Inexpensive Educational Aids" by Pepe, Triangulator, "Classical Electrodynamics" by Jackson, "Introduction to Quantum Mechanics" by Dicke and Wittke. Training Office, telephone 2326 or 2347.

NASA NAMES NEW ADVISORY GROUP

(Continued from page 1)

been serving as a consultant to the NASA Administrator.

Other members of the committee, which will serve until June 30, 1964, are:

Dr. Hendrick W. Bode, Summitt, New Jersey, Vice President, Military Development and Systems Engineering, Bell Telephone Laboratories.

James McCormack, Boston, Massachusetts, a retired Air Force Major General now serving as Vice President of the Massachusetts Institute of Technology.

Dr. Arthur E. Raymond, Los Angeles, California, retired Senior Vice President in Charge of Engineering of the Douglas Aircraft Company and now a consultant to the NASA Administrator.

Dr. Hector R. Skifter, Manhasset, New York, Chairman of the Board, Airborne Instruments Laboratory, Long Island, New York; Vice President of Cutler-Hammer, Inc., Milwaukee, Wisconsin; Chairman of the Board of the Research Analysis Corporation, Washington, D.C. Dr. Skifter was formerly Assistant Director of Defense Research and Engineering of the Department of Defense and is now serving as a consultant to the Manned Space Flight Office.

FOR SALE: Paper boy's heavy duty special bicycle with 3 large baskets. Boyle, PA 3-3400.

FOR SALE: 16-foot runabout with 35 hp Evinrude motor and trailer. Watkins, UN 8-9071.

FOR SALE: Sailfish sailboat with racks for carrying on top of car - $300. McRee, 838-0389.

FOR SALE: 1962 Air King electric heater, $10, Good Housekeeper sewing machine, $25. Barton, 838-2253.

FOR SALE: House at Queens Lake and 19-foot fiberglas sailboat. Swanson, CA 9-5932, Williamsburg.

EUROPEAN TOUR

The NASA Employees Association's seventh annual 20-day tour of Europe will leave New York Idlewild Airport on September 15 for London and return from Paris on October 14.

The round trip economy jet air transportation is based on the new group airfare of a minimum of 25 travelling together at the rate of $339 per person.

The all-expense land tour will cover ten countries and cost $560 per person. Countries to be visited include England, Switzerland, Germany, Austria, Italy, Holland, Belgium, Liechtenstein, France, and Monaco.

The land tour price includes first class hotel accommodations with private bath, continental breakfast and dinner daily as well as luncheons while travelling, deluxe motorcoach transportation in Europe, transfers to and from hotels including porterage, all sightseeing with English-speaking guides and admission fees, gratuities to the hotel staffs and local government taxes on hotel bills, and the full time assistance of a professional tour escort.

Extra special features included are a theatre party in London, the Folies Bergeres in Paris, a luncheon at famous Alfredo's Restaurant in Rome, a cruise on Lake Lucerne, a cruise up the Rhine, and a visit to the Isle of Marken in Holland.

A deposit of $100 is required with reservation.

A complete itinerary and an application blank may be obtained from Langley Researcher Office, 2375. Building 587.

FOR SALE: New Easy Spindry washing machine, $135. Beltz, PA 3-3220.

FOR SALE: Kenmore wringwashing machine. Crowder, 245-3474 after 5 p.m.

Axel T. Mattson

SCIENCE FAIR

(Continued from page 1)

on scientific principles.

NASA is participating as a part of their overall policy of encouraging young persons to have an interest in science and engineering.

Mattson joined the Langley research staff in April 1941 after receiving his Bachelor of Science degree in Mechanical Engineering from North Carolina State College. First assigned to 8-foot High-Speed Tunnel, he was appointed head of that facility in April 1947. During this period he was also the scientist in charge of construction of the 8-foot Transonic Pressure Tunnel and was one of the Langley associates of John Stack in the development at Langley of the world's first Transonic Wind Tunnel. In recognition of this accomplishment, Stack and his associates won the Collier Trophy for 1951. Mattson was appointed Head of the 8-foot Transonic Tunnels Branch in September 1955 and was named to his present position April 9, 1962.

Mattson served as judge at the 12th National Science Fair-International held in 1961 at Kansas City, Missouri.

FOR SALE: Philco combination radio and record player cabinet - $20. Call Richardson, PA 3-5509.

JOINT CAMPAIGNS

Division	Health Agencies	Joint Crusades	Totals
Headquarters	63	36	99
Analysis and Comp.	23	12	35
Research Reports	27	15	42
IRD	28	17	45
TMD	20	8	28
AMPD	30	20	50
Dynamic Loads	23	20	43
Structures	32	18	50
Aero-Physics	63	29	92
ASMD	28	24	52
Full-Scale	30	23	53
Elec. Systems	33	29	62
Flight Vehicles	29	21	50
Mech. Serv.	7	5	12
Plant Maint.	6	8	14
Research Models	65	40	105
Fiscal	14	5	19
Office Services	50	39	89
Personnel	40	25	65
Photographic	11	2	13
Procurement	46	33	79
TOTALS	668	429	1097

The number of contribution envelopes turned in by divisions to the Federal Service Campaign for National Health Agencies and the Federal Service Joint Crusade is shown in the above chart. The total amount of money contributed will be published as soon as reports have been received from the organizations.

ESSAY CONTEST OPEN TO STAFF

The National Rocket Club has announced the opening of the Robert H. Goddard Historical Essay Award competition for 1963. Dedicated to the leadership of American rocketry and astronautics, this annual nation-wide competition with a $200 prize is open to any U.S. citizen.

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

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

Entries should be submitted by November 1, 1963 to the Goddard Historical Essay Contest, c/o National Rocket Club, 1745 K Street, N.W., Washington 6, D.C. The winner will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1964.

Complete contest rules may be obtained from the Awards Program Office, Room 114, Building 587, telephone 2384.

FOR SALE: 4-bedroom house with 1-1/2 baths - small down payment. Prince, 838-0595.

FOR SALE: 7-room house, $11,000. Carpenter, PA 2-8456.

FOUND: Man's rain coat left at West Receptionist's desk. Call West Receptionist, 3395.

FOR SALE: G.E. portable rotisserie oven with automatic controls. Childs, Norfolk JU 7-3578.

EMPLOYEE RETIRES

Legrand S. Worthington, electrician in the Electrical Division, retires from the Center today after serving more than 18 years with the Federal Government.

Worthington was born on December 19, 1895 in Pike County, Alabama. He graduated from Richland High School, Richland, Georgia.

He was self-employed for a number of years and worked for the U.S. Navy Yard in Charleston, South Carolina before joining the Center staff.

He started his career with NASA on December 27, 1948 as an electrician.

ANNUAL ELECTION

(Continued from page 1)

candidate must be officially assigned to the district he will represent and he must also sign the nominating petition as evidence of his or her acceptance to serve the Activities Association if elected.

The election supervisors will distribute the nominating petitions throughout the district. The petitions will be collected and tabulated by the election supervisors and returned to the chairman of the Election Committee - Thomas Foughner, Dynamic Loads Division, Building 648, not later than April 30.

Concerning the nomination of district candidates, the Association's Constitution states, "...in order to provide an alternate representative, it shall be mandatory that in no case shall there be less than 2 nominees for the election. Compliance with this shall be the responsibility of the election supervisor..."

Voting shall be by secret ballot. Each employee may vote for one candidate from his district. In the larger districts where two representatives are to be elected, employees will vote for two candidates, etc. 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.

Wayne R. Posey

OBITUARY

Wayne R. Posey, modelmaker in the Dynamic Model Shop, Mechanical Service Division, died April 14 of injuries received in an automobile accident in Hampton.

Posey was born July 4, 1937 in Newport News. He graduated from Hampton High School in 1953 and entered on duty at the Center on September 15, 1955 as an apprentice modelmaker. He graduated from the Apprentice School in February 1960.

He is survived by his wife, Mrs. Mary Ann Posey; two sons, Wayne Posey Jr. and George Donald Posey; his mother, Mrs. Mildred Posey, Photographic Division; three brothers, Donald Posey, Mechanical Service Dision, Gary Lee Posey and Pvt. Richard Allen Posey; and one sister, Miss Margaret Ann Posey.

FOR SALE: Heath kit Sixer HW29A. Rayfield, LY60673.

FOR SALE: Three bedroom brick house in Poquoson. Yoakum, 868-9700.

APOLLO DELIVERED TO MARSHALL

A "boilerplate" version of the Apollo spacecraft has been delivered to the Marshall Space Flight Center.

The spacecraft, not a flight model, will be used for dynamic and compatibility tests with the Saturn I vehicle in the Marshall Center's dynamic test stand.

Three huge flatbed trailer trucks hauled the cargo--the Apollo command and service modules and the adapter--from Houston, Texas.

The Apollo hardware, including the escape rocket tower which had arrived earlier, will be mounted atop a S-IV dynamic test stage and the two elements will be suspended in the stand by a new suspension system now being installed. This double unit will be first tested without a booster beneath it.

When the SA-5D dynamic test booster is returned to the Marshall Center, the S-IV and Apollo will be mated atop the big rocket first stage for more dynamic tests. The SA-5D left MSFC last week aboard the barge Promise on a trip to Cape Canaveral where it will be used for "wet" tests of Launch Complex 37, Pad B, propellant loading facilities.

This Apollo will be kept at the Marshall Center for future tests including dynamic and mating tests in connection with the Saturn IB space vehicle.

Each time the design of the Saturn flight vehicle is changed, the Apollo will be used with a dynamic test vehicle to check bending and stressing the flight vehicle will experience in actual flight.

The first complete vehicle to undergo dynamic tests will consist of the launch escape system, Apollo, instrument unit and the S-IV and S-I stages of the Saturn I space rocket.

Earlier tests of only the Apollo elements and the S-IV stage, are scheduled to begin during May.

The Apollo spent about four days on the road from Downey, California to Houston where it stayed for 10 days. At Houston, the Apollo underwent vibration tests conducted by the Manned Spacecraft Center.

At the Test Division at Marshall the Saturn with the Apollo atop will be put through oscillation frequencies to test the rocket airframe strength and to measure critical stress and strain points. Water will simulate various propellant levels and weight.

The "shaker" tests determine the vibration "resonant modes" that might occur in flight. The tests are to determine as near as possible whether or not the Saturn will "faithfully" fly with the Apollo atop it during launches of the SA-6 and SA-7 from Cape Canaveral.

The Saturn-Apollo package will be the largest item shaken so far and possibly the biggest flight item to be dynamically tested in this country.

The Apollo was built by the North American Aviation Corporation in Downey, California.

WANTED: Driving combination from Fox Grove to W.A. on 8 shift. Fidden, 4871.

FREE: Kittens - assorted colors, short hair, common cat breed. Huffman, PA 3-7008.

WANTED: Passengers or ride to Winchester, Va. on weekends. Orndorff, 4726.

WANTED: Chain hanging wooden porch swing. Kiefer, 826-2136.

FOR SALE: Three beds. Newcomb, 4 Bellview Terrace.

NASA AWARDS CONTRACTS FOR VOYAGER STUDY

NASA has announced the selection of the AVCO Corporation, Research and Advanced Development Division, Wilmington, Mass., and General Electric Company, Missile and Space Division, Valley Forge, Pa., for negotiation of conceptual design study contracts of a Voyager spacecraft.

The two $100,000 contract awards are for six months. AVCO and General Electric were selected from 13 firms which submitted proposals in response to a NASA request made March 5, 1963.

Voyager is a spacecraft concept for scientific, unmanned exploration of the planets as a follow-on to NASA's Mariner program. It is conceived that the Voyager will be capable of orbiting Mars or Venus and landing capsules on these planets. Assuming a Saturn 1-B launch vehicle is used, Voyager could weigh in excess of 6,000 pounds.

The AVCO and General Electric contracts are intended to supplement current in-house NASA studies in an effort to determine the scientific merit and technical possibility of initial Voyager flights prior to 1970.

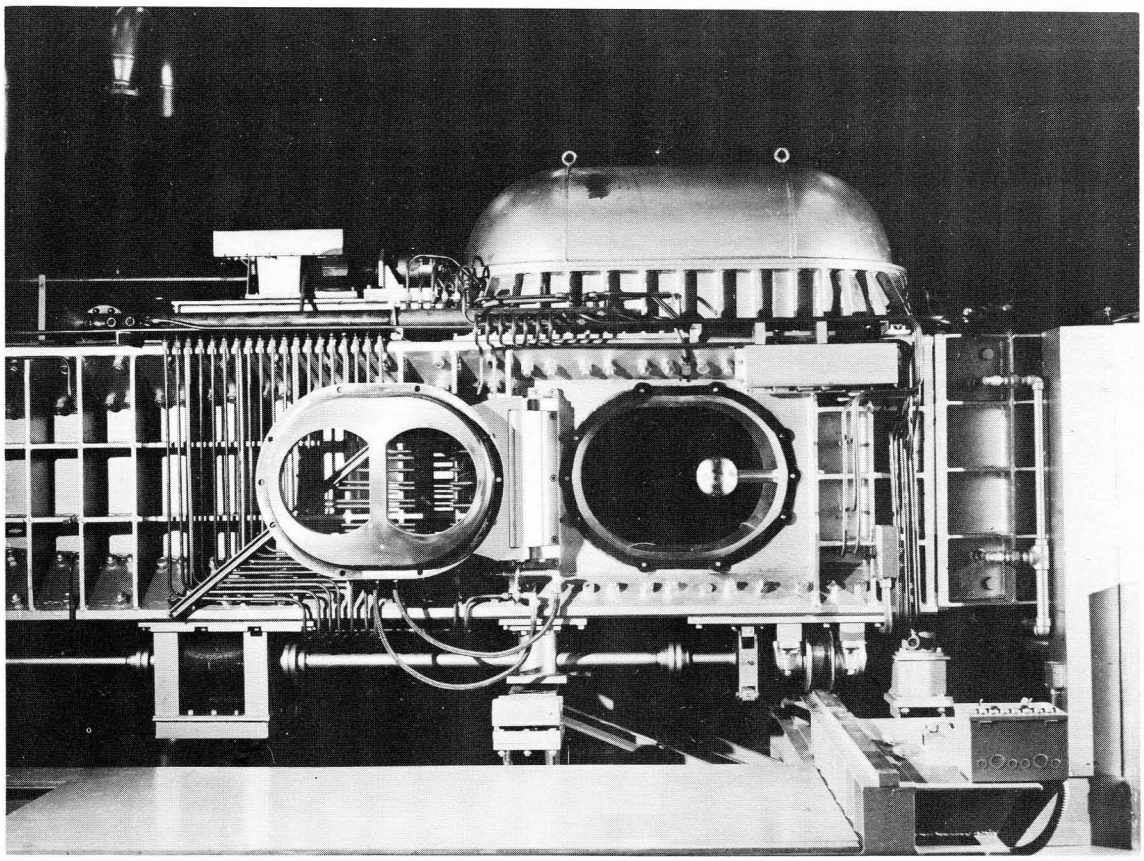
Management of the Voyager studies is under the Office of Space Sciences, NASA Headquarters, which is responsible for managing the NASA's unmanned planetary program.

FOR SALE: Rotary lawn mower, antique clocks and victrola, 1922 Model T Ford. Gilbert, 838-1170.

FOR SALE: Model A 1930 coupe with rumble seat. Wood, LY 6-3445.

FOR SALE: Camping trailer. Gibbs, PA 2-4205.

FOR SALE: 10 hp Johnson motor. Bryant, 596-3157.



Langley Research Center operates the only Continuous Flow Hypersonic Tunnel in this country capable of reaching Mach 12. A calibration model is shown mounted on sting support in the 31-inch square test section, which is capable of testing at Mach 10 and Mach 12 through the use of interchangeable nozzles. The tunnel is a hypersonic continuous flow, resistance heated facility and represents the latest advance in this type of test equipment.

ALUMNI NOTICE

Plans concerning activities for the coming summer season were discussed by the Board of Governors of the NASA Apprentice Alumni Association at their April meeting.

The plans will be discussed more fully at a dutch-treat dinner which will be held May 8 at 7:30 p.m. at the Ranch House Restaurant on Route 17 near Yorktown.

Members in good standing are invited to attend the dinner-meeting. All those planning to attend are requested to contact Earl S. German, 4691 or LY 5-0118.

FOR SALE: 10 x 12 umbrella tent. Barr, UN 8-9270.

FOR SALE: Venetian blind 9-feet, 10 inches long. Call Bryant, LY 5-0819.

FOR RENT: 5-room furnished apartment. Boyer, 3209 Chesapeake Ave.

RELAY STEPS UP TRANSMISSION

Relay I, not yet four months old, is handling intercontinental communications experiments and demonstrations with such regularity these days that it's getting to be somewhat routine.

For example, the NASA's communications satellite made it possible for Sir Winston Churchill and his fellow Englishmen to watch via live transatlantic television President Kennedy signing a bill granting Sir Winston honorary citizenship in the United States.

The telecast was carried by the British Broadcasting Corporation from the White House via Relay to England. It was transmitted over the BBC network in "real time" to the millions of viewers in the United Kingdom.

Americans were able to see the ceremony at the same time over the major networks in the United States.

This transocean television broadcast was only one of several that have been handled by Relay I in recent weeks.

In addition to television broadcasts between the U.S. and Europe, Relay I also has been handling teletype, photo facsimile and voice messages between the two continents and also between the U.S. and South America and between Europe and South America.

Under the NASA program of public demonstrations of the capabilities of Relay I, the users make arrangements and pay for ground communications between the Relay ground stations and the originating and termination points. Because the demonstrations are of an experimental nature no charge is made for transmission between the ground stations via the satellite.

AUSTRALIAN EXPERIMENT LAUNCHED FROM WALLOPS

The Commonwealth of Australia and the United States joined together on April 12 to fly a 144-pound payload of radio instruments 125 miles into the ionosphere during an 8-minute flight from the NASA's Wallops Station.

It marked the third time Australian scientists have conducted a space experiment from the United States. Two similar experiments, flown November 15 and December 11, failed to reach the desired altitude because of booster rocket malfunction.

The scientific experiment was provided by Australia's Commonwealth Scientific and Industrial Research Organization. Technical facilities, telemetry recording and the two-stage Aerobee 150A sounding rocket used for the flight were provided by Goddard Space Flight Center.

The experiment was designed to measure the intensity and spectrum of very low frequency radio waves above the so-called "E" region of the ionosphere. The "E" region extends from about 55 to 100 miles above the earth. Two separate VLF receiving systems were carried in the payload along with the equipment to measure proper payload attitude. Data obtained may help in the design of similar instruments for use in scientific satellites. No recovery was planned.

Project Scientist for the experiment was D. G. Cartwright of the Commonwealth Scientific and Industrial Research Organization. The U.S. Project Manager was Edward E. Bissell of Goddard Center. Jon R. Busse was the Goddard Vehicle Manager and the Wallops Project Engineer was Robert T. Long.

The experiment marked still another milestone in the NASA programs of international cooperation in space. A similar experiment is to be flown under daylight conditions later this month.

MARS SUBJECT OF SYMPOSIUM

Exploration of Mars will be discussed June 6 and 7 in Denver at an American Astronautical Society symposium cosponsored by NASA and three scientific societies.

Objectives are to establish the effort required for manned exploration of the planet, review planning and state-of-the-art for the mission, estimate a timetable and define the scientific value of the Mars mission.

Discussions have been scheduled to cover propulsion and orbit concepts for the flight, vehicle design, guidance, earth return and re-entry, life science aspects, communication and power supply and evidences of life on Mars.

Sessions will be directed by space scientists from NASA and industry and papers will be presented by persons directly concerned with studying the various aspects of a future Mars mission.

Among the NASA scientists participating are Dr. William A. Lee, Director of Systems Studies, Office of Manned Space Flight; Wolfgang E. Moeckel, Chief, Electromagnetic Propulsion Division, Lewis Research Center; Frank L. Williams, Deputy Director, Future Projects Office, Marshall Space Flight Center; Dr. Harry O. Ruppe, Future Projects Office, Marshall Center; David M. Hammock, and Bruce G. Jackson, Manned Spacecraft Center; Harold B. Finger, Director of Nuclear Systems; Dr. Eugene B. Konecci, Director, Biotechnology and Human Research, Office of Advanced Research and Technology; Dr Donald Young, Ames Research Center, and Dr. A. G. W Cameron, Institute of Space Studies.

A possible special session would include a discussion o the Russian Mars probe by a scientists connected with the project.

Cosponsors of the symposium in addition to NASA are the American Astronomical Society, American Institute of Biological Sciences and the American Institute of Aeronautics and Astronautics.

General program chairman is Dr. George W. Morgenthaler, The Martin Company, Denver.

Send suggestions to Jess G. Ross, Executive Secretary Incentive Awards Committee, Awards Program Office Room 114, Building 587.

FOR SALE: 3-bedroom house in Merrimac Shores area - large living room and double garage. Vogel, PA 2-1405.

FOR SALE: 1956 Larson Falls Flyer with 1956 30hp Johnson motor, 1956 Hibert trailer, 2 pair skis, a slalom, and 2 ski belts. Rosse, 868-9551.

FOR SALE: Frigidaire refrigerator - $60. Eichenbrenner, PA 3-2153.

FOR SALE: 1954 Studebaker - $150, HO train layout on table with 2 engines, cars, etc. Locke, LY 6-7532.

FOR SALE: 1961 Chevrolet Biscayne. Hickerson, PA 37216.

FOR SALE: 1961 Oldsmobile, 4-door sedan. Weidner, PA 3-7216.

FOR SALE: 1960 Volkswagon, $1200. Eden, 596-6135.

FOR SALE: Female pups - $5. Druen, 826-1371.

LONGEST POWERED FLIGHT REPORTED BY X-15 ROCKET

The X-15 rocket ship, with Air Force Major Bob Rushworth at the controls, made its longest powered flight April 11 in the first test in an advanced research program during which meteorites and stars will be photographed and measured.

The 57,000-pound rocket engine burned for two minutes, 15 seconds as Rushworth hit a speed of 2,795 miles an hour and a maximum altitude of 73,000 feet or about 14 miles - far below X-15 speed and altitude records of 4,195 mph and nearly 60 miles.

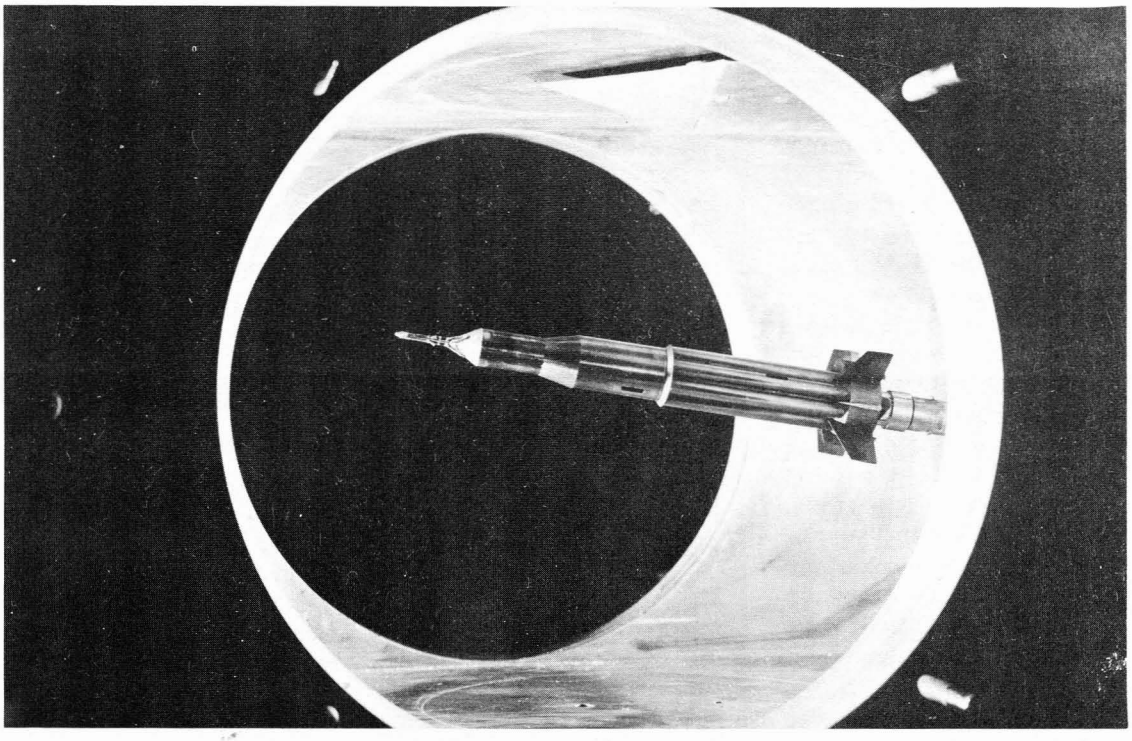
The X-15's previous longest burning time was two minutes, seven seconds. A matter of a few seconds in burning time can have a crucial effect on the rocket ship's ballistic trajectory.

Making his 11th flight in the X-15, Rushworth purposely kept the craft at a comparatively low altitude to test the ability of new photographic equipment to withstand strong air currents which slip over the fuselage like water swirling around a speed boat.

An Army KC-1 camera was attached to the underside of the X-15's nose and automatically took a succession of pictures of the earth's surface. The powerful lens of the new camera increases photographic detail by 50 per cent over older mapping cameras, a NASA spokesman said.

Specific purpose of the flight was to determine if shock waves and other aerodynamic turbulence would have a distorting effect on photographs taken at supersonic speeds.

FOR SALE: 36-inch Welbilt gas range, $25, 20-inch gas range, $20. Call Alfaro, 877-3381.



A 1/128-scale model of a possible space vehicle for manned lunar missions is shown installed in the 20-inch Mach 6 Hypersonic Tunnel at the Langley Research Center. The model, an Apollo-type spacecraft attached to a Saturn C-2, was used in this tunnel to determine the vehicle's longitudinal aerodynamic characteristics. The test was one of a variety of scientific investigations conducted in Langley wind tunnels and specialized laboratories to provide basic information useful in the design and development of manned lunar spacecraft.

MEN WANTED

A meeting for the purpose of forming a new chapter of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America in the Newport News-Hampton and Peninsula area will be held on Sunday, April 28 at 2:30 p.m. at the Coca-Cola Social Hall, 3200 Huntington Ave., Newport News.

All men who are interest- in singing are invited to attend the meeting.

Members of the Norfolk and Richmond chapters and quartets will act as hosts at the meeting. The group's motto is "If you are too busy to sing, you are too busy."

For further details concerning the society, contact F. V. Daly, 826-3468; J. M. Hartley, 877-3446; Capt. Bill Allen, 838-2214, or G. E. Gratto, 877-1660.

FOR SALE: 1957 Chrysler. Guthrie, CH 4-7549.

MARINER EXPERIMENTERS SELECTED

NASA has selected ten experimenters for the Mariner Mars fly-by mission scheduled for 1964.

An important objective of the Mariner spacecraft is to determine whether or not life may exist on Mars. An attempt will be made to take high quality television photographs of the planet's surface and to obtain information on possible magnetic fields and trapped particle regions and possible cosmic dust close to the planet.

Other experiments will investigate the magnetic fields, flux of charged particles and the density and distribution of cosmic dust in interplanetary space.

The experiments, principal investigators and institutions are: Television - Robert Leighton, California Institute of Technology; magnetometer - Edward Smith, Jet Propulsion Laboratory; low energy cosmic rays - James Van Allen, State University of Iowa; cosmic ray spectrum - John Simpson, University of Chicago; cosmic ray ionization - Henry Neher, California Institute of Technology; plasma probe - Herbert Bridge, Massachusetts Institute of Technology; cosmic dust - Wesley Alexander, Goddard Space Flight Center; infrared spectrometer - Gerry Neugebauer, California Institute of Technology; ultraviolot photometers - Charles Barth, Jet Propulsion Laboratory, and radio propagation - Von Eshleman, Stanford University.

The Mariner spacecraft and fly-by mission are based directly on the technologies developed for the highly successful Marine II Venus fly-by made in December 1962.

Project and spacecraft system management will be by the Jet Propulsion Laboratory under the overall direction of the Office of Space Sciences, NASA Headquarters. Launch vehicle system management will be under Lewis Center.

BOWLING NEWS

In the Duckpin Bowling League this week, Count Downs broke the existing high team game record of the year with a 610 game. The previous record was 609 held jointly by Strike Outs and Jets.

Top honors went to John Dupere with a 147 game, Marty Moul with a 414 set, and Alberta Insley with a 137 game and 332 set.

This week most of the the bowlers took part in the Bowl Down Cancer Tournament which was held by the Hampton Roads Duckpin Bowling Association. The results of this tournament will be announced later.

Last week top scores were rolled by Jim Link with a 159 game and 375 set and Alene McCann with a 128 game and 332 set.

Team	W	L
Hopefuls	70	42
Lt. Mach. 1	66	46
Ten Spots	64	48
Strike Outs	57	55
Jets	56	56
Rebel Bombers	55	57
Double Dots	55	57
Count Downs	54	58
ICS	51	61
Lt. Mach. 2	49	63
Doodle Bugs	48	64
Pin Poppers	47	65

BIO-SATELLITES

NASA has selected three companies for negotiation of study contracts under the first phase of the bio-satellite program.

The companies, General Electric Co., Re-entry Systems Department, Philadelphia, Pa.; Lockheed Missiles and Space Co., Sunnyvale, Calif.; and Northrop Corp., Northrop Space Laboratories, Hawthorne, California, were among seven submitting proposals.

The contracts, each expected to be valued at about $80,000, will call for a six weeks study on all aspects of the bio-satellite program.

HONOR ROLL

The following apprentices ended the mid-term semester with an average of 98 or above:

William Batson, Polymer Lab; Douglas Brown, Research Dev. Support, James I. Clemmons, Electronic Shop; Joseph Davenport, Heavy Machine Shop; William Davis, Light Machine Shop; Charles Evans, General Electrical Services; James Garvin, Light Machine; James Hicks, Material Processing and Development; Stephen Irick, Dynamic Model Shop; Earl S. Knight, Heavy Machine; Virgil Laney, Electronic Shop.

Joseph Lupton, Dynamic Model; Daniel J. Milburn, Heavy Machine; Roy Parrish, Paul D. Prillaman, and Vincent Pritchett, all of Instrument Construction Shop; James Puffenberger, Heavy Machine Shop; Luther Richardson, Res. Dev. Support; James R. Smith, Light Machine; Harold V. Stanley, Heavy Machine; Gene A. Wagner, Test Facility Mechanics, and Jerry W. Wright, General Electrical Service.

FOR SALE: 1962 Chevrolet Impala. Jones, 722-8805.

WANTED: Alternate driver from Southampton area to E.A. on 8 shift. Drummond, 2307.

WANTED: Ride from Bellview Terrace to W.A. on 7 shift. Derby, PA 3-8532.

UNIQUE WALLOPS TEST

NASA scored an unusual "first" in its sounding rocket program when it launched an 85-pound scientific probe 20 statute miles into the upper atmosphere during the exact moment the Explorer XVII Atmospheric Structure Satellite passed over the Wallops Island launch site.

Purpose of the unique experiment, launched by an Aerobee 300A rocket, was to obtain temperature date on electron and neutral particles and to measure ion and neutral particle densities. This information will be compared with similar date obtained from the Explorer XVII as it passed over Wallops Island, at an altitude of 198 miles during its 236th orbit around the earth. Explorer XVII was launched by NASA from Cape Canaveral April 2.

The Aerobee 300A is a three-stage version of the two-stage Aerobee 150A. The third stage, a Sparrow developed by the Aerojet General Corporation, was added for this flight to increase the altitude capability of the rocket.

The experiment was conducted by Goddard Space Flight Center. Goddard Project Scientist was Larry H. Brace. Jon R. Busse was the Goddard Vehicle Manager and Robert T. Long was Wallops Project Engineer.

After a preliminary look at the data radioed from the probe, NASA officials described the information obtained as excellent. Correlation of this data with that sent by the Explorer XVII will be accomplished at Goddard.

CAFETERIA MENU

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

Monday - Tomato-barley soup, roast beef, veal cutlet parmesan, Salisbury steak, franks and beans.

Tuesday - Chicken-rice soup, braised beef tips on noodles, grilled pork chops, chicken chow mein, fish cakes with cole slaw.

Wednesday - Split green pea soup, pot roast of beef, porcupines, ham hock and cabbage, cheese omlette.

Thursday - Vegetable-beef soup, grilled rib eye steak, fried shrimp, spaghetti with meat sauce, baked hash.

Friday - Clam Chowder, oven roast of beef, broiled fish, fried fish, barbecued sandwich.

The following menu will be served in the cafeterias during the week of April 29:

Monday - Cream of potato soup, half-pound chopped sirloin steak, Polish sausage and sauerkraut, stuffed pepper, chili con carne.

Tuesday - Bean soup, roast beef, fried scallops with tartar sauce, liver and onions, Austrian ravioli.

Wednesday - Chicken-noodle soup, Spanish pot roast, grilled ham slice, fried chicken, macaroni and wieners.

Thursday - Vegetable-beef soup, grilled steak, crab cakes with cole slaw, creamed dried beef on toast, tamale pie.

Friday - Clam chowder, Swiss steak, broiled fish, fried fish, pizzaburger.

FOR SALE: Three-bedroom house located in Buckroe. Call Lewis, PA 3-3285 after 5 p.m.

WANTED: Ride from Buckroe to E.A. on 8 shift. Stimson, 2307.

WANTED: Driving combination from Forest Heights to W.A. on 7 shift. Keeter, 4587.

FOR SALE: Large water front lot. McGrath, CH 5-5667.

FOR SALE: 1957 Plymouth, 4-door. Vogel, PA 2-1405.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 10 | LANGLEY RESEARCH CENTER | MAY 10, 1963

DIRECTOR ACCEPTS LAND AS SITE FOR NEW INSTALLATION

Floyd L. Thompson, Director of Langley Center, announced that he has accepted on behalf of NASA the custody of 110 acres of Government land at Oyster Point, Newport News, for use as the site of the Space Radiation Effects Laboratory being established by NASA.

Documents transferring the land to the NASA were presented to Thompson for his signature by James C. Geddie, representing the U.S. Army Engineer District, Norfolk. The land transfer climaxed action initiated by NASA several months ago through the General Services Administra-

(Continued on page 3)

LANGLEY CENTER GIVES CONTRACT TO UNIVERSITY

Langley Research Center has awarded a contract for $111,674 to the University of Virginia for developing the research apparatus and techniques for laboratory studies of drag on satellites. Although the Earth's atmosphere is very thin at the heights at which satellites travel, there are some scattered molecules which do exert drag on spacecraft, and scientists need a more precise way to measure the very small forces for predicting satellite lifetimes.

University of Virginia, under the one-year contract, will develop suitable laboratory equipment, including a micro-balance able

(Continued on page 8)

Floyd L. Thompson (right), Langley Director, returns signed copy of Government land transfer document to James C. Geddie, U.S. Army Engineer District, Norfolk. Thompson formally accepted on behalf of the NASA the custody of 110 acres of Government land at Oyster Point, Newport News, for use as the site of the Space Radiation Effects Laboratory being established by NASA.

INDUSTRY ASKED TO PROPOSE MANNED ORBITING RESEARCH LABORATORY PLANS

Requests for aerospace industry proposals for studying Manned Orbital Research Laboratory Systems capable of sustaining a four-man crew in space for one year have been issued by NASA's Langley Research Center.

The results of the comparative studies of a Manned Orbital Research Laboratory concept will form another step in NASA research on the most effective ways to permit man to work usefully in space. Extensive research in progress for several years has developed technology applicable to multi-manned orbital spacecraft and has led to continuing interest in the concept. There is no NASA approved flight project for an orbital laboratory at the present time.

A laboratory orbiting in space could provide scientists with many opportunities for scientific and engineering research which cannot be performed on Earth, with wide flexibility of experimentation and operation. Controlled experiments on the effects of the space environment could be conducted and various techniques to enhance man's tolerance to the weightless or low "g" condition could be explored. The crew members themselves would be subjects of experimental studies on human effectiveness and abilities in space.

Before interplanetary exploring missions can be undertaken, it is necessary to learn much more than we now know about the long term effects of weightlessness or reduced gravity on human crews. Because extended periods of weightlessness cannot adequately be simulated on the surface of the Earth, a manned orbital laboratory concept offers a useful way to make such studies.

The Manned Orbital Research Laboratory System capable of year-long missions as envisioned by NASA scientists and engineers would provide a way to gather experimental knowledge, and the requested proposals are intended to survey the engineering and design problems involved.

One version of such a system, derived from a study made by NASA scientists and engineers, was outlined in the request for proposals and will be investigated along with alternative systems.

The laboratory concept as outlined provides an orbital workshop for four men with provision for changing crew members and periodically resupplying the vehicle. At least one crewman could complete a full year's mission to provide a long-term check on weightlessness and its effects.

The NASA concept described in the request for proposals would make maximum use of current programs for the Saturn launch vehicle, the Gemini spacecraft system, and the range, tracking and data systems existing or being built. According to NASA's concept, the laboratory would be launched by a Saturn I or I-B into a circular orbit from Cape Canaveral and after a check-out period, two crew members using the Gemini spacecraft currently being developed, would ascend to the laboratory's orbit and com-

(Continued on page 6)

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

BIRTHS. . .Weighing in at seven pounds, eight ounces on April 21 was Cynthia Renee, daughter of Larry Rae Clark, 8-foot Transonic Tunnels Branch. . .Word has been received at the Center that Ann Wilson, Applied Materials and Physics Division, became the mother of an eight pound, one ounce daughter, Windy Page, on April 19. . .Nine pound Henry Leland Jr. arrived at the Henry L. Kelley household on April 4. The father works in the VTOL Branch.

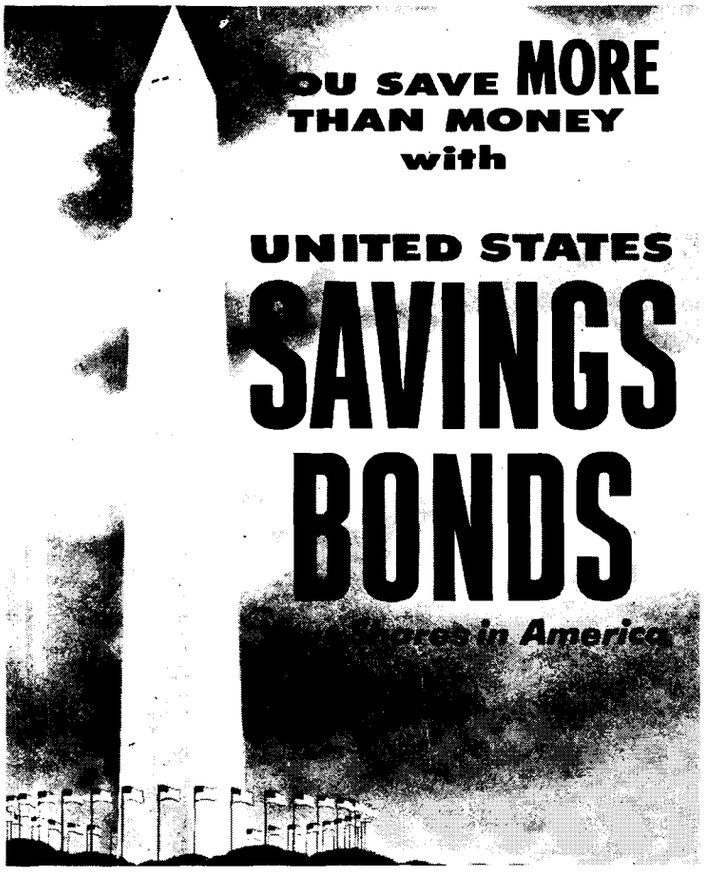
WEDDING. . .Dewey Smith, Flight Vehicles and Systems Division, took his final vows with Lavia Rudeen Smith, Fayetteville, North Carolina, on April 20 at the Camp Ground Methodist Church in Fayetteville.

STOCK NOTICE. . .When ordering supplies from the Stock Section, employees are requested to place the Stores Stock Requisition in an envelope before sending it through distribution. Without the protection of an envelope, the form often arrives at the Stock Section with the first page missing.

ENGAGEMENTS. . .Making plans for a June 1 wedding is Diane Sue Batts, Aero-Space Mechanics Division. She is engaged to Frank Robert Grafton, Washington, D.C. . .Dan Cupid scored a victory when Wayne Barfoot, Heavy Machine Shop, became engaged to Wanda Bryan of Stuart Circle. The wedding will take place in November. . .Sporting a sparkler on the third finger left hand is Judith Gary, Technical Library. She is engaged to William Conyers Smith, Fayetteville, New York, and the wedding has been set for May 25. . .Floating on "cloud nine" is Faye Hollowell, Engineering Contract Support Section. She is engaged to Malcolm Bunch of Newport News. No wedding date has been announced. . .Planning a summer wedding is Peggy Beltz, Instrument Research Division. She is engaged to Thomas G. Holden of Newgulf, Texas. The wedding will be held on June 11 in the Hampton Christian Church.

ROSE SHOW. . .Center employees are invited to attend the Virginia Peninsula Rose Society's annual rose show which will be held May 18 and 19 at Ferguson High School. The hours are 3:30 p.m. to 10 on Saturday and 1 p.m. to 5 on Sunday. Tickets may be obtained from the following NASA employees: Walter Lindsey, B-1148; Clara Anderson, B-1219; Thomas Turner, B-1212; Irene Christian, B-648; Mercer Christian, B-1267; Basil Brinkley, B-1244; William Thompson, B-584, and Grace Shackelford, B-1152.

NOTICE: Anyone wishing to order a telescope mirror blank is requested to call McNear, 4483.



BRACELET MAY SAVE LIFE

A simple bracelet or necklace with a disc bearing on one side a medical symbol and the words Medic-Alert may be at any time the margin between life and death for any one of the more than 40,000 persons who now wear them. On the reverse side of each disc is pertinent information concerning an allergy, an occupational disease, or other disability or limitation which may be a critical factor in emergency medical treatment. Many persons employed in the manufacture or use of certain toxic chemicals are thus protected so that in a sudden crisis away from their place of employment any attending physician is alerted and can take into consideration this occupational factor. In this day of frequent, extensive and rapid travel such protection is of great importance to all individuals with conditions which may require or exclude specific medical treatments.

Medic-Alert, a non-profit organization, supplies at a nominal fee the bracelets or medallions with appropriate information and a serial number engraved on it. A central reference file is maintained with specific details of the individual's medical problem as well as name, address, doctor, and persons to be notified. This file is available on a 24-hour basis to doctors and safety officials who may call at any time from anywhere for information that may save a life.

Further information may be obtained from the Employee Services Section, 2210, East Dispensary, 2243, or West Dispensary, 4576.

FOR SALE: Salifish sailboat with carrying racks - newly refinished. McRee, 838-0389.

FOR SALE: Five-room house with fenced back yard. Call Sinelnick, LY 6-1851, 36 Dwight Rd., Newport News.

F. B. GUSTAFSON RECEIVES AWARD

Frederic B. Gustafson, Head of the Vertical Takeoff and Landing Branch of Aero-Space Mechanics Division, has been named recipient of the Dr. Alexander Klemin Award of the American Helicopter Society.

Gustafson received the award at the society's annual honors night ceremony held May 3 in Washington, D.C. He received the award for achievements in rotary wing science, research and development.

Gustafson was born on November 28, 1913 in Kansas City, Mo. He graduated from Southwest High School in Kansas City and from Kansas City Junior College. He received his B.S. degree in Mechanical Engineering from Kansas University in 1936 and his M.S. degree in 1938.

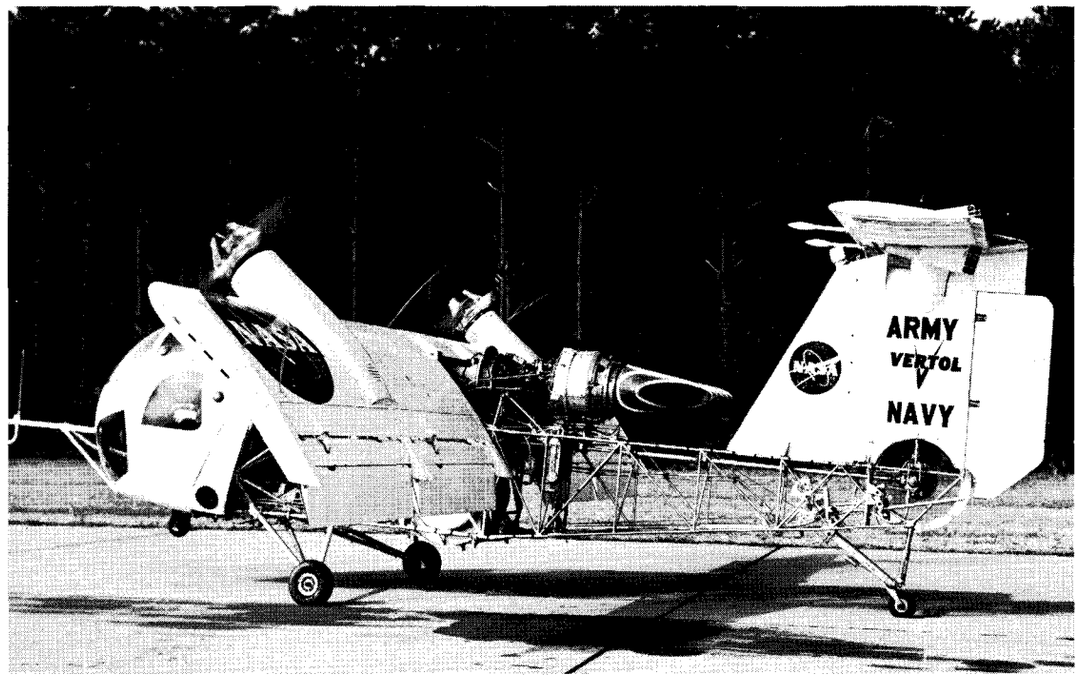
He entered on duty at the Center on September 28, 1938 as a junior aeronautical engineer. During his entire career at Langley, he has specialized in rotary wing and VTOL work. This work has included extensive research on helicopters and the latest VTOL concepts such as tilt wing and ducted fan.

CLUB NOTICE

A representative of each club, league and organization sponsored by the Activities Association are requested to attend a meeting on Tuesday, May 14 at 10 a.m. in the Activities Building.

The purpose of the meeting will be to discuss what each group has to offer Center employees. This information will be compiled and made available to staff members within the near future.

FOR SALE: 1957 Ford pickup truck, good condition - $750. Lawson, 868-4611.



Models of airplanes, missiles and space vehicle depicting Langley Research Center's role in aero-space research will be on display Saturday, May 18 in Hangar 534-G at Langley as part of the Air Force's Armed Forces Day program. Included will be this VERTOL-76 tilt-wing, vertical takeoff-landing (VTOL) and short takeoff-landing (STOL) research aircraft. NASA pilots are investigating the vehicle's stability, control, and general performance in conversion and steady state flights at a fixed wing tilt. The aircraft, which possesses rotary wing and fixed wing capabilities, has two main rotors for vertical lift and roll control in hover and forward propulsion in airplane flight. The 3,500-pound vehicle has a wing span of about 25 feet and length of about 27 feet.

NEW INSTALLATION

(Continued from page 1)

tion to acquire the surplus acreage formerly under Air Force jurisdiction.

The Space Radiation Effects Laboratory, expected to be in operation as a facility of the Langley Research Center in mid-1965, will house a 600 million electron volt synchro-cyclotron and associated equipment for use in simulating space radiation for research in support of space flight programs.

All major contracts in connection with establishment of the facility have been awarded by NASA except one-- the construction of the laboratory building. This contract is expected to be awarded within the next few months.

FOR SALE: 1959 Cadillac coupe Deville - $2595. Call Edwards, 826-0855.

EXPLORER XVII SENDS REPORT

The Explorer XVII satellite has discovered that the Earth is surrounded by a belt of neutral helium atoms and has sent back more than eight hours of scientific information on the physics and chemistry of the tenuous gases that make-up the Earth's atmosphere.

Scientists at the Goddard Space Flight Center said the data being sent back to Earth are giving scientists the first actual measurements on neutral gases in the satellite's particular orbital path and their pressures, densities and temperatures.

At the satellite perigee of 150 miles, independent instruments showed there are about 60 million neutral helium molecules per cubic centimeter, an area roughly the size of a sugar cube. At the satellite apogee, 575 miles, there are not more than about one million helium molecules for the same volume.

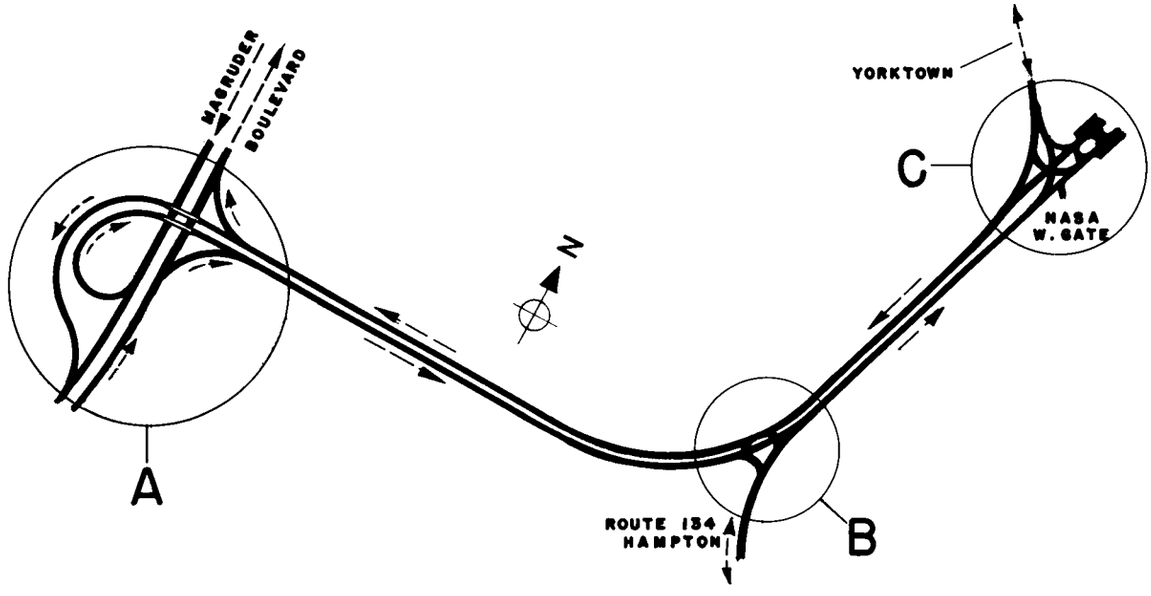
Satellite pressure gauges showed that at perigee, presure is about one-hundredth of one billionth of that of the Earth's atmosphere at sea level. Data on pressure at apogee has not been analyzed. Experimenters expect it to show readings of only one trillionth of Earth's atmosphere at sea level.

WANTED: Passengers from Portsmouth to W.A. on 8 shift. Clark, 4419.

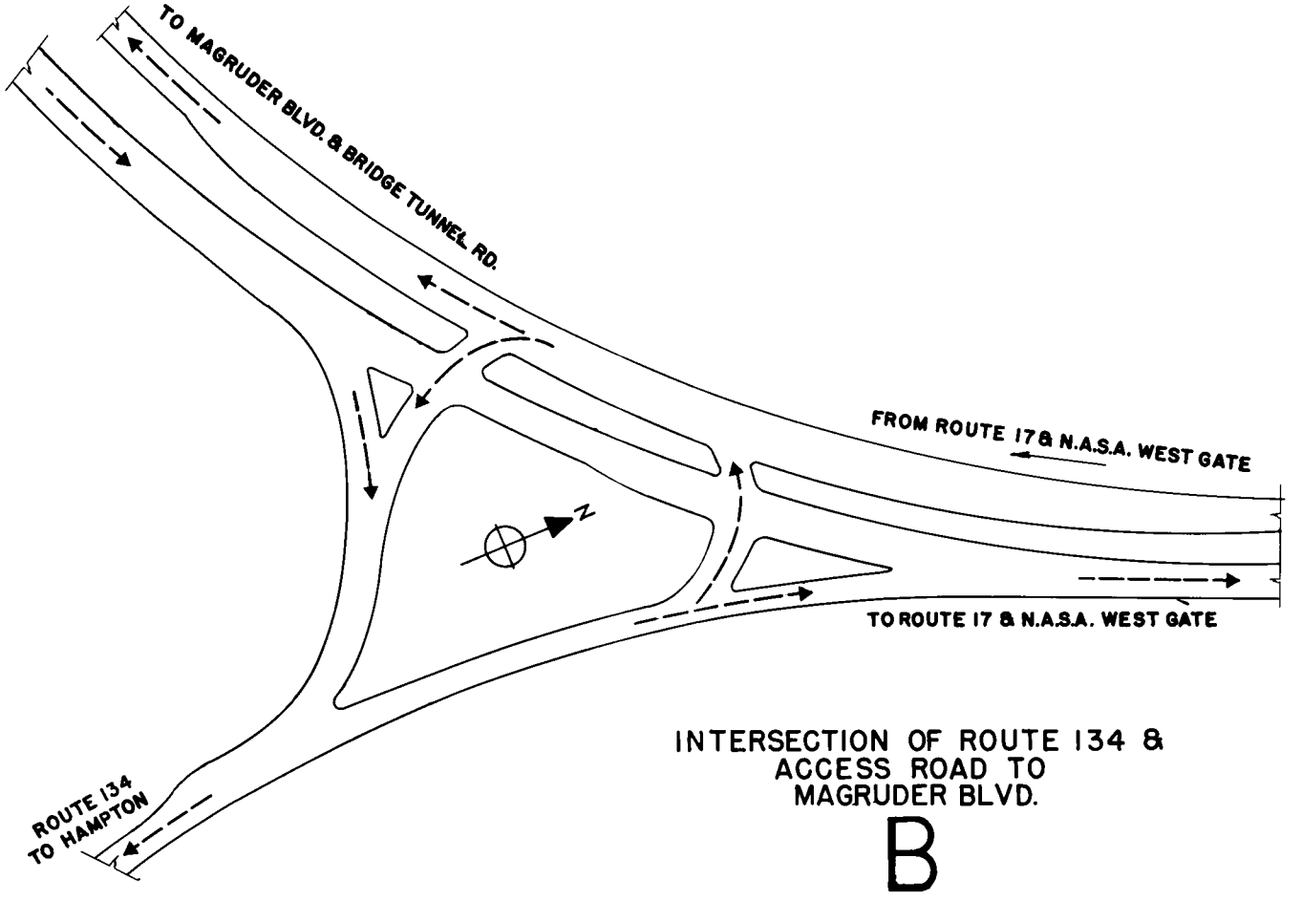
FOR SALE: Station wagon tent, luggage rack and camping equipment. Rogallo, LY 6-1916.

WANTED: Driving combination from vicinity of Ivy Farms to W.A. on 7:30 shift. Bruce, 4884.

MAGRUDER BOULEVARD AND ACCESS ROAD



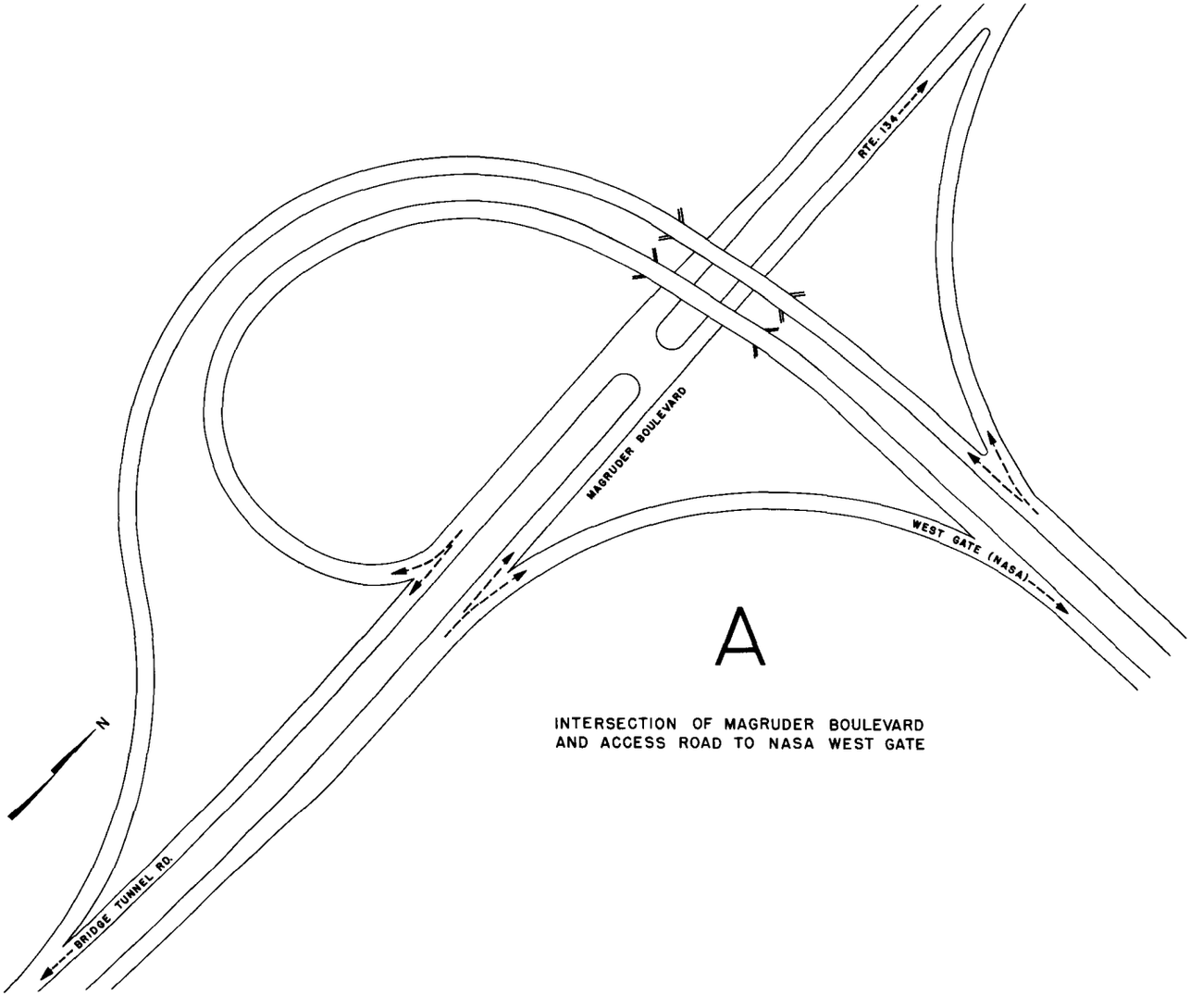
PLAN OF NEW STATE HIGHWAY
FROM
MAGRUDER BLVD. TO NASA WEST GATE



INTERSECTION OF ROUTE 134 &
ACCESS ROAD TO
MAGRUDER BLVD.

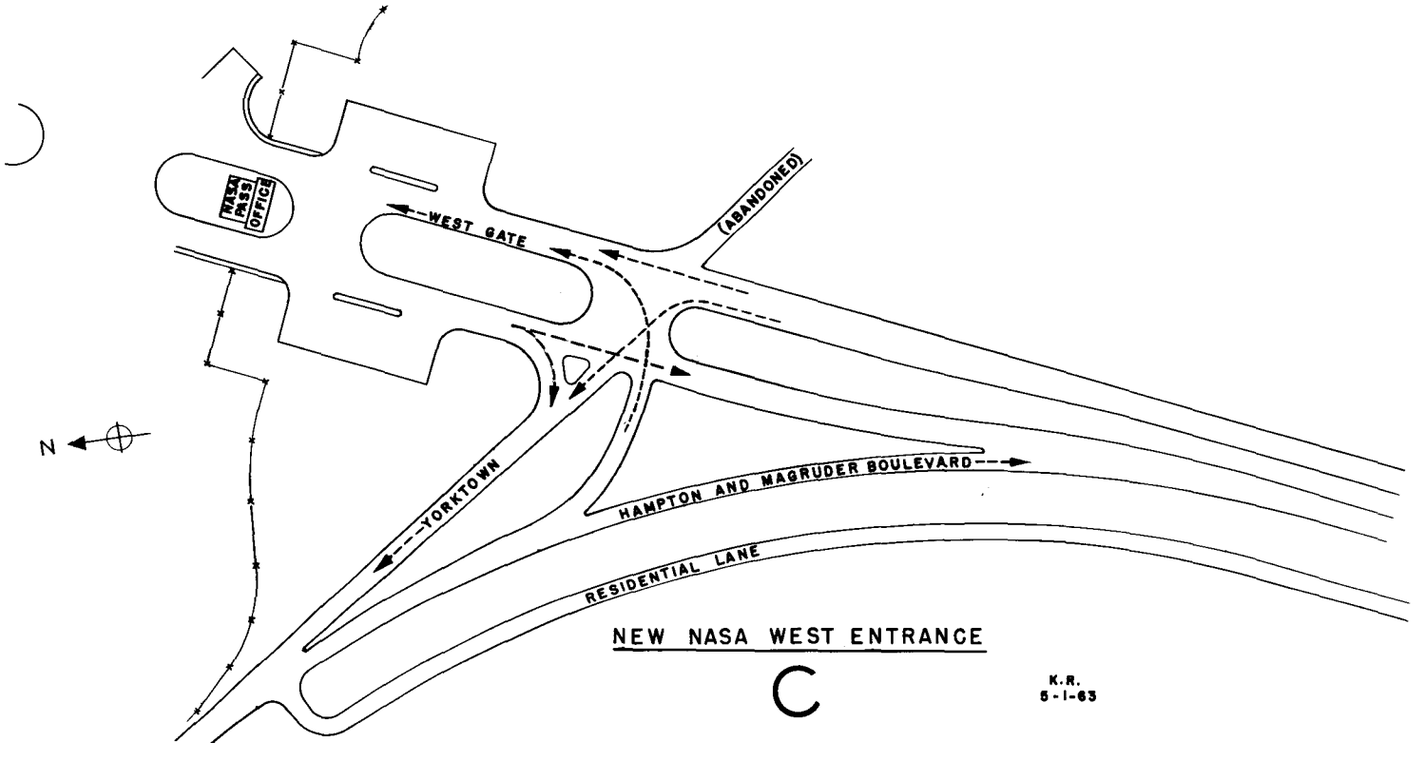
B

These drawings, furnished by the Research Models and Facilities Division, show the proposed plans for the new state highway from Magruder Boulevard to NASA West Gate. The top drawing is the master sketch of the network with the other three drawings showing in detail the proposed plans for sections A, B, and C.



A

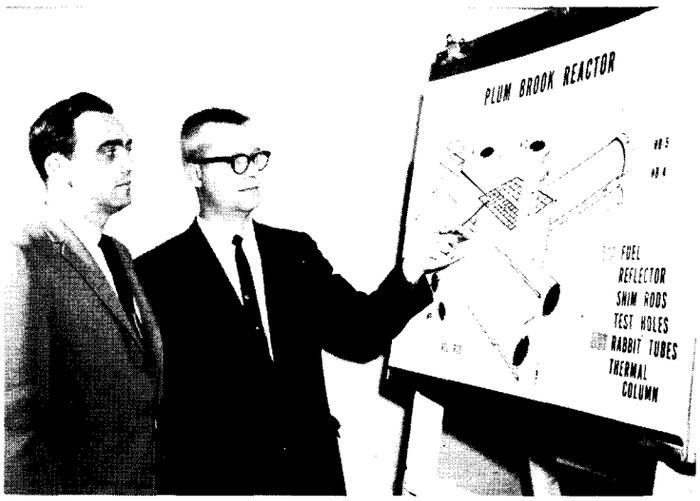
INTERSECTION OF MAGRUDER BOULEVARD
AND ACCESS ROAD TO NASA WEST GATE



NEW NASA WEST ENTRANCE

C

K.R.
5-1-63



Patrick L. Donoughe, Chief of the Reactor Division, and his assistant, Harold W. Giesler, are shown looking at a drawing of the "heart" of NASA's Plum Brook Research Reactor. Giesler is pointing at the checkerboard fuel element section. Here, nuclear fission produces the energy that will be used in research work. The rods extending from the fuel core are where experiments will be placed to receive various "doses" or radiation from the core.

ORBITING RESEARCH LABORATORY

(Continued from page 1)

plete a rendezvous and docking maneuver. Later, two more crewmen would join the laboratory by the same method to complete the four-man crew. At intervals of 90 days or less an unmanned resupply spacecraft launched by an Atlas-Agena combination would be orbited and brought by radio control to a rendezvous with the laboratory.

One man would enter the laboratory at each crew change, thus providing a check on the cumulative effects of weightlessness on man's total capability.

Two contracts are expected to evolve from the requested proposals. Phase I will provide a comparative study of several alternative ways to obtain the orbital laboratory which is envisioned. Phase I will also consider the feasibility of providing artificial gravity for the laboratory.

Following completion and evaluation of the Phase I comparative studies, NASA may follow with a Phase II preliminary design study. However, Phase II has not been approved by NASA at this time.

Should Phase II be undertaken, a single contractor would be requested to synthesize into a mature concept the design study found most feasible in Phase I and to furnish a preliminary design for a complete orbital laboratory system. Mockups of the laboratory and resupply spacecraft would be provided, including mockup systems and equipment. It would be expected that the preliminary design would be so detailed and fully documented that final designs could be prepared from the information supplied by the preliminary designer.

The contractor would be required to furnish cost estimates in detail, evidence of reliability of all systems in the laboratory and resupply vehicles, and a detailed operating plan for the entire laboratory, space ferry and resupply system.

In accordance with the recent NASA-DOD agreement on Gemini, no hardware procurement would be conducted without the prior agreement of DOD.

Langley Research Center will monitor work under the study contracts.

Interested firms are to have their response to the request filed with the Langley Center by May 14. Evaluation and contract selection will follow.

PLUM BROOK REACTOR

NASA's Plum Brook Research Reactor reached its full 60,000 kilowatt power for the first time on April 21.

Located at the Lewis Research Center's 6000-acre Plum Brook station, the nuclear reactor is scheduled for basic research experiments associated with NASA's plans to develop a nuclear rocket for future interplanetary exploration.

Both non-nuclear and low reactor power testing were completed in 1962. In January of 1963 NASA received authorization to operate at full power from the Atomic Energy Commission.

The first "approach to power" began on February 16 as Plum Brook engineers guided the reactor up the power scale in a deliberately slow operation that lasted almost a month. The reactor reached 200 kilowatts and the engineers stopped, holding the reactor at this power for a full day, while they checked and calibrated their instruments. The next 24-hour hold was at 400 kilowatts--less than one per cent of the reactor's full power. Carefully the reactor was checked out at 2000, 4000, 6000 and 15,000 kilowatt power levels. Then bigger steps were taken--25,000 to 35,000 to 40,000. At each level the reactor, its instrumentation and its biological shielding were evaluated and cleared before the power buildup continued.

This initial test at power was stopped after several days of operation at 75 per cent of full power or 45,000 kilowatts.

Water plays an important role in the Plum Brook reactor system. More than one million gallons of water an hour are circulated to cool the reactor core when it is operating at full power. A 25-foot-deep canal system built of extra-heavy concrete weighing 250 pounds per cubic foot surrounds the reactor core. During operation, more than three million gallons of water fill these canals to provide shielding. Both the core and canals are further contained in a mammoth steel structure 100 feet in diameter. Three additional 20-ton steel shields are located inside the containment tank over the top of the reactor.

The first experiment on schedule will be conducted jointly by NASA and Lockheed Aircraft Corp. Small samples of metal placed in a helium atmosphere at more than 400 degrees below zero will be exposed to radiation in the reactor. This bitter cold causes most metals to become brittle. Metals in a nuclear rocket face a two-fold problem--exposure to both cryogenically cold temperatures and radiation from the rocket's nuclear powerplant.

The NASA-Lockheed experiment is designed to study metals behavior in this forbidding environment. The work will begin with samples of alloys of aluminum, titanium and stainless steel which will be stretched and deformed in the helium while still in a radiation zone. Results of this two-year project are expected to yield much basic information on how to build a nuclear rocket vehicle and what to use for basic building materials.

George F. Look

OBITUARY

George F. Look, member of the Spacecraft and Missile Dynamics Branch of the Applied Materials and Physics Division, died on May 3 after an illness of several months.

Look was born May 12, 1905 in Hong Kong, China. He came to the U.S. in 1906 and graduated from East Denver High School, Denver, Colorado. He attended the University of Denver and received a B.S. degree in Petroleum Engineering in 1927 from the Colorado School of Mines.

He joined the Center staff on February 7, 1944 as a Mechanical Engineer. During his career with NASA he served as general consultant on chemical and associated problems for all Langley organizations and he was often consulted by Air Force officials.

He is survived by his wife, Mrs. Hattie Look, Hampton.

GRADUATE STUDENTS

All graduate students who plan to do advanced degree work in residence at any institution, including William and Mary, during the 1963 Fall term should submit their graduate study leave application to the Training Office as soon as possible so they may be approved and the schools advised of the number of students to expect for the term.

AIAA MEETING

The Hampton Roads Section of the American Institute of Aeronautics and Astronautics will hold its annual dinner and dance on Wednesday, May 29 at the Holiday Inn in Hampton.

The evening will begin with a social hour at 6:30 p.m. followed by a roast beef dinner

Following the dinner a movie will be shown. The movie will be introduced by Axel T. Mattson, Langley Center Research Assistant for Manned Spacecraft Projects. He will give the latest quarterly review of the activities in the manned space programs.

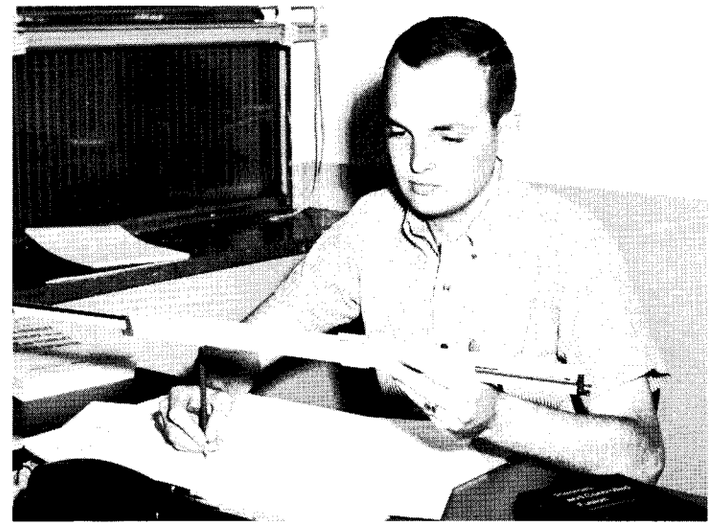
Dancing will continue until midnight to the music of Charlie Johnson's Trio.

Reservations may be made by calling Roger Stewart, 838-1917, or John Mugler, 838-0569, before noon on Monday, May 27. Admission is $3 per person and includes all expenses for the entire evening. Guests are invited to attend.

BOWLING NEWS

In the Duckpin League, Helen Dupere took top honors for the women with a 143 game and a 351 set. She was also top woman bowler last week with a 124 game and 335 set. Tops for the men were Bill van Wald with a 145 game and Al Insley with a 377 set. Tops for the men last week were John Dupere with a 142 game and Stan Trimble with a 378 set.

Team	W	L
Hopefuls	74	46
Lt. Machine 1	71	49
Ten Spots	71	49
Strike Outs	61	59
Jets	60	60
Rebel Bombers	59	61
Double Dots	59	61
ICS	56	64
Count Downs	55	65
Doodle Bugs	52	68
Lt. Machine 2	51	69
Pin Poppers	51	69



H. Lee Dodds Jr., Student Trainee in the Plasma Physics Section, Aero-Physics Division, was instrumental in helping to save the life of a young lady who was found floating in Mill Creek near Fort Monroe last Friday night. Dodds and a friend were returning from playing tennis when they sighted the accident. Dodds immediately treated the victim for shock, wrapped her warmly in coats and comforted her until the ambulance arrived to transfer her to a local hospital. Dodds was born January 21, 1943 in Pine Bluff, Ark. He graduated from Northside High School, Jackson, Tenn., where he was valedictorian of his class, and attended the University of Tennessee. He learned first aid during his high school days when it was his job to bandage up the school's injured football players. He joined the Center's student trainee program on March 18, 1963.

CAFETERIA MENU

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

Monday - Minestrone soup, 8-oz. chopped steak, fried shrimp, spaghetti with meat sauce, beef ravioli.

Tuesday - Cream of tomato soup, Spanish pot roast, salmon loaf, liver and onions, grilled cheese and bacon.

Wednesday - Chicken noodle soup, oven roast, grilled ham slice, fried chicken, chili con carne.

Thursday - Vegetable-beef soup, grilled steak, stuffed pepper, braised short ribs, meat croquettes.

Friday - Clam chowder, Swiss steak, broiled red snapper, fried fish, hot dogs.

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

Monday - Split green pea soup, chuck wagon steak, roast fresh ham, beef stew, hamburgers.

Tuesday - Vegetable-beef soup, roast beef, fried scallops, Salisbury steak, bar-b-que sandwich.

Wednesday - Chicken noodle soup, pot roast, grilled ham slice, fried chicken, macaroni and weiners.

Thursday - Cream of mushroom soup, grilled steak, fried oysters, creamed dried beef on toast, baked hash.

Friday - Clam chowder, roast beef, broiled fish, fried fish, cheese omelette.

SINGLETON CLUB NOTICE: All single members of the Center staff are invited to attend the Singleton Club's Spring Dance which will be held on Friday, May 17 at 8 p.m. at the Fort Monroe Officers Club. For reservations call Jack Safran, 4871, or Frances Taylor, 4842.

J. Cabell Messick

ENGINEERS' CLUB TO HEAR MESSICK

"Construction of a Cyclotron" will be the topic of a talk to be presented to the Peninsula Chapter, Virginia Society of Professional Engineers on Wednesday, May 15 at the Earle Restaurant.

J. Cabell Messick, Assistant Chief of Technical Services, will be the speaker. His talk will cover the various aspects of site selection, design and construction of the new Space Radiation Effects Laboratory, the principal component of which is the 600 MeV synchrocyclotron.

A native of Hampton, Messick has been associated with Langley for 36 years. For 16 years he served as Chief of the Engineering Service Division. In this capacity he was responsible for the design and construction of some $400 million worth of research facilitles, equipment and vehicles.

He is a registered Architect in the state of Virginia, a charter member of the American Institute of Architects, member of Virginia Peninsula Engineers Club and the Peninsula Executive Club.

For additional information concerning the meeting, contact Jim McNulty, 2354, or Gordon Jaehnig, 4817.

ITALIAN INSTRUMENTS TESTED

A preliminary test of instrumentation to be used in the joint Italian-U.S. SAN MARCO project was made recently aboard a Shotput sounding rocket fired from Wallops Island Station.

The suborbital launching marks the first flight test in a three-phase cooperative program between the Italian Commission for Space Research and the NASA. The program is expected to culminate in the launching of a scientific satellite into an equatorial orbit from a towable platform (resembling a Texas Tower) in the Indian Ocean.

Primary purpose of the flight was to ascertain the operational performance of the dynamic balance developed by Professor Luigi Broglio, head of the SAN MARCO project, and his group at the Aerospace Research Center in Rome under the Italian Commission, to measure the total atmospheric drag upon a satellite in orbital flight.

Further suborbital tests of the SAN MARCO instrumentation are scheduled from a towable platform in the Indian Ocean later this year with another NASA Shotput vehicle. If successful, this will be followed by an orbital Scout launch next year at Wallops Station prior to the final attempt at the Indian Ocean site.

The resulting scientific data will be made available to the world community of scientists.

Basic objective of the SAN MARCO project is to perform high altitude measurements of atmospheric and ionospheric characteristics in the equatorial region.

The Shotput is a combination of standard solid propellant rocket motors devised by Langley Research Center. The experiment utilized the sixth Shotput vehicle built by Langley and launched from Wallops Island. Previous Shotput launches occurred during the early flight tests of the project ECHO inflatable satellite payload package.

Shotput is a two-stage vehicle, without guidance, stabilized by aerodynamic fins which impart a slight spin to the entire assembly. The main stage is a Thiokol Pollux E6 booster to which are attached two Thiokol Recruit assist motors. The second stage motor is the Hercules Powder Company's X-248 Altair rocket. At take-off, Shotput develops 120,000 pounds of thrust. The complete assembly is 32 feet long, 33 inches in diameter and weighs 11,000 pounds at launch.

The Shot put launch vehicle includes timers to control second stage fairing jettison and second stage ignition, as well as devices to cancel the spinning motion and disconnect the payload from the upper stage motor at the proper time. Mechanical and electrical performance of the vehicle is reported by telemetry to the launching station.

RESA MEETING

Dr. Raymond C. Elton, Naval Research Laboratory in Washington, D.C., will be guest speaker at a meeting of the Research Society of America (RESA) on Wednesday, May 16 in the East Area Projection Room in Building 587. The meeting will start at 8 p.m. and Dr. Elton will speak on "Naval Research Laboratory's Approach to Controlled Thermonuclear Fusion."

Dr. Elton, who received his Ph.D. degree from the University of Maryland, is conducting research on high temperature plasma. In his talk he will describe a unique approach to the problem of obtaining power from nuclear reactions.

Dr. Elton will visit the Center on May 17 as a consultant.

E. Floyd Valentine

EMPLOYEE RETIRES

E. Floyd Valentine, an Aerospace Engineer in the Aero-Physics Division, retired from the Center on May 1 after completing almost 33 years of service with NASA.

Valentine was born June 28, 1907 in Oyster Bay, New York. He graduated from Hollywood High School in Hollywood, California, and received his B.S. degree in Mechanical Engineering in 1930 from the University of California at Berkeley.

He entered on duty at the Center on August 6, 1930 as a junior aeronautical engineer. He is a nationally recognized authority on supersonic aerodynamics.

CONTRACT AWARD

(Continued from page 1)

to measure very small amounts of force, and will make laboratory measurements of molecular impact forces exerted on samples of spacecraft materials.

Results of the University's work should contribute to more accurate forecasts of the drag a space vehicle may encounter.

NOTICE: Persons having Library books or reports assigned to George Look are requested to call Coffey, 3379, or the Library, 4786.

FOR SALE: Colonial mantle. Whitley, 826-3701.

DR. EUGENE M. EMME

Langley Researcher

VOLUME 2, NUMBER 11 | LANGLEY RESEARCH CENTER | MAY 24, 1963

Henry A. Fedziuk

FEDZIUK HEADS BOND EFFORT

The U.S. Savings Bond program for 1963 is being highlighted this year with a Freedom Bond Drive. The purpose of this drive is to obtain a record number of subscribers for U.S. Savings Bonds.

Using the theme "Planned Saving for Planned Spending", the Center's participation in the program will be conducted through June 7 under the chairmanship of Henry A. Fedziuk, Chief of Research Reports Division.

During this period all non-subscribers will be contacted by a representative from his respective division.

At the present time only 58.6 percent of the Langley staff is participating in the Payroll Savings Plan. Officials hope that during the two-week period of the campaign, the Center's bond buying record will show a considerable increase. If the percentage of participation reaches 90 percent, the Center will be presented the Treasury Department's coveted Minute-Man Flag.

Fedziuk pointed out that

(Continued on page 4)

LANGLEY CENTER LAUNCHES INFLATABLE PARAGLIDER

An inflatable paraglider instrumented to gather information on the meteoroid hazards in space was launched into a ballistic flight May 14 by NASA from the White Sands Missile Range in New Mexico.

The experiment was a joint project by two NASA centers under direction of the Office of Advanced Research and Technology (OART). The Langley Research Center was project manager with assistance from Goddard Space Flight Center. Aerobee 150 was the launch vehicle.

The meteoroid paraglider concept was developed by Langley engineers as a technique for obtaining direct information on small particles of matter which exist in space. There have been a number of earlier attempts to measure how often these particles may strike a spacecraft and to determine how deeply they can penetrate. More knowledge is needed to guide the proper design of both manned and unmanned spacecraft. The paraglider experiment was intended not only to make penetration measurements in space but to return the paraglider to earth so that any impact

(Continued on page 6)

CENTER TO OPERATE ON DAYLIGHT TIME

Effective at 12:01 a.m. on Thursday, May 30, clocks will be moved forward one hour in those sections of Virginia which did not convert to daylight saving time on the last Sunday of April.

This includes the Peninsula area and consequently, the Langley Research Center will operate on Daylight Saving Time from May 30 through Labor Day (September 2). There will be no change in shift times.

A technicality arises for the few personnel who may be required to work on the third shift which begins at 11 p.m. on Wednesday, May

(Continued on page 8)

Floyd L. Thompson (right), Director of the Langley Research Center, was greeted by Assistant Directors Tuesday as he returned to the Peninsula after receiving the NASA Medal for Outstanding Leadership from President Kennedy at the White House. Admiring the citation with medal are (from left): Eugene C. Draley, Laurence K. Loftin, and T. Melvin Butler. The award is the second highest level award given by NASA. NASA Administrator James E. Webb stated that Thompson was cited "For his outstanding leadership of the scientists and engineers who were responsible for the original technical concepts and who comprised the nucleus of the development team for the space flight missions of the United States in Project Mercury." Thompson will also be honored with an honorary Doctor of Science degree from the College of William and Mary at graduation exercises on June 9.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ENGAGED. . .Making plans for a summer wedding is Mary Katherine Riddle, Office Services Division. She is engaged to Jefferson Sinclair Selden, Hampton. . .Announcing his engagement to Patricia Ann Kowalski, Newport News, is Don Marcum, Helium Tunnel. The wedding will be held on June 29. . .Deserting the bachelor ranks is Peter LeBel, IRD. He is engaged to Carolyn Garrison, Newport News. A fall wedding is planned.

INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health Benefit Program, will visit the Center May 28 at 2:30 p.m. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

BLOODMOBILE. . .The Red Cross Bloodmobile will visit the Center on May 29 and will be in operation at the Activities Building. Employees wishing to register to take part in this program may contact the East Dispensary, Building 584, telephone 2243.

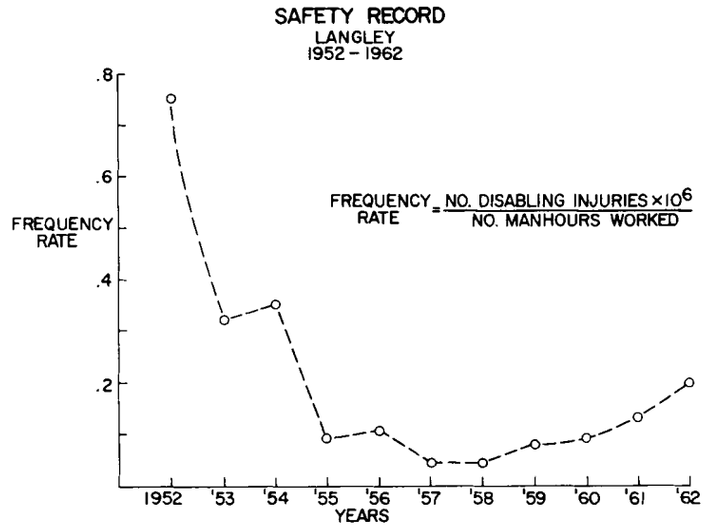
DIAPER LINE. . .Word has been received at the Center that Dorothy Thompson Mathieson, formerly of 7 x 10-foot Tunnels, became the mother of a seven pound, nine ounce son, David Alexander Gratham III on May 9. The grandfather is Floyd L. Thompson, Director. . .Weighing in at five pounds, eleven ounces on May 3 was Carla, daughter of Emedio Bracalente, IRD. Grandfather is Howard Chaffin, Mechanical Service Division. . .A seven pound, two ounce son, James Michael, was delivered to the Jim Harvey household on May 13. The father works in Heavy Machine. Passing out cigars and candy is Frank Senft, Electrical Service Division. He became the father of a son on May 8. Announcing the birth of a daughter on May 10 is William J. Carroll, Full-Scale Research. . .Celebrating the birth of a daughter on May 4 is Richard Barton, Full-Scale Research. . .Another proud father is Luther Richardson, Instrument Construction. He became the father of a daughter on May 14.

SINGLETON CLUB. . .Single members of the staff are invited to attend the Singleton Club's picnic on June 7 at the Activities Building. For further information call Jack Safran, 4871, or Frances Taylor, 4842.

ROSE SHOW. . .A number of staff members took honors at the Virginia Peninsula Rose Society's annual show held last week-end. Basil Brinkley, Research Facilities, exhibited the best Crimson Glory; Pat Anderson, General Files, and Grace Shackelford, Technical Editing Section, exhibited the best blended hybrid tea and best grandiflora, respectively; Irene Christian, Aeroelasticity Branch, and Mercer Christian, Materials Processing and Development, jointly won for the best collection of three blooms of one variety; Ralph Turner, Powered Lift Aerodynamics Section, won three blue ribbons. Walter Lindsey, Structures Research Division, made the official presentation of awards.

SAFER WORKING HABITS URGED

The Langley Research Center's Executive Safety Committee held a special meeting on April 16 to consider measures to be instituted to improve the Center's disabling injury rate which had attained an excellent low level during 1957 and 1958 but has since crept upward. The curve shown here illustrates the trend.



While Langley's record, compared to the overall average for industrial establishments, is still commendable, Langley and NASA Headquarters officials are deeply concerned over the adverse direction of the curve.

Each employee is urged to develop safe working habits and to be alert in detecting and reporting the existence of hazardous conditions or defective equipment which might cause property damage or personal injury.

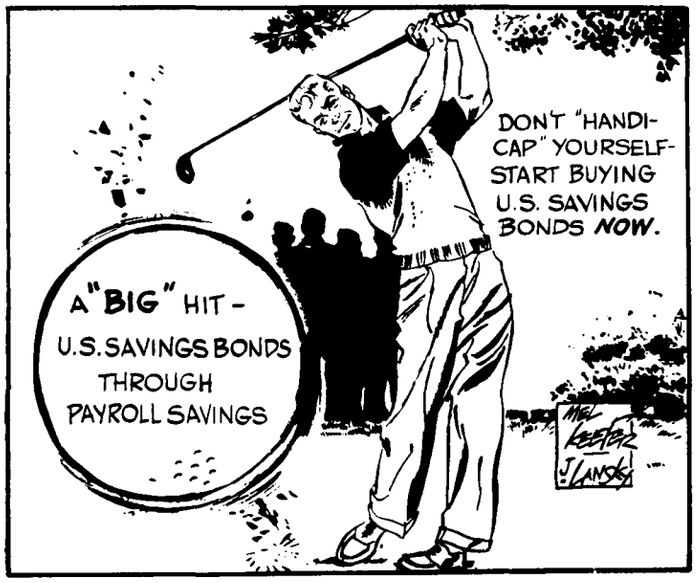
Some of the measures proposed to combat the rising trend are increased emphasis on the wearing of safety shoes, erection of a large "score board" sign at the West Gate to show the disabling injury record and to stimulate interest in maintaining a perfect record for long periods, additional center-wide safety inspections, appropriate posters displayed about the Center and on shuttle busses stressing timely safety subjects, and re-institution of safety training courses for supervisory personnel.

PORTRAIT OF COOPER

The portrait at the right of Astronaut L. Gordon Cooper was painted by Wesley Berryman, Technical Illustrators. On Wednesday, May 15 L. Gordon Cooper became the fourth American to make orbital flight around the earth. Cooper now holds the American record with 22 orbits in 34 hours, 20 minutes, 31 seconds. Cooper and his Faith 7 spacecraft travelled 575,000 miles - more than enough for a round trip to the moon.

Bergman
NASA

MAC DIVOT **Keefer & Lansky**



A FAMILY BOND

Among the bonds that can tie family members closer together is a financial one - the United States Savings Bond.

In many, many instances the thrift habit through Savings Bonds has become a family project. Father buys bonds automatically through the Payroll Savings Plan where he works. The children put their extra earnings--or part of their weekly allowances--into Savings Stamps. Even mother saves an occasional dollar from the food budget to supplement the family bond stockpile.

Savings Bonds are a family project because the whole family usually shares the benefits. Bond savings are used for many purposes - from college educations to retirement. They also serve a vital purpose for our country by helping to keep our economy sound and backing up our defense efforts.

No matter what your reason for buying Savings Bonds is--whether because you think it's just good common sense to help yourself, or patriotic to help your Government, the benefits will be two-fold: your family will one day be reaping the benefits of systematic thrift and your Nation will be stronger and better able to help you "keep Freedom in your future."

Right now, during the Treasury's 1963 Freedom Bond Drive, is a good time for more families to get the bond habit - for more citizens to see in this program a ready opportunity to help their country and themselves.

WORDS OF THE PRESIDENT

"We live in an age of fateful challenges. As a nation and a people we are under test. The revolutionary forces shaking the earth have converged, presenting us with hard choices, with a need for action, for ideas, for concerted and sustained commitment as a nation and as individual citizens. . .For if freedom is to survive and prosper, it will require the sacrifice, the effort and the thoughtful attention of every citizen. . ."

"The Freedom Bond Drive serves to identify Savings Bonds most firmly in the public mind as a way to participate in our nation's defense efforts and ventures into space. It enables thousands to respond as individual citizens to the world-wide challenge to freedom. . ."

"I would like to encourage those Americans who are not participants in the Savings Bonds program to look upon it as a sound means of achieving family financial goals in the years ahead."

BOND EFFORT

(Continued from page 1)

buying a bond is never a sacrifice; it always carries a money-back guarantee. No money is being taken from the subscriber, he is simply investing in his own future and saving in spite of himself. He stated, "A part of every family's savings should be invested in U.S. Savings Bonds."

Staff members interested in increasing their current allotments may obtain bond authorization cards from attendance clerks.

Fedziuk is a native of Worcester, Massachusetts. He graduated from East High School in Buffalo, N.Y. and received his B.S. degree in Aeronautical Engineering in 1939 from the University of Michigan. He started his career with NASA on August 16, 1939 as a Junior Aeronautical Engineer at the 8-foot Tunnel. He has held his present position since March 29, 1957.

U.S. Savings Bonds offer citizens a chance to share directly in helping to achieve America's goals. At the same time they help the buyer to insure his own financial security.

SAVINGS SCALE

The amount of savings per pay period and the number of pay periods required to purchase bonds of different denominations is as follows:

Savings	Pay Periods	Cost
	$25 BOND	
$ 3.75	5	$18.75
$ 6.25	3	$18.75
$ 9.38	2	$18.75
$18.75	1	$18.75
	$50 BOND	
$ 3.75	10	$37.50
$ 6.25	6	$37.50
$ 7.50	5	$37.50
$12.50	3	$37.50
$18.75	2	$37.50
$37.50	1	$37.50
	$100 BOND	
$ 3.75	20	$75.00
$ 6.25	12	$75.00
$ 7.50	10	$75.00
$12.50	6	$75.00
$15.00	5	$75.00
$18.75	4	$75.00
$25.00	3	$75.00
$37.50	2	$75.00
$75.00	1	$75.00
	$500 BOND	
$15.00	25	$375.00
$18.75	20	$375.00
$25.00	15	$375.00
$37.50	10	$375.00
$75.00	5	$375.00

U.S. Savings Bonds pay you $4 at maturity for every $3 invested.

Handy Shopping Guide to Series E U.S. SAVINGS BONDS

No matter what their denomination, **all U.S.** Savings Bonds have these things in common:

They're one of the safest and most widely held investments in the world—owned by tens of millions of American families.

They're replaceable in case of loss at no cost.

They pay $4 for $3 when held to maturity.

They're cashable at any time without red tape.

They do the double job of helping to make your individual future, as well as your country's future, secure.

Buy the ones that fit your budget — at your bank, or through the Payroll Savings Plan where you work.

Keep freedom in your future with
U.S. SAVINGS BONDS

An ideal gift for graduations, birthdays, communions, bar mitzvahs or any occasion when you want to be especially nice to someone. Including yourself.
$18.75

This is an increasingly popular size with millions of American families. If you'd started buying one every month ten years ago, you'd now have $5,230.
$37.50

In less than 8 years you can turn this Bond in for a crisp hundred dollar bill. You'll be getting a guaranteed return and your government's thanks.
$75.00

This one is tailor-made for the investment of bonuses, tax refunds and other windfalls. At maturity it grows into a tidy $200 nest egg.
$150.00

Grandfathers can give one of these Bonds to eight grandchildren (or eight of them to one grandchild) in any one year without having to pay the gift tax.
$375.00

Lots of businesses buy these as a good safe investment for company surplus funds. Also ideal for widows who suddenly find themselves with a large insurance check.
$750.00

For larger investors, whether individuals or institutions (yes, corporations, partnerships, credit unions, pension funds may own Savings Bonds — and many do).
$7500.00

DIVISION BOND STANDINGS

Divisions	Subscribers	Non-subscribers	Percentage
Chief, Tech. Services	50	15	77
Aero-Space Mech.	139	60	70
Res. Models and Fac.	94	85	53
Off. Ass't Dir. for Adm.	12	15	44
Office of Director	63	38	62
Dynamics Loads	87	68	56
Fl. Veh. and Systems	73	51	59
Research Reports	37	19	66
IRD	221	252	47
Electrical Systems	103	131	44
Structures Research	113	85	57
Mech. Service	426	225	65
Full-Scale	164	93	64
Analysis and Comp.	77	86	47
Procurement	74	76	49
Fiscal	56	42	57
Aero-Physics	155	114	58
AMPD	117	132	47
Plant. Maint.	116	79	59
TMD	35	18	66
Office Services	36	62	37
Personnel	44	13	77
Photographic	51	33	61
TOTALS	2343	1792	58

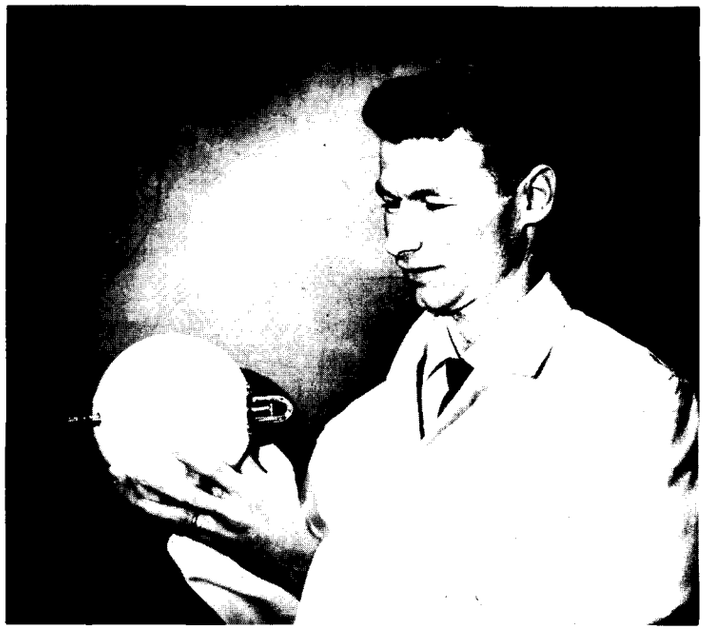
FACTS ABOUT BONDS

Americans today own over $45 billion in Series E and H Bonds, an all-time high. That would buy two million homes at $22,500 each - or 15 million $3,000 cars - or four and a half million $10,000 college educations. Or take your own special dreams. Whatever their price tag, Savings Bonds can make them possible as they have for millions of others.

If you own U.S. Savings Bonds, you are a partner in a big enterprise. You and your fellow citizens own 15 per cent of the national debt - more than $45 billion in Shares in America. You're making new purchases at the rate of nearly four and one-half billion dollars a year. You're building personal security for yourself and economic strength for your country. And you're helping to "Keep Freedom in Your Future."

The Treasury reports that close to seven million school children have the opportunity to purchase U.S. Savings Stamps or Savings Bonds through the School Savings or School Bank Plan. About $18 million in Savings Stamps are sold every year.

Savings Bonds offer savers an absolutely risk-free investment. The bonds pay a good return, guaranteed by the U. S. Government.



Charles C. Laney Jr., Instrument Research Division, holds a duplicate of the flashing beacon experiment which was tested on Astronaut Gordon Copper's MA-9 flight. William A. Carmines, Flight Vehicles and Systems Division, was Project Manager for the experiment and Laney was Project Engineer. The Beacon, 5.75-inch-diameter sphere utilizing two flashing xenon lights, was successfully deployed from the orbiting spacecraft in an experiment to help evaluate the capability of the pilot in acquiring a flashing beacon light of known intensity at distances of up to 15 miles from the spacecraft in the space environment. The experiment, associated with Gemini and Apollo missions where visual sighting will serve as a means for rendezvous, was constructed and ground tested at the Langley Research Center for use during the 22-orbit flight.

INFLATABLE PARAGLIDER

(Continued from page 1)

craters, and possible embedded particles could be examined in the laboratory.

Successful recovery of the paraglider, which marked the first atmosphere reentry by a flexible-winged paraglider vehicle, provided information on paraglider performance during entry. The paraglider was built under contract by Space-General Corporation, El Monte, California. Goddard supplied the Aerobee rocket under a separate contract with Space-General.

The inflatable paraglider was designed by Langley engineers according to basic flexible wing concepts originated by Francis M. Rogallo, Head of 7 x 10-foot Wind Tunnels Branch. Measuring about 14 feet long, it consists of three tapered inflated tubes forming a keel and wing leading edges. The three tubes are joined by two curved glider canopy sections upon which a number of meteoroid sensors are mounted.

Attached beneath the paraglider was the Aerobee nose cone containing telemetry. An extension section of the Aerobee was also carried beneath the paraglider to contain a camera, a tracking beacon, and a high pressure nitrogen system to inflate the paraglider. The nose cone and telemetry were jettisoned prior to reentry, but the camera and beacon section remained with the paraglider, photographing paraglider performance and providing a signal which was used to track the flight path.

The paraglider was fabricated by B. F. Goodrich Company as a subcontractor to Space-General Corporation. It is made of glass fiber coated with a silicone resin to withstand reentry heating.

Program manager for NASA's Office of Advanced Research and Technology in NASA Headquarters was Charles T. D'Aiutolo. William H. Kinard, Applied Materials and Physics Division, was NASA Project Director and James H. Siviter, also of AMPD, was in charge of the meteoroid experiment. John Busse, Goddard, was vehicle manager.

EMPLOYEES RECEIVE AWARDS

At ceremonies held recently, eight Langley scientists and three former staff members received cash awards for patents granted by the United States Government in connection with their inventions on the job.

Largest monetary patent award of $300 was given to Dr. George W. Brooks, Head of Vibration and Dynamics Branch of Dynamic Loads Division. His award was for a Lunar and Planetary Impact Simulator which provides a means for simulating the gravitational fields of the moon and planets during testing of large scale models or prototypes of spacecraft on earth.

William H. Phillips, Assistant Chief of Aero-Space Mechanics Division, received $200 for his Variable-Geometry Winged Reentry Vehicle. This idea was first proposed about three years ago as a possible means of obtaining controlled reentry through the earth's atmosphere and landing at a desired landing area. Early studies were primarily on capsule-type vehicles but this type of configuration is being revived for winged vehicles as a possible use for transporting crews to space stations.

Seymour Salmirs, Scout Project, shared a $150 award with Paul R. Spencer and Ernst F. Germann, former employees. The award was for a Radiation Direction Detector. It is a device to detect the direction of light intended for use of pointing erectable solar power collectors.

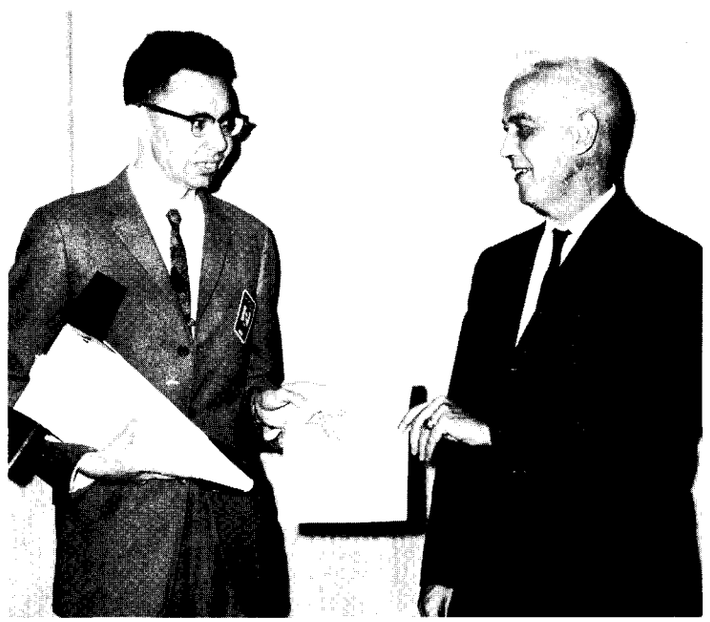
John M. Riebe, Applied Materials and Physics Division, and Vernard E. Lockwood, Full-Scale Research Division, shared a $100 award for Landing Arrangement for Aerial Vehicles. This arrangement enables the aircraft to travel at high speeds and land at low speeds by changing the complete orientation of the aircraft. This is accomplished by changing the wing surface, by yawing the wings or fuselage or changing other aspects to obtain the proper lift for takeoff or landing.

Roger A. Anderson, Assistant Chief of Structures Research Division, and Robert T. Swann, also of Structures, shared a $100 award entitled Sandwich Panel Construction. This involved a liquid cooling system for reentry vehicles and the essential feature was that the cooling flow did not have to be controlled precisely.

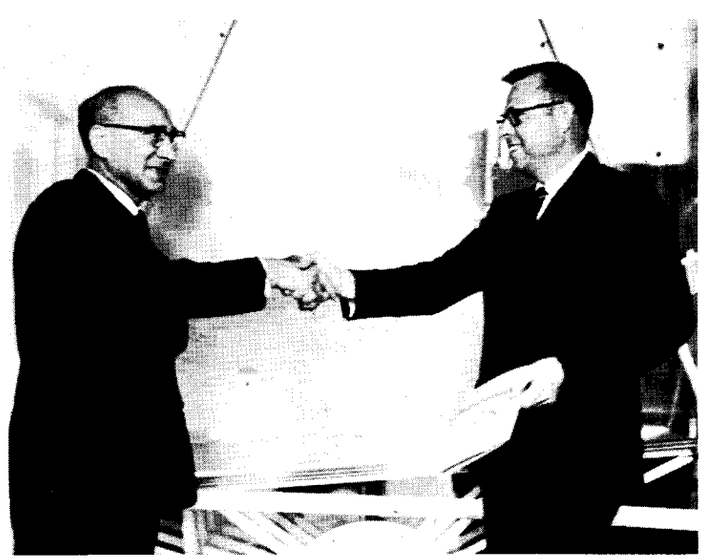
Edward L. Hoffman, Structures Research, received a $100 award for Erectable Space Structures. This involved the use of flexible foams for space structures.

Pictures of the employees receiving their awards are shown on the page at the right.

WANTED: Sailfish boat. Fedziuk, PA 2-1846.
FOR SALE: Three-bedroom house - G.I. loan with low equity. Manion, 722-5320.



Top left photograph - Richard R. Heldenfels (left), Chief of Structures Research, presents patent awards to Roger A. Anderson, Robert T. Swann, and Edward L. Hoffman. Top right - Joseph A. Shortal (left), Chief of Applied Materials and Physics Division, congratulates Seymour Salmirs on receiving a patent award. Center left - Mark Nichols, Chief of Full-Scale Research Division, presents cash awards to Vernard E. Lockwood and John M. Riebe. Center right - William H. Phillips (left) receives an award for $200 from Philip Donely, Chief of Aero-Space Mechanics Division. Right photograph - I. E. Garrick (left), Chief of Dynamic Loads Division, congratulates Dr. George W. Brooks on winning a $300 patent award. Former employees who also shared in the awards were Paul R. Spencer, Ernst F. Germann, and Eugene W. Friedrich. The awards are granted by the United States Government in connection with their inventions on the job. The total cash awards amounted to $1050. --Photographs by Salymer and Chard



GARBARINI NAMED TO NASA POSITION

Associate Administrator Dr. Robert C. Seamans has announced the appointment of Robert F. Garbarini, of Port Washington, N.Y., as Director of NASA's Office of Applications. The appointment is effective July 1.

Garbarini is presently the Chief Engineer of the Air Armament Division, Sperry Gyroscope Company, Great Neck, N.Y.

He succeeds Morton J. Stoller who will become Special Assistant to Administrator James E. Webb and also function as the Deputy Director of the Office of Applications. Stoller was recently awarded the Medal for Outstanding Leadership as Director of the Office of Applications.

Dr. Seamans, in making the announcement, said that Garbarini brings with him wide experience in aerospace industry and systems engineering as well as the managerial and executive skills demanded of this position.

Garbarini has been Chief Engineer at Sperry since 1959. He joined the company as an associate project engineer in 1941 and progressively moved up to his present position.

Before joining Sperry he worked briefly for Western Electric Co., Kearney, N.J. and the Empire Electric Brake Co. in Newark, N.J.

He has been a member and consultant of the Scientific Advisory Board, USAF, as well as a member and consultant on several other panels and survey operations connected with research and engineering for the Department of Defense.

He holds patents as the inventor or the co-inventor of airborne navigational equipment, air data sensors, bombing and fire contol apparatus.

He received his degree in Mechanical Engineering in 1940 from the Stevens Institute of Technology in Hoboken, N.J., and a Master's degree in Engineering from the same institution in 1945.

General John K. Waters, Commanding General, U.S. Continental Army Command, Fort Monroe, and his staff visited the Langley Research Center on May 14. Shown with General Waters are Floyd L. Thompson (front row left), Langley Center Director, and Charles J. Donlan (front row right), Langley Center Associate Director. The group was welcomed by Thompson followed by a statement on the mission of Langley Research Center by Donlan. The group toured a number of research facilities and heard a number of discussions on subjects which were of especial interest to the Continental Command.

DAYLIGHT TIME

(Continued from page 1)

29.

With the advance of the clocks one hour, supervisors and time and attendance clerks are requested to insure that each person working the third shift accounts for a full eight hours on duty or is charged with an hour's leave if he does not work the "extra" hour by the clock at the end of this one particular shift. In other words, the third shift on May 29 will report for duty at 11 p.m. EST and complete the eight-hour shift at 8 a.m. EDT.

WANTED: Driving combination from Deer Pk. to E.A. on 8 shift. Close, 2251.

WANTED: Alternate drivers from Stuart Gardens to W.A. on 8 shift. Harmon, 4488.

WANTED: Ride from Fox Hill to W.A. on 8 shift. Call Moyers, 4567.

FOR SALE: 1956 Chevrolet. Kostyal, 722-4885.

CAFETERIA MENU

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

Monday - Tomato-barley soup, half-pound chopped sirloin steak, Spanish pot roast, baked ham, fish cakes with cole slaw.

Tuesday - Bean soup, roast beef, crab cakes with cole slaw, liver and onions, chili con carne.

Wednesday - Holiday special - Chilled tomato juice, toss-garden-fresh salad, 6-oz. rib eye steak or 6 fried oysters, whipped potatoes or french fries, brown gravy, buttered string beans, hot rolls or bread and butter, apple pie, coffee or tea - 60¢.

Friday - Clam chowder, Swiss steak, broiled fish, fried fish, barbecued sandwich.

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

Monday - Vegetable-beef soup, roast beef, barbecued beef chunks over steamed rice, grilled ham slice, western omelette.

Tuesday - Cream of tomato soup, pot roast of beef, grilled pork chops, stuffed pepper, hot dogs.

Wednesday - Chicken-noodle soup, braised short ribs of beef, Salisbury steak, fried chicken, baked hash.

Thursday - Minestrone soup, grilled steak, fried clams, spaghetti with meat sauce, cheeseburger.

Friday - Clam chowder, roast beef, broiled fish, fried fish, Austrian ravioli.

GRADUATE COURSE

A graduate credit course in Math. 22.01 - Advanced Engineering Mathematics I - is being offered at the Langley Research Center under the University of Virginia Engineering Extension Division. Raymond L. Barger will be the instructor.

If a sufficient number of students enroll, the first class meeting will be on Tuesday, June 4. In order to be eligible for the course it is necessary for the student to have been admitted for graduate study by the University of Virginia.

Additional information and registration forms may be obtained from the Training Office, telephone 2326.

FOR SALE: 4-bedroom house with garage - located in Southampton area. Girouard, 722-7778.

Langley Researcher

VOLUME 2, NUMBER 12 LANGLEY RESEARCH CENTER JUNE 7, 1963

TWENTY-THREE SCOUT LAUNCH VEHICLES ORDERED BY NASA

NASA has awarded a contract for $10,687,500 to the Chance Vought Corporation, a division of Ling-Temco-Vought, Inc., Dallas, Texas, for 23 Scout launch vehicles.

Scout is the only all-solid propellant satellite launch vehicle in this country. It is a four-stage vehicle, 72 feet long, 40 inches in diameter, and it generates 95,000 pounds of thrust in the first stage. Scout is now used by both NASA and the Department of Defense.

During its developmental series of eight launches, the Scout achieved a success record of about 60 percent.

Scout is credited with being the first all-solid fuel rocket to place a satellite in orbit with the successful launch of the Explorer IX satellite from Wallops Island on February 16, 1961. It was also used in several reentry experiments and the successful orbit of the Explorer XVI micrometeoroid satellite from Wallops on December 16, 1962.

Since the development of Scout, its performance has been improved by uprating the various stages. The vehicle is now qualified to place a 250-pound payload into a 300-mile circular orbit, compared with its initial capability of slightly more than 150 pounds three years ago.

A program is now under way to uprate the second stage

(Continued on page 3)

151 EMPLOYEES DONATE BLOOD

During the Bloodmobile visit last week, Center employees donated a total of 151 pints of blood.

Leigh K. Lewis, Technical Service, and Jules Miller, Research Staff Office, reached the 5-gallon mark. Paul Culotta, Instrument Research, and Floyd Rogers, Fabrication Shop, completed their quota for a four-gallon pin.

John R. Dawson reached the three-gallon mark and two-gallon pins were presented to Aubrey Ferguson, Joseph Daniels, Horace E. Bellamy, John Ferro, David Haynes, Bradford Jones and Weimer Tuovila.

Reaching the one-gallon mark were Richard Geis-

(Continued on page 3)

Herbert J. Pelton

PELTON HEADS ASSOCIATION

Herbert J. Pelton, Contract Specialist in Procurement Division, was elected President of the Activities Association at a meeting of the newly elected General Assembly. Pelton will start his two-year term of office on July 1. He succeeds John P. Mugler, Applied Materials and Physics Division.

Other board members who were elected to two-year terms were: A. J. Voitlein, Aero-Space Mechanics Division, Treasurer; Virginia LaPrade, Reproduction Section, Chairman of the Children's Committee; Ray Goodman, Heavy Machine Shop, Chairman of the Activities Committee, and Herbert Boulter, Instrument Research Division, re-elected Chairman of the Building and Grounds Committee.

Members who have one more year to serve are as follows: Margarette Vick, Aero-Physics, Secretary; Betty Joyner, Aero-Physics Division, Chairman of Arts and Crafts, and William C.

(Continued on page 3)

Warren J. Price (center), Electronic Instrument Maker in the Electronic Shop, recently received a check for $150 under the NASA Incentive Awards Program. Price devised an apparatus capable of exposing two-sided printed circuit boards simultaneously. Frank L. Plotz (left), Head of Electronic Shop presents the check to Price while Joseph Getsug, Chief of Electrical Systems Division, looks on. Additional pictures are shown on Page 3.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

WEDDING BELLS. . . Pelham Phillips, 7 x 10-foot Wind Tunnels, was married to Linda Allen, Hampton, on May 19 in South Carolina. . .James E. Ferguson, Procurement Division, took his final vows with Anne Little, Williamsburg, on May 17 in Williamsburg. . .Judith Gary, Technical Library, joined the ranks of newly weds when she took her vows with William Conyers Smith, Fayetteville, New York, on May 25 at St. Mary's Star of the Sea Church, Fort Monroe.

BABY DERBY. . .Announcing the birth of a son, Keith John, on May 28 are Kathleen, Personnel Division, and Reginald Exton, Instrument Research Division. . .Patrick L. Corbin, Structures Research, became the father of a daughter on May 26. . .Celebrating the birth of a daughter on May 24 is Kalman Grunwald, Full-Scale Research Division. . .A new heir was delivered to the Kenneth S. Pollock household on May 22. The proud father works in Analysis and Computation Division.

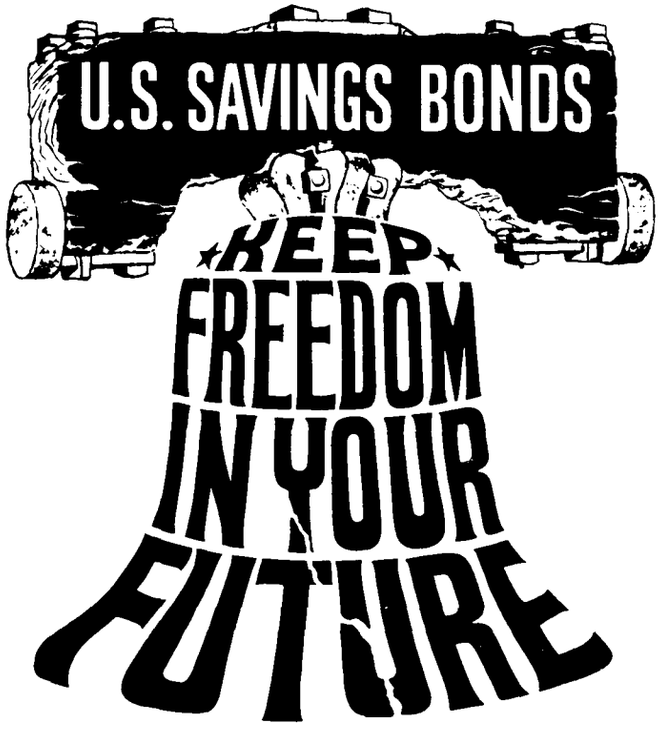
ROD AND GUN CLUB. . .The Langley Rod and Gun Club will sponsor a fish fry at 7 p.m. on June 7 at the Boat Club. Admission will be one dollar for adults and 75 cents for children.

THE LOST COLONY. . .Staff members are being offered the opportunity to see any 1963 performance of Paul Green's symphonic drama The Lost Colony at reduced rates. Special tickets entitling the bearer to purchase a $3 ticket for only $2 at the Waterside Theatre Box Office in Manteo, N.C., are available at Langley Researcher Office, Building 587, or Employee Services Office, Building 587. Performances are presented every night, except Sunday, at 8:15 p.m. June 29 through September 1. Special Sunday performances are scheduled for June 30, August 18, and September 1.

AAUW NOTICE. . .The Hampton Branch of the American Association of University Women has prepared a booklet of nursery and kindergarten schools on the Peninsula. The booklet lists facilities and particulars but makes no attempt to evaluate the schools. Anyone desiring a copy may contact Mrs. John Moore, 596-3932, or Mrs. Seymour Salmirs, 595-1082.

ENGAGED. . .Announcing her engagement to John Murray Thomas, Gloucester, is Amelita Jenkins, High Temperature Materials Branch. Plans call for a fall wedding.

WANTED: Passengers from Newmarket and Forest Park area to W.A. on 7:30 shift. King, 4691.



BUY AN EXTRA BOND NOW!

THE COMMODORE'S PRAYER

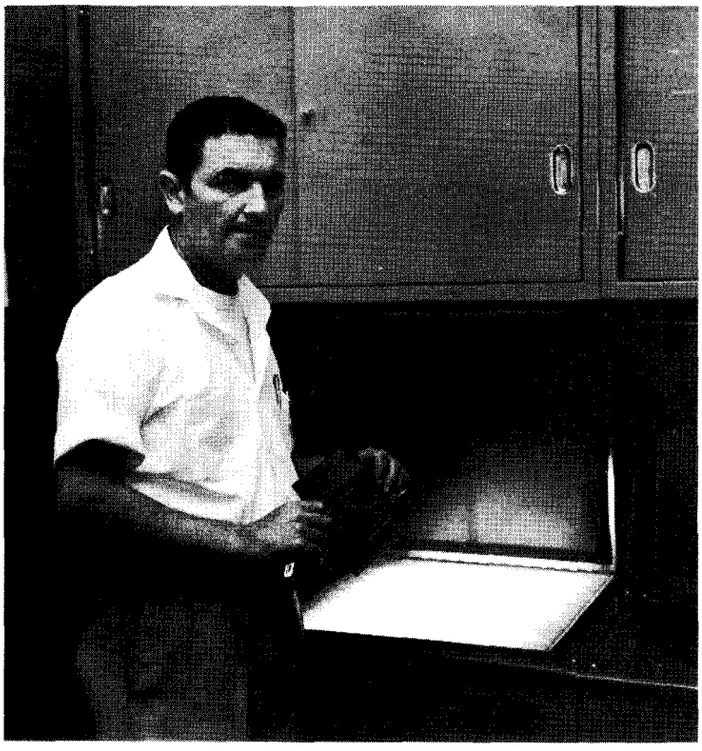
LORD, THOU KNOWEST BETTER than I know myself that I am growing older and will some day be old. Keep me from the fatal habit of thinking I must say something on every subject and on every occasion. Release me from craving to straighten out everybody's affairs. Make me thoughtful but not moody, helpful but not bossy. With my vast store of wisdom, it seems a pity not to use it all, but Thou knowest, Lord, that I want a few friends at the end.

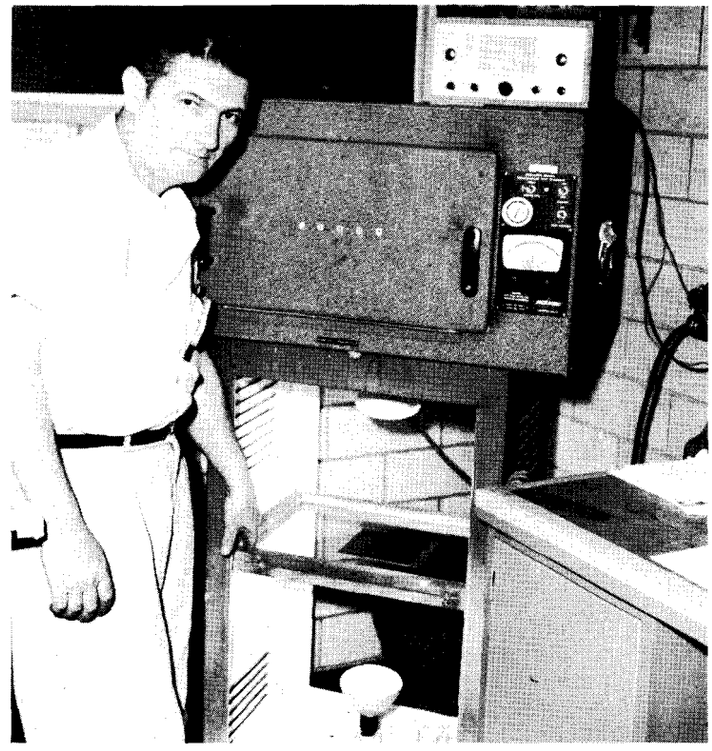
KEEP MY MIND free from the recital of endless details; give me wings to get to the point. Seal my lips on my aches and pains. They are increasing and love of rehearsing them is becoming sweeter as the years go by. I dare not ask for grace enough to enjoy the tales of others' pains but help me to endure them with patience.

I DARE NOT ASK for improved memory but for a growing humility and a lessening cocksureness when my memory seems to clash with the memories of others. Teach me the glorious lesson that occasionally I may be mistaken.

KEEP ME reasonably sweet; I do not want to be a Saint--some of them are so hard to live with--but a sour old person is one of the crowning works of the devil. Give me the ability to see good things in unexpected places and talents in unexpected people. And give me, Lord, the grace to tell them so. AMEN. --Author unknown

WANTED: Ride or driving combination from Newmarket area to W.A. on 8 shift. Floyd, 4455 or 826-3449.





Warren Price, who recently received $150 for devising equipment capable of exposing two-sided printed circuit boards simultaneously, is shown with the old and new systems. In some cases it is desirable to have the circuit printed on both sides of the board. After etching the plate, holes are drilled through terminal points in the circuit to provide a complete electronic circuit. Under the old system (left) misalignment of terminal points often occurred because one side was exposed, the plate removed from the equipment and inverted and the other side exposed. The misalignment was not obvious until the process had been completed and the holes drilled. This resulted in a great waste in time and material. Under the new system (right), a two-light source is used to expose both sides simultaneously. It is anticipated that the suggestion will result in a $3,000 savings for the Center during the first year. Price joined the Center staff on April 3, 1946 as a clerk in Procurement Division. He entered the Apprentice School in 1948 and graduated as an Electronic Instrument Maker in 1953. Employees wishing to make suggestions under the Incentive Awards Program, should send them to the Awards Office, Room 114, Building 587.

SCOUT VEHICLES

(Continued from page 1)

to a total payload capability approaching 300 pounds.

The Scout vehicles being purchased are designed for a number of space missions, including orbit and reentry missions.

The Scout launch vehicle is under the management of Langley Research Center.

NOTICE: Richard F. Brody, Government-wide Service Plan representative, will visit the Center on June 10 at 2 p.m. Employees having problems or questions concerning their Government-wide Service Benefit Plan may call Linda Hale, 2323, for an appointment.

FOR SALE: 14-pound bowling ball - $10, 7 1/2 hp Sea King outboard motor - $25. Jewel, TR 7-3317.

FOR SALE: 1961 Rambler-American, 4-door, snow tires-$1150. Pressley, LY 6-3231.

FOR SALE: Frigidaire washing machine - $50, youth bed and mattress - $30. Evans, LY 6-0483.

FOR SALE: Rotary lawn mower, antique clocks and victrola, 1922 Model T Ford. Gilbert, 838-1770.

WANTED: Home for black kitten. Joslin, 826-5424 after 5.

FOR SALE: Halicrafter Model S120 receiver - $55, 5 hp Sea King motor - $65. Harvey, 723-5190.

ASSOCIATION

(Continued from page 1)

Walton, Dynamic Loads Division, Chairman of the Social Committee.

Pelton was born November 12, 1932 in Chico, Texas. He graduated from Fort Knox High School in Fort Knox, Kentucky, and served in the U.S. Army from July 5, 1951 to September 7, 1956. He entered on duty at the Center on October 23, 1956 as an Engineering Aid in Internal Aerodynamics Section. He resigned September 9, 1957 to attend college.

Pelton attended the Norfolk Division of William and Mary for two years and Virginia Polytecynic Institute for one year. He returned to the Center on July 17, 1961.

BLOODMOBILE

(Continued from page 1)

singer, Barbara B. Holley, Herman Schuchert, David Carter and James Youngblood.

Assisting during the visit were Dr. Emanuel Greenspon, Dr. George S. Grier, and Dr. T. D. Saunders.

WANTED: Home for kittens. Foster, CH 4-3038.

FOR SALE: Three bedroom brick rancher in Wilkins Pk. Michael, 838-1229.

FOR SALE: Used lumber. Hamilton, 722-8726.

FOR SALE: 12 x 14-foot tent with 30-inch side walls. MacConochie, 723-0844.

FOR SALE: Four bedroom rancher in Northampton. Wilson, 826-0663.

FOR SALE: 1962 Oldsmobile. Batten, PA 2-4679.

BOWLING NEWS

The NASA Tenpin Handicap League held its annual banquet May 25 at the Activities Building. The league is one of the largest NASA activities, having approximately 175 members.

After a buffet dinner and awarding of prizes, Doug Johnson's orchestra furnished music for dancing.

Trophies were awarded in two divisions.

Awards in League A were as follows:

High team honors - Flyers, first place, Malfunctions, second place, and Short Circuits, third.

High individual averages- Bob Hunt 191, Henry Lee 184, and John Campbell 183.

High team game - Flight Engineers 1107, and high team set - Hornets 3143.

Awards in League B were as follows:

High team honors - Payloads, first place; ASMD second place, and Alley Cats, third place.

High individual averages: Arthur Grist 169, Tom Bonner 168, and Amos Spady 166.

High team game - Frame Ups 1093, and high team set - Cee Pees 3099.

Mary Van Landingham took top honors for the women with a 160 average, 234 high game, and 632 high set. Also receiving recognition was Tom Bonner who bowled the highest scratch game for both leagues with 289.

Officers for the 1963-64 season were elected at the last board meeting and are: Joseph Poslik, president; Charles Clarke, vice president; Fred Heath, secretary; Ray Henley, treasurer, and Joe Twigg, scorer.

Next year the league will bowl at Century Lanes in Hidenwood.

DUCKPIN LEAGUE

The Duckpin Bowling League will close its season Monday night with a banquet at the Oasis Restaurant at 7 p.m. Trophies will be presented to the top three teams, to Helen Dupere for a 105 average, a 376 set and a 145 game, and Al Insley for a 116 average, a 425 set and a 166 game. Awards will also be given to the Rebel Bombers for a 1726 high team set and to Ten Spots for a 611 high team game.

The top team in the Bowling Proprietors Association Tournament now underway is a team composed of bowlers from the NASA league. This could lead to a national championship. The team is composed of John Moore, Al Insley, John Dupere, Bill Hinson and Eddie Eggleston. They bowled a 2037 set.

Ten Spots	80	52
Hopefuls	78	54
Lt. Machine 1	76	56
Strike Outs	70	62
Jets	68	64
Double Dots	66	66
ICS	64	68
Rebel Bombers	61	71
Count Downs	59	73
Lt. Machine 2	59	73
Pin Poppers	57	75
Doodle Bugs	54	78

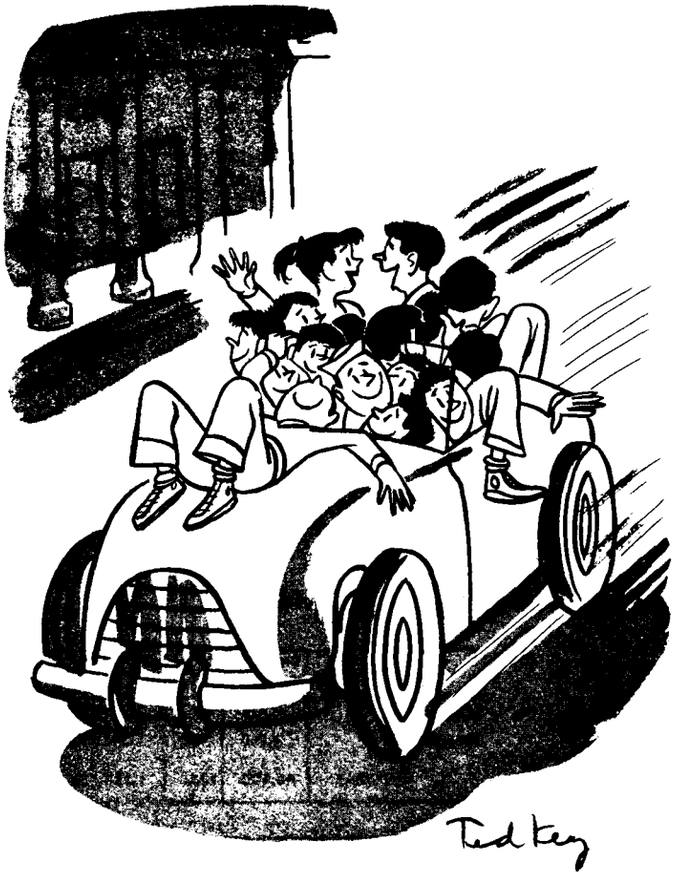
WANTED: Driving combination from Holly Court to W.A. on 8 shift. W. L. Wells, PA 2-0769.

WANTED: Driving combination from Green Oaks to W.A. on 7:30 shift. Yeamans, 4851.

WANTED: Girl to share home in Forest Heights. Sandra Bowles, 826-0843.

WANTED: World Book Encyclopedia - at least 1960 edition. LaPrade, LY 6-4947.

WANTED: Persons interested in renting 2-bedroom apartment in Blacksburg for the spring or summer quarters of 1964. Jack Leatherwood, 4539 or 3371.



"Who's driving?"

CAFETERIA MENU

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

Monday - Cream of potato soup, 8-oz. chopped steak, baked ham, shrimp jambalaya, franks and beans.

Tuesday - Bean soup, roast beef, veal cutlet parmesan, liver and onions, chile con carne.

Wednesday - Swiss steak, Polish sausage with sauerkraut, chicken chow mein on crisp noodles, meat croquettes.

Thursday - Vegetable-beef soup, grilled rib eye steak, ham loaf with horseradish sauce, fried chicken, barbecued sandwich.

Friday - Clam chowder, Spanish pot roast, broiled fish, fried fish, cheeseburger.

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

Monday - Split green pea soup, roast beef, grilled ham slice, creamed dried beef on toast, fish cakes with cole slaw.

Tuesday - Cream of tomato soup, chuckwagon steak, meat loaf, grilled pork steak, hot dogs.

Wednesday - Bean soup, pot roast of beef, spaghetti with meat sauce, stuffed pepper, cheese ravioli.

Thursday - Vegetable-beef soup, grilled rib eye steak, fried shrimp, chicken pot pie, macaroni and wieners.

Friday - Clam chowder, roast beef, beef goulash over noodles, broiled fish, fried fish, barbecued sandwich.

WANTED: Driving combination from vicinity of Newmarket to E.A. on 8 shift. Norris, 2323.

RECORD SETTING TIROS V STOPS

The NASA TIROS V meteorological satellite has closed its weather eye in space after setting a record of 10-1/2 months of continuous operations, a lifetime longer than any other previous TIROS.

During this lifetime, the satellite operated longer than any other TIROS and also transmitted more earth cloud cover pictures.

Through orbit 4,579, which occurred on May 4, when pictures of excellent quality were received, TIROS V had sent more than 57,857 earth cloud cover pictures. Of this total, 49,212 or more than 80% were useable for meteorological purposes.

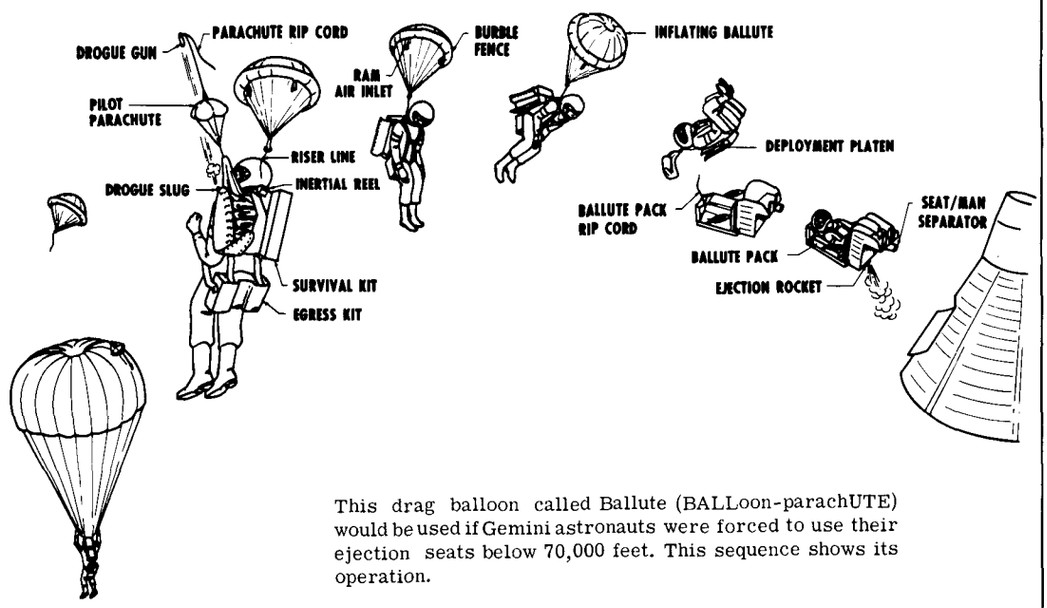
The U.S. Weather Bureau sent 396 storm advisories to nations around the world based on TIROS V cloud cover pictures including 2 hurricanes and 4 typhoons observed last August.

First indication of a malfunction in the satellite appeared May 5 when cloud cover pictures being received at the TIROS ground station at Wallops Island, began yielding only blank frames. The analysis of the data from the satellite indicate a failure in the shutter operation mechanism as the most probable cause. The other camera on board failed July 6, 1962, 17 days after launch from Cape Canaveral because of a random electrical failure.

TIROS VI, launched on September 17, 1962, continues to provide cloud cover pictures of excellent quality. Since April 1, 1960, six TIROS spacecraft have been successfully orbited out of six attempts.

WANTED: Alternate drivers from Winchester Pk.-Patrician Manor area to W.A. on 8 shift. Call Quinn, 3402.

--Buy U.S. Savings Bonds--



This drag balloon called Ballute (BALLoon-parachUTE) would be used if Gemini astronauts were forced to use their ejection seats below 70,000 feet. This sequence shows its operation.

A balloon shaped like a child's spinning top is being designed as a safety device for astronauts during the first and last stages of NASA's Project Gemini flights. The inflatable, rubberized fabric structure would stabilize and slow their fall until conventional parachutes could be deployed at the lower altitude. The Goodyear Aircraft Corporation is the contractor for the Ballute system. Ballute will be packaged in a deflated condition in the ejection seat during flight. It is expected to be about 18 inches in diameter and two feet long. During tests the drag device has successfully stabilized the descent of payloads weighing as much as 500 pounds. The system has been proven at speeds up to 10 times that of sound or more than 7,000 miles per hour.

ST. CLAIR JOINS NASA

NASA officials announced that Wade St. Clair, Charlotte, N.C., recently joined the agency to develop its educational radio programming.

A native of Welch, W. Va., St. Clair will be on a leave of absence from Radio Station WBT, Charlotte, where he has been program manager since 1959. Prior to that appointment by the Jefferson Standard Broadcasting Company he served as assistant program manager and as a sales representative.

St. Clair is a graduate of Kentucky Military Institute and Duke University. He served two years as an officer in the Air Force in Korea.

FOR SALE: 8-foot El Toro sailing dinghy, fully equipped, $150. Boxer, CH56212.

MAY EXTEND TERM

In accordance with Civil Service regulations, a Rating Board of Review was established at the Center in 1949 to consider and pass upon the merits of performance ratings of employees. This Board is composed of the following: J. Norwood Evans, department member; Thomas R. McGrath, employee member; and Stanley A. Niles, who has been designated by the Commission to be Chairman of the Langley Research Center's Performance Rating Board of Review.

As McGrath's term expires June 30, it is proposed that he be recommended to represent the Center for another two-year term. However, before the Commission can approve the recommendation, it must have on record that no objections have been made by any of the Center employees to this proposal.

Employees are advised that they have the right to file objections to the extension of McGrath's term. Objections, with reasons, should be filed within one week from June 7 with the Regional Director, Philadelphia U.S. Civil Service Region, Customhouse, Second and Chestnut Streets, Philadelphia 6, Pennsylvania.

FOR SALE: 27 watt Heath kit amplifier and radio in cabinet, Music Master turn table with base tone arm and cartridge - $50. Langhans, 118 Clyde St.

WANTED: Alternate drivers from Norfolk to W.A. on 8 shift. Kennedy, 4557.

WANTED: File cabinet, large desk and swivel chair. Call Pressley, 4641.

BIOTECHNOLOGY COMMITTEE NAMED

A Research Advisory Committee on Biotechnology and Human Research has been formed by NASA. It is chaired by Dr. Charles I. Barron, widely-known flight surgeon and president of the Aerospace Medical Association.

The new committee was established by Dr. Raymond L. Bisplinghoff, Director of NASA's Office of Advanced Research and Technology (OART). The committee will report to Dr. Bisplinghoff through Dr. Eugene B. Konecci, Director of Biotechnology and Human Research in OART.

The scope of the committee's interests include studies of human research to obtain an understanding of man pertinent to his operation of, and his support in advanced aerospace systems. Included are research on advanced life support systems, man-machine relationships and protective systems, and research and technological experimental investigations to determine machine design requirements, together with the knowledge of how to integrate them into general design criteria and specific applications, where required.

The committee will meet at least four times a year, usually at various NASA field centers. The first meeting will be held this month at the Ames Research Center.

Dr. Barron, who is Medical Director of the Lockheed-California Company, Burbank, California, and Associate Clinical Professor of Pathology at UCLA School of Medicine, is a member of many medical and engineering organizations and past president of the Airline Medical Directors Association. He is a native of Chicago and a veteran of World War II. At Lockheed he is responsible for the industrial medical services for more than 24,000 employees.

Members of the committee are:

Robert C. Armstrong, M.D., University of Southern California, 1955, now Manager of Life Sciences Section of General Dynamics/Astronautics, San Diego.

Hans Georg Clamann, M.D., University of Heidelberg, now Chief of Space Medicine, U.S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas.

Ben Ettelson, A.B. in Physics, University of California, 1949, now President of Spacelabs, Inc., Van Nuys, Calif.

William M. Helvey, M.D., Washington University and U.S. Navy School of Aviation Medicine, now Assistant Manager of Research Division, Republic Aviation Corp., Farmingdale, New York.

Gerald M. McDonnel, M.D., Temple University, 1943, currently a specialist in nuclear medicine and Associate Professor of Radiology, UCLA.

Ross A. McFarland, Ph.D., Harvard, now Director of Guggenheim Center for Aerospace Health and Safety at Harvard and consultant to the Surgeon General of the Army and of the Public Health Service.

John L. Mason, Ph.D., California Institute of Technology, 1950, now Chief Engineer, AiResearch Manufacturing Company, Garrett, Corp., Los Angeles.

Floro Deo Miraldi, Sc.D., MIT, currently an Assistant Professor of Nuclear Engineering, Case Institute of Technology, Cleveland.

Rollin Mark Patton, Ph.D., University of Indiana, 1953, now Assistant Head, Man-System Integration Branch, Biotechnology Division, Ames Research Center.

E. M. Roth, M.D., Harvard, 1954, and USAF School of Aviation Medicine, 1955, presently Senior Scientist, Department of Aerospace Medicine and Bioastronautics, Lovelace Foundation, Albuquerque.

Karl E. Schaefer, M.D., University of Kiel, 1936, now Head, Physiology Branch, U.S. Naval Medical Research Laboratory, Groton, Conn.

Stanley White, M.D., Johns Hopkins University. Lt. Col., USAF Medical Corps, now Head, Life Systems Division, NASA Manned Spacecraft Center.

Executive Secretary of the new committee is Stanley Deutsch, Ph.D., Purdue, 1957, Chief of Systems Research and Analysis of the NASA-OART Directorate of Biotechnology and Human Research.

This giant magnetic coil is one of twelve that scientists at the Lewis Research Center, Cleveland, Ohio, plan to use in creating a magnetic field 400,000 times stronger than that of the earth. Edmund E. Callaghan, assistant chief of the electromagnetic propulsion division at Lewis, is shown here examining the coil.

SECURITY NOTICE

Staff members planning to go on official travel and who will need a security clearance are requested to notify the Security Office, telephone 2307, at least five days before departure date. This advance notification is necessary so the Security Office will have ample time to process the individual's clearance and send it to the company or place he plans to visit.

FOR SALE: 3-bedroom rancher in Riverdale with Birch panelled family room-kitchen, L-floor plan. Logan, 37 Wheatland Drive, telephone 838-1049.

NASA PUBLISHES "WELDING TIPS"

The recent publication of "Welding Tips" by NASA inaugurates a new phase in the space agency's effort to pass on the benefits of space research to industry.

The publication contains selected welding techniques developed at Marshall Center. The techniques have a potential for widespread use throughout the welding industry which according to statistics of the U.S. Department of Commerce, includes some 115,000 employees in more than 10,000 shops.

"Welding Tips" is the first of a series of Applications Notes to be issued periodically by the space agency as developments warrant.

Among the developments described are: Seam Tracker and Proximity Control Unit, Back-Up Bars for Welding, Vacuum-Type Back-Up Bar, Fiber-Glass Tape for Backing Up Welds, Clamping Tool for Fusion Welding, Guide Tip for Feeding Filler Wire and Improved Method for Sigma Spot Welds.

Some of the welding techniques were developed at Marshall because existing methods were not adequate in meeting some of the stringent specifications necessary in the building of large booster rockets. It is expected that these new techniques will have a wide application in the welding industry. Other techniques were adapted to space use and may find renewed interest in industry.

"Welding Tips" is printed in magazine format. The 26-page publication contains photographs and diagrams along with technical descriptions of the new developments. Additional information about the program is available from the Director of Technology Utilization, NASA, Washington 25, D.C.

NASA's Office of Technology Utilization is set up to accelerate the flow of the new ideas and other information coming out of space research to industry. To do this the unit is following a program of identifying and retrieving information on new and improved developments from NASA research centers and contractors and passing it on in a form which can be translated by industrialists into new and improved products, processes, techniques, devices and materials.

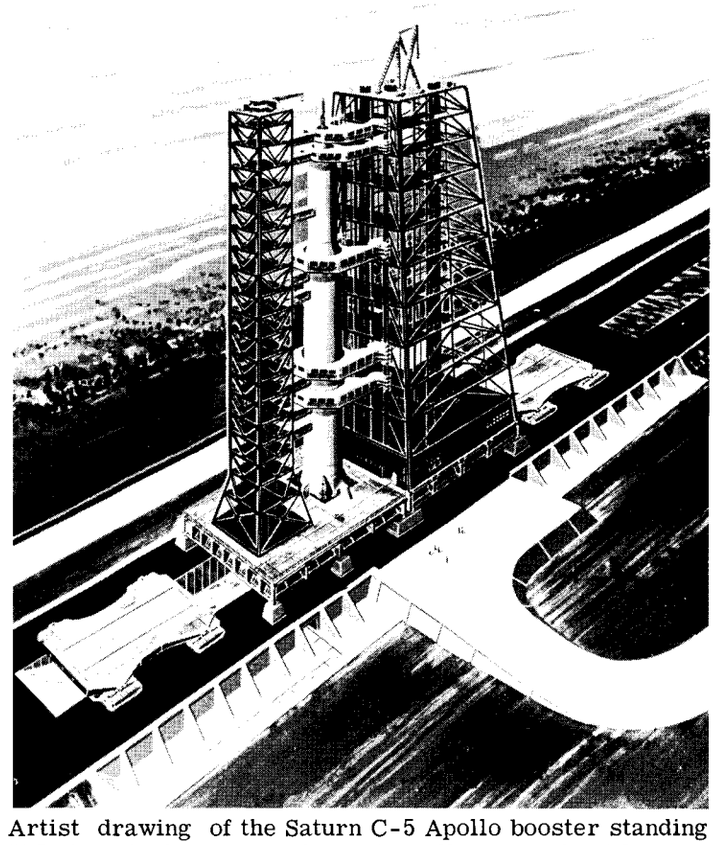
The Technology Utilization Program recognizes the fact that NASA's research and development effort is a national resource. It is so broad that research results are expected to have applications in almost every field.

NASA will utilize several media in disseminating information on results of its research. Applications Notes, of which "Welding Tips" is the first, will contain innovations which have not been thoroughly documented and evaluated. Another publication series, Applications Reports, will present comprehensive descriptions of single developments of significant industrial potential.

Other media for disseminating space developments to industry will include direct contact with industry through trade associations, trade journals, professional societies and through coordination with national, state, and regional economic development groups.

The Office of Technology Utilization at NASA is within the Office of the Assistant Administrator for Technology Utilization and Policy Planning. Louis B. C. Fong is Director of the Office of Technology Utilization.

FOR SALE: 1962 Valiant Signet 200 - $100 down and takeover payments, Rose, 722-8440.



Artist drawing of the Saturn C-5 Apollo booster standing 325 feet high and weighing six million pounds at launch. Bottom left is the gigantic crawler that moves the completely assembled Saturn over the two-mile course from the Vertical Assembly building to the launch complex. Fine timing and supersonic speeds are major considerations in the space program, but not all movements of rockets are at supersonic speeds. Sometimes they move at a snail's pace. When the 320-foot Saturn rocket leaves its stall at NASA's Merritt Island vertical launch facility for its two-mile trip to the launch pad, it will crawl at a top speed of 1 mile per hour. However, in flight, the Saturn will travel about 25,000 miles per hour.

U.S.-BRAZIL TO COOPERATE

NASA and the Brazilian National Commission for Space Activities have announced signing of a Memorandum of Understanding for a cooperative program in space research of mutual interest for peaceful scientific purposes.

The CNAE plans to conduct studies of the equatorial inosphere by monitoring satellite radio transmissions.

Accordingly, CNAE is establishing a series of three research stations in Brazil straddling the geomagnetic equator. These stations are to be located at the following places and geomagnetic latitudes: Belem (12 degrees North), Natal (3 degrees South), and San Jose dos Campos (11 degrees South). This arrangement will provide a unique opportunity to study variations in the ionosphere at a point of major scientific interest.

The results of the research will be made freely available to the world community of scientists. No exchange of funds between CNAE and NASA is contemplated.

LUNAR BASE STUDY PROGRAM

The NASA announced that proposals have been requested for a lunar base concept study. The study will initiate a broad lunar base study program to be carried out over the next 18 months under the direction of the Office of Manned Space Flight, NASA Headquarters. Purpose of the program is to provide detailed technical data to determine if a lunar base should be developed.

The study program will attempt to define a versatile lunar base system for use no earlier than the 1970's. The system must be capable of supporting a variety of scientific missions under a wide range of lunar conditions. The studies will concentrate on the concept of an expandable, modular base adaptable both to small outposts and to larger permanent installations housing up to 18 men.

The first study for which proposals are being solicited will consider the general concept of the complete base system. Within several weeks, additional studies will be initiated to examine in detail three of the major elements on the base--the life support system, the nuclear power plant, and the regenerative fuel system for surface vehicles. The Manned Spacecraft Center will manage the life support system study. The Office of the Chief of Engineers, U.S. Army, will administer the power plant and fuel system studies for NASA.

Some months from now a number of other studies will be conducted to investigate additional technical and operational problems. A final overall study will consolidate the data from the other investigations and present a comprehensive picture of the lunar base together with its advantages and limitations.

THREE WOMEN HONORED

Three women who have won national recognition in the space age were honored recently at a luncheon at the Senate by Senator Margaret Chase Smith (Me., R.) and James E. Webb, NASA Administrator.

Senator Smith is a member of the Senate Committee on Aeronautical and Space Sciences and has continuously studied U.S. progress in space since the founding of NASA in 1958.

The three women in space are Marcia S. Miner, student at American University; and Dr. Nancy C. Roman and Eleanor C. Pressly, both of NASA.

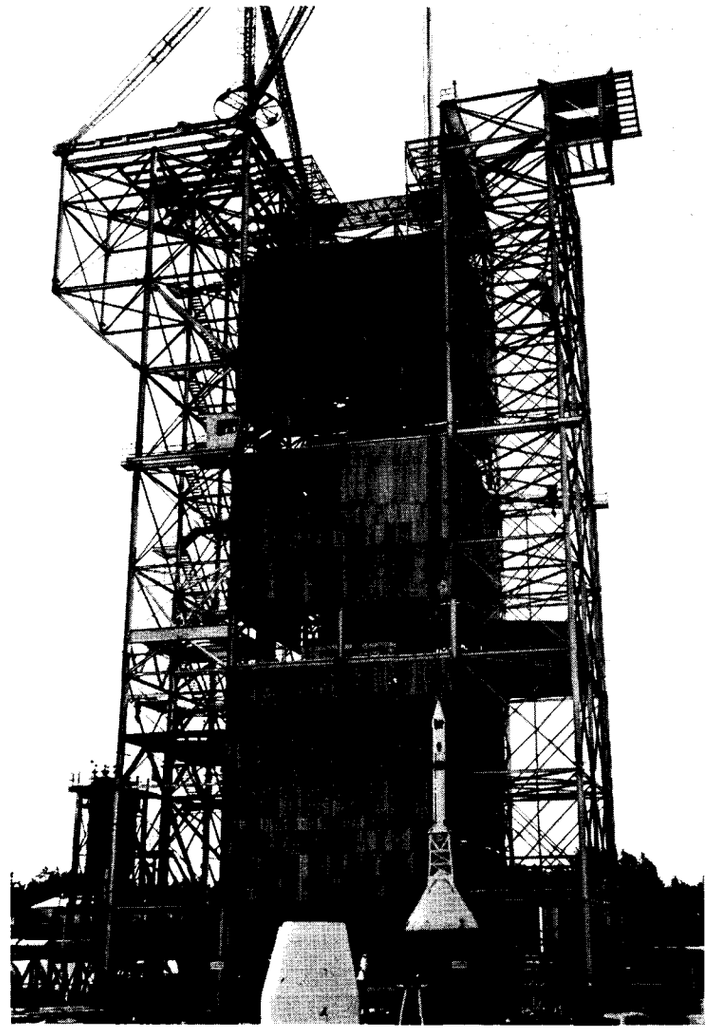
Marcia Miner is the 1963 winner of the annual Goddard Memorial Scholarship Award presented by the National Rocket Club to an outstanding student of space sciences. Nineteen years old and a science student at American University where she also teaches freshman physics, she is the first woman to be granted the award, which she won in competition with fourteen other contestants - all men.

Dr. Roman and Miss Pressly were winners of the Federal Women's Award in 1962 and 1963, respectively.

Dr. Roman is Chief of Astronomy and Solar Physics in NASA's Geophysics and Astronomy Programs. Miss Pressly is Head of Vehicles Section, Sounding Rocket Branch, Spacecraft Integration and Sounding Rocket Division, Goddard Space Flight Center.

LOST: "Proceedings of the 1962 Heat Transfer and Fluid Mechanics Institute", copy 2. Stainback, 4677.

LOST: February 1962 issue of Aerospace Medicine Vol. 33, No. 3, Library copy. Wilson, 2264.



A "boilerplate" (non-flight) model of the Apollo three-man lunar spacecraft is shown being placed in the dynamics test stand at Marshall Space Flight Center for a series of vibration and mating tests. The Apollo will be tested with the S-IV Saturn upper stage until July. After those tests, the booster or first stage will be added to complete the rocket/spacecraft configuration. The tests include simulation of flight vibration to determine the resonance of the entire rocket and spacecraft. The two elements of the Apollo that will be launched by the Saturn I--the command and service modules--are being used in these tests.

NEW ZEALAND ROCKET LAUNCHED

New Zealand's first sounding rocket in a cooperative program with NASA was recently successfully launched from Birdling's Flat on the Canterbury Plains, New Zealand.

The purpose of the rocket flight was to measure the electrical characteristics of the lower ionosphere. While only electrical measurements were made in this flight, later sounding rockets are expected to include additional equipment to make simultaneous meteorological measurements.

The payload was designed and built in New Zealand under the direction of Dr. John B. Gregory, Senior Lecturer in Physics at the University of Canterbury. Dr. Gregory is associated in his experiments with B. J. Frazer and other members of the University. The Royal New Zealand Air Force assisted in the operation by assembling and launching the rocket.

Langley Researcher

VOLUME 2, NUMBER 13 LANGLEY RESEARCH CENTER JUNE 21, 1963

LANGLEY AWARDS LIFE SUPPORT SYSTEM CONTRACT

Langley Research Center has announced the award of a $931,099 contract for the design and construction of an advanced four-man six-month life support system to the General Dynamics Corporation's Astronautics Division, San Diego, Calif.

Work under the contract will support and further the research programs of the NASA Headquarters Directorate of Biotechnology and Human Research in the Office of Advanced Research and Technology.

The contract award is the outgrowth of a request issued earlier this year to a number of aerospace industry firms asking for proposals on design and construction of a life support system for space flights of extended time periods. Ten companies filed proposals early in March, and evaluation and contract negotiation followed.

Under the terms of the award, General Dynamics will undertake 18 months of research, design, construction and testing, with concurrent participation by scientists and engineers of the Langley Center staff.

At the conclusion of the contract, the company will deliver to the Langley Center a fully-operating prototype life support system with all necessary controls and instrumentation.

Included in the system will be atmosphere and thermal controls, water management, hygiene and sanitation and other controls, sensors, displays, and in-

(Continued on page 8)

RECORD DIVIDEND DECLARED; QUARTERLY RATE REDUCED

At a meeting of the Board of Governors of the NASA Employees Benefit Association held June 6 and 7 at NASA Headquarters, Home Life Insurance Company declared a dividend for the eleventh consecutive year. This is the largest in the history of the plan, amounting to $359,993.23. The previous high dividend of $186,479.94 was received last year.

As a result of the plan's very favorable history and experience, the Board has arranged to make a further reduction in the quarterly premium rate of 15 cents per $1,000 per quarter making the rate $1.10 per thousand per per quarter. The accidental death benefit rate remains at 15 cents per thousand per quarter, making the total cost of life insurance plus accidental death benefits $1.25 per thousand per quarter. This reduces the annual cost from $5.60 per thousand to $5 per thousand. The new rate will become effective with the quarter beginning July 1.

The Board further announced that it has made arrangements to establish a Premium Stabilization Fund which will assure maintenance of this new low rate for at least several more years.

A new schedule was established adding two more classes and increasing the maximum coverage from $15,000 to $20,000. The new classes are not optional and they will automatically become effective with the quarter beginning July 1.

Home Life paid out $232,050 for a total of 27 NASA death claims during the insurance year. Langley had nine death

(Continued on page 8)

Floyd L. Thompson, Director of Langley Research Center, was recently presented two honorary Doctor of Science degrees. He was honored by his alma mater, the University of Michigan, and the College of William and Mary.

TWO DEGREES PRESENTED THOMPSON

Floyd L. Thompson, Director of the Langley Research Center, was honored last week when he received two honorary Doctor of Science degrees.

Thompson received his first honorary degree from his alma mater, the University of Michigan. The degree was conferred at commencement exercises in Ann Arbor, Michigan, on June 8. He received his second degree on June 9 at graduation exercises held at the College of William and Mary in Williamsburg.

The citation accompanying his degree from the University of Michigan read as follows:

"The Langley Center initiated research leading to such epochal feats of supersonic and space flight as the orbiting of the earth by American astronauts.

"It continues also to inquire into problems which are perennial in aeronautics, though often of peculiar interest oday, such as the most efficient means of restoring airborne craft to earth.

"The chief officer of this Center is necessarily a man of unfettered imagination, of exact and sober judgment, and of all-inclusive executive talents.

"Floyd LaVerne Thompson, upon whom we bestow the degree of doctor of science, is further distinguished by the humane attributes of tact, courtesy and self-effacement."

Thompson was appointed Director of the Langley Center on May 23, 1960.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIAPER LINES. . .Announcing the birth of a third daughter, Leslie Leroi, on June 3 is Herman Bohon, Structures Research. . .Joan J. Moody, Aero-Physics, became the mother of a son, Thomas George, on June 2. . .Celebrating the birth of a daughter, Linda Annette, on May 30 is Don L. Baradell, Aero-Physics. . .Word has been received that Carol Wilt, Office Services, became the mother of an 8 pound, 8 ounce daughter on June 9. . .Clarence Young, Flight Vehicles and Systems, became the father of a son on June 3. . .Announcing the birth of a son on May 30 is Albert Schy, Theoretical Mechanics. . .Shirley, formerly of Fiscal, and Guy Boswick, Office Services, became parents of a son on May 31. . .Passing out cigars and candy is Robert Clary, Dynamic Loads Division. He became the father of a son on June 3.

RECEIVES AWARD. . .Congratulations to William J. Monahan on receiving the Sons of the American Revolution Medal at Virginia Polytechnic Institute. The medal is presented each year to one Army and one Air Force ROTC senior on the basis of ability, leadership, bearing, and academic excellence. Monahan joined the Center staff on June 17, 1959 as a student trainee and received his B.S. degree in Aerospace Engineering from VPI this month.

INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health Benefit Program, will visit the Center June 27 from 1 p.m. until 1:45. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

BOND PURCHASES SHOW INCREASE

Henry A. Fedziuk, Chairman of the Center's Bond Drive, announced that during the recent bond effort over 410 new subscribers signed up to buy U.S. Savings Bonds through the payroll savings plan. This represents an increase of about 10 percent.

Fedziuk pointed out that a number of employees have not turned in their bond authorization cards. He urged all employees who plan to buy bonds to turn in their cards to their respective division chairman as soon as possible so a final report may be made.

WANTED: Driving combination from Algonquin Rd. and Kecoughtan Rd. to W.A. on 7:30 shift. Ransdell, 4842.
WANTED: Ride or driving combination from Dare-Grafton to E.A. on 8 shift. Mulqueen, 898-6327.
WANTED: Passengers from vicinity of Stuart Gardens and Boulevard area to W.A. on 8 shift. Schmidt, 4453.

STOLLER DIES AT AGE 46

Morton J. Stoller, who was recently awarded the NASA Medal for Outstanding Leadership, died June 13 at the National Institutes of Health near Washington, D.C. He was 46.

A member of the Langley Research Center staff for two decades, he came to the Peninsula in 1939 after graduation from City College of New York. He was a native of New York.

While at Langley, he rose to Assistant Chief of Instrument Research Division. He was in charge of developing telemetering systems for free-flight rocket-powered model testing and his group fitted radar techniques to this task.

In 1958 when NASA was established, he was appointed to Washington Headquarters as Chief of the Space Sciences Program. In early 1960 he was named Assistant Director for the Satellite and sounding-rocket program, and in March he was designated first Director of the Office of Applications.

He is survived by his wife, Mrs. Rugh Klarberg Stoller, two sons and a daughter, all of Bethesda, Maryland.

CAFETERIA MENU

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

Monday - Minestrone soup, chopped sirloin steak, Spanish pot roast, roast fresh ham, grilled cheese and bacon.

Tuesday - Tomato barley soup, Swiss steak, breaded veal cutlet Parmesan, grilled pork chops, tuna-noodle casserole.

Wednesday - Cream of potato soup, roast ribs of beef, Salisbury steak, fried chicken, franks and beans.

Thursday - Vegetable-beef soup, grilled steak, Polish sausage with fritters, meat loaf, chili con carne.

Friday - Clam chowder, barbecued beef chunks over steamed rice, broiled sun-tan perch, fried fish, hot dogs, cheese omelette.

The menu for the week of July 1 is as follows:

Monday - Chicken noodle soup, corned beef and cabbage, chicken pot pie, veal grillette, fish cakes and cole slaw.

Tuesday - Cream of tomato soup, roast beef, porcupines, liver and onions, cheeseburger.

Wednesday - Vegetable-beef soup, grilled steak, baked Smithfield ham, barbecued chicken, western omelette.

Friday - Clam chowder, pot roast of beef, broiled flounder, fried fish, franks and beans.

GOLF ASSOCIATION PLANS OPEN HOUSE FOR NASA

Ray Goodman, Chairman of the Activities Committee, announced that the Langley Golf Association will hold open house for NASA employees on Friday, June 28.

Starting time will be 8 a.m. and members of the Golf Association will be charged one dollar and non-members will be charged two dollars.

A tournament committee will be appointed to select prizes. If enough interest is shown, this may become a monthly event.

Persons interested are requested to send their names to Ray Goodman, Heavy Machine Shop, Building 1225. Please do not call Goodman. Deadline is 3:30 p.m. June 26.

FOR SALE: Deluxe model Westinghouse range and 10-cubic foot Hot Point refrigerator. Call 722-6448 after 7 p.m.

Lieutenant Colonel George R. Rupp (left), who has headed the Scout Project Office for the past two years, is relinquishing his position with NASA on the occasion of his retirement from the U.S. Marine Corps. He is shown with a giant slide rule presented him by friends and associates at Langley. Eugene D. Schult (right) will fill the vacancy created by Rupp's retirement. Schult started his career at the Langley Research Center in April 1949.

RUPP RETIRES, SCHULT NAMED NEW SCOUT HEAD

Lieutenant Colonel George R. Rupp, who has headed the Langley Research Center's Scout Project Office for the past two years, is relinquishing his position with NASA on the occasion of his retirement from the U.S. Marine Corps.

Rupp's association with the Langley Center began in June 1961 when at the request of NASA he was assigned by the Marine Corps to head the Scout launch vehicle development group at Langley. He had previously served in the Bureau of Naval Weapons, Washington, D. C., as project officer on the Bullpup missile weapons system.

His accomplishments in completing the development of the Scout to its present operational status as an important member of the United States family of space launch vehicles were recognized by Langley Center Director Floyd L. Thompson with the Center's Special Service Award.

The citation accompanying the award states: "For the Special Service rendered to the National Aeronautics and Space Administration as Project Manager of the Scout Space Vehicle Program. The excellence with which you have managed and directed this program has contributed significantly to the completion of the Scout prototype space vehicle and to the development of the Operational Scout vehicles." The Special Service Award carries a $500 honorarium.

Rupp was born June 27, 1922, in Granite City, Illinois, where he attended public schools. He entered the Naval Aviation Cadet Program in May 1942 and was commissioned a second-lieutenant in the Marine Corps in June 1942. He was awarded a B.S. degree in Aeronautical Engineering in 1954 after two years at the U.S. Naval Post Graduate School, Monterey, California, and a Masters Degree in Aeronautical Engineering in 1955 after a year at the University of Michigan.

Rupp saw service during World War II as a Marine pilot in the Pacific area.

Eugene D. Schult, a member of the Langley staff since 1949, will fill the vacancy created by Rupp's retirement.

Schult was born September 1, 1921 at Larchwood, Iowa, and attended public schools in Milford, Iowa. He received a B.S. degree in Mechanical Engineering from Iowa State College in 1949.

Schult, who served in the U.S. Army-Air Force as a pilot during World War II, was employed by the aircraft industry until his entry into the military service.

After graduation from college, he joined the Langley staff and was assigned to the Pilotless Aircraft Research Division where he worked on problems of control effectiveness, transonic flight and supersonic speed on test vehicles, and devised a means for stabilizing and controlling missile configurations for which conventional methods were unsuitable.

Schult became familiar with automatic control theory, and nonlinear systems as applied to reaction control and utilized both analog and digital computing equipment in detailed analysis of control systems.

In 1959 he contributed to and supervised much of the Scout vehicle program, supervising or monitoring the control system for the Scout. Schult was transferred to the Scout Project Group in February 1960, and until June 1961, his duties were confined to the Scout vehicle guidance and control system. Since June 1961, he has been Assistant Head of the Scout Project Group, responsible for technical supervision in all areas of the rapidly expanding Scout vehicle program. His knowledge of the Scout vehicle and his technical direction of the program has resulted in major program advances.

CONTRACTORS REPORTING PROGRESS ON SUPERSONIC TRANSPORT STUDIES

Technical progress reports on supersonic commercial air transport study contracts issued by NASA earlier this year to the Boeing Company's Transport Division, Renton, Washington, and the Lockheed-California Company, Burbank, California, were presented recently at Langley Research Center.

Under terms of the nine-month contracts signed with the two companies early in February, each group was required to make a progress report at the half-way point of the studies.

Both companies are engaged in detailed studies of four promising concepts for supersonic commercial transport aircraft which have been extensively investigated by NASA. Three of the concepts evolved from wind tunnel and other studies at Langley. The fourth concept was investigated at Ames Research Center.

The NASA panel convened to receive and evaluate the interim progress reports includes engineering, scientific and management representatives of Langley, Ames, Lewis Research Center and Flight Research Center.

During sessions when each contractor presented a summary of the work accomplished, the panel was joined by officials from NASA's Office of Advanced Research and Technology, through which the agency's supersonic transport research program is managed. A representative of the Presidential Office of Science and Technology, a representative of the Department of Defense, and personnel of the Federal Aviation Agency, with which NASA is working on the nation's supersonic transport program, participated in the summary sessions.

NASA expects the industry studies to provide information on the feasibility and practicability of the four concepts through engineering investigations encompassing all facets of commercial design -- including airworthiness requirements, structures, and operating problems.

The broad evaluations are expected to provide a basis for making configuration comparisons, and will assist in guiding the supersonic transport development program just announced by the President.

Each contractor will make a final report on the studies in November.

EMPLOYEES RECEIVE SUSTAINED SUPERIOR PERFORMANCE AWARDS

In ceremonies held recently, nine staff members received letters of commendation and checks of $250 each from the Langley Incentive Awards Committee for sustained superior performance.

Receiving the awards were: Robert E. Nye, Scientific Photographer in the Photographic Division and Langley Researcher staff photographer; Frank Penland, Employment Development Officer, Personnel Division; Ruby M. Davis, Mathematician in Theoretical Mechanics Division; Walter N. Montgomery, Electronic Instrument Maker, Analysis and Computation Division; Iris B. Russell, Accounting Technician, Fiscal Division; Musie A. Ballard, Electric Accounting Machine Operator, Fiscal Division; James F. Montgomery, Bindery Worker in Photographic Division; Virginia P. Gibson, Instrument Coordination and Control Clerk in Instrument Research Division, and Edward L. Clark, Electronic Development Technician.

The individual commendations read as follows:

Nye - "For his exceptional technical competence in making a wide variety of excellent photographs which were published in a number of magazines, newspapers, and books throughout the world illustrating Langley Research Center aeronautical and space research activities."

Penland - "For his superior work performance in administering Langley's Apprentice Training Program."

Davis - "For her outstanding ability as a mathematician in the computation of unusually complicated mathematical problems associated with theoretical analyses employed in aerospace research."

W. Montgomery - "For his outstanding dedication to his work and the superior performance he has rendered in establishing and maintaining the quality of the research data record reading in the Analysis and Computation Division."

Russell - "For superior work performance in the maintenance of accounting ledgers and registers, and for her cooperative attitude which contributes to the overall efficiency of the Accounting Branch, Fiscal Division."

Ballard - "For her sustained superior performance in the machine processing of the Center's payroll and U.S. Savings Bonds, her keen alertness and her cooperativeness toward her fellow employees."

J. Montgomery - "For his initiative and dedication to his work which has resulted in high level quantity and quality productivity in the bindery operations required in preparing NASA publications.

Gibson - "For outstanding performance in coordinating transactions involving instrument repair both in-house and contractual in addition to performing all normal secretarial duties."

Clark - "For his outstanding technical contributions to LRC's rocket powered research payload programs as a radio telemeter instrumentation antenna designer and as a radio frequency systems consultant.

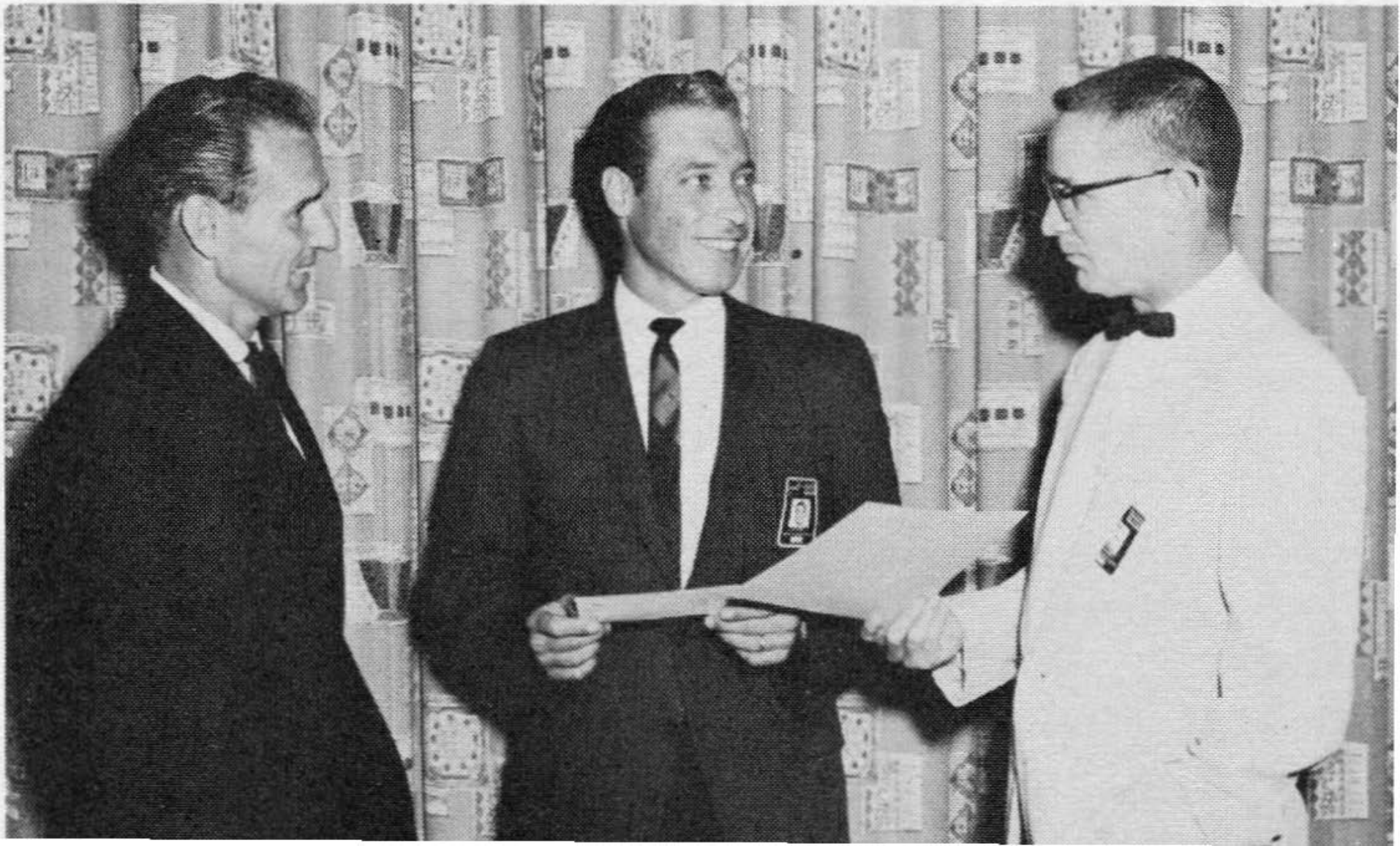
* * * *

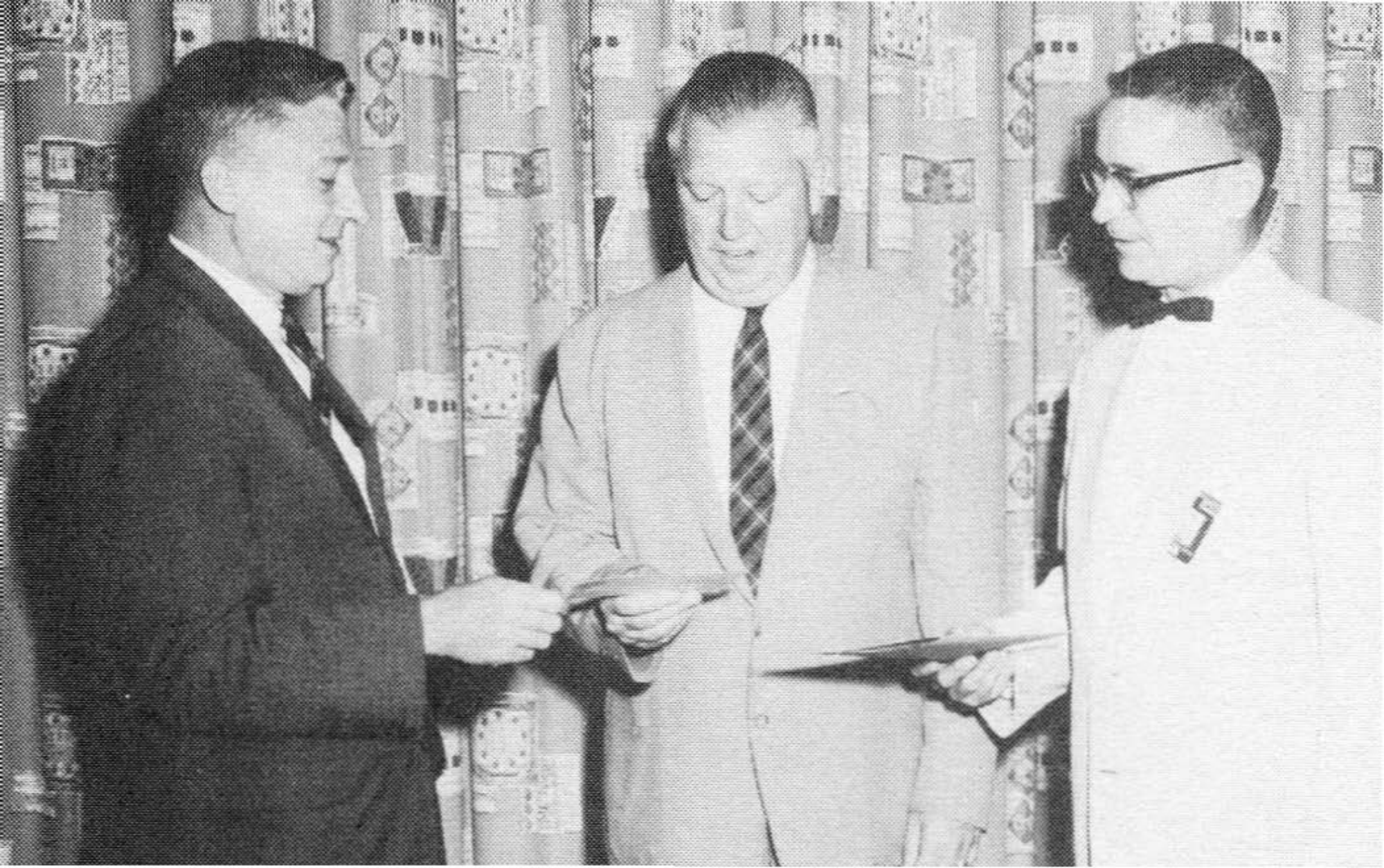
WANTED: Ride or driving combination from Pear Ave. to W.A. on 8 shift. Connie Zeno, 3378.

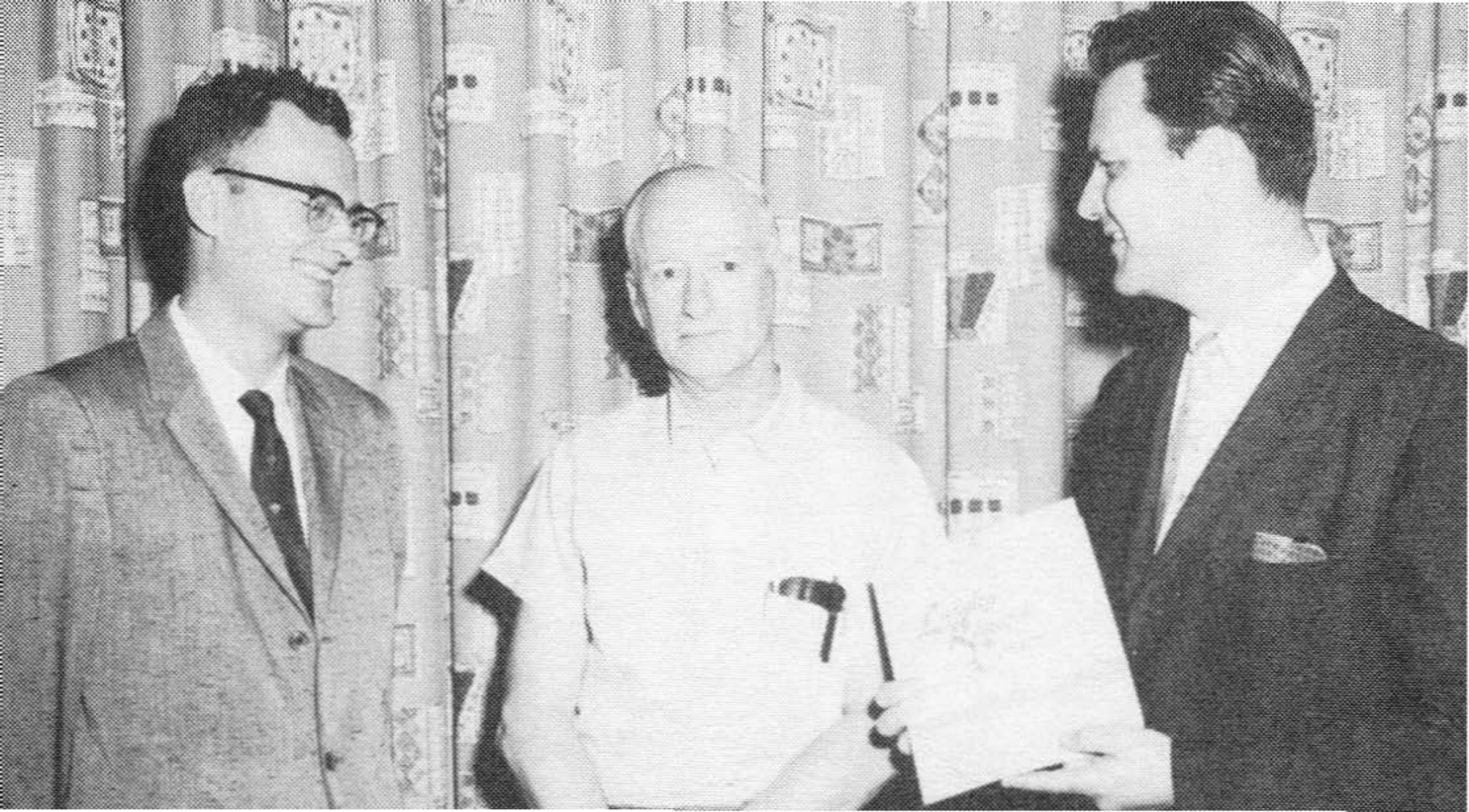
WANTED: Driving combination from Sussex Apartments, Southampton, to W.A. on 8 shift. Patterson, 4522.

WANTED: Ride or driving combination from Norfolk to W.A. on 7:30 shift. Edward Hudgins, 4851.

Langley Researcher, June 21, 1963

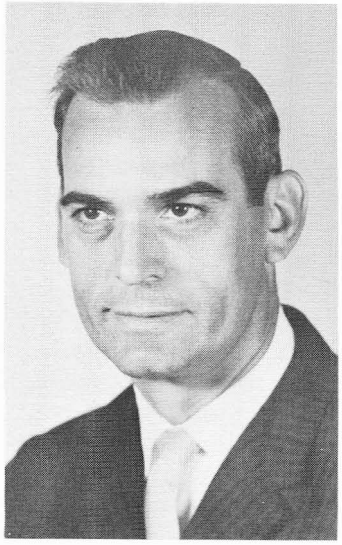




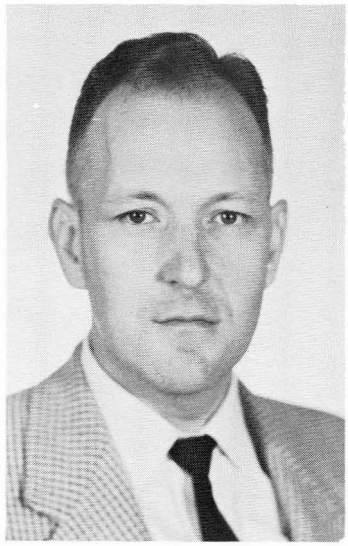


Nine employees were recently presented Sustained Superi
Performance Awards by the Langley Incentive Awar
Committee. Top left - Robert E. Nye (center) receives l
award from T. Melvin Butler, Assistant Director for A
ministration, while Harry H. Hamilton, Chief of Phot
graphic Division, looks on. Top right - Frank Penla
(center) receives his check from Charles F. Barnett, Ch
of Personnel Division, and his commendation from Butl
Second row left - Ruby Davis receives her award fr
Clinton E. Brown, Assistant Director, while Ralph E. Sto
Assistant to the Chief of Theoretical Mechanics Divisi
looks on. Second row right - Brown presents an award
Walter N. Montgomery, Thomas B. Andrews, Assist
Chief of Analysis and Computation Division, observes
ceremony. Third row left - Musie A. Ballard (second fr
left) and Iris B. Russell receive their awards from Edwa
A. Howe, Chief of Fiscal Division, and Butler. Third r
right - James F. Montgomery receives his award fr
Hamilton while Butler looks on. Right - Howard B. F

wards, Assistant Chief of Instrument Research Divisio
and Brown present awards to Virginia P. Gibson and Ed
ward L. Clark



Manuel J. Queijo



Robert W. Fralich

TWO EARN ADVANCED DEGREES

At graduation exercises held recently at Virginia Polytechnic Institute, two Langley Research Center scientists were presented Ph.D. degrees in Engineering Mechanics.

Receiving the advanced degrees were Manuel J. Queijo, Head of Rendezvous Analysis Section, Theoretical Mechanics Division, and Robert W. Fralich, Structural Analysis Section, Structures Research Division.

Queijo was born February 12, 1921 in Framingham, Massachusetts. He received his B.S. degree in Mechanical Engineering from Worcester Polytechnic Institute in 1954 and started his career with NASA on June 12, 1944 as a Mechanical Engineer at the Stability Research Tunnel. He earned his M.S. degree in Aeronautical Engineering from the University of Virginia in 1954.

Fralich was born January 12, 1924 in Cincinnati, Ohio. He received his B.S. degree in Aeronautical Engineering from the University of Cincinnati in 1947 and joined the Center staff on September 25, 1947 as an Aeronautical Engineer in the Structures Research Division. He earned his M.S. degree in Aeronautical Engineering from the University of Virginia in 1952.

SHARP MEDICAL LIBRARY DEDICATED

Friends and associates of the late Dr. Edward R. Sharp, former director of NASA's Lewis Research Center, attend- the dedication of the Edward R. Sharp Medical Library at Southwest Community Hospital in Berea on June 12.

The new library is to be used in the training and instruction of medical technologists at the hospital.

Dr. Alfred B. Bonds, president of Baldwin-Wallace College, delivered the dedication address.

Dr. Sharp, who died in 1961 after nearly 45 years of federal service, had a distinguished career with the National Advisory Committee for Aeronautics, which became NASA in 1958. He was instrumental in establishing Ames Research Center and the Lewis Research Center.

Dr. Sharp retired from government service in 1961 and shortly thereafter was named Director Emeritus of Lewis.

Dr. Sharp started his government career in 1922 at Langley Research Center. He was renowned internationally for his work and association with aeronautical research.

--Invest part of your pay in U.S. Savings Bonds today--

CONTRACTORS NAMED FOR ORBITING RESEARCH LABORATORY STUDIES

Selection of the Boeing Company, Seattle, Washington, and the Douglas Aircraft Company, Inc., Santa Monica, California, for final negotiations leading to Manned Orbital Research Laboratory study contracts has been announced by Floyd L. Thompson, Director of Langley Research Center.

Two definitive three-month study contracts valued at nearly $400,000 each are expected to be issued by NASA this month.

The two companies were selected from 11 aerospace industry firms who responded to a request for proposals issued by Langley in April. After the responses were received at the Center on May 14, an intensive evaluation of technical and management factors was completed by Langley engineering and administrative officials.

Results of the comparative studies of a Manned Orbital Research Laboratory concept will form another step in NASA research on the most effective ways to permit man to work usefully in space. Extensive research in progress for several years has developed technology applicable to multi-manned orbital spacecraft and has led to continuing interest in the concept. There is no NASA-approved flight project for an orbital laboratory at the present time.

A Manned Orbital Research Laboratory System capable of year-long missions as envisioned by NASA scientists and engineers would provide a way to gather needed additional knowledge, and the study contracts now being negotiated are intended to survey the engineering and design problems involved.

One version of a Manned Orbital Research Laboratory System, outlined by NASA in its request for proposals, will be studied by each company, along with one or more alternative systems.

The laboratory concept outlined by NASA would constitute an orbital workshop for four men with provision for changing crew members and periodically resupplying the vehicle. At least one crew member could complete a full year's mission to provide a long term check on weightlessness and its effects.

NASA's concept would make maximum use of current programs for the Saturn launch vehicle, the Gemini spacecraft system for crew rotation, the Atlas-Agena for resupply, and the range, tracking and data systems existing or being built.

Langley Center will monitor work under the Boeing and Douglas study contracts, under the over-all direction of NASA's Office of Manned Space Flight, Washington, D.C.

CREDIT UNION NOTICE

As part of an audit of the Langley Federal Credit Union as of May 31, the Supervisory Committee has mailed statements of share and loan accounts to all members.

Persons who did not receive a statement of account should contact one of the following: Supervisory Committee, P.O. Box 607, Langley Air Force Base, Virginia, or call Emanuel Boxer, NASA extension 4661, Arthur W. Carter, NASA 4479, or William L. Williams, NASA 2313. Members are requested to check their records and report any errors to one of the above members of the Supervisory Committee.

Members whose addresses have changed should notify the Credit Union Office of the change immediately.

★★★★

In ceremonies held recently, eight staff members received cash awards for inventions. Photograph above - Edward C. Polhamus (second from left) received $300 and Noel T. Wakelyn (second from right) shared a $200 award with Robert T. Jewell who was absent when the picture was taken. Shown with the recipients are (from left) Mark Nichols, Chief of Full-Scale Research Division; Joseph A. Shortal, Chief of Applied and Materials Division, and Charles J. Donlan, Associate Director. Top right photograph Richard R. Heldenfels (left), Chief of Structures Research Division, and Donlan presented $300 joint award to Melvin E. Hathaway, Edmond J. Zavada, and John R. McGehee. Absent was William Mayo, Chief of Mechanical Service Division. Left photograph - Otis J. Parker (second from left) received a $500 award and Joseph Norwood (center) shared a $300 award with Dr. Karlheinz Thom, NASA Headquarters. Shown with the recipients are (from left) Edward Kilgore, Chief of Flight Vehicles and Systems Division; Macon Ellis, Head of Magnetoplasmadynamics Branch, and Donlan.

CASH AWARDS PRESENTED FOR INVENTIONS

At ceremonies held recently, eight employees and one former employee received cash awards for suggestions that might possibly result in the granting of patents by the United States Government in connection with their inventions on the job.

Largest monetary patent award was given to Otis J. Parker, Flight Vehicles and Systems Division. He received $500 for his invention entitled "Despin Weight Release". This is a technique for despinning a payload or vehicle when once launched into space by using weights to slow down or stop spinning.

Melvin E. Hathaway and John R. McGehee, both of Structures Research, shared a $300 award with Edmond J. Zavada, Mechanical Service Division, for an invention entitled "Frangible Tube Energy Dissipation." This consisted of a lightweight reliable constant force dissipating shock absorbing system.

Robert A. Jewell and Noel T. Wakelyn, both of Applied Materials and Physics Division, shared a $200 award for "Production of High Purity Silicon Carbide." This invention might have possible utility in making crystal useful in semi-conductors.

Edward C. Polhamus, Full-Scale Research Division, received $300 for a "Variable Sweep Aircraft Wing." This relates to a double pivot variable wing structure for supersonic aircraft.

Joseph Norwood, Aero-Physics Division, and Dr. Karlheinz Thom, NASA Headquarters, shared $300 for "Plasma Accelerator." This is a magnetically triggered switch for high current pulsed discharges.

NEW ASTRONAUTS TO BE NAMED

NASA officials have announced that 10 to 15 new astronaut trainees will be recruited this summer.

The program is open to both civilian and military volunteers. Cutoff date for applications is July 1. The Air Force and Navy, which will prescreen their pilots, will have until July 15 to pass on to NASA the recommended applicants.

Pilots selected will join the current astronaut pilot pool in October.

With slight exception selection criteria are similar to those used in the selection of nine new manned space flight candidates in 1962. To qualify for this selection, a candidate must:

1. Be a U.S. citizen born after June 30, 1929, and six feet or less in height.
2. Have earned a degree in engineering or physical sciences.
3. Have acquired 1,000 hours jet pilot time or have attained experimental flight test status through the armed forces, NASA or the aircraft industry.
4. Be recommended by his present organization.

Compared to 1962 selection criteria, he maximum age requirement has been reduced from 35 years, and certification as a test pilot, while still preferred, is no longer mandatory.

The age reduction is to insure a broad age spread in the pilot pool. Average age of the original group of seven astronauts is now 38; the second group, 34.

In addition, successful applicants will have to be in excellent physical and mental condition.

WANTED: Ride from Hallwood to W.A. on 8 shift. Seay, 3242.

WANTED: Ride from Fort Monroe to W.A. on 8 shift. Dodge, 2375.

NEW INSURANCE SCHEDULE

	Description of Class Employees whose base Annual earnings are:	Life Insurance Face Amount	With Accidental Death Benefit	Employees' Quarterly Payment
Class 1	Less than $4,000	$2,000	$4,000	$2.50
Class 2	$4,000 but less than $5,000	$4,000	$8,000	$5.00
Class 3	$5,000 but less than $6,000	$6,000	$12,000	$7.50
Class 4	$6,000 but less than $7,000	$7,000	$14,000	$8.75
Class 5	$7,000 but less than $8,000	$8,000	$16,000	$10.00
Class 6	$8,000 but less than $10,000	$10,000	$20,000	$12.50
Class 7	$10,000 but less than $12,000	$12,000	$24,000	$15.00
Class 8	$12,000 but less than $14,000	$14,000	$28,000	$17.50
Class 9	$14,000 but less than $16,000	$16,000	$32,000	$20.00
Class 10	$16,000 but less than $18,000	$18,000	$36,000	$22.50
Class 11	$18,000 and over	$20,000	$40,000	$25.00

The net cost of the Life Insurance is for the present year $1.10 per quarter per $1,000. The cost of the accidental death benefit is an additional $0.15 per quarter per $1,000.

SOFTBALL

ESS defeated Roughnecks 9 to 7 to leave Greenhorns and Packers in a tie for first place. The latter two teams were scheduled to meet yesterday in what may have been the deciding contest for the league championship.

Leading hitters in the league are: Booth (9) .729; Harrin (12) .625; Avis (6) .615; Coffey (8) .600; Grunwald (3) .571; Young (3) .555. Cary (8) leads the league with 5 home runs followed by Roach (2) with 4; Pittman (10) 3; Herring (12) 3; and Clark (6) 3.

FINAL SCHEDULE

Date	Dia. A	Dia. B	Ump.
June 24	1-4	7-10	6
June 25	4-9	1-12	7-5
June 26	3-7	2-6	12
June 27	6-3	11-7	9
June 28	9-1	12-11	4

STANDINGS

Team	W	L
Greenhorns (3)	6	1
Packers (10)	6	1
Roughnecks (5)	8	2
Hasbeens (8)	7	3
ESS (4)	4	4
Eastsiders (6)	3	4
Duffers (7)	2	4
IRD (11)	2	4
Slowpokes (1)	2	4
Finks (12)	2	5
Ballbusters (2)	2	6
ACD (9)	0	6

FOR SALE: Three bedroom brick house with attached garage. Warren, LY 69182.

RECORD DIVIDEND DECLARED

(Continued from page 1)

claims. The accidental death of Robert E. Lacey, Langley Chapter, was the only accidental death claim paid during the insurance year.

Western Operations Office joined the Association bring- the number of chapters in the organization to eleven.

All NASA Chapters were represented at the meeting. Langley was represented by Edward A. Howe, Secretary-Treasurer of the Langley Chapter.

MORRIS DIES

Mason H. Morris, Aeronautical Laboratory Mechanic Shift Leader in Mechanical Service Division, died unexpectedly June 18.

Morris was born February 13, 1899 in Fluvanna County, Virginia. Before joining the Center staff he served in the U.S. Army and was employed by the Langley Post Exchange and Phoebus Motor Company.

He entered on duty October 20, 1941 as an Engine Mechanic in Full-Scale Research Division.

He is survived by his wife, Mrs. Elna W. Morris; son, David L. Morris, Analysis and Computation Division; two daughters, Mrs. E. T. Freeman formerly of General Files, and Mrs. Carl O. Christianbury.

WANTED: Alternate drivers from Norfolk to E.A. on 8 shift. Cox, 2233.

WANTED: Ride from La Salle Ave. and Shell Road to W.A. on 8 shift. Taylor, 4796.

CONTRACT AWARD

(Continued from page 1)

struments to form a completely integrated system. It will be properly enclosed for use in the research program at Langley.

NASA officials pointed out that the life support system used successfully in Project Mercury is designed for relatively short periods of service, and that simple extension to much greater durations would lead to excessively heavy equipment.

Before the extended space flights with multiple crews are attempted, the present scope of technology must be enlarged, and the research called for in the new life support contract will contribute to that end.

WANTED: Home for kittens. Edwards, PA-21744.

FOR SALE: Upright Ellington piano - $100. Call White, Ly 6-1374.

WANTED: Lady's three-speed bicycle. Call Freynik, 722-1412.

Langley Researcher

VOLUME 2, NUMBER 14 LANGLEY RESEARCH CENTER JULY 5, 1963

INVITE BIDS FOR BUILDING TO HOUSE NASA CYCLOTRON

Thirty-nine contracting firms in the United States and builders exchanges in Newport News, Norfolk, Richmond, and Washington, D.C., have been sent invitations to bid on construction of the NASA Space Radiation Effects Laboratory building to be located at Oyster Point in Newport News.

Langley Research Center, which will operate the facility in simulating space radiation for research in support of space flight programs, will open bids at 11 a.m. August 2.

The work involved in the contract consists of the complete building construction for the laboratory, which will include a 600-million electron volt synchrocyclotron and associated research equipment now being fabricated under another contract.

The successful bidder will have 600 calendar days after receipt of notice to proceed to complete the job. Construction of the laboratory building is the only remaining major contract to be awarded in establishing the research facility.

The Government's estimate of the cost of the laboratory building is $3,000,000. Total cost of the research facility, which will go into operation in mid-1965, is estimated at $12,382,000.

Charles J. Donlan (right), Langley's Associate Director, talks with Joseph G. Gavin, Vice President of Grumman Aircraft Engineering Corporation, during a meeting held at the Center on June 18 and 19 on the Apollo Lunar Mission. The two-day meeting was held for the purpose of reviewing the research activities at Langley Center in connection with the support of the Apollo Lunar Mission. Additional photographs are shown on page 8.

GILRUTH THANKS LANGLEY STAFF FOR SUPPORT OF PROJECT MERCURY

Dr. Robert R. Gilruth, Director of the Manned Spacecraft Center, has written a letter to Dr. Floyd L. Thompson, Director of the Langley Research Center, expressing appreciation to Langley for assistance in the conduct of Project Mercury-- first United States manned space flight program.

"As Project Mercury draws to a close," Dr. Gilruth wrote in a letter dated June 13, "it is fitting that the Manned Spacecraft Center express its sincere appreciation to the Langley Research Center for the invaluable part that Center has played in our initial manned space flight program.

"The Manned Spacecraft Center owes much to Langley, since, like many of the other NASA Centers, Langley was really its birthplace. In the early days of the 'space age' Langley personnel provided the ideas and the initiative that developed into Project Mercury. Langley provided a major portion of the personnel that formed the original Space Task Group which later grew to become the Manned Spacecraft Center.

"Specific contributions which Langley has made to Project Mercury are too numerous to detail completely," Dr. Gilruth commented, "but briefly, they include:

"Assistance in the 'Big Joe' program.

"Implementation of the 'Little Joe' program.

"Planning and implementation of the tracking and ground instrumentation system.

"Numerous aerodynamic, structural, materials, and component evaluation and development tests.

"Engineering, shop, instrumentation, and logistic support for much of the Space Task Group in-house testing.

"Administrative support and office space during the period from late 1958 until mid-1962 when we completed our move to Houston."

Dr. Gilruth concluded his letter by stating:

"As you can see, all elements of the Langley Center provided major assistance to Project Mercury, and we are deeply grateful for this help."

Project Mercury became an active NASA program less than a week after the NASA came into being on October 1, 1958. A month after Mercury received official status, the Space Task Group was formed at Langley to implement the program.

Thirty-five key Langley personnel, many of whom had been working on the manned space flight concept for several months before the NASA was established, became a nucleus of the Space Task Group-- which later grew into the Manned Spacecraft Center.

Dr. Gilruth and Charles J. Donlan were in this pioneer group, which established headquarters in the administration building and surrounding structures in the East Area for nearly four years. Donlan was serving as Project Mercury Associate Director when he returned to become Lang-

(Continued on page 2)

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW ARRIVALS. . .Doris, formerly of 16-foot Tunnel, and S. M. Burk, Recovery Systems Branch, recently became parents of a son, Darrell Richardson. . .David Hilton, Acoustics Branch, became the father of a six pound, six ounce son, David Ellis, on June 21.

ORANGE BLOSSOMS. . .Harry Brockmeyer, Instrument Research Division, was married to Ethel Breeden, Hampton, on June 29 at the Lutheran Church, Hampton.

ENGAGED. . .Making plans to desert the bachelor ranks is Jerry Williams, Applied Materials and Physics Division. He is engaged to Charlotte Annette Nixon, Hampton, and the wedding will take place on August 24.

TRAINING NOTICE. . .Plans are being made of offer undergraduate courses in Dynamics, Statics, and Strength of Materials. These courses will be taught in the fall and spring provided sufficient registration is obtained. Persons interested are requested to contact the Training Office, telephone 2326.

ILLEGAL PARKING. . .Employees are urged to refrain from parking vehicles in the no parking areas at the entrances and loading zones of Center buildings. Curbings marked with yellow paint mean no parking and terra cotta (reddish brown) mean 30-minute parking. Unless a building entrance is clearly marked permitting parking, it must be assumed that no parking is allowed.

SERVICE PLAN REPRESENTATIVE. . .Richard F. Brody, Government-wide Service Plan representative, will visit the Center on July 16 at 2 p.m. Employees having problems concerning their Government-wide Service Benefit Plan may call Linda Hale, 2323, for an appointment.

GRADUATE COURSE OFFERED

A graduate credit course in Physics 5110, Classical Mechanics, is being offered under the Virginia Polytechnic Institute program. The course will start during the second week of August with Dr. Manuel J. Queijo as instructor.

This is the first sequence of a three-sequence course and must be taken by employees who plan to do graduate work for a Master's degree in Physics at VPI.

This will be followed during the fall semester by Physics 513, Quantum Mechanics, which will be included in the Graduate Study Announcement to be circulated later this month.

Employees wishing to enroll in Physics 5110 should call the Training Office, telephone 2326.

Major Cecil D. Bailey (right), Chief of the Scientific and Technical Liaison Office, Langley Research Center, was recently presented the Air Force Commendation Medal by Major General Marvin C. Demler, Commander, Headquarters, Research and Technology Division, at Bolling Air Force Base. The award was presented to Major Bailey in recognition of meritorious service as chief of his office during the period June 1, 1962 to February 1, 1963. During this period he demonstrated exemplary leadership, resourcefulness and devotion to duty in initiating Air Force-NASA projects which have advanced the Nation's aerospace programs and defense posture.

JOHN E. GILLESPIE DIES

John E. Gillespie, Contract Specialist in Procurement Division, died unexpectedly June 23 in a Portsmouth Hospital.

Gillespie was born August 19, 1909 in Coalinga, California. He served as a Warrant Officer in the U.S. Army from June 24, 1929 to February 11, 1935 and from July 18, 1935 to October 25, 1942. He joined the Center staff on October 26, 1942 as an Assistant Purchasing Clerk in the Procurement Division.

He is survived by his wife, Mrs. Leonora F. Gillespie, three daughters, and one son.

GILRUTH THANKS LANGLEY STAFF

(Continued from page 1)

ley Associate Director in April 1961 to help guide Langley's major research effort in support of current and future manned space flight programs.

As a memento of Langley's participation in the successful Mercury program, the Langley Researcher is publishing a four-page insert in today's issue-- illustrating just a few of the many contributions made by Langley as noted in Dr. Gilruth's letter.

ANALYTICAL GEOMETRY OFFERED

A 3-semester-hour credit course in Analytical Geometry is being offered by the University of Virginia Engineering Extension.

The class will start tomorrow at 9 a.m. in Building 167, Shellbank area. This will be the last day new students may enroll. For further information call Margolis, 2359.

LANGLEY RESEARCH CENTER

LANGLEY RESEARCH CENTER, BIRTHPLACE OF PROJECT MERCURY, CONTRIBUTES TO SUCCESS OF MANNED SPACE FLIGHT PROGRAM

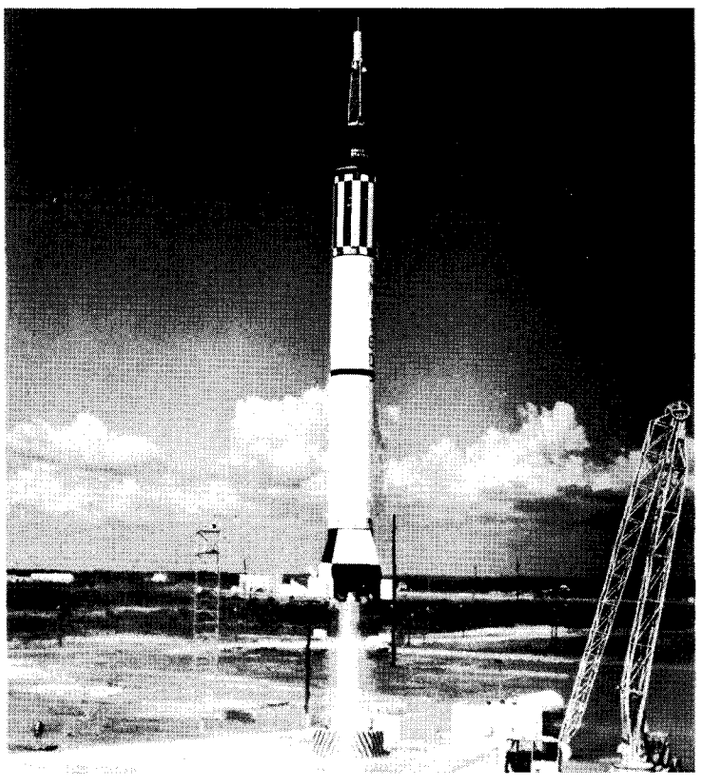
In addition to having the distinction of being the birthplace of the first United States manned space flight program-- Project Mercury-- the Langley Research Center has provided extensive support to help assure the success of the national effort.

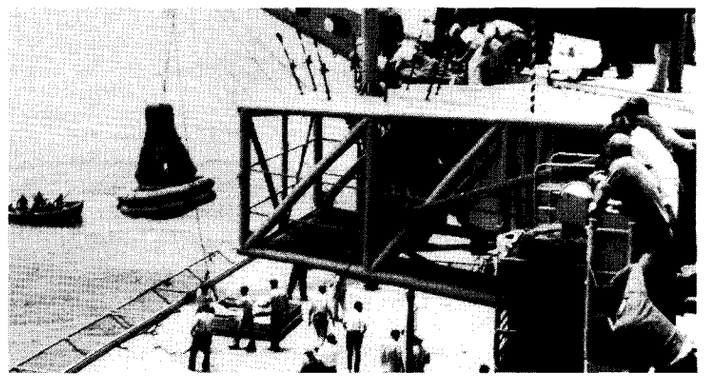
Langley research facilities were utilized in providing much of the science and technology needed for the development of the Mercury spacecraft and related systems, and the NASA worldwide tracking and ground instrumentation network for monitoring manned space flights was successfully completed under Langley direction.

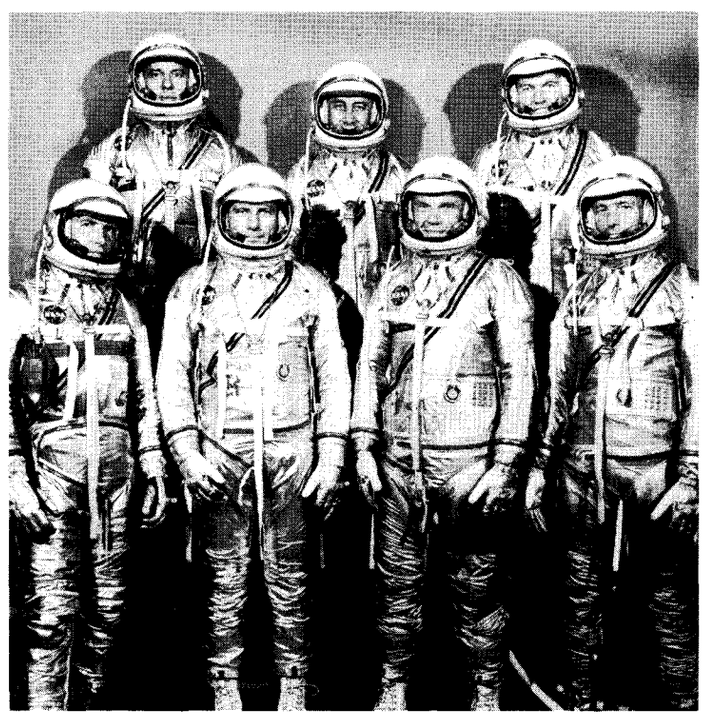
Project Mercury was officially established as an NASA program in early October 1958. Within a little more than four years and seven months of the date the project received official status, the Manned Spacecraft Center-- now located at Houston, Texas, brought Mercury to a successful conclusion. There were six manned space flights in the program, two sub-orbital and four orbital-- all stepping stones to future manned flights to the moon and beyond.

The first United States manned space flight was a sub-orbital mission by Alan B. Shepard on May 5, 1961, followed on July 21, 1961, by another sub-orbital journey by Virgil I. Grissom. Orbital flights followed in succession by John H. Glenn on February 20, 1962 (three orbits), M. Scott Carpenter on May 24, 1962 (three orbits), Walter M. Schirra on October 3, 1962 (six orbits), and climaxed by the 22-orbit flight of L. Gordon Cooper on May 15, 1963.

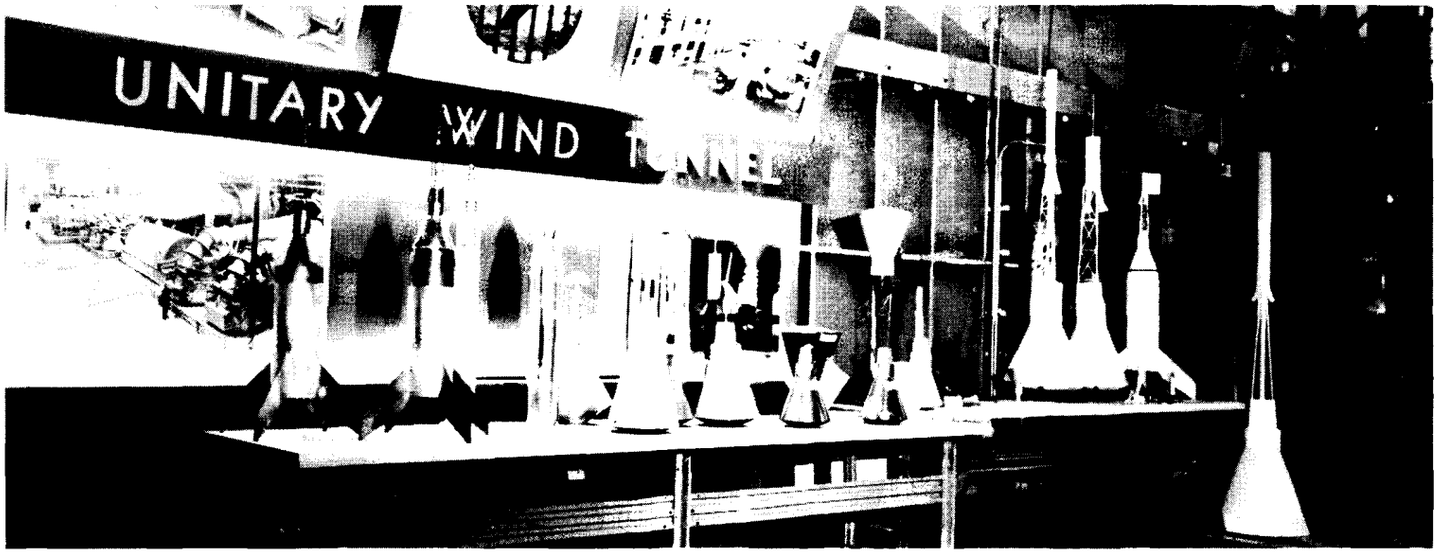
Some of Langley's early research in the area of manned space flight, and various scientific investigations in support of the development of the Mercury program are illustrated with the following photographs of laboratory, shop, and flight activities in the late Fifties and early Sixties.

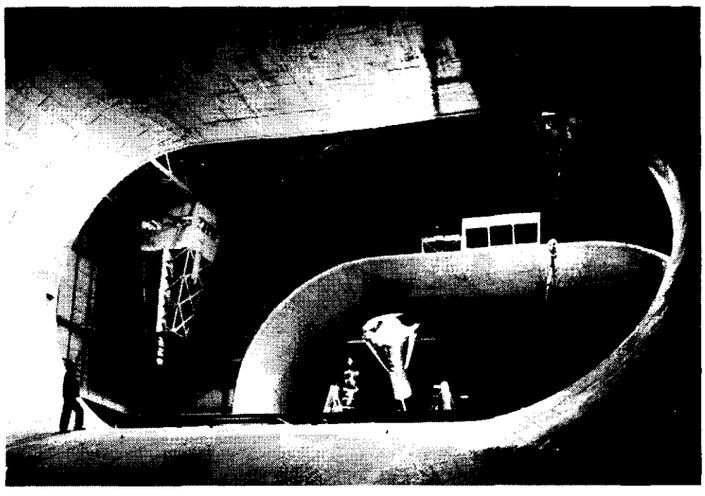


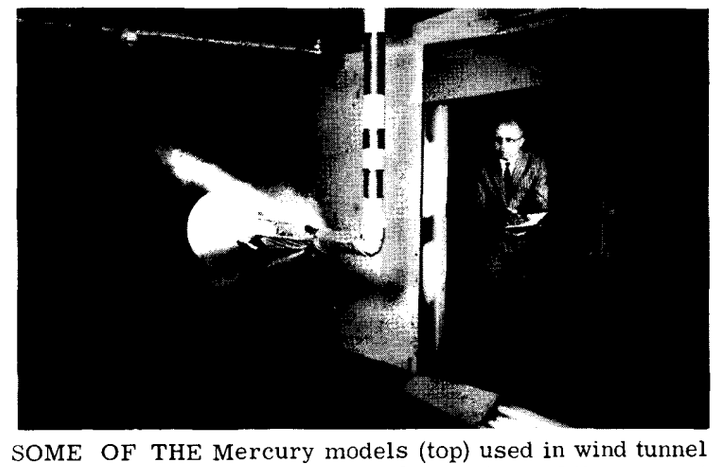




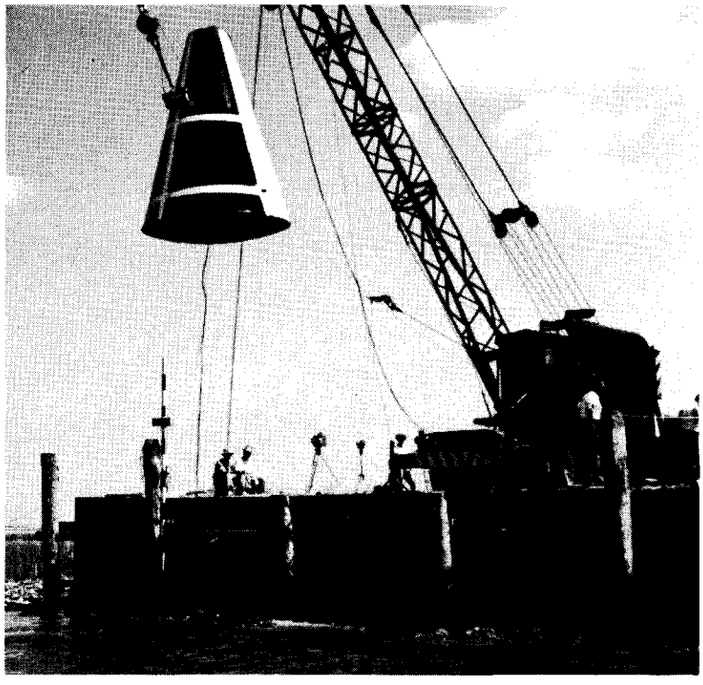
MERCURY-REDSTONE-3 (above) climbs from launching pad at Cape Canaveral, Florida, May 5, 1961, as Alan B. Shepard becomes America's first man in space. Mercury program was climaxed two years later with flight of L. Gordon Cooper aboard Mercury-Atlas-9 on May 15, 1963. Cooper's spacecraft (top right) is lowered to the deck of the carrier Kearsarge southeast of Midway Island in the Pacific Ocean after the dramatic flight. NASA Mercury astronauts (right) include (from left): Front row - Walter M. Schirra, Donald K. Slayton, John H. Glenn, and M. Scott Carpenter; back row - Shepard, Virgil I. Grissom, and Cooper.

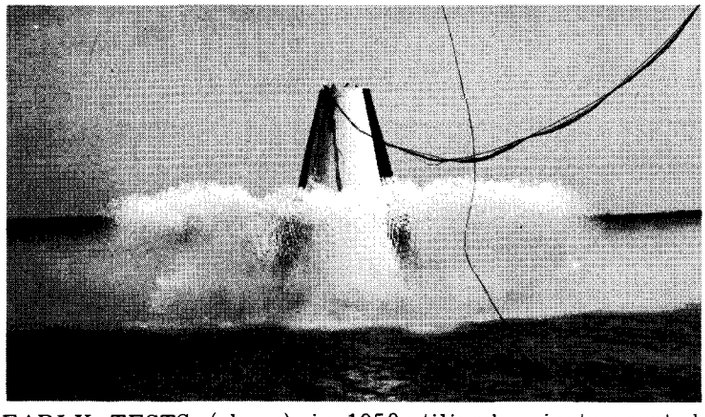


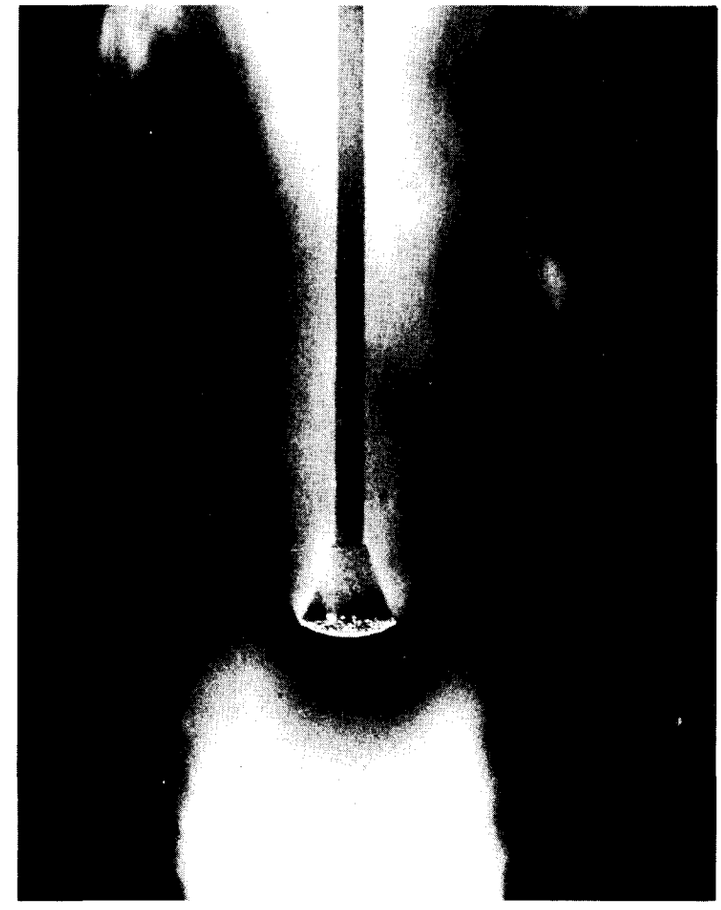


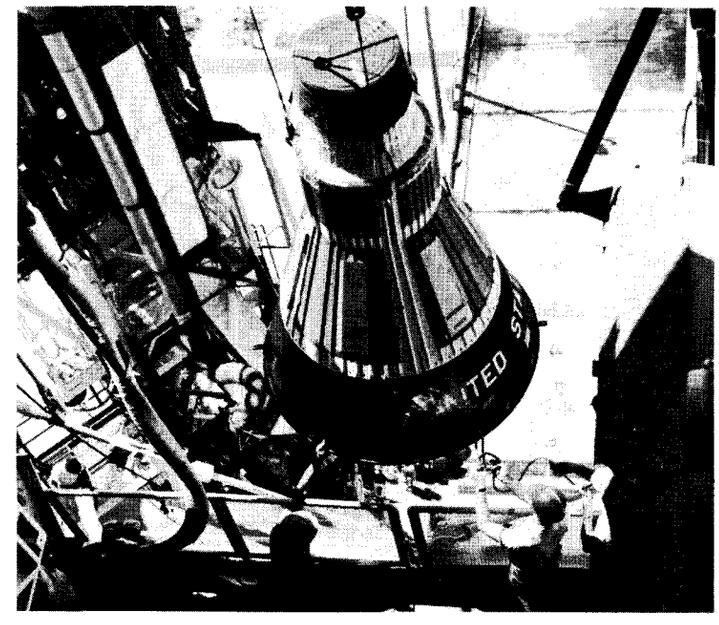


SOME OF THE Mercury models (top) used in wind tunnel research at Langley include early versions of the manned spacecraft concept. Models of various sizes were used in Langley research. A full-size model (upper left) is prepared for static stability studies, while a tiny model (upper right) weighing less than a ping-pong ball is installed in a shock tunnel for drag and heat transfer investigations. A one-sixth-scale model (above) shows water being forced through nozzles to aid scientists in visual observation during tests to determine the effect of escape system power on spacecraft stability. Ability of the drogue chute to stabilize the spacecraft is determined by releasing a model (left) into the airstream of a vertical wind tunnel.

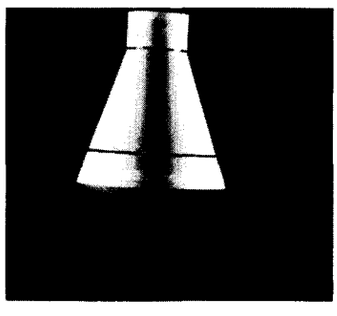


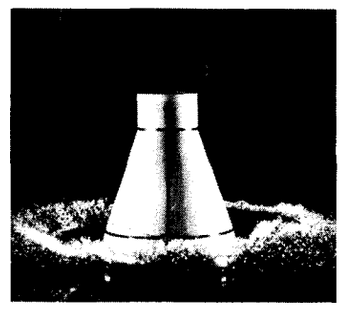


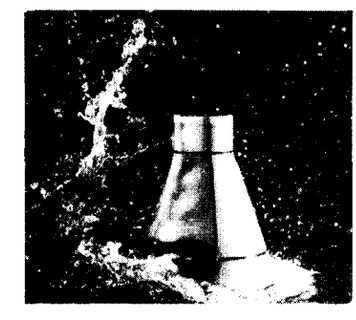


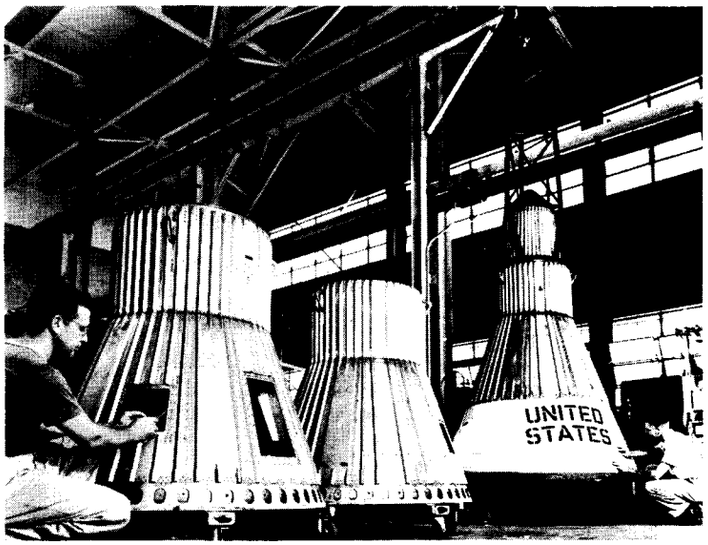


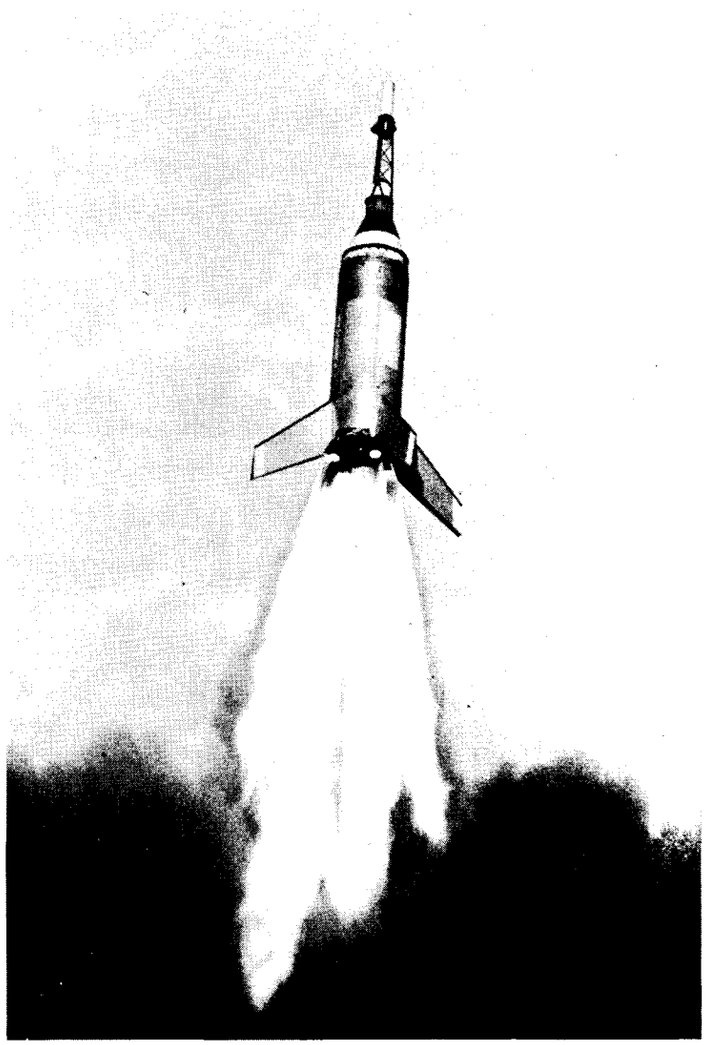
EARLY TESTS (above) in 1958 utilized an instrumented model which recorded water-landing characteristics as the spacecraft was dropped from a crane boom. Sequence photographs (below) made in 1959 show a Mercury model being dropped in a water tank to simulate landing in the ocean at 30 feet a second (about 20 miles an hour). A small model (top right) is exposed to the 5,000-degree F. air stream of an electric arc-heated air jet in one of a series of tests of various materials considered for use as Mercury heat shields. Langley assisted in many flight programs, including Big Joe (lower right), being readied for launch atop an Atlas booster on September 9, 1959, at Cape Canaveral, Florida. The spacecraft heat shield reached temperatures approaching 3,000-degrees F. in the Big Joe ballistic flight, which verified the validity of the Mercury design concept.

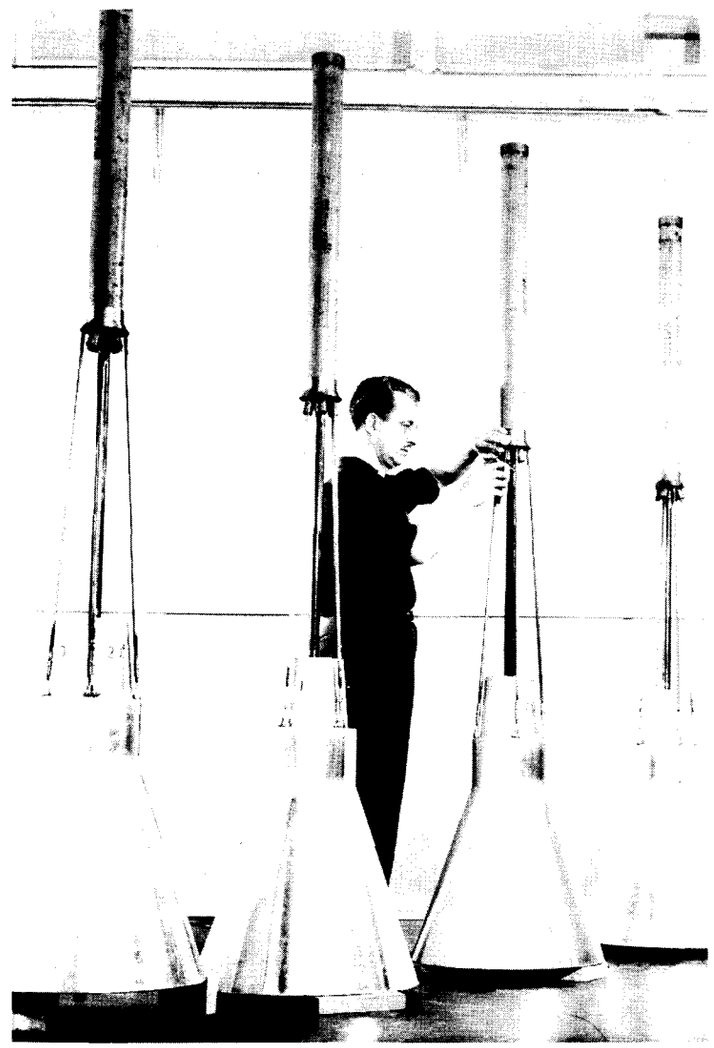












LANGLEY IMPLEMENTED the Little Joe program for launching several full-scale Mercury spacecraft to varying altitudes to obtain extensive flight data before sending man aloft. Technicians (top Left) check Little Joe spacecraft in a Langley fabrication shop, and a Little Joe booster (lower left) lifts off its Wallops Island, Virginia, launch pad in a research flight. Langley shops built human support systems (top right) for use in investigating problems to be encountered in manned space flight. The form-fitting couches, with elevated leg rest, were contoured in accordance with physical characteristics of the persons using them as research vehicles. Such a system permits an astronaut to withstand high acceleration forces. One-third-scale Mercury models (lower right) have escape rocket nozzles installed at various angles to study the effect of nozzle cant on spacecraft stability. They were fired from the beach at Wallops Island.

FINAL BOND REPORT

Henry A. Fedziuk, Chairman of the Center's recent U.S. Savings Bond Campaign, announced that during the drive a total of 449 new subscribers signed up to take bonds through the Center's payroll savings plan. This brings the present percentage of participation to 68 percent.

Fedziuk expressed his appreciation to all the solicitors who contacted the non-subscribers during the effort. He also pointed out those who desire to subscribe to bonds or who wish to increase their present allotment, may obtain authorization cards from the respective attendance clerks.

The final standings by divisions are as follows:

Division	Number Employees	Subscribers at beginning of drive	New subscribers	Percentage
Ch., Tech. Serv.	65	50	2	80
ASMD	199	139	4	72
RMFD	179	94	23	65
Off., Asst. Dir. Adm.	27	12	8	74
Office of Director	101	63	11	73
Dynamic Loads	155	87	13	65
FVSD	124	73	29	82
Res. Reports	56	37	7	79
IRD	473	221	31	53
Electrical	234	103	87	81
Structures	198	113	32	73
Mech. Serv.	651	426	78	77
Full-Scale	257	164	3	65
Anal. and Comp.	163	77	18	58
Procurement	150	74	18	61
Fiscal	98	56	7	64
Aero-Physics	269	155	11	62
AMPD	249	117	12	52
Maintenance	195	116	14	67
TMD	53	35	3	72
Office Services	98	36	9	46
Personnel	57	44	10	95
Photographic	84	51	19	83
TOTALS	4135	2343	449	68

NASA SOFTBALL LEAGUE

The Greenhorns defeated Packers 3 to 1 to insure at least a tie for first place with Packers. Roughnecks lost to the Hasbeens to place these teams in a deadlock for third place. After a slow start Finks have come alive to win six straight games and tie ESS for fifth place.

The second round will be played in two divisions with a few games scheduled between divisions. Division A will include the following teams: Greenhorns, Packers, Hasbeens, Roughnecks, and ESS. The remaining teams will comprise Division B. The schedule for the first week of play is as follows:

Date	Dia. A	Dia. B	Ump.
July 8	8-12	6-4	7
July 9	2-11	5-10	2
July 10	4-3	7-9	10
July 11	10-8	12-2	5
July 12	11-6	3-5	12

TEAMS: 2., Ballbusters, 3. Greenhorns, 4. ESS, 5. Roughnecks, 7. Duffers, 8. Hasbeens, 9. ACD, 10. Packers, 11. IRD, 12. FINKS.

FOR SALE: 3-bedroom, 2-bath, air conditioned rancher in Hidenwood, Anderson, LY 6-4549.

In ceremonies held last week Floyd L. Thompson (left), Director, presented letters of appreciation from James E. Webb, NASA Administrator, to Eldridge H. Derring (center), Head of Research Staff Office, and J. Norwood Evans, Assistant Personnel Officer. The letters were presented to Derring and Evans in recognition of their leadership in the NASA Recruiting Program. Webb also expressed his appreciation and thanks to the many other staff members who contributed to this important program.

APPRENTICE HONOR ROLL

Training officials announced that 25 apprentices ended the spring semester with an average of 98 or above. Members of the honor roll are as follows:

William E. Anspach, Materials Processing and Development; William J. Batson, Polymer Research Laboratory; Douglas M. Brown, Heavy Machine Shop; James I. Clemmons, Electronic Shop; Charles E. Cockrell, Materials Processing and Development; William C. Conkling, Dynamic Model Shop; David S. Coombs, William T. Davis, and James F. Garvin, all of Light Machine Shop, Stephen C. Irick, Dynamic Model Shop; Earl S. Knight, Heavy Machine Shop; Virgil S. Laney, Electronic Shop.

Also Russell W. Loop, Spacecraft Instrument Development; Daniel J. Milburn, Heavy Machine; Roy E. Parrish, Instrument Construction; Garland F. Prillaman, Electronic Shop; Vincent Pritchett, Instrument Construction; James Puffenberger, Heavy Machine; Carroll W. Rowland, Electronic Shop; James D. Smith, 8-foot Tunnel; Harold V. Stanley, Heavy Machine; Richard B. Sweeney, Magnetoplasmadynamics; Kenneth F. Test, Hypersonic Continuous Flow Tunnel; Burnie S. Williams, Fatigue Branch, and Davis B. Wright, Fabrication Shop.

GOLF EXHIBITION JULY 14

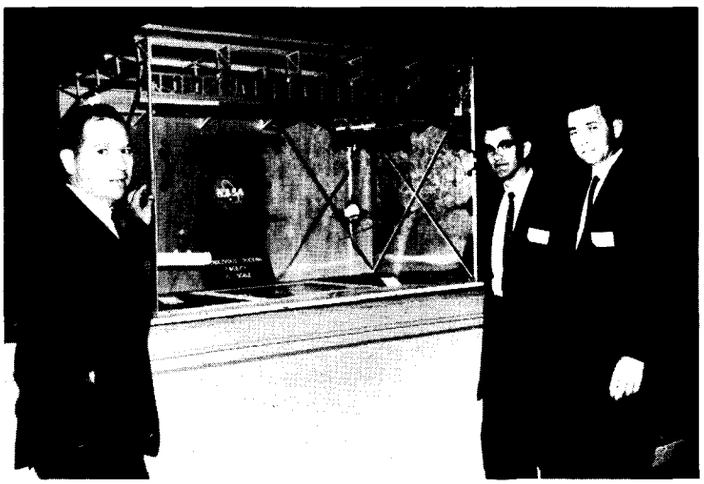
The Peninsula Chapter of the Leukemia Society will sponsor an exhibition by Paul Hahn, trick golf artist, on Sunday, July 14 at 2:30 p.m. at the Hampton Country Club.

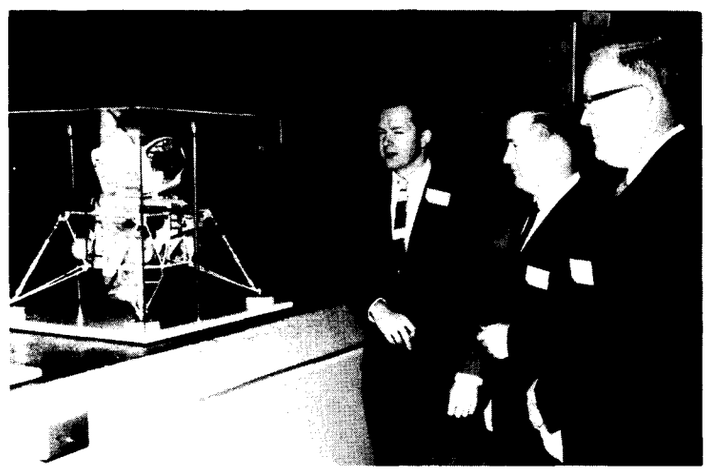
Admission to the exhibition will be by donation to the Leukemia Society. Minimum donations accepted will be $1. Tickets are available at the Langley Researcher Office or Employee Services Section, Building 587.

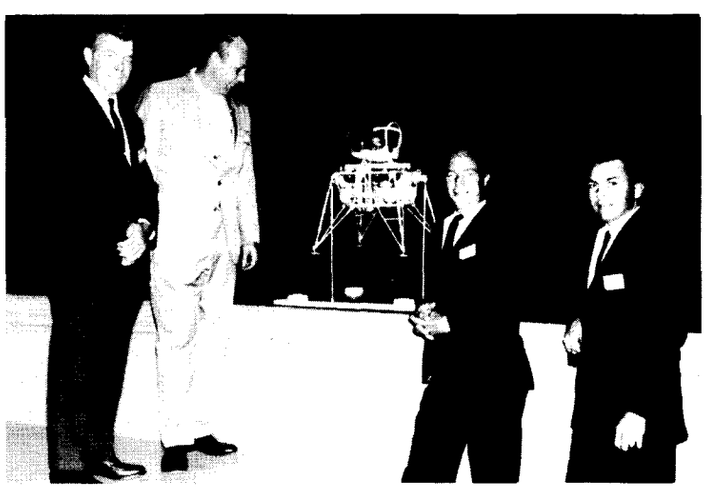
FOR SALE: 1960 Triumph TR-3. Walz, 723-8720.

NOTICE: Will the person who borrowed "Aerodynamic Drag" by Hoerner contact Blackstock, 4770.

WANTED: Driving combination from Newmarket area to W.A. on 8 shift. Robertson, 4524.







The recent meeting on the Langley Research Center's Research Related to Apollo Lunar Mission was attended by staff members from Manned Spacecraft Center, Marshall Space Flight Center, private industry, and Langley. Top left photograph - Roy F. Brissenden (left), Guidance and Control Branch, Aero-Space Mechanics Division, shows Andre Myers and Willis B. Mitchell, both of Manned Spacecraft Center, a model of the Rendezvous Docking Facility. The full-scale facility is located in the Hangar. Top right- Astronauts Elliot M. See (left) and M. Scott Carpenter were among the guests. Center left (from left) - Eugene C. Draley, Langley Assistant Director, John O. Windham, Marshall Resident Engineer at Langley, talk with Hans F. Wuenscher and Leroy H. Berge, both of Marshall. Center right (from left) - Tom Kelley, Grumman representative, Owen Maynard, Spacecraft Center, and Axel T. Mattson, Langley's Research Assistant for Manned Space Administration, look at a model of the lunar excursion module. Lower left (from left) - Arthur W. Vogeley, Head of the Guidance and Control Branch, Paul E. Purser, Manned Spacecraft Center, and Astronauts Carpenter and See pose by the lunar excursion module. Lower right - Clinton E. Brown, Langley Assistant Director, talks with Donald Cheatham, Manned Spacecraft Center.

Langley Researcher

VOLUME 2, NUMBER 15 LANGLEY RESEARCH CENTER JULY 19, 1963

ENGLE AND THOMPSON NEW PILOTS OF X-15 AIRCRAFT

Captain Joe H. Engle, USAF, and Milton O. Thompson, NASA, will make their first flights in the X-15 later this year. Selection of the two new pilots was announced by Paul F. Bikle, Director of the NASA Flight Research Center, and Brig. General Irving L. Branch, Commander of the Air Force Flight Test Center, Edwards Air Force Base.

The pair will join three other pilots in the flight efforts of this joint NASA-USAF-USN research program that is obtaining scientific information at extremely high speed and altitude in manned aircraft. The others are John B. McKay, NASA; Major Robert A. Rushworth, USAF; and Joseph A. Walker, NASA Chief Research Pilot.

The new pilots will fill vacancies left by NASA research pilot Neil Armstrong who was selected as an astronaut for NASA's Manned Space Flight Program and Air Force Major Robert White who recently was reassigned to other Air Force duties.

(Continued on page 7)

DEAN CROWDER TO HEAD NASA LANGLEY OFFICE

Two events of interest occurred recently in California, where the Langley Research Center participates in launchings of the Scout vehicles which was developed by Langley.

V. Dean Crowder has assumed new duties as head of Langley's field projects office at Point Arguello, California, following his appointment by Dr. Floyd L. Thompson, Langley Director.

(Continued on page 7)

THREE APPOINTED TO NASA STAFF

Three key personnel appointments to NASA Headquarters staff were recently announced.

Effective July 8, Earl D. Hilburn assumed the position of Deputy Associate Administrator for other than manned space flight centers. He will be the primary representative of the Associate Administrator, Dr. Robert C. Seamans, Jr., for actions and relationships involving the general management affairs of the NASA field installations in his assigned area.

Robert F. Garbarini, who was appointed Director of the Office of Applications recently, took his oath of office June 27 at Headquarters.

Seamans also announced the appointment of Robert W. Long to his staff as a consultant on construction matters.

Hilburn will fill the position left vacant earlier this year with the resignation of Thomas F. Dixon. The installations which will be reporting to Hilburn with respect to general management affairs are: Ames, Lewis, Langley, Flight Research, Goddard, Wallops, and Jet Propulsion Laboratory.

Hilburn comes to NASA from Curtiss-Wright Corporation where he has been Vice President and General Manager of the Electronics Division since March 1962. This division was engaged principally in the manufacture of flight simulators and ground radars.

Garbarini was formerly associated with Sperry Gy-

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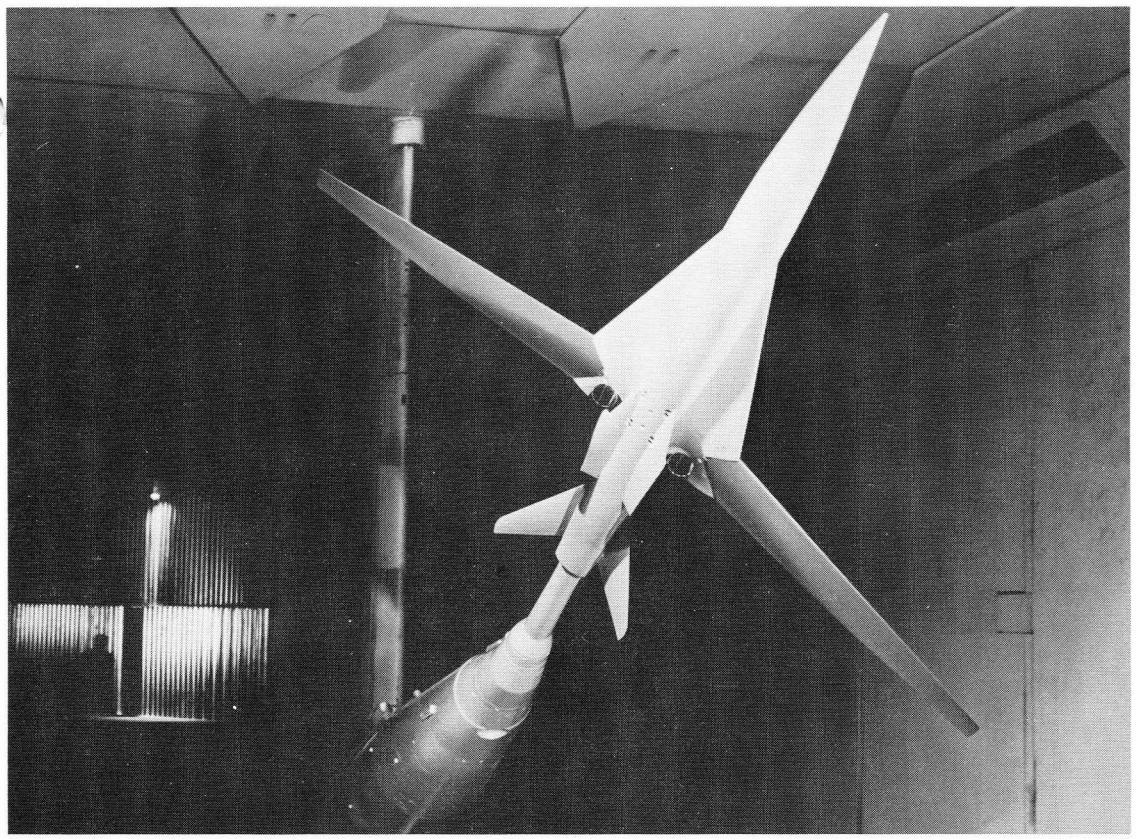


This photograph of the SCAT-16, by Bob Nye, Langley Researcher photographer, appeared on the cover of the June issue of Astronautics, official publication of the American Institute of Aeronautics and Astronautics. SCAT 16, which is one of a number of highly advanced concepts for possible use as supersonic commercial airliners, is shown in the test section of the 7- by 10-foot High Speed Wind Tunnel. The concept features the principle of the variable sweep wing. Here the wing is in its fully-extended position to provide extra lift forlanding and take-off. Evaluation of the design by aircraft manufacturing company groups is underway to extend the research work already accomplished by NASA scientists.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

WEDDINGS. . .Griffin Y. Anderson, Internal Aerodynamics Branch and Iris Ann Cofman, Boston, were married June 22 in Boston. . .Edgar D. Kersey, Space Vehicle Branch, took his final vows with Betsey Freeman Croswell, Hampton, on July 6 at the Aldersgate Methodist Church in Hampton. . .A Center romance was climaxed on June 29 when Beth Hickerson, Analytical Computing, became the bride of John P. Weidner, Internal Aerodynamics Branch. . .Wedding bells will ring tomorrow when Barbara West, Personnel Records, takes her final vows with Samuel Sain, Newport News, at the Langley Base Chapel. Dianne Lassiter, Personnel Records, will be a bridesmaid.

NEW ARRIVALS. . .Passing out cigars and candy is James H. Carmines, Mechanical Service Division. He became the father of a daughter on June 29. . .Announcing the birth of a daughter on June 13 is Harry J. Buchanan, Internal Aerodynamics Branch. . .A daughter was delivered to the Roy Henley household on July 4. The father works in Mechanical Services. . .John G. Shearin, Applied Materials and Physics Division, became the father of a son on July 3. . . Walking the floor nights is Gene Rollins, Mechanical Services. He became the father of a daughter on June 26. . . Announcing the arrival of a daughter, Jane May, on June 21 is Joe Howell, Instrument Research Division.

ENGAGED. . .Making plans for an October wedding are Barbara Cook, Hypersonic Aerodynamics Section, and James Cubbage, Internal Aerodynamics Branch.

INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health Benefit Program, will visit the Center July 24 from 2:45 p.m. until 3:45. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

EXPRESSES THANKS. . .The family of Morton J. Stoller would like to express their appreciation to the members of the Langley staff for their kind expression of sympathy at the time of the recent death of Stoller. Stoller was formerly employed at Langley and was a member of the Headquarters staff at the time of his death on June 13.

BLOODMOBILE. . .The Red Cross Bloodmobile will visit the Center on July 31 and will be in operation at the Activities Building. Employees wishing to register to take part in this program may contact the East Dispensary, 2243.

Beetle Bailey by Mort Walker

EMPLOYEES ATTEND MODEL MEET

John Worth, Research Projects Support Section, Mechanical Service Division, and Charles Libbey, Dynamic Stability Branch, Flight Mechanics and Technology Division, assisted in the recent International Record Trials at which existing world records for altitude and speed for for radio-controlled model aircraft were broken.

The altitude record, held by Russia, of 7,380 feet was topped seven times by four different flyers. Highest was Maynard Hill of Silver Spring, Maryland, with a flight of 13,320 feet. He also had flights of 12,960 feet and 11,940 feet. The speed record of 116 mph held by the United States was beaten by C. R. Scott of Anandale, Virginia, with an average speed flight of 126.9 mph.

The event was sanctioned by the Academy of Model Aeronautics, U.S. governing body for modeling. It was held at the U.S. Naval Weapons Laboratory at Dahlgren, Virginia, on July 4 and 5.

Worth is President of the Academy and Libbey is regional Vice President. The Navy and NASA cooperated by providing instrumentation and tracking aids which assisted in the achievement of the altitude record-breaking flights.

WANTED: Ride from Stoneybrook to E.A. on 8 shift. Call Wright, 2249.

WANTED: Ride from Huntington Court to W.A. on 8 shift. James, 4530.

WANTED: Driving combination from Beachwood-Denbigh area to E.A. on 8 shift. White, 2314.

WANTED: Ride from Menchville Road to W.A. on 8 shift. Haggerty, 4432.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Hampshire, 4895.

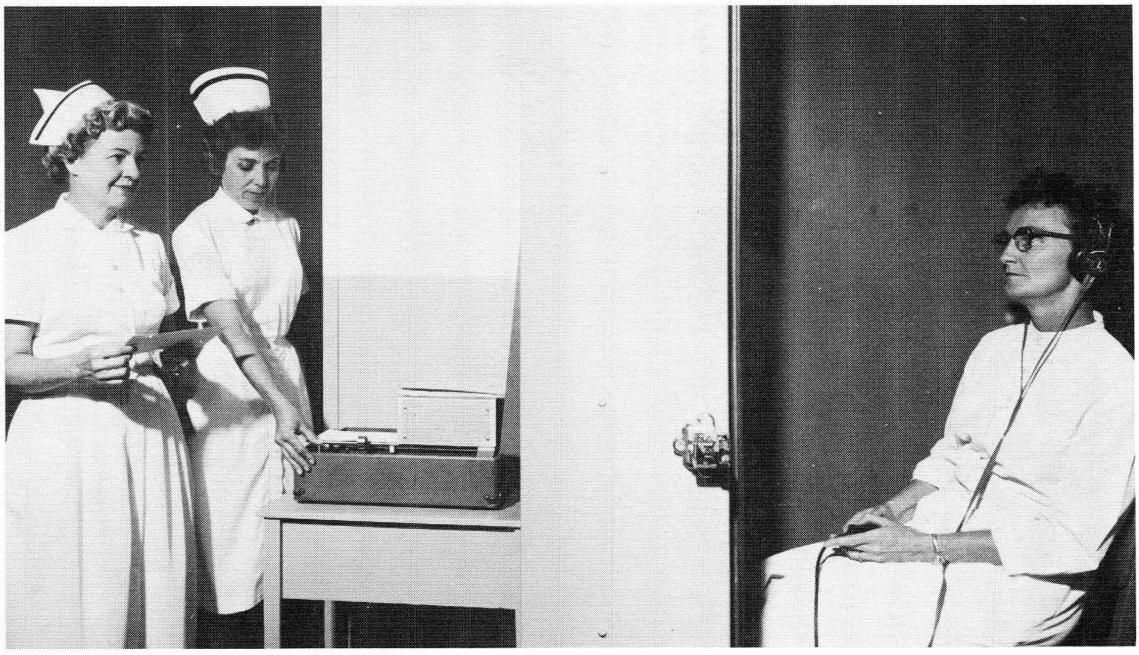
CENTER HAS TWO DISPENSARIES TO SERVE EMPLOYEES

Langley Research Center has two modernly equipped dispensaries to treat employees who become ill on the job or are injured in an accident while at work.

The two dispensaries are staffed by five nurses. They are: Betty H. Downing, Margaret T. Satterfield, and Lucille K. Smith, who received their training locally at Buxton Hospital, now known as Mary Immaculate Hospital; Julia K. Stainback, a graduate of the Youngstown Hospital School of Nursing in Youngstown, Ohio, and Virginia H. Jones, an alumna of the King's Daughters Hospital, Portsmouth.

The East Dispensary is located in Building 584 and includes a first aid room, office, bedroom, bath and small storage room.

The West Dispensary, located in Building 1149, includes two first aid rooms, two bedrooms, two baths, office, waiting room, and storage room.



Nurses Lucille Smith, Virginia Jones, and Margaret Satterfield are shown conducting a test on an audiometer. The dispensaries are open each work day from 7 a.m. until 4:30 p.m.

In addition to general first aid equipment, special instruments are also provided including an audiometer to measure hearing acuity, an electrocardiograph for plotting a graph of the heart beat, and an Ortho-rater for testing visual skills.

The Center has two ambulances, one stationed at the Rocket Testing Area and the other located in West Area. They are manned by employees who are trained in first aid and a nurse always accompanies the ambulance on emergency calls.

About 825 patients are treated each month in the two locations with ailments ranging from on-the-job injuries to headaches. Recently the staff was called on to treat an employee for snake bite. The largest number of patients each month are treated for colds and sore throats with the second largest number reporting for redressing and soaking of strains, sprains, or contusions.

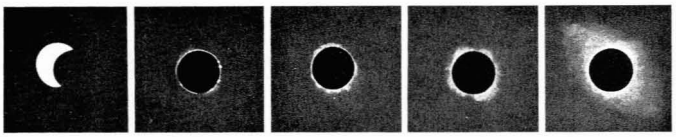
The nursing staff is responsible for sending employees who become ill on the job to hospitals, doctors, or their homes. They also schedule appointments for Bloodmobile visits and provide donors for fresh blood for emergency calls from hospitals. The Bloodmobile visits the Center five times a year with the next visit set for July 31.

Organizationally the dispensaries are included in the Employee Services Section of the Personnel Division. Professional direction and consultation is furnished by a contract physician.

Nurses Julia Stainback (left) and Betty Downing check the electrocardiograph equipment.

SAFETY AND PHOTOGRAPHIC INFORMATION ON SOLAR ECLIPSE

The following safety and photographic information has been provided by Eastman Kodak Company for the benefit of those interested in watching as well as photographing the solar eclipse scheduled tomorrow:



PARTIAL PHASE | BAILY'S BEADS | PROMINENCES | INNER CORONA | OUTER CORONA

SOLAR ECLIPSE PHOTOGRAPHY FOR THE AMATEUR

Approximate Exposures

For Still and Movie Cameras

ASA SPEED		Partial Phases		Totality (Prominences)		Totality (Inner Corona)		Totality (Outer Corona)	
		STILL	MOVIE	STILL	MOVIE	STILL	MOVIE	STILL	MOVIE
25-32	Lens Opening	f/5.6	f/11	f/4.5	f/8	f/4.5	f/2.8	f/4.5	f/1.4
	ND Filter	5.00	5.00	none		none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
40-50	Lens Opening	f/6.3	f/13	f/5.6	f/11	f/5.6	f/3.5	f/5.6	f/1.9
	ND Filter	5.00	5.00	none		none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
64	Lens Opening	f/8	f/16	f/6.3	f/13	f/6.3	f/4	f/6.3	f/2
	ND Filter	5.00	5.00	none		none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
125-160	Lens Opening	f/11	f/22	f/8	f/16	f/8	f/4.5	f/8	f/2
	ND Filter	5.00	5.00	none		none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
200-250	Lens Opening	f/16	f/9.5	f/11	f/22	f/11	f/6.3	f/11	f/2.8
	ND Filter	5.00	6.00	none		none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
400-650	Lens Opening	f/22	f/11	f/16	f/11	f/16	f/9.5	f/16	f/4
	ND Filter	5.00	6.00	none	1.00	none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS
1250	Lens Opening	f/32	f/16	f/22	f/16	f/22	f/13	f/22	f/5.6
	ND Filter	5.00	6.00	none	1.00	none		none	
	Time (seconds)	1/100	16FPS	1/100	16FPS	1/10	16FPS	1/2	16FPS

FPS = Frames Per Second

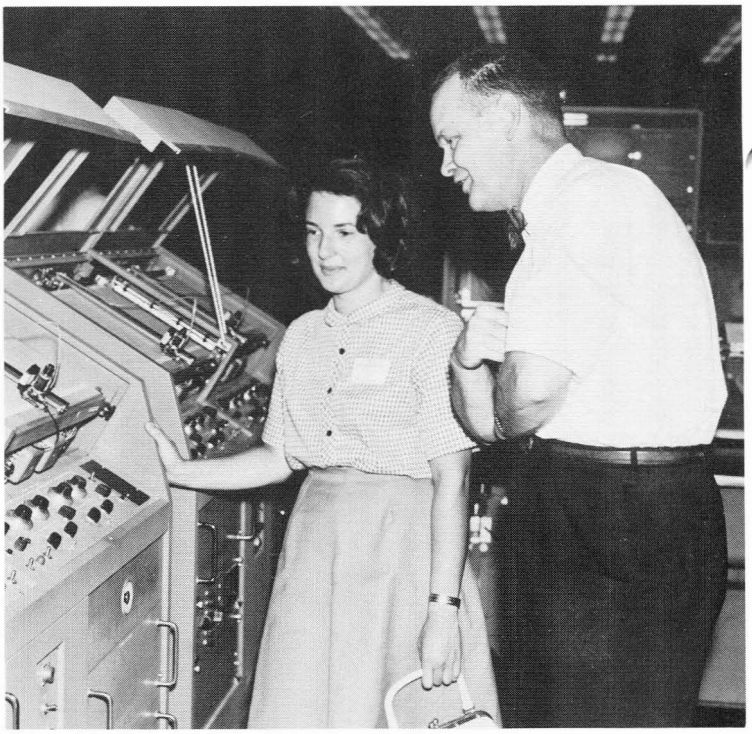
WARNING: THE SUN CAN BURN YOUR EYES WITHOUT YOUR KNOWLEDGE.

Who hasn't seen the power of the sun to burn? Remember the fun you had, as a child, burning holes in paper with a magnifying glass? To look at the sun through any optical instrument - even the finder on your camera - can burn your eye and cause blindness. Therefore, never look at the sun through any optical device without adequate protection.

There are two important aims of such protection: The first is to reduce the visual intensity of the sun for comfort. The second, and more important, aim is to reduce the energy that you cannot see - namely, the ultraviolet and infrared radiation which can damage your eye instantaneously without your being aware of it.

Always use a filter which will absorb equally and sufficiently the ultraviolet, visible, and infrared energy of the sun. There have been some erroneous recommendations suggesting the use of materials which absorb the visible energy but do not absorb the dangerous, invisible infrared rays. One such suggestion involves the use of crossed-polarizing elements.

Medical authorities indicate that a neutral-density filter of metallic silver, such as developed photographic film, of at least 6.0 density will provide adequate protection, for visual use only. Such filters are not suitable for photographic use. Place the filter in front of your eyes before facing the sun. Such a filter can be made with two thicknesses of black-and-white (not color) photographic film, such as Kodak Verichrome Pan Film, which has been completely exposed and developed to maximum density. The film can be completely exposed by unrolling it and subjecting it to daylight. Develop the exposed film fully, according to the manufacturer's recommendations.



Margareta Koestner of Austria, who has been living in Hampton for the past several months and attending Hampton High School as a foreign exchange student, observes the recording of data at the Unitary Wind Tunnel during a recent tour of the Langley Research Center. Leroy Spearman, head of the Large Supersonic Tunnels Branch of the Full-Scale Research Division, escorted Miss Koestner on a tour of the tunnel. Miss Koestner inspected other facilities, including the Structures Research Laboratory, the Space Vehicle Rendezvous Docking Facility and various flight vehicles in the Hangar, the Lunar Landing Research Facility now under construction, and saw illustrations of Echo and other erectable type space vehicles pioneered at Langley. Miss Koestner lived with the family of Eugene C. Draley, Assistant Director, during her stay in the United States. She is enroute to her home in Klagenfurt, Austria, and will attend the University of Innsbruck this fall.

WANTED: Fifth driver from Southampton area to E.A. on 8 shift. Pierpont, 2292.

WANTED: Ride from Stoneybrook to E.A. on 8 shift. Call Bruce Wright, 2249.

WANTED: Driving combination from Holly Homes area to W.A. on 8 shift. Crews, 4752.

WANTED: Driving combination from Southampton to W.A. on 7:30 shift. Vick, 4861.

WANTED: Ride from vicinity of Ivy Farms to W.A. on 8 shift. Willard, 3318.

Two staff members recently received cash awards under the NASA Incentive Awards Program. Left photograph - Leslie Powell (right), Aeronautical Laboratory Mechanic in Research Facilities Service Section D, receives a check for $15 from William B. Mayo, Chief of Mechanical Service Division. Powell's suggestion concerned a jig for preparing tubing "tees" and "crosses". Right photograph - Asa L. Shaw (center), Procurement Clerk in the Purchase Branch, received a check for $20 for his suggestion relative to identifying pallets in the Stores Department. Presenting the check is Sherwood L. Butler, Chief of Procurement Division. Shown at the left is William E. Hutcheson, Head of the Purchase Branch. Employees interested in submitting suggestions under the NASA Incentive Awards Plan are requested to send them to Jess G. Ross, Awards Program Office, Room 114, Building 587.

MARY IMMACULATE OFFICIAL THANKS CENTER EMPLOYEES

Eugene C. Draley, Assistant Director, served as head of the federal and military division for the 1962 campaign to raise funds to reconstruct the Mary Immaculate Hospital.

Draley recently received the following letter of appreciation from Sister M. Gonzalva, Hospital Administrator:

"We are most grateful to your fine organization, NASA, which has so generously aided us in our Fund Raising Campaign. The keen interest shown by you and the others who so actively participated, augmented the courage we possessed which at a certain time reached a very low ebb.

"At long last, these efforts are beginning to pay off dividends in the form of progress. Our new Buxton Avenue has been opened allowing us the use of the former site. The nurses' residence on Blair and Buxton Avenues has been razed. The power lines have been relocated, so now all stands in readiness for the actual building to commence.

"Our pledge payments are coming through slowly, especially those which are not pay deductable. This concerns us more than ever because the construction bids were all above the original estimates. Today the Basic Construction Company, whose bid was $1,711,000, is busy at work.

"We thought you would be interested in knowing that we are collecting trading stamps, especially the Gold Bond type, for the purpose of procuring the two boilers for our Heating Unit. It will take very many of these stamps to realize the quota necessary for such great items, so, if you and all those fine people at NASA have any stamps, books or certificates, we would appreciate your offering."

Staff members who have stamps they would like to contribute may send them to Sister Gonzalva at Mary Immaculate Hospital, Newport News.

EMPLOYEE'S DAUGHTER HONORED

Jacqueline Tench Joo, a former Hamptonian and daughter of Elizabeth Tench, Aero-Physics Division, was recently the subject of a feature article in the San Jose News, San Jose, California.

At the age of 17 while a junior at Hampton High School, Jacqueline, who was a Cadet Lieutenant in the Peninsula Squadron, Civil Air Patrol Cadet Corps, was selected "Miss Virginia Wing for 1956". At that time the Air Scoop, now Langley Researcher, ran a picture of her climbing into a jet stationed at Langley.

Jacqueline, who now lives in San Jose with her five-year-old daughter, belongs to the Women's International Helicopter Association and is one of only 15 lady whirlibirds in the United States. There are only 58 women in the world who hold such a license.

Jacqueline received her commercial helicopter rating and license after instructions at Waters Helicopter Corp., Oakland, California, where she is employed.

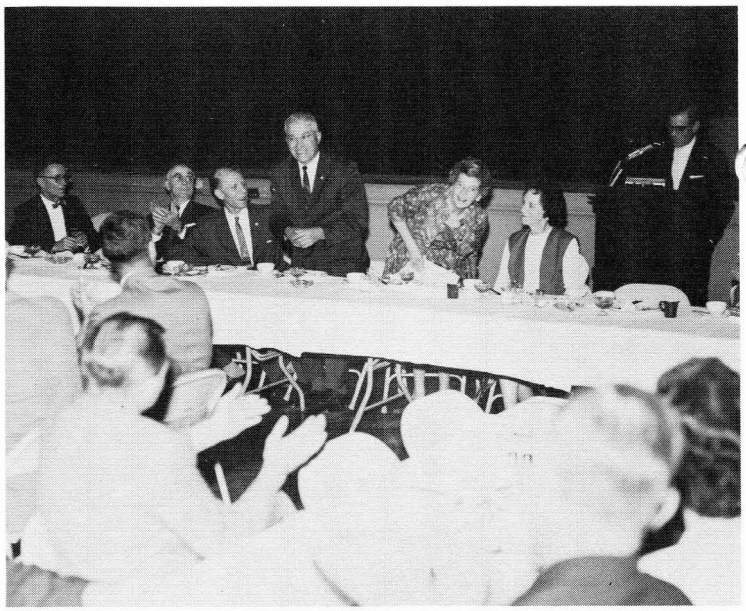
Concerning her training she explained, "It's very different. It's like learning to shift gears in a car after 10 years of driving with an automatic transmission."

She stated she has had only one other flying experience similar to being aloft in a helicopter.

"In 1956, I rode in a jet at Langley Air Force Base and was permitted to control the jet for 45 minutes," she said. She found the jet and helicopter "had the same lightness in controls. You don't have to exert the pressure needed in conventional small planes or worry about stalling."

Although she has flown for 11 years, she has never had a flying accident. Her late husband, Charles, died in a crash last fall at Half Moon Bay, California.

Jacqueline is currently working on her instructor's rating so that she may become a flight instructor.



Alfred E. Alexander, who recently retired from the Center with almost 33 years of service, was honored by his friends and associates with a party in the Activities Building. Left photograph - The guest of honor and his wife pose for the camera. Right photograph - Alfred and Mrs. Alexander are greeted by the crowd. Other at the table are (from left): T. Melvin Butler, Assistant Director for Administration; Francis J. Howard, retired employee; Floyd L. Thompson, Center Director; Mrs. Thomas A. Johnson, and Tommy Johnson, Head of Instrument Service Section. Alexander, who was better known by his friends as "Piggie", was born in Hamden, Ohio. He attended Hampton High School and worked for a local electrical contractor before joining the Center staff. He entered on duty August 30, 1930 as an electrician's helper. He became head of the Instrument Installation Unit, IRD, in 1950.

WATER SAFETY REMINDERS

Water sports are becoming increasingly popular in the Tidewater area. Unless you follow a few simple rules and exercise good judgment, you or your family may be listed as a water sports casualty. Listed below are a few safety reminders:

SWIMMING

Wait two hours after eating before swimming. Stomach cramps are likely to result if this rule is not followed.

Never dive into strange water. Know the depth of the water and that no obstructions are in the area.

Swim only in approved area. If a body of water is off limits for swimming, there is a reason.

Follow beach or pool rules and obey guards. Never swim alone. Swim where lifeguards are provided.

Avoid horseplay in swimming.

Learn how to apply artificial respiration.

Avoid swimming in areas where the currents are rapid and around dams.

Make sure of your physical condition each season before attempting to swim long distances and avoid swimming in extremely cold water as exhaustion is likely to occur.

BOATING

Make certain your craft is seaworthy before venturing out. Stay out of small boats unless you know how to swim. Don't stand up or move about unnecessarily in a small boat.

In getting into a small boat, make sure the boat is steadied and that your weight is placed toward the center of gravity.

Make certain a Kapok vest, Mae West, or other life preserver is in good condition. A life preserver should be available for each person in the boat. If using a belt type life preserver, it should be worn high up on the waist and not in the normal position of a waist belt.

Do not take a small boat out in bad weather or over load it.

STAFF INVITED TO HEAR MULLER

Interested staff members are invited to hear a lecture by Hugh Muller, Chem-Mill and Coatings Division of Turco Productions, Inc., Wilmington, California, at 10 a.m. on July 26 in the Projection Room, Building 1232 (AMPD).

Muller will illustrate his lecture with slides and the subject will be "Chemical Milling as Applied to Aircraft and Spacecraft". A discussion will follow the lecture.

SKIING

Don't attempt to ski unless you know how to swim.

Always wear a life preserver when water skiing.

Make sure that the operator of the motor boat is skilled and reliable.

Do not attempt to ski in unknown waters, in areas used for swimming, or where area is congested.

Never lock your arms around a tow rope.

FISHING

Choose your clothes for protection, not glamour. Wear boots or heavy high quarter shoes.

Make sure you take a snake bit kit and know how to use it.

Carry drinking water with you but leave all other liquids home.

Don't fish alone in isolated areas but choose your fishing companions with care.

WANTED: Ride from Warwick Gardens to W.A. on 8 shift. Fansler, 3337.

WANTED: Ride to Newport News and Armistead Avenues from E.A. at 4:30 p.m. Saunders, 2264.

WANTED: Driving combination from Williamsburg to E.A. on 8 shift. Dicker, 2365.

WANTED: Ride or driving combination from Norfolk to W.A. on 7:30 shift. Edward Hudgins, 4851.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of July 22:

Monday - Bean soup, roast ribs of beef .50, grilled pork steak .45, creamed chipped beef on toast .35, cheese omelette .25.

Tuesday - Chicken noodle soup, Swiss steak .45, chicken and dumplings .45, liver and onions .35, fish cakes and cole slaw .25.

Wednesday - Cream of tomato soup, Spanish pot roast .50, baked ham .40, fried chicken .35, frankfurter .20.

Thursday - Vegetable-beef soup, grilled steak .65, fried scallops with tartar sauce .45, ham and noodle casserole .40, Austrian ravioli .25.

Friday - Clam chowder, roast veal with dressing .55, flounder stuffed with crab meat .40, broiled halibut steak .35, barbecued sandwich .25.

The menu for the week of July 29 is as follows:

Monday - Cream of potato soup, roast ribs of beef .50, fried shrimp .45, spaghetti with meat sauce .40, hamburger .25.

Tuesday - Tomato-Barley soup, chopped sirloin steak .55, barbecued beef chunks over steamed rice .45, meat loaf .40, meat croquettes .25.

Wednesday - Split green pea soup, pot roast of beef .50, grilled ham slice .40, fried chicken .35, Austrian ravioli .25.

Thursday - Vegetable-beef soup, grilled steak .65, fried clams .55, chicken pot pie .40, baked hash .25.

Friday - Clam chowder, roast beef .50, broiled perch .35, fried flounder fillet .35, western omelette .25.

TWO X-15 PILOTS NAMED

(Continued from page 1)

Captain Engle, 30, of Champan, Kansas, was a test pilot in fighter aircraft at Edwards prior to entering the USAF Aerospace Research Pilots School, which trains project officers for manned space programs. He was graduated from this school on May 31 and was reassigned to the Spacecraft Operations Branch of the Air Force Flight Test Center where he will remain while attached to the X-15 program.

Thompson, 37, civilian research pilot for NASA since 1956, has also been named as a pilot for the USAF X-20 Dyna-Soar. He has been project pilot on a number of other flight programs at the Flight Research Center, including a flexible-wing paraglider and NASA's M-2, a wingless flight vehicle which will undergo evaluations of flight characteristics and low speed landing operations.

Both fliers, who have been chase pilots on previous X-15 flight operations, will undergo an extensive training program in preparation for their own flight careers in the rocket-powered airplane. This program will include flying in several high-performance jets, some with variable stability equipment that are capable of closely simulating the flight characteristics of the X-15 itself.

THREE APPOINTED TO HEADQUARTERS

(Continued from page 1)

roscope Company where he has been Chief Engineer of the Air Armament Division since 1959.

Long, the new consultant to Dr. Seamans on construction matters, joins the NASA from the Long Construction Company, Kansas City, Missouri, where he has been President of the firm since 1955.

Winners in the NASA Golf Open House held June 28 at the Langley Golf Club are (from left): L. E. Smith, Harold Pritchard, J. E. Walz, Stan Scher, Don Baradell, Kay DeSander, R. B. Amole, Bill Jones, and Jack Paulson.
--Photo by Fred Jones

GOLF MATCH PLANNED JULY 26

The first NASA Golf Open House held at the Langley Golf Course was such a success that another one has been planed for Friday, July 26. Starting time will be 6 a.m. if enough players are interested in starting that early.

The fee will be one dollar for members and two dollars for non-members. Persons interested in entering are requested to send their name and desired starting time to Ray Goodman, Building 1225.

A total of 81 players entered the first match with 15 receiving prizes. Bill Jones shot 79 for low gross and Kay DeSander and Jack Paulson tied for low net under the Calloway system.

Blind bogey winners were W. L. Jones, L. E. Smith, H. Pritchard and Stan Scher. Winning door prizes were Harold Crane, Troy Brooks, Don Baradell, Charles McClellan, J. E. Walz, and R. B. Amole.

DEAN CROWDER HEADS OFFICE

(Continued from page 1)

Crowder succeeds Lieut. Commander Reginald M. Machell, who was serving as Langley's representative before his transfer to the Manned Spacecraft Center.

A native of Le Ola, Arkansas, Crowder went to the Pacific Missile Range, Point Mugu, California, in April 1948 after three years in the Navy. He joined NASA at Point Arguello last February as general engineer and administrative assistant in the Langley office.

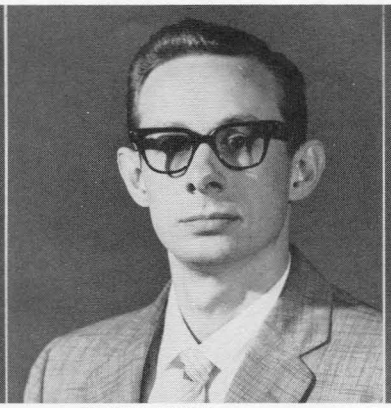
At a recent dinner at Vandenberg Air Force Base to commemorate the 200th rocket launch by Vandenburg, it was revealed that the Scout was the vehicle to achieve this honor. The 200th launch took place in mid-June when Scout was fired from an Air Force pad located on Point Arguello.

The basic Scout launch vehicle is a multi-stage guided booster using four solid propellant rocket motors capable of carrying payloads of varying sizes on orbital, space probe or reentry missions.

WANTED: Driving combination from Powhatan Parkway and Chesapeake Blvd. to E.A. on 8 shift. Wells, 2324.

SIXTEEN EMPLOYEES RECEIVE MASTERS DEGREES

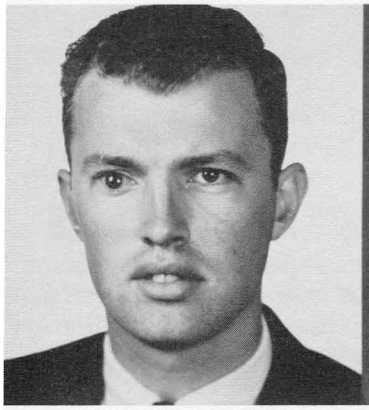
HERMAN L. BOHON
STRUCTURES RESEARCH DIVISION
ENGINEERING MECHANICS
VIRGINIA POLYTECHNIC INSTITUTE



DONALD L. LANSING
DYNAMIC LOADS DIVISION
MATHEMATICS
VIRGINIA POLYTECHNIC INSTITUTE

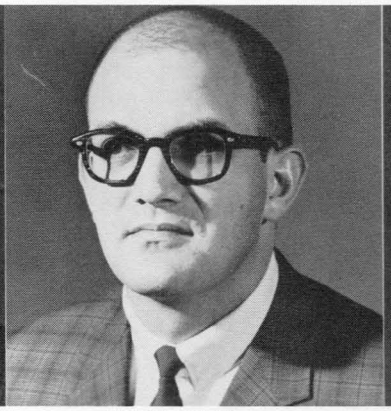
HERBERT A. LEYBOLD
STRUCTURES RESEARCH DIVISION
ENGINEERING MECHANICS
VIRGINIA POLYTECHNIC INSTITUTE

G. LOUIS SMITH
APPLIED MATERIALS AND PHYSICS DIVISION
AEROSPACE ENGINEERING
VIRGINIA POLYTECHNIC INSTITUTE

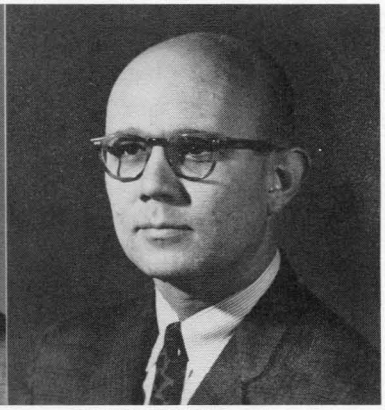


DAVID G. STEPHENS
DYNAMIC LOADS DIVISION
ENGINEERING MECHANICS
VIRGINIA POLYTECHNIC INSTITUTE

ROBERT H. TOLSON
SPACE MECHANICS DIVISION
PHYSICS
VIRGINIA POLYTECHNIC INSTITUTE



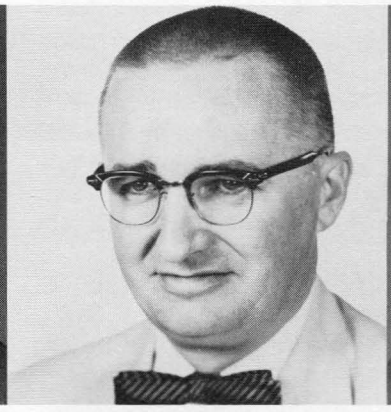
RICHARD D. WAGNER
AERO-PHYSICS DIVISION
AEROSPACE ENGINEERING
VIRGINIA POLYTECHNIC INSTITUTE



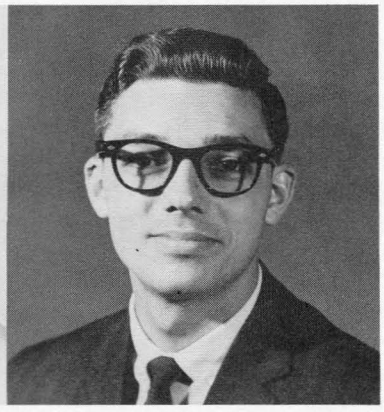
GERALD D. WALBERG
APPLIED MATERIALS AND PHYSICS DIVISION
AEROSPACE ENGINEERING
VIRGINIA POLYTECHNIC INSTITUTE

W. ROBERT BOLAND
ANALYSIS AND COMPUTATION DIVISION
MATHEMATICS
COLLEGE OF WILLIAM AND MARY

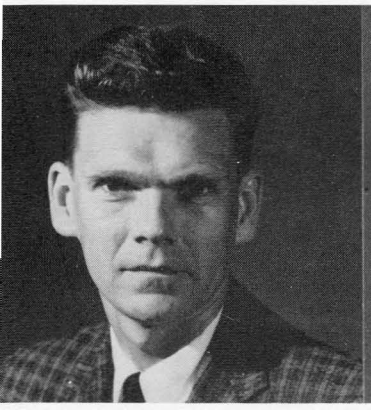
PHILIP BROCKMAN
AERO-PHYSICS DIVISION
PHYSICS
COLLEGE OF WILLIAM AND MARY



FREDERICK C. GRANT
AERO-PHYSICS DIVISION
PHYSICS
COLLEGE OF WILLIAM AND MARY

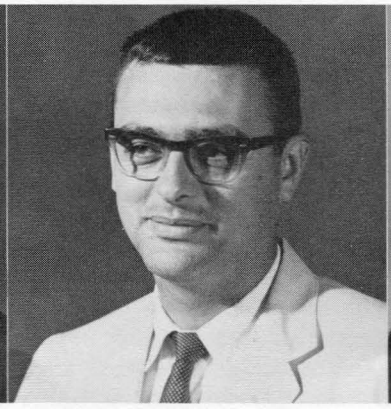


JAMES F. ROACH
AERO-PHYSICS DIVISION
PHYSICS
COLLEGE OF WILLIAM AND MARY



BRISCOE B. BROWN
FLIGHT VEHICLES AND SYSTEMS DIVISION
PERSONNEL MANAGEMENT
GEORGE WASHINGTON UNIVERSITY

PETER J. COSTIGAN
FLIGHT MECHANICS AND TECHNOLOGY DIVISION
PHYSICS
UNIVERSITY OF MASSACHUSETTS



SIDNEY C. DIXON
STRUCTURES RESEARCH DIVISION
APPLIED MECHANICS
UNIVERSITY OF VIRGINIA

JOHN E. LAMAR
FULL-SCALE RESEARCH DIVISION
AERONAUTICAL ENGINEERING
UNIVERSITY OF ALABAMA

EUGENE M. EMME
N.A.S.A. HISTORICAL ARCHIVE
NO.

Langley Researcher

VOLUME 2, NUMBER 16 — LANGLEY RESEARCH CENTER — AUGUST 2, 1963

AMERICAN LEGION HONORS THOMPSON WITH TOP AWARD

Dr. Floyd L. Thompson, Director of Langley Research Center, was presented the 1963 Distinguished Service Award of the Virginia American Legion. The presentation was made Saturday at the state American Legion convention in Roanoke by Del. E. Ralph James, a past department commander. Dr. Thompson was cited, among other things, for his "vision, wisdom and foresight" which have made the Langley Center one of the world's foremost aeronautical and space research establishments.

"This Citation of Distinguished Service is awarded to the director of the Langley Research Center of the National Aeronautics and Space Administration, Dr. Floyd LaVerne Thompson, aeronautical engineer, humanitarian, leader of men, for distinguished service to his community, state and nation as demonstrated by 37 years of outstanding service as engineer and research director in aeronautics and space; for his vision, wisdom and foresight which have made the Langley Research Center one of the world's foremost aeronautical and space research establishments, advancing aero-space flight and national security and increasing the prestige of the United States; for his understanding and considerate relations with his employees and associates; for his active participation in community affairs; all of which have endeared him to his fellow countrymen."

The citation is signed by the state commander, Gates R. Richardson.

NASA HONORS ROGALLOS WITH LARGE CASH AWARD

Francis M. Rogallo and his wife, Gertrude S. Rogallo, whose innovations as kite-flying hobbyists sparked development of paragliders recently received the largest cash award ever made to inventors by the NASA.

Rogallo, who has been a scientist at the Langley Center since 1936 and is now Head of the 7-by-10-foot Tunnels Branch, Full-Scale Research Division, and his wife were presented $35,000 by Dr. Hugh L. Dryden, Deputy Administrator of NASA, in ceremonies at NASA Headquarters on July 17.

Five other awards were made with ten people sharing in the amounts. All were recommended for the awards by NASA's Inventions and Contributions Board.

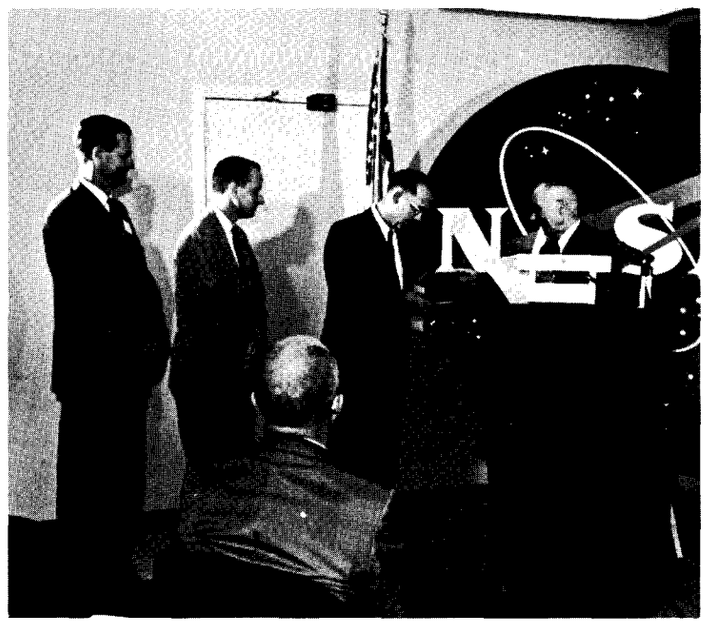
The Rogallos were selected for their two inventions covering the flexible-wing concept which contributed to the development of flexible wings that can be packaged and deployed.

The innovation has led to large-scale development work on paragliders by the NASA and the military services. It is estimated that NASA and the Army alone have more than a million dollars involved in these programs.

A version of the paraglider is being considered for use as the principal recovery system in later phases of the Gemini Porgram which will place two-man spacecraft in earth orbit for periods lasting up to two weeks.

(Continued on page 3)

In ceremonies held recently at Washington Headquarters Dr. Hugh L. Dryden, NASA Deputy Administrator, presented cash awards to NASA employees for their inventions and contributions. Left photograph - Dr. Dryden (left) presents checks totalling $35,000 to Gertrude and Francis M. Rogallo whose innovations as kite-flying hobbyists sparked development of paragliders. Right photograph - Receiving awards from Dr. Dryden are (from left): Thomas A. Toll, Edward C. Polhamus, and William J. Alford Jr. Absent during the presentations was Robert V. Hess.



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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIAPER LINE. . .A daughter was delivered to the Willis Ward household July 18. The father works in Research Facilities Service Section D. . .Announcing the birth of a daughter, Teresa, is John McPherson, IRD. . .Celebrating the arrival of a son on July 20 is Otto Youngbluth, IRD. . . Passing out cigars and candy is Wayne Kitchen, IRD. He became the father of a daughter on July 16.

ENGAGED. . .Making plans to join the ranks of newly weds is Pat Armistead, 7 x 10. She is engaged to John Ambrose of Norfolk and no definite date has been announced for the wedding.

SINGLETON CLUB. . .All single staff members are invited to attend the Singleton Club's swim and dance party at 7:30 p.m. tomorrow at the Fort Monroe Officers' Club pool and picnic area. For reservations call Al Cogley, 4871, or Frances Taylor, 4842.

TOUCH FOOTBALL. . .Plans are underway to organize a NASA Touch Football League. Persons interested are asked to contact Floyd Howard, 3431, Charles Woerner, 4841, or Jack Cooper, 4457.

RETAIL SALE. . .The Redistribution and Marketing Activity at Langley will hold a retail sale of surplus articles on Monday, August 5 from 9 a.m. until 1 p.m. in Building 965.

ROD AND GUN CLUB. . .The Langley Rod and Gun Club has option on a tract of hunting land about 50 miles West of Langley. 3600 acres of deer, squirrel, bird, and rabbit hunting land is available on a controlled basis. If sufficient interest is shown, the club will sponsor the area on an annual basis with the cost depending on the number of paying hunters. Persons interested are asked to register at the Rod and Gun Club or call Langley 5112 by August 5.

SOCIAL WORKER. . .The Lower Peninsula Mental Hygiene Clinic has a vacancy for a social worker, full or part time. Qualified persons may contact Mrs. Miriam Keto, CH46509.

CAMERA CLUB. . .First place in the Langley Camera Club's print-of-the-year contest was won by William J. Lacey, Fort Eustis, with an abstract print "Lines and Angles". Judge was Wesley Berryman, Technical Illustrators. Second, third and sixth places went to Clyde Hayes with Harry Carlson taking fourth and Sidney Hall fifth. Hayes was also awarded the black and white "photographer of the year" trophy. Photographer of the year trophy for color slides was awarded to Carlson. The next club meeting will be held August 19 at 7:30 p.m. in the Activities Building.

Wellll...What Did I Tell You Twenty Years Ago?

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of August 5:

Monday - Bean soup, Spanish pot roast .50, grilled pork steak .45, meat loaf .40, grilled cheese and bacon sandwich .25.

Tuesday - Chicken-noodle soup, roast veal and dressing .55, chicken and dumplings .45, tuna patties with cole slaw .40, pizzaburger .30.

Wednesday - Cream of tomato soup, roast ribs of beef .50, Salisbury steak .40, fried chicken .35, macaroni and wieners .25.

Thursday - Vegetable-beef soup, grilled steak .65, baked ham .40, creamed dried beef on toast .35, fish cakes with cole slaw .25.

Friday - Clam chowder, Swiss steak .50, fried stuffed flounder .40, broiled halibut steak .35, chili con carne .25.

The menu for the week of August 12 is as follows:

Monday - Tomato-barley soup, roast beef .50, barbecued beef chunks over steamed rice .45, grilled ham slice .40, cheese omelette .25.

Tuesday - Split green pea soup, roast fresh ham with applesauce .45, veal grillette .40, stuffed pepper .35, baked hash .25.

Wednesday - Minestrone soup, pot roast of beef .50, grilled pork chops .45, fried chicken .35, western omelette .25.

Thursday - Vegetable-beef soup, grilled steak .65, fried oysters .45, spaghetti with meat sauce .40, Austrian ravioli .25.

Friday - Clam Chowder, roast beef .50, seafood plate .60, broiled perch .35, franks and beans .25.

WANTED: Passengers or ride from Briarfield Rd. to E.A. on 8 shift. Wall, 826-5329.

NASA HONORS ROGALLOS

(Continued from page 1)

The NASA Inventions Board explained that the Rogallos' award was based in considerable part on the Government's use of a privately-owned invention without any claim for royalties or a request for a license from the inventors. The Rogallos hold two patents, one issued March 20, 1951, and the other June 19, 1956.

Dr. Dryden, in his presentation statement, noted that the couple on their own initiative and expense "devised the vehicles, procured patent protection, reduced the invention to practice, and pursued continuous development to perfect the application of the principles involved."

The Rogallos' ideas grew out of their hobby of kite flying. When they first approached Government agencies around 1950, they found no one interested. It was several years later that possible aeronautical and space applications were seriously considered.

Two Langley employees and a former employee shared a $3,000 award for two separate inventions that together made possible the practical application of the variable sweep-wing configuration to supersonic aircraft, an important feature of the bi-service fighter-bomber TFX aircraft.

Receiving the award were William J. Alford Jr., Supersonic Transport Office, Full-Scale Research' Edward C. Polhamus, Assistant Head of 7-by-10-foot Tunnel Branch, and Thomas A. Toll, former Assistant Chief of Full-Scale Research Division at Langley and now Chief, Research Division, Flight Research Center, Edwards, California.

Robert V. Hess, Head of the Plasma Physics Section of the Aero-Physics Division, received $1,200 for his invention of the "Hall-Current Plasma Accelerator," described as constituting "a pioneering advance in plasma and space technology." Plasma in this case refers to an ionized gas containing an equal number of negatively and postively charged particles.

Utilizing an electro-magnetic phenomena known as the "Hall Effect," the invention provides a continuous flow plasma acceleration with wide experimental and space flight applications.

An award of $1,000 was made to Curt P. Herold, Deputy Chief Launch Equipment Branch, Launch Operations Center, Cape Canaveral, for invention of a "multiple quick disconnector." It is widely used just prior to firing a launch vehicle to switch all electrical systems from the ground supply to the vehicle's own power source.

A patent was issued to Herold on March 13, 1962, and the United States retains a royalty-free license to the invention for all governmental purposes.

A $1,000 award went to Elden C. Whipple, a physicist at Goddard Space Flight Center, for an improved method and apparatus for determining the orientation of a space vehicle in flight. The system utilizes three vectors-- velocity, magnetic field intensity, and solar radiation. It repesents a considerable advance over previous sensor systems which generally depend on the visibility of a light source. Extremely simple in design, the Whipple system does not rely on any single quantity or on the vehicle's position relative to the shadow of the earth.

Selected for $5,000, to be divided equally, were Walter K. Victor and Dr. Eberhardt Rechtin of the Jet Propulsion Laboratory, Pasadena, California, for "translating theory into practice for a system of deep space communications."

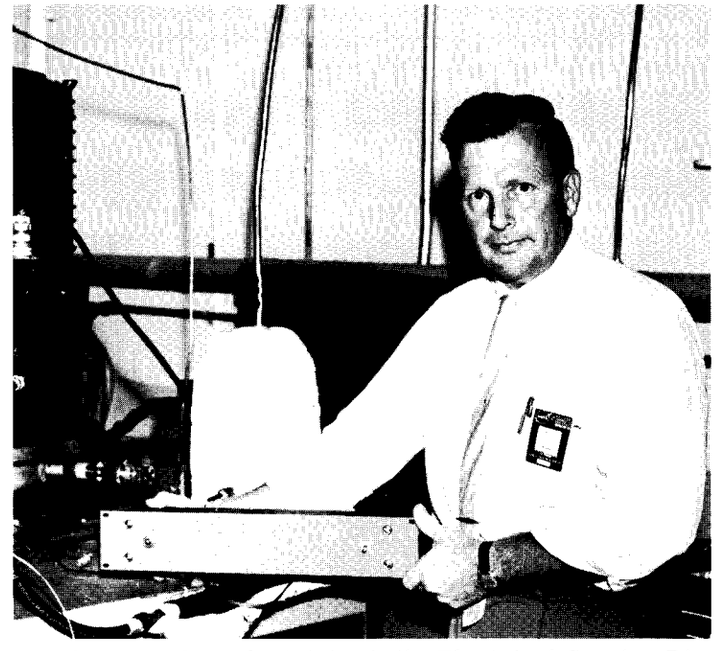
The development has found application in numerous manned and unmanned space projects as well as in military systems. NASA officials consider that the successful Mariner II fly-by of Venus last year would not have been possible without the system.

Two non-NASA employees honored were Andrew J. Kubica and Noah S. Davis for the invention of a decomposition unit. They shared a $1,500 award. At the time of the invention, they were employed by the Food Machinery and Chemical Corp., in subcontract work on the Mercury Program space capsule. They are now employed by the Rocketdyne Division of North American Aviation Inc., Canoga Park, Calif.

Their invention is used to decompose hydrogen peroxide to provide jet thrust. The pair is credited with contributing a "new concept in catalytic pack design" for use with thrust units which give "reliable starts that were impossible with older units."

TELL US HOW

CASE HISTORY



Joseph D. Perdue, Electrician in the Electrical Service Division, recently received a check for $50 under the NASA Incentive Awards Program. Perdue is shown with a liquid nitrogen level controller he designed. The device overcomes one of the inherent problems found in most present day liquid level controllers - their inability to distinguish between boiling vapor and liquid gases. Various methods have been used such as timers to determine propel level, float valves, ete. These devices are difficult to set up for operation, time consuming and wasteful of the cryogenics. In some cases they may be used in only one position. Perdue's device can be adapted to almost any system, can operate in any attitude, and will control to close level tolerances. Perdue is a native of Marie, West Virginia. He joined the Center staff on October 11, 1954 as an apprentice electrician and received his journeyman certificate in 1959.

Send YOUR ideas to THE AWARDS OFFICE

LIFE SUPPORT SYSTEM BEING TESTED

Five men recently entered a space chamber in Seattle, Washington, for an engineering test of an integrated life support system. The test may run as long as 30 days.

The Boeing Company's system, the first to include all elements of life support for a 150 man day space mission, was designed and built for NASA's Office of Advanced Research and Technology (OART).

The system is one of a series being developed by NASA for advanced space flight. With supplements, the Boeing contract is valued at $375,000.

The chamber simulates quarters on a space station or at a moon base for the current test. Its equipment includes an environmental system producing cabin oxygen from solid, superoxide chemicals. A waste disposal system collects processes and recovers water from body waste, cabin condensation, and sink draining.

Crew members bathe in a closed circuit shower. The shower, designed for use under weightless conditions, has a separate water supply which is filtered and chemically treated for reuse.

Special diets of freeze-dried food, some of it in squeeze tubes for simulated weightless feeding, includes such items as shrimp, strawberries, and peanut butter sandwiches.

NASA life support systems testing is the program of Dr. Eugene B. Konecci, Director of Biotechnology and Human Research. Product monitor is Dr. Michael G. Del Duca, Chief of Biotechnology. Engineering tests are under the general direction of J. Anthony McCaffrey, Boeing Chief of design for the project.

Associated with the life support equipment are specific crew tests simulating problems of space flight. A heavy work load on crew members covers navigating, scope reading, tracking, time estimating, decision making, attention span tests, and others. Psychologists outside the capsule are able to observe the test crew through one-way glass windows.

A support crew outside the space chamber will constantly analyze bacteria build-up inside the capsule. This team of Boeing scientists also will monitor toxic elements in the capsule. Influence of such elements on crew effectiveness under long term space flight conditions is not presently known.

R. H. Lowey, Boeing Chief of Bioastronautics, is commander of the five man crew. Other members are: Major Edward Westlake of the Air Force Systems Division, Englewood, Calif.; Roger Barnicki, X-15 personnel equipment specialist from NASA's Flight Research Center; Charles Proctor, Boeing biochemist and food specialist; and Richard Farrell, Boeing psychologist.

Each member of the crew is responsible for maintaining a specific portion of the life support equipment under test.

Edgar J.A. Fournier

John L. Hudgins

TWO EMPLOYEES RETIRE

Two employees retired from the Center this week with a total of over 68 years of federal service. Edgar J. A. Fournier, Technical Assistant to the Chief of Technical Services, retired July 31 with 33 years of service and John L. Hudgins, Planner and Estimator, Program Scheduling and Analysis Unit, retired with over 36 years of service.

Fournier was born in Providence, Rhode Island. He attended Rhode Island Technical High School and graduated from LaSalle Academy in Providence and the Rhode Island School of Design. He also attended Brown University and held a teacher's certificate in the State of Rhode Island.

He served with the U.S. Cavalry on the Mexican Border for approximately one year and served with the 26th Division, United States Army, in France during World War I. Before joining NASA as a principal mechanical draftsman in September 1930, he worked about 15 years for the Textile Finishing Machinery Company in Providence.

He is a member of the Rhode Island Engineering Society, charter member of the Engineers' Club of the Virginia Peninsula, past president of the Administrative and Techcal Services Supervisors' Club, past commander of American Post 25, Newport News, and past Chef de Gare of the 40 and 8, Newport News.

Hudgins was born February 20, 1907 in Hampton. He graduated from Hampton High School and served 18 months as an apprentice at the Newport News Shipbuilding and Dry Dock Company. He completed his apprenticeship as a machinist at the Norfolk Navy Yard in Portsmouth.

He was employed at the Norfolk Navy Yard from 1927 to 1946. He transferred to the Center on August 26, 1946 as an engineering aide.

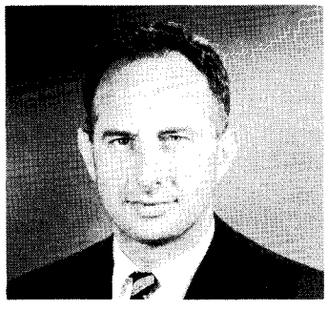
FOR SALE: 1961 F85 Oldsmobile. Holeik, LY 6-7868.
WANTED: Driving combination from Showalter Rd. to E.A. on 8 shift. Collins, 2303.
FOR SALE: Regulation pool table, Collins, 877-0458.
WANTED: Driving combination from Hilton Village to E.A. on 8 shift. Newman, 2359.
WANTED: Gentleman to share apartment. Young, 4488.
WANTED: Ride or driving combination from Bedford and Harpersville Rds. to W.A. on 7:30 shift. Weaver, 4643.
WANTED: Driving combination from Williamsburg to W.A. on 7:30 shift. Bengtson, 4667.
WANTED: Ride from Wythe to W.A. on 8 shift. Barringer, PA3-3535.
WANTED: Ride to Richmond on week-ends. Parker, 2365.
WANTED: Driving combination from South Colony Rd. area to W.A. on 8 shift. Fichter, 877-0468.
WANTED: Ride or driving combination from Riverside to W.A. on 7:30 shift. Jaite, 4711.
LOST: "Soviet Physics - Technical Physics" Vol. 6, Sept. 1961. J. Frank Roach, 4677.
FOR SALE: 1956 Plymouth, Johnson, LY 6-6865.
FOR SALE: 1954 Volkswagen, $399. Bowen, CH 7-5163.

Dr. Leonard Roberts

Don D. Davis, Jr.

William N. Gardner

Mitchel H. Bertram


Robert L. Trimpi

Robert V. Hess

George P. Wood

Dr. George W. Brooks

EIGHT RECEIVE SUPERIOR PERFORMANCE AWARDS

Eight staff members recently received letters of commendation and checks of $500 each from the Langley Incentive Awards Committee for sustained superior performance.

Receiving the awards were: Dr. Leonard Roberts, Head of Mathematical Physics Branch, Dynamic Loads; Don D. Davis, High-Temperature Materials Branch, Applied Materials and Physics; William N. Gardner, Head of MORL Studies Office; Mitchel H. Bertram, Head of Hypersonic Branch, Aero-Physics; Robert L. Trimpi, Head of Reentry Physics Branch, Aero-Physics; Robert V. Hess, Head of Plasma Physics Section, Aero-Physics; George P. Wood, Head of Magnetohydrodynamics, Aero-Physics, and Dr. George W. Brooks, Head of Vibration and Dynamics Branch, Dynamic Loads.

The individual commendations read as follows:

Dr. Roberts - "For his outstanding theoretical contributions in the fields of reentry heat protection by ablation and lunar dust scattering and erosion." Dr. Roberts was born in Prestatyn, North Wales, United Kindgom. He received his B.S., M.S., and Ph.D. degrees from the University of Manchester, England, and joined the Center staff on June 26, 1957.

Davis - "For his distinguished record of achievement in guiding the research and development of advanced research apparatus possessing unique capabilities which include a 1 MEV electron accelerator, a high vacuum facility, a Mach 13 air tunnel and an arc-heated tunnel." Davis is a native of David City, Nebraska. He received his B.S. de gree from the University of Nebraska and his Master's degree from the University of Virginia. He entered on duty June 24, 1944.

Gardner - "For his superior performance as shown by his management of the complex Trailblazer atmospheric vehicle program and for his scientific contributions to reentry detection and meteor science." Gardner was born in Nashville, Tennessee, and received his B.S. degree in Aeronautical Engineering from Vanderbilt University. He started his NASA career on July 9, 1945.

Bertram - "For his sustained contributions in the field of hypersonic aerodynamic research and for his outstanding execution of major Langley programs in this area." He is a native of New York City, and received his B.S. degree in Aeronautical Engineering from New York University. He joined the Center staff on September 9, 1947.

Trimpi - "For his exceptional contributions to research in unsteady flows and super-orbital reentry physics leading to important new concepts including a revolutionary new type research facility possessing unique capabilities." He is a native of Orange, New Jersey, and received his B.S. and M.S. degrees in Aeronautical Engineering from Cornell University. He entered on duty August 24, 1949.

Hess - "For his continued outstanding research contributions to the field of magnetoplasmadynamics with special recognition for the original concept and research exploitation of new methods for plasma acceleration." Hess was born in Vienna, Austria. He attended Vienna Institute of Technology, Massachusetts Institute of Technology, and Stevens Institute of Technology. He joined NASA on November 8, 1944.

Wood - "For his outstanding contributions to research in the field of plasmadynamics, especially in the field of plasmadynamics as applied to problems of space exploration." He is a native of Moss Point, Mississippi, and received his B.A. and M.A. degrees in Physics from the University of Mississippi. He also did graduate work at Johns Hopkins University and entered on duty July 29, 1940.

Dr. Brooks - "For his sustained superior performance in the field of vibration research as related to payloads, launch vehicles and helicopters, and for his pioneering work in generating research requirements for lunar landing and exploration." Dr. Brooks is a native of Desha, Virginia. He received his B.S., M.S. and Ph.D. degrees from Princeton University and joined the Center staff March 24, 1949.

CENTER TALENT SHOW PLANNED

What is your talent? Now is your chance to show your abilities in the entertainment field by performing in the NASA LANGLEY EMPLOYEES TALENT SHOW which is scheduled for SEPTEMBER 27 at 8 p.m. in the Activities Building.

Auditions for the show will be held in the Activities Building on August 11 at 2 p.m. A panel of selected, qualified judges will screen the acts to appear in the show.

This Talent Show is for the entertainment of NASA Employees and their families and is sponsored by the Activities Association which will award first, second, and third prizes.

Personnel interested in helping with the show are urged to call Sandy Dennis, 3346 of PA 2-1001, or Etha Deem, PA 2-7196.

For further information concerning the show, contact your District Representative.

X-RAY SURVEY STARTS AUG. 19

During the week of August 19-23, a chest x-ray survey will be held at Langley Center. All employees are invited to take part in this valuable fact finding examination.

According to the National Tuberculosis Association, probably a half million people in the United States have tuberculosis of the lungs. One of the ways to make sure that you are not one of them is to have a chest x-ray.

Having an x-ray is very simple. There is no disrobing, no cost, and only a few minutes of time are required.

Those having negative findings will receive a report. Those having suspicious or unexplainable findings will be followed up by the Hampton Health Department with a larger x-ray and other studies, if indicated.

On Monday the x-ray unit will be in East Area, directly outside the East Dispensary in Building 584.

The balance of the week the unit will be located in the Activities Building. Employees in each building have been allotted definite times for reporting.

The survey is conducted by the Virginia State Department of Health and the Hampton Health Department and is administered by the Employee Services Section.

NASA TENPIN LEAGUE

The NASA Tenpin League will begin its bowling season at the new Hidenwood Lanes in September. There will be room for 40 teams which will allow 8 additional teams to enter the league.

All teams that bowled last year have until August 9 to send their rosters to J. A. Poslik, Room 115, Building 1244. All new teams should get their rosters in immediately because new teams will be accepted in the order in which they are received.

A meeting will be held August 13 at 7:15 in the Activities Building. All team captains, new and old, and league officers are urged to attend.

EXTEND BOARD MEMBER'S TERM

In the June 7 issue of Langley Researcher, an article was published regarding the extension of the term of Thomas R. McGrath on the Performance Rating Board of Review.

As the Philadelphia Region received no objections to the extension from Center employees, that office has approved McGrath as Employee Member of this Board for another two-year term.

348-ACRE TRACT FOR VARC TRANSFERRED TO STATE

In ceremonies held Monday at Oyster Point, Governor Albertis S. Harrison Jr. officially accepted the deed to 348 acres of surplus Government land which will be the future home of the Virginia Associated Research Center.

The ceremonies were attended by government, industrial and educational leaders. The NASA is already building a $12.3 million space radiation effects laboratory near the site.

Signing over the land to Governor Harrison was Dr. Edmund Baxter, Regional Director, Department of Health, Education and Welfare.

The program at the site was preceded by a tour of facilities at Langley Research Center. Dr. Floyd L. Thompson, Director of the Langley Center, welcomed the group to Langley. Following brief addresses by Charles J. Donlan, Associate Director, and Dr. John E. Duberg, Technical Assistant, the group was conducted on a tour of a number of research facilities including Unitary Plan Wind Tunnel, Structures Research Laboratory, and Flight Research Hangar.

Following the ceremonies at the site of the Virginia Associated Research Center, the group went to the College of William and Mary where they attended a luncheon in the Student Center. Guest speakers were Dr. Baxter, Governor Harrison, and Dr. Hugh L. Dryden, NASA Deputy Administrator.

VARC, a joint venture by the College of William and Mary, University of Virginia, and Virginia Polytechnic Institute, will operate the Space Radiation Effects Laboratory for NASA. It's 600 Mev synchrocyclotron will simulate deep-space radiation hazards and tell NASA how they may affect the astronaut's materials and machines.

VARC was created with a $250,000 starter budget by the 1962 General Assembly. Here graduate physicists and scientists will be trained. Thus, a resident graduate level facility will be within commuting distance of Langley.

Gov. Harrison pointed out, "The Virginia Research Center is the first institution of its kind, to my knowledge, in which a large portion of the equipment and laboratories, and many of the students, are already on hand.

"This is not a new institution of higher learning to compete with our existing colleges and universities.

"Our approach is simply to have three of our fine institutions extend their well-respected facilities from their own campuses to this Center. They will bring with them the experience and the prestige and the carefully constructed reputations that are so essential to any undertaking of this caliber and magnitude.

"We believe that in the VARC, we see a cooperative venture in which each participating institution will draw incalculable dividends, and whose connections with VARC will be proudly proclaimed and widely noted".

FOR SALE: 1962 Buick hardtop, $2795. Deal, 723-2766.

WANTED: Third man to share house in Buckroe. Call Carson, 2218, or Hector, 3766.

FOR SALE: Large assortment of U.S. first day covers and plate number blocks. Miller, PA 3-4720.

FOR SALE: 7-room Cape Cod house on Warwick-on-the-James. Gourley, LY 6-7427.

In ceremonies held Monday, 348 acres of surplus Government land at Oyster Point were officially signed over to the Commonwealth of Virginia as the site of the future home of the Virginia Associated Research Center. Top left photograph - Dr. Floyd L. Thompson, Director of the Langley Center, is shown at the site with Governor Albertis S. Harrison Jr. who accepted the deed on behalf of the Commonwealth of Virginia. Top right photograph - Dr. Hugh L. Dryden, NASA Deputy Administrator, was one of the speakers at the luncheon held at the College of William and Mary. Center left - Shown in the Langley Center's Activities Building are (from left): Dr. Davis Y. Paschall, President of the College of William and Mary and Chairman of the Governing Committee of VARC; Peyton Winfree, member of the Governor's staff; Charles J. Donlan, Langley's Assistant Director, and Thompson. Center right - During a tour of Langley research facilities the group visit-Unitary Plan Wind Tunnel. Lower left - The group observes demonstrations in the Flight Research Hangar. Lower right-Shown at the Structures Research Laboratory are Dr. Paschall, Dr. Thompson, and Dr. Edmund Baxter, Regional Director, Department of Health, Education and Welfare.

NASA NAMES MUELLER HEAD OF MANNED SPACE FLIGHT

NASA has announced the appointment of Dr. George E. Mueller as Deputy Associate Administrator for Manned Space Flight. Dr. Mueller was vice president for research and development of Space Technology Laboratories.

He will have responsibility for NASA's Office of Manned Space Flight and NASA's field centers directly concerned with Manned Space Flight (Marshall Space Flight Center, Manned Spacecraft Center, and Launch Operations Center). He will assume his new duties on September 1.

Dr. Mueller succeeds D. Brainerd Holmes who resigned. Holmes was Director of the Office of Manned Space Flight and Deputy Associate Administrator for Manned Space Flight Centers.

NASA Administrator, James E. Webb, said, "The realignments now being effected in the United States' Manned Space Flight Program will strengthen it and provide for an effective transition into the newer concepts and missions associated with Gemini and Apollo.

"Mr. Holmes has rendered outstanding service to his country, NASA and the Manned Space Flight Programs in setting it on a course toward success and recovery from a position in which we have been behind the Russians. NASA appreciates his great contribution and we all wish him well as he returns to industry.

"We are most fortunate to obtain the services of Dr. Mueller to furnish the leadership and keep up the momentum instilled in this program."

Dr. Mueller will bring to bear on this new position, his detailed experience in the management of large missile and space programs, gained through his years of work on the Atlas, Titan, Minuteman, and Thor ballistic missile programs, and NASA's Pioneer and Explorer space programs, while employed at the Space Technology Laboratories.

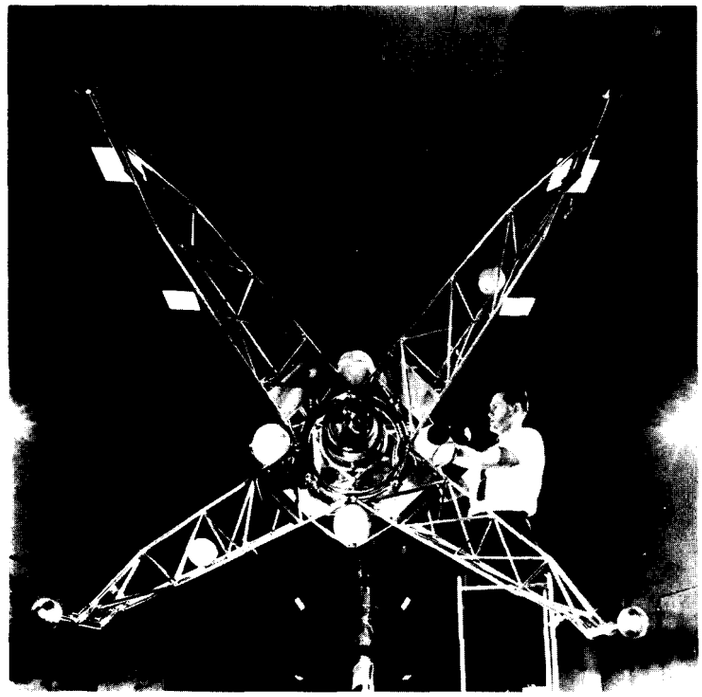
Since being at STL, Dr. Mueller has been successively Director of the Electronics Laboratories, Program Director of the early Able space program, and vice president and associate director of the Research and Development Division, vice president of Space Systems Program Management, and finally serving for the last year as vice president for Research and Development where he had overall responsibility for the technical operations of the company.

In particular, he had overall responsibility for the design, development, and testing of systems and components basic to the ballistic missile program, the development of the United States' first successful space probe, Pioneer I, for several other space and interplanetary probes including Explorer VI and Pioneer V, and for the establishment of the first worldwide satellite tracking network--the Span Network.

His 23 years of experience includes extensive research in electromagnetic theory and application, television, microwaves and microwave antennae, missile guidance systems, deep space communications, systems engineering and space payload design. He was one of the originators of the concept and design of "Telebit," the first digital telemetry system to enter space. On the ballistic missile programs, his responsibility was primarily one of organizing, managing, and guiding the efforts of the technical laboratories, and the corresponding design, development, and production efforts of the associate contractors involved in the ballistic missile programs.

He received a B.S. degree in electrical engineering from the Missouri School of Mines in 1939. He earned his M.S. degree in electrical engineering at Purdue University where he also was a research fellow. Following graduation, he worked for six years at the Bell Telephone Laboratories, first in television and then in microwave research where he was a pioneer in millimeter wave research. While at Bell Laboratories, he continued his study of physics at Princeton University then transferred to Ohio State University where he was awarded a Ph.D. degree in physics. He taught electrical engineering at Ohio State University for more than 10 years. He served as a consultant to several leading defense companies.

Dr. Mueller is the author of numerous technical papers and has six patents in the fields of electron tubes and antennas. He belongs to the Air Force Association, the American Ordnance Association, and the American Association for the Advancement of Science.



Long before the first American astronauts descend to the surface of the moon, NASA scientists will make numerous simulated lunar landings by means of many ingenious test devices. One of them, mounted here for wind tunnel studies at Langley Center, is a free flight test vehicle being developed by the Flight Research Center, Edwards, Calif. In the full-sized vehicle (the wind tunnel model is three-tenths scale) a jet engine will support five-sixths of the total weight, while the remaining one-sixth, matching gravity conditions on the moon, will be supported by hydrogen peroxide rockets. Wind tunnel tests are evaluating aerodynamic drag and jet engine mass flow characteristics, with the model mounted in the air-stream as though it were making a vertical touchdown. Spherical tanks are for jet engine fuel; peroxide and helium used to furnish pressure.

FOUND. Pair of glasses near Hangar. Armistead, 4817.
WANTED: Ride from Buckroe to W.A. on 8 shift. Smith,

Langley Researcher

VOLUME 2 NUMBER 17 LANGLEY RESEARCH CENTER AUGUST 16, 1963

MAJOR JOHN SAMOS TO REPLACE MAJOR CECIL BAILEY AT LANGLEY

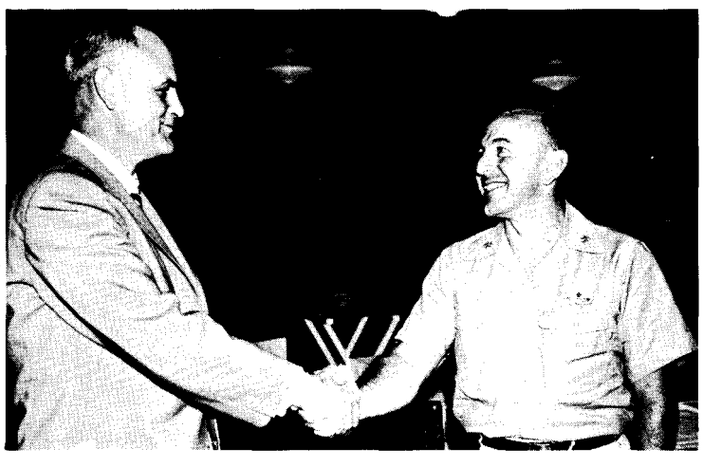
The assignment of Major John Samos to replace Major Cecil D. Bailey as the Air Force Scientific and Technical Liaison Officer at the Langley Research Center has been announced by Major General Marvin C. Demler at the new Research and Technology Division Headquarters. Bolling Air Force Base. Major Samos will officially take over his new duties September 3.

Major Bailey, who was transferred to the Langley Research Center in August, 1959, will leave August 23 for his new assignment at Headquarters, Air Force Systems Command, Andrews Air Force Base, Washington, D.C. He will be working in the Directorate of Research and Engineering.

Major Samos, who claims Newport News as his home, comes to his new post from Wright-Patterson Air Force Base, Ohio, where he was Assistant Project Officer for fuel systems on the RB-70.

Major Samos was a navigator during World War II. He left the Air Force in 1947 to accept a position at the Langley Center's 8-foot Tunnels Branch. He was recalled to active duty two years later to teach at the Air Force navigator school at Ellington Air Force Base near Houston, Texas.

In 1954 he was transferred to the Strategic Air Command and flew as a B-47 navigator from Hunter Air Force Base, Georgia, until he was selected for the Air Force Institute of Technology program in 1958. In that program he studied mechanical engineering at Oklahoma State University where he received both the Bachelor and Master of Science Degrees.



Eugene C. Draley (left), Assistant Director, greets Major John Samos who will officially take over his duties as the Air Force Scientific and Technical Liaison Officer at the Langley Center on September 3. Major Samos replaces Major Cecil D. Bailey who has been assigned to Headquarters, Air Force Systems Command, Andrews Air Force Base, Washington, D.C.

LANGLEY AWARDS CONTRACT FOR SATELLITE EXPERIMENT

NASA has begun preparations for the launch of two Explorer series satellites on a single Scout launch vehicle late this year.

Langley Research Center has awarded a $478,922 contract to the State University of Iowa at Iowa City to provide one of the spacecraft.

The contract covers construction and assembly of one of SUI's series of Injun satellites containing instruments to record corpuscular radiation streaming into the earth's upper atmosphere from space.

The second spacecraft will be a 12-foot polka dot inflatable sphere to measure air density. The sphere, similar to Explorer IX now in orbit, will be built by the Langley Center.

Both the sphere and the Injun are scheduled to be launched into a near-polar orbit by a solid propellant Scout vehicle from the Pacific Missile Range late in 1963.

The launch will mark two firsts:

--It will be the first attempt to measure air densities by a polar orbiting satellite.

--It will be the first attempt to use Scout to place two satellites into orbit at the same time.

The two-part experiment is intended to provide new

(Continued on page 3)

X-RAY SURVEY STARTS MONDAY

Staff members are reminded that the triennial X-ray survey of employees will be held at the Center next week. Although participation in the survey is entirely voluntary, it is strongly recommended that each employee avail himself of the opportunity of obtaining this valuable diagnostic service.

According to the National Tuberculosis Association, probably a half million people in the United States have tuberculosis of the lungs.

There is no charge for this service and disrobing will not be necessary. Those having negative findings will receive a report. Those having suspicious or unexplainable findings will be followed up by the Hampton Health Department with a larger X-ray and other studies, if indicated.

On Monday the X-ray unit will be located in East Area, directly outside the East Dispensary in Building 584.

Tuesday through Friday the equipment will be located in the Activities Building.

Employees in each building have been notified as to the time and day to report for X-ray. Employees assigned to night shifts may report to the X-ray room in operation any time between 8:30 a.m. and 3:30 p.m. on the days of the survey.

The survey is conducted by the Virginia State Department of Health and the Hampton Health Department and is administered by the Employee Services Section, telephone 2210 or 2323.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW ARRIVALS. . .Frank Bugg, 7 x 10-foot Wind Tunnels, became the father of a daughter, Fran Lynn, on July 31. . . Announcing the adoption of a daughter, Nancy Jo, is Dr. Robert W. Fralich, Structures Research. . .The stork visited the Rodney Lauer household on July 31 and delivered a daughter. The father works in Instrument Research.

ENGAGEMENTS. . .Making plans for a January wedding are James Wayne Johnson, Instrument Research, and Janice Anita Crews of Thalia. . .Ward Frederick Hodge, Space Mechanics Division, is engaged to Doris Marie Mayo, Newport News. The wedding will take place on October 19.

SERVICE PLAN REPRESENTATIVE. . .Richard F. Brody, Government-wide Service Plan representative, will visit the Center on August 21 at 2 p.m. Employees having problems concerning their Government-wide Service Benefit Plan may call Linda Hale, 2323, for an appointment.

ORANGE BLOSSOMS. . .Wedding bells rang on August 3 when Randolph Lee Turner, Applied Materials and Physics Division, took his final vows with Evelyn Louise Fitzpatrick, Radford, at the Grove Avenue Methodist Church in Radford.

TOUCH FOOTBALL. . .A NASA Touch Football League has been formed and five teams have entered. There is a vacancy for one more team. Anyone wishing to enter a team in the league or desiring to play with a team are requested to call Charles Woerner, 4840. The first games will be played Saturday, September 7. All games will be scheduled on Saturday mornings from 10 a.m. until noon.

NEW HEIRS. . .Weighing in at seven pounds, eleven ounces on August 8 was Billy W. Jr., son of Billy Beasley, Electrical Systems Division. . .Announcing the birth of an eight pound, two ounce son, William Clayton, on July 23 are Judy, Analysis and Computation Division, and Clayton Moughon, Instrument Research.

CUPID SCORES. . .Making plans to desert the bachelor ranks is John Carlton Covington, Electrical Systems Division. He is engaged to Jeanne Coleman, Hampton, and a fall wedding is planned.

ROD AND GUN CLUB. . .The Langley Rod and Gun Club has excerised its option on 3600 acres of hunting land. Checks are being accepted at the club house or they may be mailed to Box 755, Langley Air Force Base. The club will be open on Tuesday and Friday from 7:30 p.m. until 10:30 p.m. and on Saturday and Sunday from 12:30 p.m. to 5 p.m. The next meeting will be held at 8 p.m. on August 27 at the club house. A Hunter's Safety Course will be presented by the State Game Commission at 7 p.m. on August 28 at the club house. All interested persons are invited.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of August 19:

Monday - Chicken-noodle soup, half-pound chopped sirloin steak .55, veal cutlet Parmesan .45, chicken and dumplings .45, fish cakes and cole slaw .25.

Tuesday - Bean soup, roast beef .50, barbecued spareribs .45, Salisbury steak .40, grilled cheese and bacon sandwich.

Wednesday - Cream of tomato soup, Spanish pot roast .50, shrimp Newberg .45, fried liver and onions .40, tamale pie .25.

Thursday - Vegetable-beef soup, grilled steak .65, meat loaf .40, fried chicken .35, macaroni and wieners .25.

Friday - Clam chowder, Swiss steak .50, fried filet of flounder .35, broiled halibut steak .35, baked hash .25.

The menu for the week of August 26 is as follows:

Monday - Tomato-barley soup, roast veal with dressing .55, deep-fried shrimp .45, Polish sausage with corn fritters .40, cheese omelette .25.

Tuesday - Split green pea soup, roast ribs of beef .50, grilled ham slice .40, tuna patties with cole slaw .40, hamburger .25.

Wednesday - Bean soup, pot roast of beef .50, chuckwagon steak .45, grilled pork chops .40, chili con carne .25.

Thursday - Vegetable-beef soup, grilled steak .65, baked Smithfield ham .55, fried chicken .35, hot dog .20.

Friday - Clam chowder, roast beef .50, stuffed flounder .40, broiled fish .35, Austrian ravioli .25.

ECHO IN ORBIT THREE YEARS

ECHO I, the satellite seen by millions of people all over the world, completed its third year in orbit August 12. A product of Langley imagination and teamwork, the inflatable satellite was launched successfully on August 12, 1960 from Cape Canaveral.

On the date of its third anniversary in orbit, the 100-foot sphere had flown 417,431,506 miles--13,555 orbits--since it was launched into space by a Delta launch vehicle.

Echo I was inflated in orbit by gas from vaporized chemical compounds. It has not survived its space days without wear and tear. Bombarded by tiny meteoroids, it generally retains its spherical shape, though its skin is heavily wrinkled. The skin is not expected to deteriorate further.

This wrinkled condition prevents Echo I from being useful in communications experiments.

Echo I was the first man-made passive communications satellite. During its four and one-half months of useful life (from launch to the end of December 1960), it bounced, without amplifying, signals from Bell Telephone Laboratories in Holmdel, N.J., to Jet Propulsion Laboratory's Goldstone Station in California. It successfully relayed teletype signals, music, facsimile, and the human voice.

Besides showing the usefulness of satellites in aiding global communications, Echo I has aided scientists in at least two other areas.

First, it confirmed scientific predictions on the effect of space on radio communications, and the strength of signals received by ground stations from the satellite.

Echo I also furnished information on solar pressure and air drag. The solar wind, the force of the sun's light and heat energy, has greatly altered the path of Echo's orbit.

This solar wind has, in effect, blown Echo off its original orbital path, and back again, in a roughly 12-month cycle, which has been repeated three times so far.

When first orbited, Echo I was in a circular orbit, at an altitude of 1,000 miles; about six months later, the balloon's orbit had an apogee of 1,600 miles and a perigee of 600 miles. With the passage of about six more months, Echo I had returned to its original circular orbit. Scientists expect this cycle to continue until Echo reenters the atmosphere and burns up. NASA is not sure when this will occur.

The effect of the solar wind on Echo's orbital path is not unique, but on most spacecraft the effect is so slight as to be negligible.

The next Echo satellite scheduled to be launched late this year, will weight 580 pounds and have a diameter of 135 feet. It will be launched into polar orbit from the Pacific Missile Range using a Thor-Agena-D vehicle.

This means that Echo II will pass over every area of the Earth at least once a day, in a north-to-south orbit over the Earth's two polar regions.

Using knowledge gained from the performance of Echo I, NASA scientists have made Echo II more rigid in structure.

Under an agreement announced in the United Nations last December 5, the United States and Russia will cooperate in communications experiments using Echo II.

WANTED: Driving combination from Forest Park area to W. A. on 8 shift. Stroup, 4667, or Tompkins, 4891.

WANTED: Alternate drivers from Northampton area to W.A. on 8 shift. Quinn, 4519.

Three of the nine new astronaut-trainees (foreground) experience weightlessness in a specially equipped Air Force high speed plane. They are (from left): Edward H. White, James A. McDivitt and Neil A. Armstrong.

LANGLEY AWARDS CONTRACT

(Continued from page 1)

scientific knowledge of how the Earth's atmosphere reacts to radiation from space.

It is thought such radiation tends to heat the upper atmosphere, thereby changing its density and probably causing it to extend further upward from the Earth.

While the Injun Explorer is measuring the downflow of corpuscular radiation into the atmosphere, the measurements of the Air Density Explorers' orbit will simultaneously indicate drag characteristics in the atmosphere.

After correlating the two sets of data, scientists hope to gain a better understanding of how radiation affects the Earth's blanket of air.

A near-polar orbit was chosen to expose both spacecraft to areas of maximum radiation flux. The Earth's magnetic field deflects particle radiation in a way that allows it to penetrate more deeply in the polar regions.

Both satellite experiments and the Scout are projects of NASA's Office of Space Sciences, with project management a responsibility of the Langley Center.

SOFTBALL STANDINGS

	First Round		Second Round		
Team	W	L	W	L	T
Greenhorns	10	1	2	4	
Packers	9	2	5	2	
Hasbeens	8	3			
Roughnecks	8	3	2	5	
Misfits	7	4	5	1	1
Finks	6	5	4	2	1
Eastsiders	5	5	5	2	
Slowpokes	4	7	2	6	
IRD	3	7	7	1	
Ballbusters	3	8	3	5	
Duffers	2	8			
ACD	0	10	0	7	

--Buy U.S. Savings Bonds through the Payroll Savings Plan--

EMPLOYEES RECEIVE SUPERIOR PERFORMANCE AWARDS

Thirteen staff members recently received letters of commendation and cash awards from the Langley Incentive Awards Committee for sustained superior performance.

Receiving the awards were: William E. Craig, Instrument Research Division; Hugh C. Halliday, Flight Vehicle and System Division; L. Robert Jackson, Structures Research Division; Evelyn D. Wallace, Procurement Division; Myrtle H. Wells, Space Mechanics Division; Peter P. Stapilus, Mechanical Service Division; Richard E. Turner, Applied Materials and Physics Division; James H. Schrader, Instrument Research; Walter C. Long, Instrument Research; Charles C. Laney, Instrument Research; Robert H. Coultrip, Electrical Service Division; James W. Russell, Plant Maintenance Division, and George F. Sykes

William E. Craig

Hugh C. Halliday

L. Robert Jackson

Evelyn D. Wallace

Myrtle M. Wells

Richard E. Turner

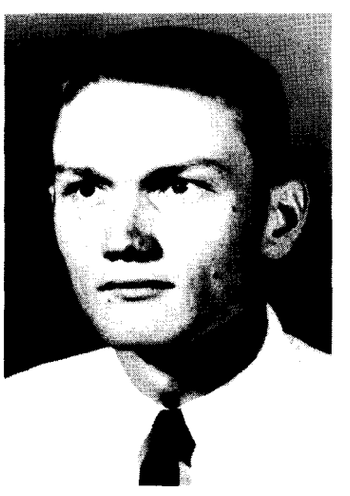
James H. Schrader

Walter C. Long

Charles C. Laney

Robert H. Coultrip

James W. Russell


George F. Sykes

EMPOYEES RECEIVE AWARDS

(Continued from page 4)

Jr., Structures Research.

The individual commendations read as follows:

Craig - "For his outstanding effectiveness in conceiving and implementing new operational and contractual procedures, and for the reorientation of division personnel as necessary to meet the expanded scope and diversity of division operation." A native of Pittsburgh, Pennsylvania, Craig received his B.S. degree from the University of Pittsburgh and joined the Center staff on February 16, 1943.

Halliday - "For his outstanding leadership, ability, and dedication shown in the technical direction of the mechanical design, development, construction, and reliability of the S-55B payload." Halliday was born in Ireland. He attended Hampden-Sydney College and North Carolina State College. He first joined the Center July 10, 1939 but had a number of breaks in service while attending college.

Jackson - "For his high quality and quantity of work and for the excellent organizational and leadership abilities demonstrated as project engineer on a general study of structural concepts and thermal protection systems for hypersonic air-breathing vehicles." He was born in North Ireland and received his B.S. degree from Purdue University. He entered on duty January 29, 1962.

Mrs. Wallace - "For the outstandingly efficient manner in which she operates a stockroom located in the Instrument Research Division and for her willingness to evaluate new ideas in search for better ways to improve this operation." She is a native of Accomac County and attended Hampton High School. She has been with NASA since November 16, 1942.

Mrs. Wells - "For the consistent high caliber of work and the added responsibility she has assumed during the past six months since Theoretical Mechanics Division has been without an assigned division chief." Mrs. Wells was born in Albermarle County and graduated from John Marshall High School in Richmond. She entered on duty October 18, 1950.

Stapilus - "For his significant contributions in the development of unique mechanical apparatus for aerospace research facilities." He is a native of Rockford, Illinois. He graduated from Rockford High School and started his NASA career on August 22, 1945.

Turner - "For his highly original and comprehensive analytical methods which have provided significant contributions in the field of space vehicle thermal control design and specifically for his solution to the thermal control problems of the S-55 satellite." A native of Wadesboro, North Carolina, he received his B.S. degree in Aeronautical Engineering from North Carolina State College and joined the Center staff June 9, 1959.

Schrader - "For his outstanding contributions in the design and development of data acquisition and communication systems." Schrader was born in Syracuse, New York, and received his B.S. degree from the University of Kansas. He entered on duty June 26, 1952.

Long - "For his outstanding contribution as Instrumentation Project Engineer for the S-55B Micrometeoroid Satellite." He was born in Wilmington, North Carolina, and received his B.S. degree in Electrical Engineering from North Carolina State College. He started his NASA career on June 6, 1955.

Laney - "For the outstanding manner in which he has carried through to completion an exceptional number of complex high priority jobs including the MA-9 Sub-Satellite Flashing Light Experiment and the development of the Micrometeoroid capacitance sensor being used on the Inflatable Micrometeoroid Paraglider Experiment." He is a native of Lando, South Carolina, and received his B.S. degree in Electrical Engineering from Virginia Polytechnic Institute. He entered on duty July 1, 1957.

Coultrip - "For his outstanding skill and ingenuity in constructing circuitry for the micrometeoroid satellites and for his superior work in fabricating micro-miniaturized electronic circuitry for feasibility studies for telemeter applications." Coultrip was born in Leland, Illinois. He joined the Center staff September 13, 1954.

Russell - "For the high quality, high quantity performance in his assigned duties, and for his conscientious and cooperative attitude." He is a native Hamptonian and attended Hampton public schools. He entered on duty April 15, 1946.

Sykes - "For his outstanding work performance in differential thermal analysis at a level of competence normally expected of personnel at a higher grade." He is a native of Norfolk and recently received his B.S. degree in Physics from Virginia Military Institute. He entered on duty September 25, 1962.

SCIENTISTS SPEAK AT CONFERENCE

Three Langley scientists presented papers at the Inter-American Institute for Space Science Education which was held July 29-August 10 at the University of South Florida, Tampa. This 1963 summer conference foe science teachers was sponsored by NASA.

William H. Michael Jr., Head of Mission Analysis Section, Space Mechanics Division, presented a paper on "Orbits and Trajectories". He reviewed the basic concepts of flight mechanics and briefly discussed the methods of calculating orbits and trajectories. Special attention was given to Lunar, Mars, and Venus trajectories.

Richard A. Hord, Analysis Section, Dynamic Loads Division, spoke on "The Physics of the Upper Atmosphere". In this survey, the physics, chemistry and the visual phenomena of the upper atmosphere were outlined including related problems of communications and radio-astronomy.

E. Brian Pritchard, Mission Analysis Group, Aero-Physics Division, presented a paper on "Probmens of Re-entry". This presentation was an introduction to the dynamics of re-entry into the atmosphere. Lift to drag ratio and ballistic parameters were also discussed together with their application to manned space flight.

Papers were also presented by representatives from industry, educational institutions, and other NASA facilities.

ACCOUNTING COURSE OFFERED TO QUALIFIED STAFF MEMBERS

A course in Intermediate Accounting is being planned for employees who are performing this type of work. The class will be offered during duty hours with no tuition required. Those interested must pass a test on Elementary Accounting Principles, administered by the Training Office.

Those interested in taking the test, which is a prerequisite for enrollment, should call the Training Office, 2326.

SHOTPUT TEST LAUNCHED AT WALLOPS

The second Shotput suborbital sounding rocket flight in the joint Italian-U.S. San Marco satellite project was launched from Wallops Island August 2.

Payload, launch vehicle and telemetry performed as planned. The 177.5-pound San Marco test satellite reached an altitude of 183 statute miles and landed 606 statute miles downrange in the Atlantic. No recovery was planned.

This flight was a continuation of a series of sounding rocket launches which started April 20 to test instrumentation for the San Marco satellite. In addition to instrument tests, the second Shotput was to ascertain whether launch vehicle despin difficulties experiences in the first launch had been corrected. Flight officials stated they were also pleased with this aspect of the vehicle's performance.

A third Shotput is scheduled for launching from a platform in the Indian Ocean near the equator during the fourth quarter of this year in a continuation of tests for both instrumentation and launching techniques.

The San Marco project, a cooperative program between the Italian National Research Council and the U.S. National Aeronautics and Space Administration, is expected to end in the launching of a scientific satellite into an equatorial orbit by the Italians. This launch, utilizing NASA's four-stage Scout vehicle, is to take place from a platform similar to a Texas Tower located on the continental shelf off the east coast of Africa.

As in the first Shotput launching, the primary objective of the second flight was to ascertain the operational performance of the dynamic balance developed by Professor Luigi Broglio, head of the San Marco project, and his group at the Aerospace Research Center in Rome. The drag balance will provide data for the calculation of variations in atmospheric density by measuring the total atmospheric drag upon the satellite.

The Shotput launch vehicle, developed by Langley Center, is a two-stage solid fuel vehicle which produces 120,000 pounds of thrust at liftoff.

Tom W. Perry is the Wallops Project Engineer and Kenneth S. Bush is the Langley Center San Marco Project Manager.

Shortly after the Shotput launch, a related experiment was sent aloft from Wallops Island on a Nike-Cajun vehicle. Purpose of this flight was to obtain data on ambient air density to aid in the evaluation of the San Marco experiment.

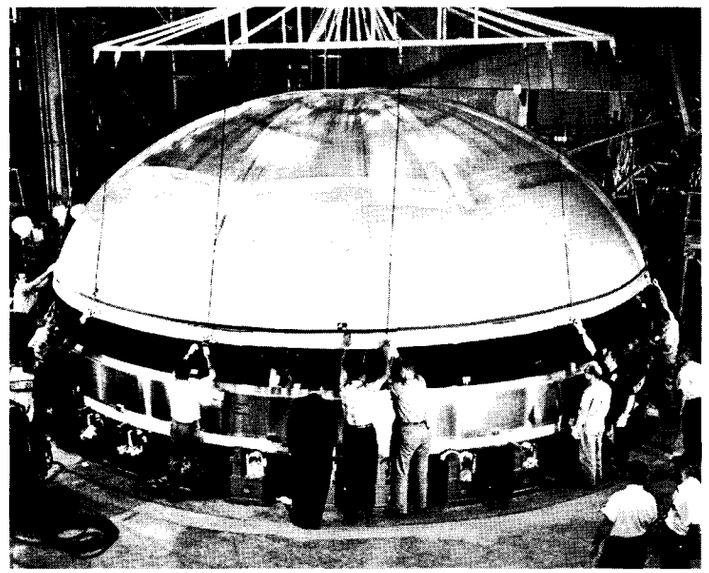
BIKLE SELECTED FOR SOARING AWARD

Paul F. Bikle, Director of the Flight Research Center, has been selected to receive the Lilienthal Medal for 1962 as awarded by the Federation Aeronautique Internationale (FAI). This award, named after one of the first glider pilots, is to be made in ceremonies this fall in Mexico City. Announcement of the award was made by the National Aeronautic Association (NAA).

The Lilienthal award, soaring's highest honor, is presented annually for remarkable sporting performance in soaring or eminent service for a long period of time.

Bikle holds the world absolute altitude record of 46,343 feet and a total altitude gained mark of 42,305 feet. Both of these glider records were established in 1961.

A veteran of over 20 years as a soaring enthusiast, Bikle has competed in nine U.S. National Championships.



The upper dome of a fuel tank for the Saturn V moon rocket is lowered into place on a "Y-ring" to which it will be welded at the Marshall Space Flight Center. The Y-ring will then be welded to a cylindrical skin segment to form half a tank. The two halves will be joined after anti-slosh baffles have been installed. Two tanks, with connecting skin segments, will form the main fuselage of the S-IC stage. Five F-1 engines, developing 7.5 million pounds thrust, will then be installed to the thrust structure.

LANGLEY AWARDS CONTRACT FOR RADIATION LABORATORY

The final major contract needed to complete NASA's Space Radiation Effects Laboratory at Oyster Point has been formally awarded by the Langley Research Center to Basic Construction Company of Newport News.

Under terms of the award, Basic Construction will erect a $3,095,200 building containing 57,890 square feet of floor space to house the synchrocyclotron which will form the heart of the space research laboratory.

The structure will include laboratory and working areas, space for scientific and engineering offices, and areas for two smaller particle accelerators which will complement the capabilities of the 600 million electron volt synchrocyclotron. Basic Construction's contract includes necessary access roads and sidewalks.

Installation of a projected parking area has been deferred thus reducing the contract price $4,400 below the original bid filed by Basic Construction Company.

The contractor will have 600 calendar days from August 19 to complete the project.

NOTICE: Will the person who borrowed the library copy of "Society for Industrial and Applied Mathematics Journal" Vol. 4, 1956, please call H. G. McComb, 4860.

WANTED: 4th and 5th driver from Hampton Terrace-Azalea Gardens area to W.A. on 8 shift. Eichenbrenner, 4424.

WANTED: Driving combination from Hidenwood to W.A. on 8 shift. Batkins, 4786.

WANTED: Six-month storage space for furniture and household goods. Swift, 596-1451.

WAGE BOARD EMPLOYEES MAY TAKE LEAD IN BOND EFFORT

Wage Board employees received a pay increase effective August 4. This increase will be realized in the pay checks to be distributed August 29. It is hoped that employees concerned will find it convenient to put a part of their raise in U.S. Savings Bonds.

Wage Board employees had an excellent record of participation in the bond drive held in May. Mechanical Service Division employees increased their percentage of participation from 65 to 77 percent, Plant Maintenance employees raised their standing from 59 to 67 percent and members of Electrical Systems jumped their rating from 44 to 81 percent participation. Of the 449 new subscribers who signed up for bonds during the drive, 179 came from these three divisions which have the largest number of Wage Board employees.

With the pay increase, Wage Board employees have an opportunity to take over the leadership in the Center's program of organized savings and set an outstanding example for other staff members to follow.

Buying bonds is like saving on the installment plan except the purchaser receives the interest or service charge as an extra bonus.

Buying bonds contribute in a major way to the economic strength on which our defense efforts depend. Moreover, they build financial security for the purchaser, enabling him to plan realistically for important needs of the future. The act of buying bonds is also a splendid expression of faith in our American system so that we may strengthen it for future generations.

Staff members interested in purchasing bonds or increasing their current allotments may obtain bond authorization cards from their attendance clerks or the Payroll Office, telephone 2267.

GOLF WINNERS ANNOUNCED

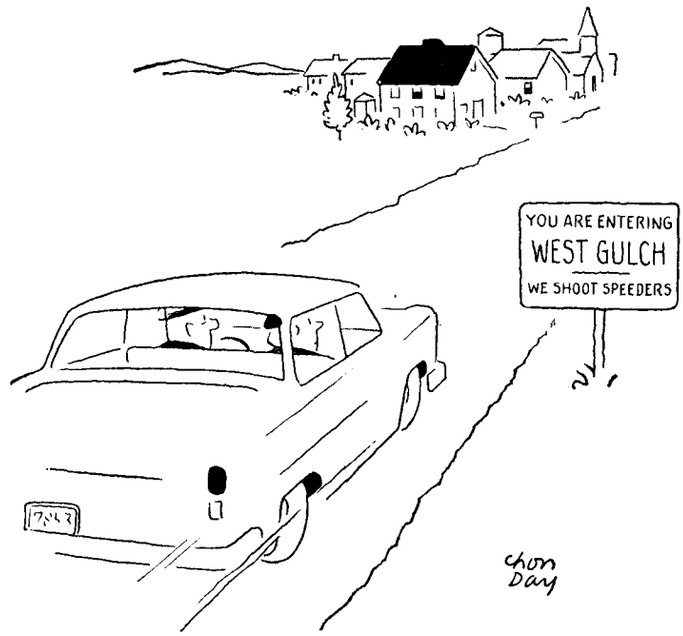
The second NASA Golf Open House held at the Langley Golf Course on July 26 was a partnership tournament. Taking low gross honors were J. C. Smith and D. W. Bridges. Smith shot 79 and Bridges came in with 93 for a best ball score of 77. Second went to Jim Bertoci with 79 and his partner C. L. Edwards with 92 for a best ball score of 78. Third place went to Mike Taylor (80) and J. Rego (114) with an 80 best ball score, and coming in fourth were Bill Hayward (82) and Lynwood Jones (100) with a best ball score of 82.

Low net winners were Hank Weber and Forrest Dickerson, W. S. Lassitor and Bill Rouse, and Walter Olstad and Moses Long.

Winners in the blind drawing were Troy Brooks and Bill Sanders and Jim Jones and Cletus Vincke. Fred Skates and C. E. Saul won the door prizes and D. J. Carter and Tom Yager were winners in the lucky draw.

The date for the third Open House will be announced soon and plans are being made to invited a number of the Center's key officials to participate in the event.

FOR SALE: MG 1952 TD roadster. Mattox, 245-8769.
FOR SALE: Upright piano. Call Heath, 838-2787.
WANTED: Ride or passengers to West Point, N.Y. or vicinity Labor Day week-end. Eanes, 4766.



CONFERENCE HELD AT V.P.I.

Fourteen key NASA scientists and engineers discussed the results of five years of research with artificial space satellites, future research plans, and the implications to man's life in the years ahead at a conference at Virginia Polytechnic Institute. The meeting, which was attended by 250 representatives of industry, educational institutions and NASA installations, started August 12 and ends today. The conference was sponsored by VPI in cooperation with the National Science Foundation and the Langley Center.

The conference had a two-fold purpose: to assist in the interchange of information among scientists and engineers actively working in space research, and to bring information to stimulate scientists and engineers--particularly in educational institutions--who are not now engaged in space research.

Langley participants included Dr. Floyd L. Thompson, Director, and William J. O'Sullivan, Head of Space Vehicles Section. Dr. Thompson was guest speaker at the banquet held on Thursday night. He spoke on "Aerospace-A Challenge to Research and Education". O'Sullivan presented a paper on "Echo I, Echo II, (Passive)" at the Thursday session on Meteorological and Communication Satellites.

Other speakers from NASA were Homer Newell, Dr. Nancy Roman, Gerald M. Truszynski, and Joseph F. Shea, from Headquarters; Frank McDonald, John O'Keefe, R. E. Bourdeau, Wilmont N. Hess, R. Rados, and Harry Press, all from Goddard Space Flight Center; H. Spinrad, Jet Propulsion Laboratory, and Chris C. Kraft, Manned Space Flight Center.

NASA TENPIN LEAGUE

A meeting of team captains in the NASA Tenpin League will be held September 2 at 7:15 p.m. in the Activities Building. Captains must have all ABC and WIBC individual membership applications with the required fees at the meeting. All teams must be represented so that ammendments to the constitution and by-laws may be voted on.

League play will start Tuesday, September 10 at 6:45 p.m. at the Hidenwood Lanes.

STUDENT TRAINEES RECEIVE BACHELOR DEGREES

W. DON ALLISON
AERO-PHYSICS DIVISION
AERONAUTICAL ENGINEERING

J. EARL JONES
INSTRUMENT RESEARCH DIVISION
ELECTRICAL ENGINEERING

RANDOLPH L. TURNER
APPLIED MATERIALS AND PHYSICS DIVISION
PHYSICS

RALPH W. WILL
APPLIED MATERIALS AND PHYSICS DIVISION
AERONAUTICAL ENGINEERING

DENNIS O. ALLISON
DYNAMIC LOADS DIVISION
PHYSICS

JAMES T. HENDRICKS
INSTRUMENT RESEARCH DIVISION
ELECTRICAL ENGINEERING

ANDRONICOS G. KANTSIOS
INSTRUMENT RESEARCH DIVISION
PHYSICS

JOSEPH W. DREWRY JR.
APPLIED MATERIALS AND PHYSICS DIVISION
MECHANICAL ENGINEERING

CLAUDE P. KECKLER
APPLIED MATERIALS AND PHYSICS DIVISION
AERONAUTICAL ENGINEERING

STANLEY C. MAYHEW
ANALYSIS AND COMPUTATION DIVISION
ENGINEERING MECHANICS

ROGER M. WINEBARGER
AERO-PHYSICS DIVISION
ENGINEERING MECHANICS

HANEY SUCCEEDS LT. COL. POWERS

NASA has announced the appointment of Paul Haney as Public Affairs Officer for the Manned Spacecraft Center.

He succeeds Lt. Col. John A. Powers who will be reassigned. Colonel Powers' duties have not been determined.

Haney, 35, will assume his new position on September 1. Previously, he was Public Affairs Officer of the Office of Manned Space Flight in Washington.

NASA Administrator James E. Webb said, "The Mercury program just ended stands as a demonstration to the world of the openness and the competence with which the United States Manned Space Flight program is conducted. Colonel Powers has played an important part in this successful mission and all of us in NASA appreciate his contributions. We are happy that Haney has agreed to undertake this position and to continue NASA's program of frank and open discussions of every phase of our Manned Space Flight effort just as we do in all parts of our programs."

Dr. Robert Gilruth, Director of the Manned Spacecraft Center, said, "I have great admiration for the excellent job Colonel Powers has done for the Manned Space Flight program and for the country. We have great confidence in his replacement, Mr. Haney, with whom we have worked during much of the Mercury Project, and we look forward to his joining our staff."

Haney is highly qualified for his new position. As Public Affairs Officer of Manned Space Flight in Washington, he was the coordinating link in all of NASA's Manned Space Flight public affairs operations, including public affairs offices at the Manned Spacecraft Center, Marshall Space Flight Center, and the Launch Operations Center.

He joined NASA in December, 1958. Previously, he had worked as assistant city editor of the Washington Evening Star. Before that, he worked on the Erie (Pa.) Times, Akron (O.) Beacon-Journal and the Memphis (Tenn.) Commercial-Appeal. He also worked on the Monsanto Magazine published by the Monsanto Chemical Co., in St. Louis.

A native of Akron, he received his bachelor of arts degree in journalism from Kent State University, Kent, Ohio, in 1949. He also attended Georgetown University Law School in Washington.

EMPLOYEES DONATE BLOOD

During the recent Bloodmobile visit, Center employees donated a total of 156 pints of blood.

Robert Sowers reached the four-gallon mark and Walter Jernigan completed his quota for a three-gallon pin.

Reaching the two-gallon mark were Anshal Neihouse, Cecil Field, Robert Rhodes and William Mace. One gallon pins were presented to Thomas Driver, Marvin Leffel, Perry Hanson, Leo Roach, and Jack Ashe.

ALFORD DIES AT AGE 25

Donald E. Alford, Aero-space Technologist in Data Systems of Analysis and Computation Division, died August 8 in the Dixie Hospital.

Alford was born December 22, 1937 in Albermarle County and graduated from Wilson Memorial High School in Fisherville. He received his B.S. degree in Electrical Engineering from Virginia Polytechnic Institute in 1960 and joined the Center staff April 17, 1961.

He is survived by his wife, Mrs. Heide Marie Alford; his parents, Mr. and Mrs. David E. Alford of Waynesboro; a sister and a brother.

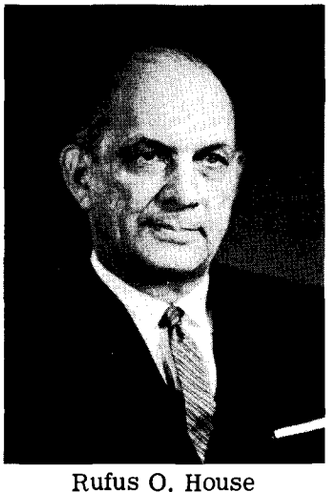
WANTED: Driving combination from Menchville-Nicewood area to E.A. on 8 shift. Kirby, 2212.

WANTED: Driving combination from vicinity of Hilton to W.A. on 8 shift. Winebarger, 4488.

DR. EUGENE M. EMME
AFE14
NASA HISTORICAL ARCHIVES
NO.

Langley Researcher

VOLUME 2, NUMBER 18 LANGLEY RESEARCH CENTER AUGUST 30, 1963



Rufus O. House

HOUSE HEADS UNITED FUND

Rufus O. House, Office of the Director, has been appointed chairman of the Center's tenth annual United Fund Drive scheduled for this fall, it was announced this week by Floyd L. Thompson, Director.

During the drive held last year staff members pledged or contributed a total of $56,663.20 to organizations benefitting under the solicitation program. This represented donations from 94.7 percent of the staff for an average contribution of $14.98.

House is a native of Canetoe, North Carolina. He graduated from Hampton High School and received his Bachelor of Science degree from the College of William and Mary.

During his career with NASA he has served as Budget Officer, Executive Assistant and Budget Officer, and on September 17, 1961 he was appointed to his present position as Executive Assistant and Programs Control Officer.

(Continued on page 5)

DR. BUSEMAN TO PARTICIPATE IN INTERNATIONAL MEETING

Dr. Adolf Busemann, Research Staff Scientist, will represent the Center and the NASA at an important scientific symposium to be held between September 17 and 23 in Tbilisi, USSR.

The symposium, sponsored by the International Union of Theoretical and Applied Mechanics, is concerned with Applications of the Theory of Functions in Continuum Mechanics, a branch of higher mathematics.

IUTAM, the sponsoring organization, is an international scientific group whose meetings bring together outstanding scientists from many different countries. The late Dr. Theodor von Karman participated in the founding of IUTAM.

During the Tbilisi symposium, Dr. Busemann will present a paper on "Lift Control in Magnetohydrodynamics," a subject on which he has been conducting specialized and advanced research during the past several years. Magnetohydrodynamics is a branch of physics concerned with the motion of electrically conducting gases (plasmas) in the presence of magnetic fields.

As a Member of the International Academy of Astronautics, Dr. Busemann plans to attend the Second Regular Meeting of the Academy in Paris following the IUTAM sessions.

The International Academy of Astronautics meeting is scheduled for September 28.

Upon his return to the United States, Dr. Busemann will begin a year of sabbatical leave from the Langley Research Center, during which he will serve as a Visiting Professor of Aerodynamics at the University of Colorado, Boulder, Colorado. He will teach a course in compressible flow.

Dr. Busemann was born in Luebeck, Germany, on April 20, 1901, and has been a member of the Langley staff since April 1947.

He attended high school in Luebeck and completed his undergraduate and graduate work at the Technical College at Braunschweig, Germany, graduating as an engineer in 1924 and receiving his doctorate in engineering in 1925. He started his career as an engineer at the Kaiser Wilhelm Institute (now the Max Planck Institute) in Goettingen, Germany, and later became its chief engineer. While conduct-research for six years, Dr. Busemann concurrently studied for his venia legendi under Dr. L. Prandtl, whose renown as a scientists and wind tunnel designer led to the construction for his research activities, during that period, of the Kaiser Wilhelm Institute for Fluid Mechanics, in addition to the wind tunnels at his disposal.

In April 1931, Dr. Busemann began a four-year period as a lecturer on the subjects of heat transfer, hydrodynamics, and aerodynamics in the Engine Laboratory of the Technical College at Dresden, Germany, under Professor Dr. Richard Mollier. Returning to Braunschweig in 1935 and until the Allied occupation ten years later. Dr. Busemann served as chief of the Gas Dynamics Division of the

(Continued on page 4)

Dr. Adolf Busemann

CENTER CHANGES TIME SEPT. 2

Effective at 12 midnight on Monday, September 2, the clocks will be moved back one hour in those sections of Virginia which converted to daylight saving time on May 30.

This includes the Peninsula area and consequently, Langley Research Center will operate on Standard Time starting at midnight on September 2.

The midnight shift will report for duty at 12 o'clock EST and complete the 8-hour shift at 8:30 a.m. EST. The 11 p.m. and 11:30 p.m. shifts will report to duty on Daylight Time and complete the 8-hour shift on Standard Time.

With the change in time, supervisors and time and attendance clerks are requested to insure that each person working the night shift accounts for a full 8 hours on duty.

Employees called out for any emergency duty will be paid for the actual number of hours worked. This also applies to overtime payment.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ORANGE BLOSSOMS. . .Wedding bells rang last Saturday when Sandra Trexler, Stenographic Section, took her final vows with Charles K. Anspach, Hampton, at Bethel Baptist Church in Hampton.

NEW ARRIVALS. . .Announcing the birth of an eight pound, eight ounce son, Scott Douglas, on August 15 is Rodney Goering, Research Models and Facilities Division. . .An eight pound, twelve ounce son, Roger Lawrence, arrived at the Roger Butler household on July 30. The father works in Analysis and Computation Division. . .Weighing in at six pounds, five ounces on August 19 was Deborah Ann, daughter of Donald Posey, Mechanical Service Division. . .Celebrating the birth of a six pound, eight ounce son, Jeffrey Wayne, on August 18 is Norma Key, Payroll Office.

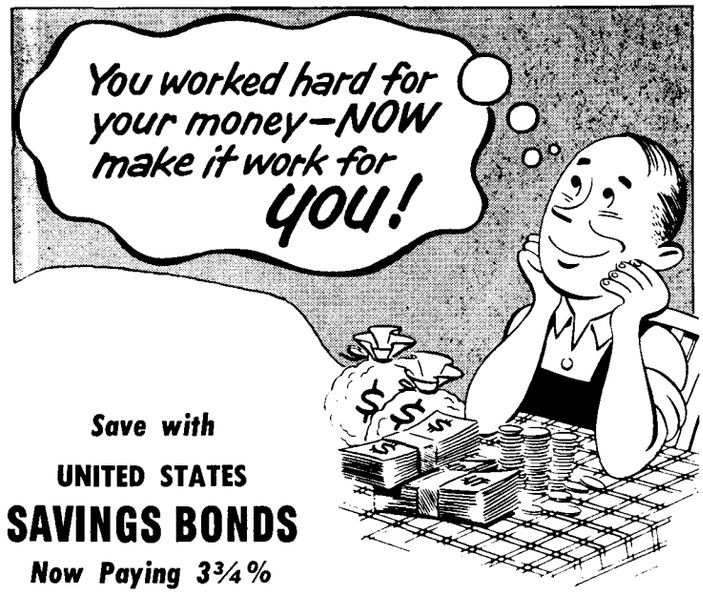
DUCKPIN LEAGUE. . .The NASA Duckpin League will open the bowling season on September 9 at Century Lanes at 6:30 p.m. All teams and individuals interested in bowling are requested to attend.

X-RAY SURVEY. . .A total of 3,103 employees were X-rayed at the Center during the week of August 19. Those having negative findings will receive a report. Those having suspicious or unexplainable findings will be followed up by the Hampton Health Department with a larger X-ray and other studies, if indicated. It will take several weeks to send out the individual reports.

TALENT SHOW. . .Officials of the Activities Association announced that the Talent Show scheduled for September 27 has been cancelled because of lack of interest in such a program.

TENPIN LEAGUE. . .The meet of team captains scheduled for September 2 has been changed to September 3 at 7 p.m. at the Hidenwood Fairlanes Conference Room. All captains are requested to turn in all team applications with fees.

LONG SERVICE RECORD. . .Oscar W. Schey, former Langley employee and now Chief of Technical Services at Lewis Research Center, has completed 40 years of service with the NASA and its predecessor, the National Advisory Committee for Aeronautics. Schey began his career at Langley in 1923 shortly after receiving his B.S. degree in Mechanical Engineering from the University of Minnesota. His work at Langley pointed out the advantages of turbo-superchargers over other types to gain high altitude performance in aircraft. This was demonstrated conclusively by turbo-superchargers used in World War II aircraft. He transferred to Lewis in 1943. With the advent of the turbojet engine, he helped develop the facilities at the Lewis Laboratory to conduct research on these engines and their compressors. He initiated work on liquid and air cooling of gas turbines and built the first liquid-cooled turbine in this country.



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UNITED STATES
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CAFETERIA MENU

The following menu will be served in the cafeterias during the week of September 2:

Tuesday - Cream of tomato soup, Spanish pot roast .50, grilled pork steak .45, creamed dried beef on toast .35, meat croquettes with white sauce .25.

Wednesday - Bean soup, 1/2-pound chopped sirloin steak .55, roast beef .50, fried chicken .35, tamale pie .25.

Thursday - Vegetable-beef soup, lobster tail $1, grilled steak .65, crab cakes with cole slaw .45, spaghetti with meat sauce .40, baked hash .25.

Friday - Clam chowder, Swiss steak .50, broiled fish .35, fried fish .35, pizzaburger .30.

The menu for the week of September 9 is as follows:

Monday - Chicken noodle soup, roast veal with dressing .55, chicken and dumplings .45, grilled ham slice .40, fish cakes with cole slaw .25.

Tuesday - Split green pea soup, roast fresh ham .45, veal cutlet Parmesan .45, Salisbury steak .40, franks and beans .25.

Wednesday - Tomato-barley soup, roast ribs of beef .50, deep fried shrimp .45, liver and onions .35, Austrian ravioli .25.

Thursday - Vegetable-beef soup, grilled steak .65, barbecued beef chunks over steamed rice .45, tuna patties with cole slaw .40, hot dog .20.

Friday - Clam chowder, pot roast of beef .50, stuffed flounder .40, broiled fish .35, barbecued sandwich .25.

FOR SALE: 4-1/4-inch reflector telescope and accessories, Eico 720 transmitter and accessories. Woodall, 877-2176.
FOR SALE: Fiberglas laundry sink and fittings, boy's shoe skates size 6. Kline, PA 2-7221.

SOVIET AGREEMENT ANNOUNCED ON COOPERATIVE SPACE PROGRAM

The NASA and the Academy of Sciences of the USSR have given final approval to a Memorandum of Understanding which provides for implementing a cooperative space agreement reached in Geneva in June 1962.

The Memorandum outlines procedures to be followed for carrying out a coordinated weather satellite program, joint experiments with communications using a passive reflector satellite (Echo II), and joint contributions of satellite data to the World Magnetic Survey to be conducted in 1965.

Basic to the coordinated meteorological satellite program is the scheduled establishment by early 1964 of a full-time telecommunications link between Washington and Moscow for the transmission of cloud photographs and other data from experimental meteorological satellites operated by each country. The Memorandum provides that other countries may receive such information from this link on a cost-sharing basis. Ultimately, this program is to involve coordinated launchings of operational meteorological satellites.

The experiments with the Echo II passive communications satellite will involve transmissions between the Zemenki Observatory of the Gorky State University in the Soviet Union and the Jodrell Bank Observatory of the University of Manchester in the United Kingdom at frequencies of 162 megacycles per second. Scheduled for early 1964, these experiments will include transmissions from the United States to the Soviet Union, using conventional facilities for that part of the link between the U.S. and England.

In the magnetic field survey, each country will launch a specialized satellite equipped to measure the earth's magnetic field. This effort will supplement the various ground, sea and aerial measurements undertaken internationally during the World Magnetic Survey. Results will be exchanged and compared in order to obtain the most authoritative expression of the geomagnetic field.

The bilateral space program stems from an exchange of views between President Kennedy and Chairman Khrushchev on cooperation in space activities following the successful orbital flight of American Astronaut John H. Glenn in February 1962.

The principal scientific negotiators have been Dr. Hugh L. Dryden, NASA Deputy Administrator, and Academician Anatoly A. Blagonravov, Chairman of the Commission on Exploration and Utilization of Outer Space of the Academy of Sciences of the USSR.

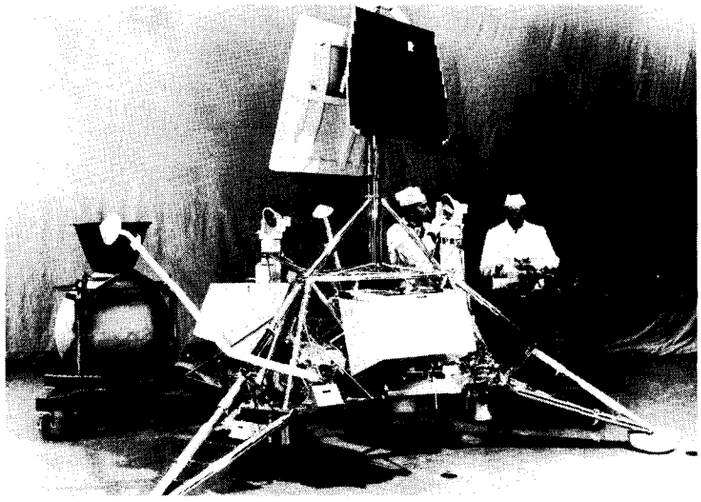
The Memorandum of Understanding was drafted at meetings between American and Soviet scientists at Rome in March, and at Geneva in May of this year, subject to review by NASA and the Soviet Academy.

In response to a letter of July 8 from Dr. Dryden, Academician Blagonravov on August 1, indicated Soviet readiness to proceed with implementation of the three coordinated programs in accordance with the provisions of the Memorandum, which is considered to have entered into force as of that date.

FOR RENT: 2-bedroom house near Langley. Dees, PA36143.

WANTED: Driving combination from vicinity of Maney Dr. to W.A. on 8 shift. Feldhousen, 4562.

WANTED: Ride from Cornwall Terrace and Todds Lane to W.A. on 8 shift. Cannon, 4432.



Engineers at Hughes Aircraft assemble the NASA Surveyor spacecraft designed to land on the moon for several experiments including drilling a hole to determine the lunar surface texture. The surveyor will carry five TV cameras to send pictures back to earth. The round object on the left is the retrometer which will slow down Surveyor on its approach to the moon.

EMPLOYEES MAY ENROLL IN LIFE INSURANCE PLAN

Employees who are not members of the NASA Group Life Insurance plan, which is underwritten by the Home Life Insurance Company, are being given an opportunity to join this group without a medical examination through the use of a medical information form. Eligibility to use this form includes both those employees who have never been members and those who for one reason or another have dropped out of the plan.

It does not extend to those who have been previously rejected on the basis of a medical examination. These may reapply by furnishing medical evidence of insurability at their own expense.

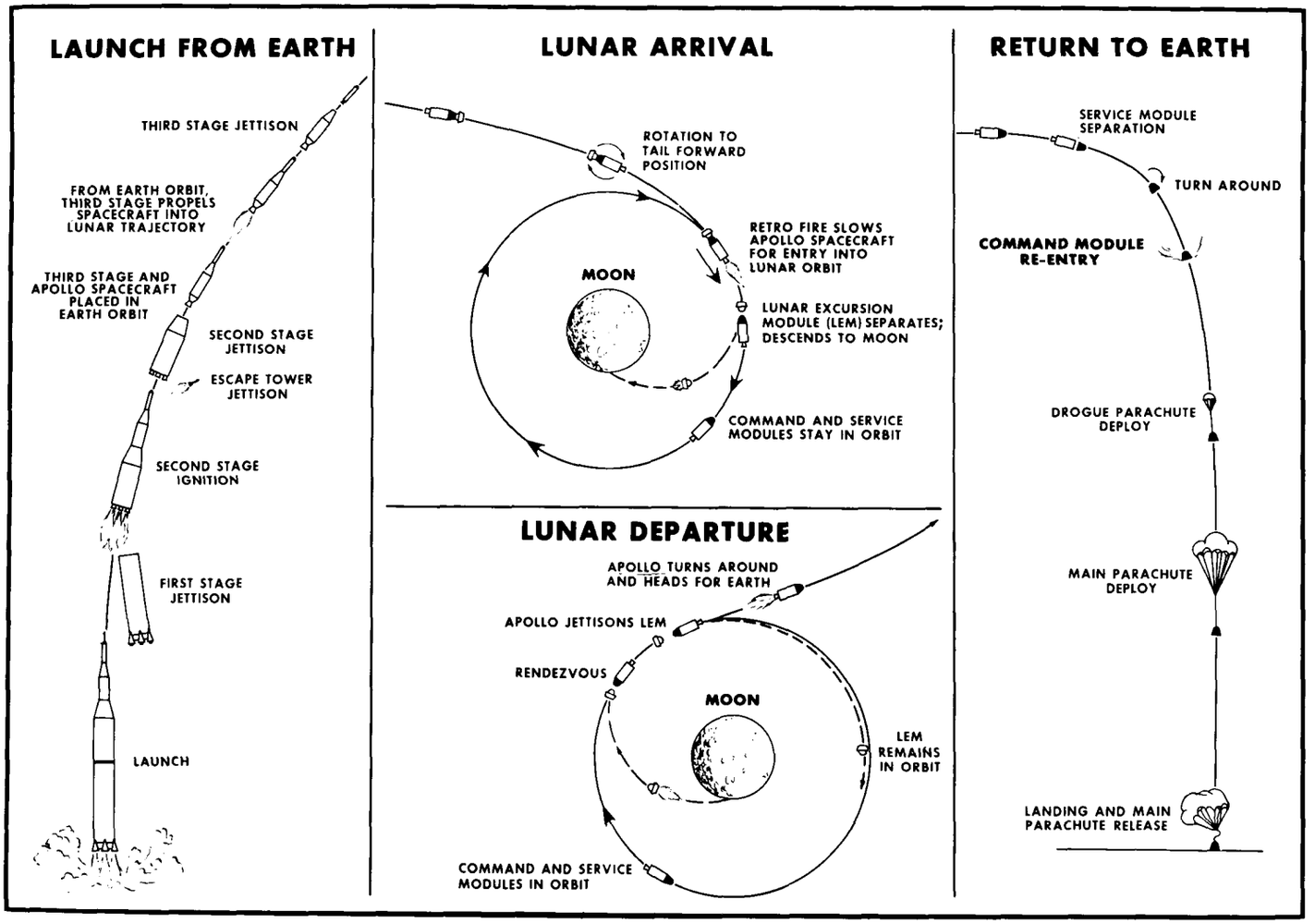
The insurance will become effective October 1, provided the application, completed medical information form, and full payment of the first quarter's premium is turned in to the Employee Services Section, Room 101, Building 587, by September 20.

If an individual's application should not be accepted by Home Life Insurance Company because of medical problems, the premium payment will be refunded in full.

The present cost is $1.10 quarterly per $1,000 for life insurance plus 15 cents per quarter, per $1,000 for accidental death benefits.

The amount of insurance available to employees is shown on the schedule which has been sent to all non-participants.

John Packal, a representative of the Home Life Insurance Company, will be at the Center on September 3 and 4 to explain in detail the NASA group life insurance plan and answer questions concerning it. In order to learn of the advantages of the plan, all non-participants are urged to attend one of the meetings. Meetings will be held on September 3 at 9 a.m. in the Projection Room, Building 587, and in the Activities Building at 11 a.m., 1:30, 2:30 and 3:45 p.m. On September 4 meetings will be held in the Activities Building at 9 and 11 a.m. and 1, 2, and 3 p.m.



This drawing charts the course of the Apollo Project's manned lunar landing and return to earth. Two astronauts will make the descent to the Moon's surface in the LEM (Lunar Excursion Module), top center. A third crewman will remain in the command module as it orbits the Moon awaiting rendezvous with the LEM as it and the spacemen return from the Moon's surface. The trip is scheduled to take place before 1970.

INTERNATIONAL SYMPOSIUM

(Continued from page 1)

Aeronautical Research Laboratory and of its rocket test facility near Fassberg.

Following a period as a research consultant in England during 1946 and 1947, he accepted an invitation in 1947 from the United States Government to come to this country and continue his career as a research scientist. At Langley Research Center, Dr. Busemann conducts original research in magnetohydrodynamics and aerodynamics, and acts as a consultant on gas dynamics problems and related subjects. Dr. Busemann has written more than 100 technical papers which have been published.

He was one of two German scientists invited to deliver technical papers at the Volta Congress on high-speed aerodynamics held in Rome, Italy, in 1935. His paper was the first to propose the use of swept wings in the design of high-speed aircraft. He was elected a foreign member of both the Max Planck Association for the Advancement of Science, Germany, and the Academy of Science in Turin, Italy. He received the Carl Bosch Award for Advancement in Aeronautical Science in 1944.

A resident of Hampton, Dr. Busemann became a naturalized citizen of the United States in ceremonies conducted in Norfolk on November 11, 1954. Members of his family, all of whom are now American citizens, include his wife, Mrs. Magda Krage Busemann, and three married daughters.

PROFESSORS TO VISIT CENTER

Dr. Johan A. Friedericy and Dr. Richard T. Eppink, Civil Engineering Department, University of Virginia, will visit the Center on Monday, September 9.

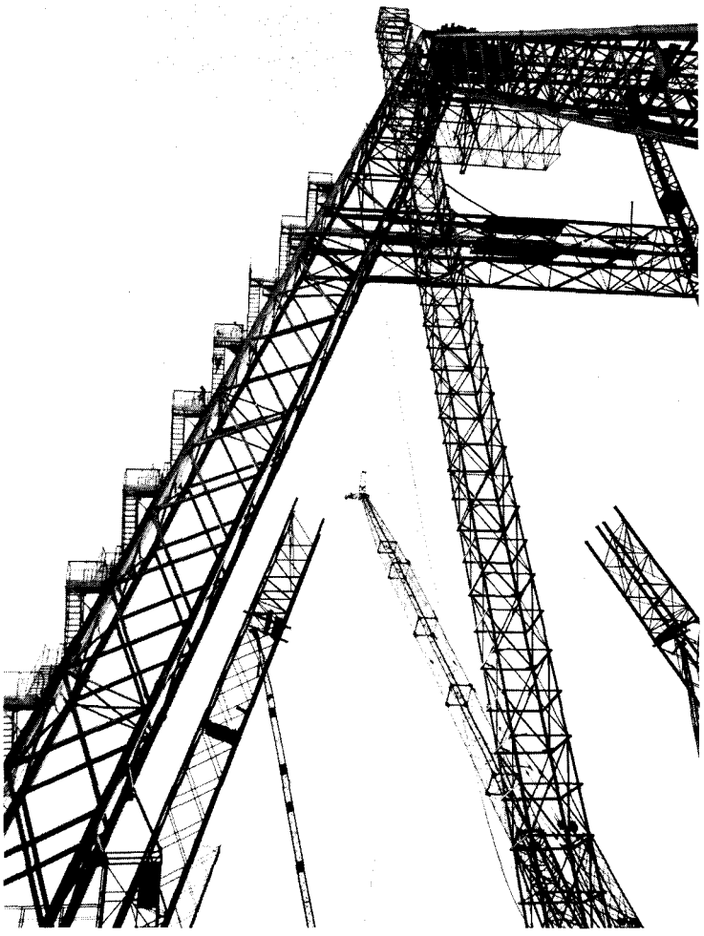
All graduate students interested in taking courses in Applied Mechanics or Civil Engineering at the University of Virginia should call the Training Office, telephone 2325, and arrange for an appointment.

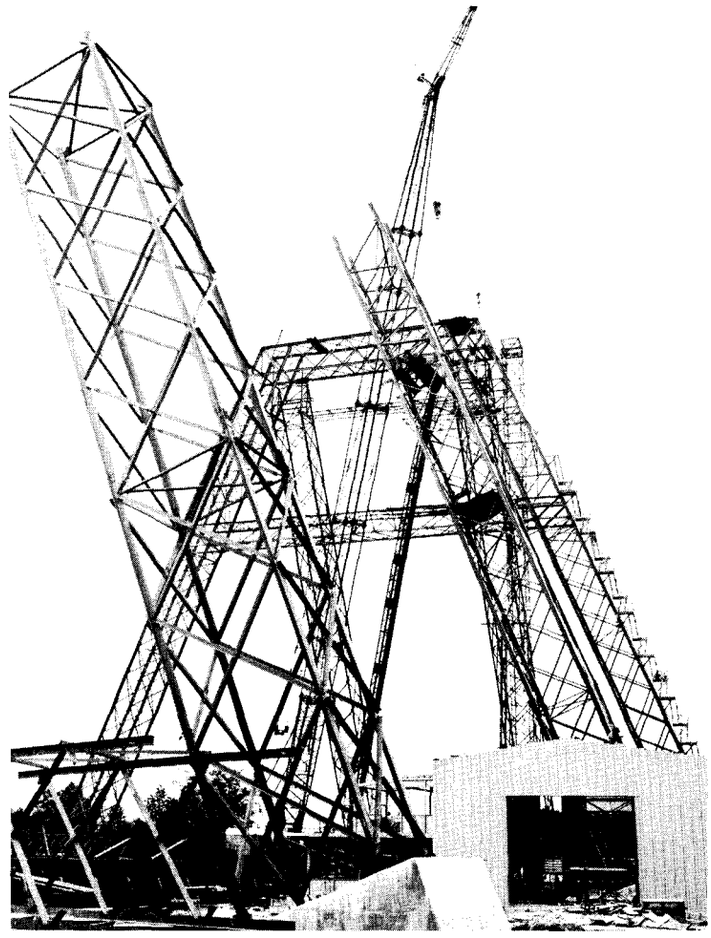
WANTED: Third man to share house in Buckroe. Carson, 2218, or Hecker, 3766.

WANTED: Ride from Poquoson to W.A. on 7:30 shift. Call Phillips, 4419.

WANTED: Ride or driving combination from Wythe to W.A. on 8 shift. Hobbs, 4757.

WANTED: Driving combination from Williamsburg to W.A. on 8 shift. Pusey, 4458.





Towering high above all other facilities in West Area is the Lunar Landing Research Facility which is under construction near the Landing Loads Track. Expected to be completed late this year, this outdoor gantry-type structure will support a pilot's compartment mounted atop a propulsion module, which will contain retrorocket motors used to slow the vehicle for its final descent to the surface, a system of small maneuvering jets, and a fuel supply for both. The vehicle will be supported by a gimbal system to provide maneuvering freedom. As a means of simulating the one-sixth gravity on the moon, a special hoist will be mounted underneath the facility's traveling bridge crane and be capable of supporting five-sixth's of the vehicle's weight at all times. The facility will be used to obtain basic information on the problems of lunar landing and takeoff from the moon's surface by a manned rocket-powered vehicle.

UNITED FUND CAMPAIGN

(Continued from page 1)

Also announced was the appointment of two new members and the re-appointment of one member to the Board of Directors to administer the Center's United Fund Organization.

Katherine G. Johnson, Space Mechanics Division, and House were appointed for a three-year term replacing Edward T. Maher, Chief of Administrative Services Division, and Robert F. Goodness, Head of Machine Branch. Vera Huckel, Dynamic Loads Division, was re-appointed for a three-year term.

Members whose terms of office do not expire this year are: D. William Conner, Dynamic Loads Division; Upshur T. Joyner, Dynamic Loads Division; James C. Tingle, Personnel Division; Sherwood L. Butler, Chief of Procurement Division; William E. Craig, Instrument Research Division, and Eldridge H. Derring, Office of Associate Director. Edward A. Howe, Chief of Fiscal Division, is a permanent member serving in an ex-officio capacity.

GOLF MATCH PLANNED SEPT. 13

The third NASA Golf Open House will be held at Langley Golf Course on Friday, September 13. The event will be a Blind Bogey with one winner. If enough interest is shown, the lucky winner will receive a set of golf clubs. If the field of contestants is small, the winner will receive a set of woods or irons.

Persons planning to enter are requested to go to the Langley Pro Shop and sign up with Charlie Rayle. Each group must sign up at the Pro Shop and make arrangements with Rayle for a starting time.

In order to be eligible for the prize, each contestant must turn in his score card at the Pro Shop.

WANTED: Home for kittens. Fournier, LY 6-0758.

WANTED: Home for black kitten. Pierce, LY 6-0475.
FOR SALE: Frigidaire automatic washer. Ferree, 826-1174.
FOR SALE: 3-bedroom house. Nelson, 826-0047.
FOR SALE: 1956 MGA. Faison, 244-8507.
FOR SALE: 6-foot aluminum sliding door frame for glazing with 5/8-inch insulated glass - $100. Kelly, TW8-5589.
FOR RENT: 2-bedroom house. Shields, PA 3-5245.
FOR SALE: Boy scout uniform size 12. Cerny, PA 3-5260.

TIROS VI TAKES LEADERSHIP

TIROS VI moved into the lead as the most durable weather satellite as it exceeded the 320-day record achieved by its predecessor in the highly-successful TIROS series.

TIROS VI was launched September 18, 1962. The quality of pictures collected by the satellite remains excellent and indications are that the spacecraft will continue its record-breaking performance.

The previous record was set by TIROS V which was launched June 19, 1962 and continued operation through May 4, 1963.

TIROS VI was launched to give global weather coverage. Along with TIROS V it supported the space flight of Astronaut Walter Schirra on October 3, 1962. TIROS VI also detected sand storms in Saudi Arabia, ice conditions in both northern and southern hemisphere and furnished data used as a basis for many storm advisories to foreign countries and the United States.

To date, TIROS VI has recorded 58,589 pictures, several hundred more than the record of TIROS V, and about 90 percent have been useable. TIROS VI also gave early data on Hurricane Arlene, the first suspected storm of the 1963 season.

TIROS VII, launched June 19, continues to operate in conjunction with TIROS VI, each gathering information in different parts of the world.

While the TIROS program is still in an experimental stage, the seven satellites have given valuable operational support to the U.S. Weather Bureau. They have sent back more than 200,000 useable photographs. From these pictures, more than 6,800 cloud cover analyses have been prepared; more than 900 special storm advisories have been issued; and there have been 381 specific instances where the weather analysis has been improved.

There are four more TIROS satellites to be launched in NASA's research and development program. The U.S. Weather Bureau is also funding two more to augment the operational data received from the R & D program.

Some experimental missions have been scheduled for future TIROS launches to help in development of equipment and systems for use in more advanced weather satellites.

One launch will test the Automatic Picture Transmission System which will allow ground stations throughout the world to receive immediately or "read out" weather pictures taken by satellites within a 1,500-mile range of their locations.

Future launches also will provide TV and infrared data in polar latitudes and provide views of the earth from an eccentric 300 to 3,000-mile orbit. Under study is a TIROS orbit with an apogee of 22,300 miles to provide a view of the earth from a synchronous altitude.

WANTED: Alternate drivers from Norfolk to E.A. on 8 shift. Cox, 2233.
WANTED: Second hand alto saxaphone. Sewall, LY 6-1157.
WANTED: Driving combination from Bloxom's Corner to W.A. on 8 shift. Midden, 4871.
FOR SALE: 3-bedroom brick and frame rancher at Bethel Park. Williams, 826-2735.
FOR SALE: 3 x 6 work table - $15. Covington, LY 6-9584.
FOR SALE: Beach lot in Mathews County. Harrell, LY51064.
FOR SALE: 1954 Dodge. Johnson, PA 3-3027.
FOR SALE: 1950 Ford pick-up truck. Berry, 898-6169.
FOR RENT: Room for girl. Walker, LY 6-7703 after 6.

"You're disappointed in me, aren't you?"

ECHO CONTRACT AWARDED

NASA has selected the G. T. Schjeldahl Company of Northfield, Minnesota, for a $362,000 contract to build three ECHO II balloons. The contract was awarded by Goddard Space Flight Center, which will launch one of the ECHO II balloons from the Pacific Missile Range this winter.

One of the new ECHO balloons will be used for further static inflation tests. Another will be used for the orbital flight and the third is a backup for the flight model.

The ECHO II balloon is a sphere 135 feet in diameter, made of laminated mylar plastic and aluminum. Not only is ECHO II larger than the 100-foot diameter ECHO I, but the new satellite is made of more rigid material in order to hold its shape better.

Goddard officials are highly pleased with recent tests made at the Naval Air Station, Lakehurst, N.J., and at Goddard's environmental testing laboratories at Greenbelt, Maryland. ECHO II measures up to their expectations as a radio-wave reflector and as a spacecraft which will retain its configuration for a long period of time in the space environment.

ECHO I, which was launched three years ago, continues to orbit the earth. The balloon's orbit remains about the same as a year ago, which leads space scientists to believe that ECHO I has a good life expectancy. ECHO is still usable for communication, even to some degree for facsimile and voice.

FOR SALE: Silvertone radio-phonograph console. Davis, PA 2-7152.
FOR RENT: Room with home appliances available. Bennett, PA 2-6246.
FOR SALE: German Shepherd pups, $35. Dillon, 464-1914.

William B. Mayo (left), Chief of Mechanical Service Division presents a check to Staten B. Price, Research Facilities Service Section, for his invention suggestion entitled "Surface Roughness Detector." Price shared a $150 award with James C. Brady and John B. Hall who have transferred to Manned Spacecraft Center. Price is a native of Williamston, North Carolina. He started his NASA career on December 27, 1955.

UNIVERSITY OF WASHINGTON TO STUDY PROPERTIES OF ADVANCED CERAMICS

NASA has announced a grant to the University of Washington for research in new advanced ceramics and the improvement of existing materials for use in the space program and for industrial applications.

Advanced ceramics are more highly refined and purified than conventional non-metallic materials and their behavior and properties are largely unknown.

The grant stipulates that NASA will provide $400,000 over a three-year period to assist "multi-disciplinary research in the materials sciences, with the emphasis on ceramic materials." It is intended that annual grants will be made to eventually support this program at a rate of $300,000 per year for a number of years.

The work will be coordinated by the University's Graduate School in Seattle under the direction of Dr. Thomas S. Shevlin. The multi-disciplinary aspect calls for bringing the combined skills of metallurgists, chemists, physicists, ceramic engineers, and other engineers together to advance and improve specialized ceramics.

Major purpose of the study, initiated by NASA's Office of Advanced Research and Technology, is "to obtain more information on fundamental characteristics and behavior of ceramic materials and for training research personnel in this field."

James J. Gangler, OART research engineer, said this is the first time under the research grants programs of NASA, the Department of Defense, and the Atomic Energy Commission that a university study has been directed specifically at ceramic materials.

FOR SALE: Furniture for apartment. Pearson, 722-0321.

LONG APPOINTED DIRECTOR OF NASA CONSTRUCTION OFFICE

Robert W. Long, Kansas City, Mo., construction contractor and a nationally recognized figure in this field, has been appointed Director of the newly established NASA Office of Construction. Both the office and appointment became effective August 26.

Long will review and advise key officials on the adequacy of the agency's construction work and future plans to assure their timeliness, efficiency and economy. He will report to the Deputy Associate Administrator for Industry Affairs, Walter L. Lingle.

For the fiscal year ending last June 30, the NASA construction program amounted to over $735,000,000 and included major new projects and substantial additions to existing space research centers.

Long has served as consultant to Associate Administrator Dr. Robert C. Seamans for construction matters since June 27. Prior to this appointment he had been managing partner of the Long Construction Company, Kansas City, Mo., since 1952.

Born in Kansas City September 23, 1912, Long completed grade and high schools there, obtained a B.S. degree in Civil Engineering at Princeton in 1933 and attended the Harvard Graduate School of Business Administration the following year.

Beginning in 1935 he was employed by the Union National Bank in Kansas City for two years, thereafter working as an engineer on various construction projects for the Long Construction Company and other firms in the Midwest and California until 1940. He returned to the Long firm that year and became a partner in 1942. The following year the company won an Army-Navy "E" award for its World War II construction activities. Later that year he entered the Navy as a Lieutenant (jg) in the Civil Engineer Corps.

Long returned to civilian life in the spring of 1946. Afterward he was engaged in various construction projects throughout the U.S. and Canada for the Long Company, becoming its managing partner in 1952.

PROTECTIVE HEADGEAR

Air Force officials have pointed out that motorcycle and scooter operators riding on the base have been observed carrying passengers who were not wearing protective helmets. This is in direct violation of Air Force Regulations, which state that the wearing of helmets is mandatory on all Air Force installations for each person who operates or rides as a passenger on a privately owned motorcycle, motor scooter, or similar vehicles. Stringent enforcement measures will be taken by the Air Police to enforce this regulation.

WANTED: Ride from vicinity of Sinclair Farms to E.A. on 8 shift. Test, 2300.

WANTED: Alternate drivers from Lynnhaven area to W.A. on 8 shift. Dixon, 3421.

FOR RENT: 5-room house in Lakeside. Bales, LY 6-9084.

FOR SALE: Girl's 20-inch bicycle. Miller, LY 6-9001.

FOR SALE: Registered English setters. Driver, PA 3-4258.

FOR SALE: 5-room house. Sinelnick, LY 6-1851.

FOR SALE: Gym-Dandy Surry for children - $30. Bainbridge, PA 2-6793.

SWEDISH-U.S. EXPERIMENTS

Sweden, with United States cooperation, recently successfully conducted a series of sounding rocket launchings designed to study noctilucent clouds near the Arctic Circle in northern Sweden.

The joint Swedish-U.S. effort is part of a continuing program between the NASA and the Swedish Committee for Space Research for cooperation in the scientific exploration of the upper atmosphere.

Noctilucent clouds are faintly luminous, very high and fast moving clouds which can be observed at twilight only during short periods in late summer and at high latitude. Launchings of instrumented sounding rockets to investigate the origin and nature of these clouds were undertaken previously by the Swedish and U.S. organizations during 1961 and 1962. These included launchings of ARCAS rockets to measure winds during the occurrence of noctilucent clouds and Nike-Cajun rockets to make direct samplings of cloud particles.

Four rocket grenade payloads were successfully launched this summer from a launching site at Kronogard, Sweden, aboard Nike-Cajun vehicles. These occurred on July 27, July 30, August 2, and August 8.

The payloads, along with associated rocket-borne and ground electronic and optical equipment, include experiments to measure upper atmosphere temperatures, winds, pressure and density during the occurrence of noctilucent clouds and to measure changes in the size of artificial cloud particles created by smoke puffs from the payloads.

On July 27 and July 30, the rockets were launched into noctilucent clouds, and data was obtained to altitudes of over 80 and 90 kilometers, respectively. The launchings on August 2 and August 8 took place in the absence of noctilucent clouds for purposes of data comparison. Data from the experiments was successfully retrieved, and is now being analyzed.

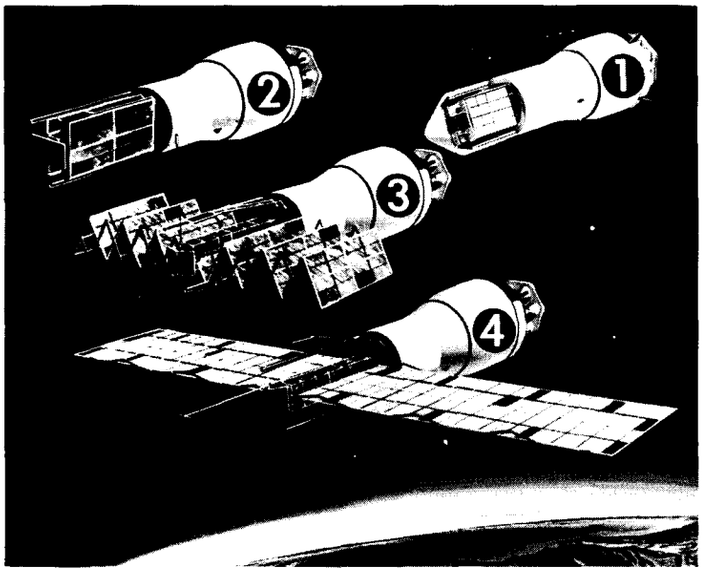
The experimenters were scientists from the Institute of Meteorology, University of Stockholm. After completion of data analysis, the results of the experiments will be made available to the world scientific community.

EMPLOYEE DIES IN ACCIDENT

Donald L. Coleman, a member of the Center's Cooperative Training Program, died August 20 from injuries received in an automobile accident near Raleigh, North Carolina.

Coleman was born September 24, 1943 in Durham, North Carolina. He graduated from Hillsboro High School, N.C., and entered on duty as a student trainee on June 8, 1962. He was working for his Bachelor of Science degree at North Carolina State College.

FOR SALE: 1958 Chevrolet. Stowe, PA 3-5672 after 5.
FOR SALE: AKC registered French Poodle puppies and Minature Collie puppies. Hudgins, PA 2-7338.
FOR SALE: White floor-length formal, size 5, and blue ballerina length dress, size 7. Schy, 826-0288.
FOR SALE: Small 2-wheel electric bench grinder - $15, 1/4-inch Oster electric drill with case and attachments - $15. Hudgens, LY 6-1997.
FOR SALE: 3-bedroom brick home. McWithey, 826-1145.
FOR SALE: 20-inch G.E. window fan - $15, or will trade for bookcase. Dicker, 2365.
FOR SALE: 3-bedroom house in Wythe. Revere, PA 2-5018.



This drawing shows meteoroid detection panels being deployed (1) on a Saturn-launch satellite; (2) in the folded position separated from the launch vehicle; and (3) unfolding. Unfolded the panels (4) have a wingspan of about 100 feet. The presence of tiny particles in space will be recorded as they collide with the skin sensor.

SEMESTER STARTS FOR APPRENTICES

The Fall Semester of the Langley Apprentice School will start on Monday, September 9 and classes will be held in the apprentice classrooms located on the first floor of Building 586.

Courses which are being offered and the instructors are:

Monday - Mathematics (E and E) III, J. A. Holland; Engineering Drawing I, C. P. Eichelberger; Mathematice (E and E) III, F. L. Dickinson; Blueprint Reading, P. C. Geiger, and General Mathematics, A. R. Vanasse.

Tuesday - Algebra, R. B. Holt; Engineering Drawing I, W. M. Cook; General Mathematics, J. H. Belveal; Algebra, J. A. Walker; Engineering Drawing I, C. T. Tiller, and Blueprint Reading, W. E. Morris.

Wednesday - Machinery Handbook I, H. J. Hale; Physics II, V. G. Collins; Electrical Blueprint Reading, R. H. Coultrip; Engineering Drawing III, M. A. Weiner; Physics I, L. P. Kopia, and Mathematics (E and E) I, instructor to be announced.

Thursday - Trigonometry, G. E. Moore; Fundamentals of Indirect Electric Circuits, A. L. Jones; Engineering Drawing II, J. G. Hudson, and Transistors II, R. O. Staib.

Friday - D. C. Fundamentals II, J. A. Coleman; Strength of Materials I, R. B. Davis; Physics I, F. A. Kern, and Machinery Handbook III, R. B. Grow.

The same bus service will be available as last semester between the East and West areas. Apprentices are urged to use this service instead of their private vehicles because of the shortage of parking space in East Area.

FOR SALE: 3-bedroom house. Reams, 826-5223.
FOR SALE: Craftsman wall tool cabinet, heavy-duty 16 x 20 water-proof tarpaulin. Breen, PA 3-8929.
FOR RENT: Room for gentleman. Gravatt, PA 2-4149.
FOR SALE: Share in Riverdale Recreation Association. Erickson, 838-0309.
FOR SALE: Bathinette - $9. Conway, PA 3-5171.

Langley Researcher

VOLUME 2 NUMBER 19 LANGLEY RESEARCH CENTER SEPTEMBER 13, 1963

TRAVEL ACCIDENT GROUP INSURANCE PLAN OFFERED

At the request of a large number of employees who are sent on official travel from time to time, the NASA Employees Benefit Association has developed a Travel Accident Group Insurance plan and applications for membership are now being accepted. This plan is underwritten by the Home Life Insurance Company of New York, the same company that underwrites the NASA Group Life Insurance plan.

Briefly, the new plan offers the following benefits: In the event of death resulting from accidental bodily injury sustained during an official business trip, provided death occurs within 180 days after the injury, your beneficiary will receive either $100,000 or $50,000, depending on the amount of insurance you choose. (This amount is payable in addition to any benefit to which you may be entitled under the group life insurance plan.)

With NASA's Travel Accident Insurance, the insured will be covered 24 hours a day while on official travel. No matter what mode of transportation is used, the insured will be protected while in transit. Moreover, the insurance covers accidental death occurring during the entire period of absence - not merely while traveling.

There is no limitation on the number of trips the insured may make during the year. Each time he travels on official business he will be covered.

The cost of this insurance is amazingly low. For $50 a year an employee may obtain $100,000 of protection or, if preferred, he may elect $50,000 coverage for only $25 a year. There are no extra charges or enrollment fees.

Each employee will receive a brochure giving detailed information on the plan. The last page of the brochure is a tear-off enrollment card. This enrollment card, together with appropriate annual payment should be sent to the Personnel Office, Building 587, as soon as possible. The insurance will become effective by October 1 provided at least 1,500 employees, including all NASA installations, have enrolled.

UNITED FUND EFFORT

Rufus O. House, Office of the Director, has been appointed head of the Center's tenth annual United Fund drive.

House announced that the drive will open with a kickoff luncheon of division chairmen and workers in the advanced solicitation phase of the drive on September 30 in the private dining room of the West Cafeteria.

The one-day solicitation of Center employees will be held on Friday, October 11. Last year staff members donated a total of $56,663.20. House pointed out that pledges have always meant the success of such a drive and he urged employees to use the pledge system. He stated further that quarterly payments spread out over the year permits an employee to make a more generous contribution.

LANGLEY APPRENTICE SCHOOL RECEIVES PATTERSON TROPHY

The Langley Research Center's Apprentice School was recently selected as the outstanding apprentice school in the Middle Atlantic States to receive the Second Annual William F. Patterson Memorial Award "in recognition of apprenticeship program excellence." Langley was chosen by a national labor-management committee for the regional honor.

The trophy presentation took place on August 29 at the Middle Atlantic States Apprenticeship and Training Conference held in Hershey, Pennsylvania. S. Walter Hixon, Supervisory Employee Development Office in the Training Section, accepted the trophy on behalf of the Langley Center. Frank Penland, Employee Development Officer in the Training Section, also attended the conference.

The trophy, given by W. Willard Wirtz, Secretary of Labor, was presented by Robert F. Handley, Regional Director, Region III and IV, U.S. Department of Labor.

Langley was chosen in competion with other apprentice schools from New Jersey, Delaware, Maryland, Virginia, North Carolina, West Virginia, Pennsylvania, and District of Columbia.

Training officials expressed their appreciation to the instructors, supervisors and others connected with the

(Continued on page 3)

S. Walter Hixon, Supervisory Employee Development Officer, receives the William F. Patterson Memorial Award for apprenticeship program excellence from Robert F. Handley, Regional Director, Region III and IV, U.S. Department of Labor. Looking on are George M. Schmeltzer (left), Chairman of the Middle Altantic States Apprenticeship and Training Conference, and Del E. Webb (seated), co-owner of the Yankees Baseball Team. The presentation was made in Hershey, Pennsylvania.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ORANGE BLOSSOMS. . .Wedding bells rang last Saturday when David Edmondson, Scout Project Office, took his final vows with Susan Bowen Ennis, Hampton, at the First United Church of Christ in Newport News. Jean Drummond, Security Office, was matron-of-honor, and Judy Wiggins, Full-Scale Research Division, was a bridesmaid. Robert A. Schmitz, Scout Project, was a groomsman.

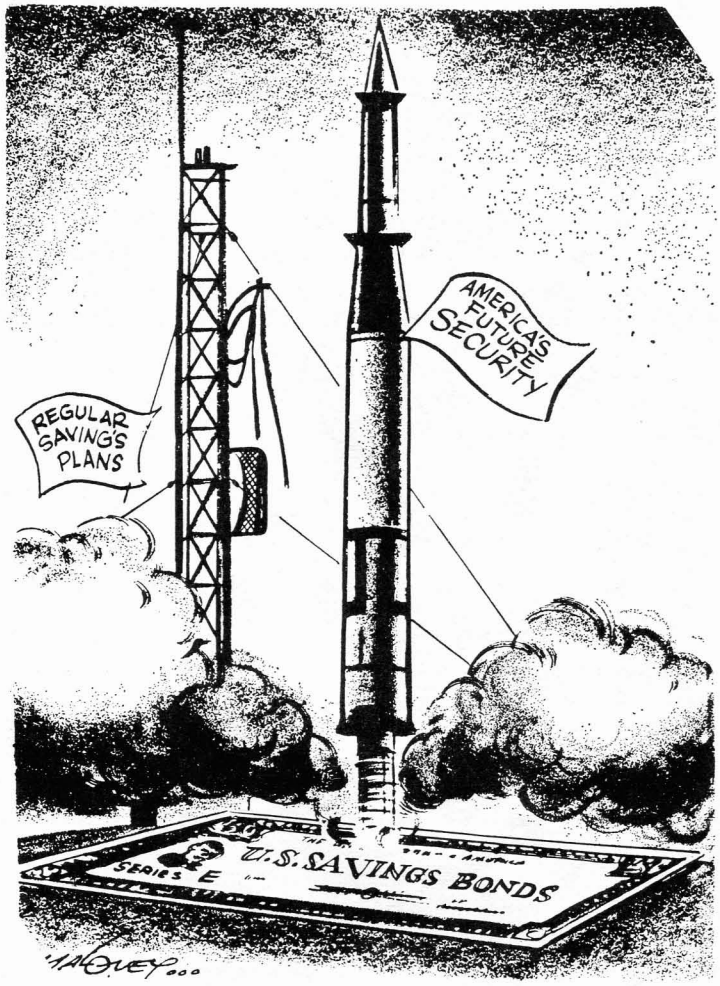
BABY DERBY. . .Weighing in at seven pounds, two ounces on August 24 was Cynthia Lynn, daughter of Barbara Eutsler, Landing and Impact Branch. . .Announcing the birth of a daughter on September 4 are Susie, formerly of Personnel, and Tasker Southerland, Electrical Systems Division. . .Celebrating the arrival of a son on August 24 is Arlen Carter, Aero-Physics Division. . .A daughter was delivered to the William R. Harris household on August 22. The father works in Plant Maintenance Division. . .Announcing the birth of a son on August 26 is Thomas Popernack, Research Models and Facilities Division. . .Passing out cigars and candy is Leonard Clark, Dynamic Loads Division. He became the father of a son on September 1.

LIFE INSURANCE. . .Employees who are not members of the NASA Group Life Insurance plan are reminded that they may enroll in the plan without a medical examination through the use of a medical information form. The insurance will become effective October 1, provided the application, completed medical information form, and full payment of the first quarter's premium is turned in to the Employee Services Section, Room 101, Building 587, by September 20. The present cost is $1.10 quarterly per $1,000 for life insurance plus 15 cents per quarter, per $1,000 for accidental death benefits.

SERVICE PLAN REPRESENTATIVE. . .Richard F. Brody, Government-wide Service Plan representative, will visit the Center on September 18 at 2 p.m. Employees having problems concerning their Government-wide Service Benefit Plan may call Linda Hale, 2323, for an appointment.

EAT EARLY. . .Center employees are requested to eat before 12:30 p.m. on September 17, 18, and 19 as approximately 400 person attending the SCAT conference will be using the cafeterias after 12:30.

ROD AND GUN CLUB. . .The Langley Rod and Gun Club will hold its first Turkey Shoot of the season on September 14 at 1 p.m. at the Base small range area. Ammunition and guns will be available.



FLU SHOTS SCHEDULED

The Center's influenza immunization program will begin on Monday, September 23. Shots will be given each afternoon from 1:30 to 4 in several convenient locations.

The following tentative schedule of dates and locations has been established:

September 23 - East Area, Building 584 (Utility Building).

September 24 - Building 1244 (Flight Research Laboratory).

September 25 - Building 1148 (Structures Research).

September 26 - Building 1267 (High Temperature Materials Laboratory).

September 27 - Building 1213 (West Cafeteria.).

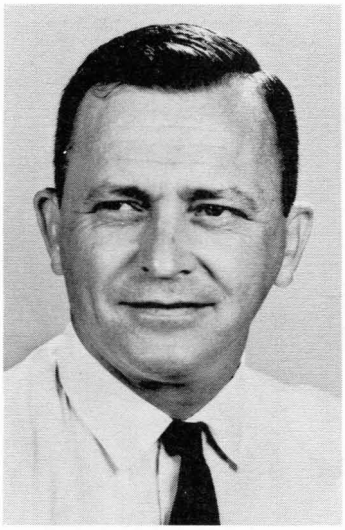
Sections will be notified by telephone as to the time to report.

COURSE OFFERED. . .Calculus I, a 4-semester credit course offered by the University of Virginia, will start on Saturday, September 21 at 9 a.m. in Building 167, Shellbank area. For further information call Kenneth Margolis, 2359.

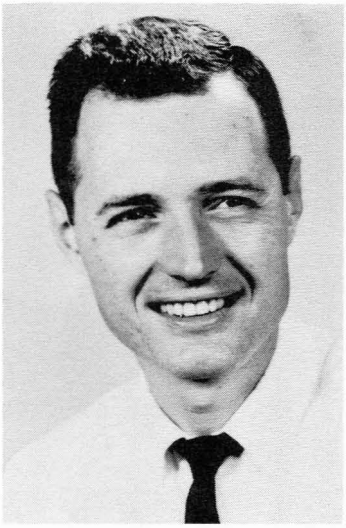
INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indementy Benefit Plan, Federal Employees Health Benefit Program, will visit the Center September 18 from 1 p.m. until 2 p.m. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

FOUND: High school ring. Howard, 3431.

WANTED: Ride from Buckroe to W.A. on 7:30 shift. Call Davidson, 4766.

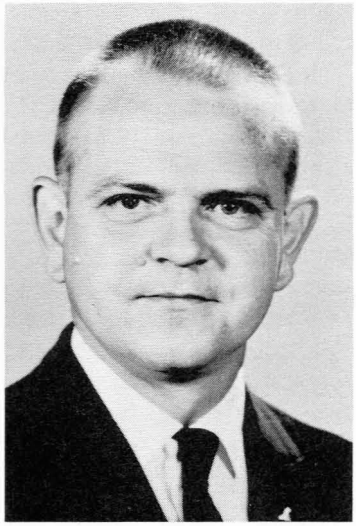


Robert A. Jewell



Noel T. Wakelyn

Donald J. Lewis



Joseph G. Thibodaux

LANGLEY APPRENTICE SCHOOL

(Continued from page 1)

apprentice school whose cooperation made it possible for the Center to receive this honor.

The award was established two years ago to memorialize the life and work of William F. Patterson. Patterson became a nationally recognized leader of apprenticeship in 1934. He became Director of the Bureau of Apprenticeship and Training upon its organization and was its chief for more than 20 years. He carried the message of employer-employee cooperation in apprentice training to every State in hundreds of speeches and conference.

Under Patterson's leadership some 7,000 joint employer-employee apprenticeship committees were established. Twenty international unions and national employer associations developed national apprenticeship standards and 27 states, the District of Columbia and Puerto Rico actively participate in the promotion of apprenticeship under the guidance of Employer-Labor Councils.

HUBBARD ELECTED ASA FELLOW

Harvey H. Hubbard, head of the Acoustics Branch, Dynamic Loads Division, has been elected a Fellow of the Acoustical Society of America.

As head of the Acoustics Branch, Hubbard is concerned with the study of a variety of noise problems, including the effects of intense low-frequency noise on the design and operation of launch vehicles and spacecraft, and the generation, propagation, and effects of the sonic boom caused by faster-than-sound airplanes. The branch operates several unique noise research facilities in support of aerospace flight.

Born in Swanton, Vermont, June 17, 1921, Hubbard attended the University of Vermont and received a B.S. degree in Electrical Engineering in 1942. He served in the Army Signal Corps and the Air Force from 1942 through 1945 and is presently a Lieutenant-Colonel in the Air Force Reserve. He joined the Langley staff in 1945.

The Acoustical Society of America, with headquarters in New York, is an organization founded in 1929 to increase and diffuse the knowledge of acoustics and promote its practical applications. The certificate designating Hubbard as a Fellow is signed by R. W. Leonard, president, and Wallace Waterfall, secretary.

EMPLOYEES RECEIVE CASH AWARDS

Four employees recently received cash awards for suggestions that might possibly result in the granting of patents by the United States Government in connection with their inventions on the job.

Robert A. Jewell and Noel T. Wakelyn, both of Applied Materials and Physics Division, shared a $100 award for their suggestion entitled "Coating". Jewell was born in Georgetown, Massachusetts. He joined the Center staff on September 29, 1948 as an apprentice sheetmetal worker and graduated from the Apprentice School in 1953. He received his B.S. degree in Physics from the College of William and Mary in 1962. Wakelyn is a native of New York City. He received a B.S. degree in Chemistry from Furman University in 1956 and M.S. degree from University of Florida in 1962. He joined our staff on June 6, 1956.

Donald J. Lewis and Joseph G. Thibodaux, Applied Materials and Physics Division, shared a $100 award for their suggestion on "Solid Propellant Rocket and Method of Making Same." Lewis was born in Detroit, Michigan. He received his B.S. degree in Mechanical Engineering from the University of Florida in 1958 and entered on duty at the Center on July 29, 1958. Thibodaux is a native of Napoleonville, Louisiana. He received his B.S. degree in Chemical Engineering from Louisiana State University in 1943 and joined the Center staff on August 1, 1946.

COURSES OFFERED EMPLOYEES

A non-credit course in Mathematics I will be offered after duty hours from 4:30 to 6:30 p.m. on Monday and Thursday, beginning on Monday, September 30. The course is the same as the credit course in Mathematics 22.01, Advanced Engineering Mathematics I, and will be taught by Dr. J. P. Raney. Fees for Langley employees will be paid by the Government.

An undergraduate credit course in Mathematics 42.24, Differential Equations, will be offered after working hours from 4:45 to 6:45 on Tuesday and Friday, Beginning Tuesday, October 1, with William A. Brooks as instructor. Fees for Center employees will also be paid by the Government.

Persons interested in enrolling in either course should call the Training Office, telephone 2326, for the necessary forms for obtaining approval for enrollment.

WANTED: Ride from Highland Ave. and Victoria Blvd. to E.A. on 8 shift. Redd, 2201.

ASME MEETS SEPTEMBER 19

The Eastern Virginia Section of the American Society of Mechanical Engineers will hold a dinner-meeting on Thursday, September 19 at the Fort Eustis Officers Club. The affair will start with a social hour at 6:30 p.m.

Vasil Philipchuk, Technical Advisor in the Evluation Division of the Warhead and Terminal Ballistic Laboratory Naval Weapons Laboratory (NWL), Dahlgren, will be the guest speaker. His subject will be "Explosive Forming Technology - Status of the Art."

Philipchuk received his B.S. degree in Metallurgical Engineering from Carnegie Institute. Before attaining his present position, he was Special Projects Manager for the National Northern Division of the American Potash and Chemical Corporation and he also served as Project Engineer for NWL in warheads and armor.

Explosives forming is a process wherein parts are shaped by the extremely rapid application of high pressures generated by an explosive charge. Philipchuk will discuss the major explosive forming fabrications in the U.S. and abroad, the types of parts being produced, the types of metals being formed, the types of tooling being used, and the status of research and development in explosive forming. He will conclude his views of future explosive forming.

Philipchuk has twelve years of military and civilian service at NWL. His experience and training have qualified him as a specialist in ordinance test and evaluation, explosive formulations and design, and explosive metal working, as well as welding and fabrication. He has acquired a reputation as an author in this field and holds three patents.

LANGLEY-LEWIS SOFTBALL GAME PLANS ANNOUNCED

A team of all-star softball players from the Lewis Research Center, Cleveland, Ohio, will play a team of all-stars from the Langley Research Center on Saturday, September 28 at 11:30 a.m. on the diamond located nearest the Activities Building. Admission will be free.

The Lewis team will fly in on Saturday morning accompanied by Abe Silverstein, Lewis Director.

The Langley team will be managed by Claud Pittman who managed the championship team in the Langley League. Playing on the Langley team will be Thayer Sheets, Marvin Dow, Jim Smith, Bill Brewer, Ernie Anglin, Moses Farmer, Tom Foughner, George Lawrence, Ray Midden, Paul Jarvis, John Young, Ed Phillips, Charles Ruhlin, and Pittman.

Refreshments, including hamburgers and hot dogs, will be available on the grounds. Employees are urged to bring the entire family out for a day of fun at the activities area.

FOR SALE: Crib and mattress - $10. 838-0039.

FOR SALE: Two cemetery lots in Peninsula Memorial Pk. Harrell, LY 5-1064.

FOR SALE: MGA roadster - $795. Holliday, PA 2-5582.

FOR SALE: 2-bedroom house in Newmarket, Whitfield, CH 4-7828 after 6 p.m.

FOR SALE: 1958 Porsche coupe. Harbaugh, PA 5-2257.

FOR SALE: Stauffer magic couch with timer and attachments. Kurtz, PA 3-0330.

FOR SALE: Ruger .22 caliber automatic loading pistol with leather holster - $25, J. C. Higgins .22 caliber automatic loading rifle with 4x scope - $35. Fontana, 723-1425.

Personnel of Applied Materials and Physics Division recently bid farewell to Hubbard "Hub" Kirkpatrick when he boarded his Lambretta scooter, "The Yellowbird", and headed north. Hub came to AMPD this summer as a student trainee and was assigned to the High Temperature Materials Branch. Before returning to Harvard University this month where he will be a senior, Hub will travel aboard "The Yellowbird" to Iowa via Pittsburgh and Dunkirk, N.Y. Very little could be seen of his faithful scooter since equipment was dangling from practically every conceivable place. There were such items as a suitcase containing the necessities of life, a knapsack, a guitar full of socks, an extra helmet containing a honeydew melon to be consumed at breakfast time, an airline bag, a sleeping bag, oil, flashlight and batteries, a book bag full of food to keep his personal structure up to par, a map, towels, blanket, and a tent in which he would wait out inclement weather.

U.S.-CANADA AGREEMENT

NASA and the Department of Transport of the Government of Canada announced approval by the participating governments of a Memorandum of Understanding for the testing of experimental communications satellites launched by NASA.

Each cooperating national agency will provide a ground station to receive and to transmit television and multichannel telephone and telegraphic signals, according to the Memorandum signed in April and made operative by an exchange of notes recently.

Demonstration tests of sight and sound transmissions originating in either country and carried via a NASA satellite through communications networks of the United States and Canada will be made possible by temporary communications connections to be provided in each country as necessary, the agreement states.

Signals transmitted over the satellite links are for experimental purposes only and not for commercial exploitation.

FOR SALE: Two 7:50 x 14 Atlas plycon tires, $40 or will trade for 6:00 x 13 tires. Maddalon, 722-5697.

Langley Researcher

VOLUME 2 NUMBER 20 LANGLEY RESEARCH CENTER SEPTEMBER 27, 1963

SPECIAL CEREMONIES ANNOUNCED FOR NASA'S FIFTH ANNIVERSARY

In observance of NASA's Fifth Anniversary October 1, a number of special ceremonies have been planned.

At 10 a.m. on Tuesday, a dedication ceremony of the Mercury spacecraft will be held in the Aerospace Park on Mercury Boulevard. The spacecraft will be presented to the City of Hampton by Dr. Floyd L. Thompson, Langley Director. Mayor Ann Kilgore will accept the spacecraft for Hampton.

On Tuesday at 11 a.m. a birthday cake cutting will be held in both the East and West Cafeterias. The cafeterias will also serve a special sixty-five cent anniversary dinner. Included on the menu will be tomato juice, tossed salad, grilled Delmonico steak with sauteed mushrooms, mashed potatoes or French fried potatoes, buttered green peas, hot rolls, bread, butter, anniversary cake, and coffee or tea.

In observance of the anniversary, Wallops Station will be open to the general public for a self-guided, "do-it-yourself" tour tomorrow and Sunday from 11 a.m. until 6 p.m. Visitors will be permitted to tour some facilities on the Main Base as well as the launch sites on Wallops Island.

Included in this issue of Langley Researcher is a special anniversary insert showing some of Langley's contributions to the space effort during the past five years.

ADVANCED SOLICITATIONS OPEN UNITED FUND EFFORT

Rufus O. House, Chairman of the Center's United Fund campaign, announced that an advanced solicitation of top staff officials will open the Center's annual United Fund effort. Advanced solicitations will get underway on Monday following a kick-off dinner in the Private Dining Room, West Cafeteria. A general canvass of staff members will be held on October 11.

Assisting House in the campaign will be William B. Mayo, vice chairman; Dr. John Duberg, chairman of advanced solicitations; Edward A. Howe, treasurer; Helen Willey, East financial chairman, and Barbara Durling, West financial chairman.

House has announced the appointment of the following Division chairmen for the drive:

Office of Research Direction, Robert MacLachlan; Aero-Physics, Paul Huber; Analysis and Computation, Albert Gribble; Applied Materials and Physics, Bennie Cocke; Dynamic Loads, William Conner; Flight Mechanics and Technology, Robert Shanks; Full-Scale Research, William Sleeman; Instrument Research, William Craig; Research Reports, Philip Weatherwax; Space Mechanics, James B. Whitten; Structures Research, Robert Leonard.

Office of Chief, Engineering and Technical Services,

(Continued on page 2)

Division Chairmen for United Fund Effort. Front row (from left): Melvin Butler, A. I. Neihouse, George Recant, Tracy Phelps, Dr. John Duberg, William Mayo, Edward Howe, Percy Keffer and Jess Ross. Second row - Abe Leiss, William Conner, Edward Chamberlin, Robert Fairbairn, Sherwood Butler, William Brooks, James Stitt, Wayne Williams, Albert Gribble, Robert Shanks and Cornell Burcher. Third row - Arthur Norsworthy, Robert McArthur, Paul Huber, Dale Emswiler, William Guy, William Craig and Robert MacLachlan. Fourth row - Cletus Vincke, Robert Turner, Philip Weatherwax, Dennis Martin, Thomas Andrews, James Whitten, Robert Leonard, Baxter Carr, M. E. Cook and Bennie Cocke. The drive officially opens Mon- with advanced solicitations of top staff officials.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ENGAGEMENTS. . .A division romance will be climaxed when Patricia Robins and Allen Whitehead, Aero-Physics Division, take their final vows on November 30 at the First Methodist Church, Hampton. . .Making plans to desert the bachelor ranks is Claude Burge, Procurement. He is engaged to Barbara Vick, Hampton, and plans call for a fall wedding.

NEW ROCKETTES. . .Charles D. Harris, Full-Scale Research Division, became the father of a daughter, Terryl Anne, on September 4. . .Announcing the birth of a daughter on September 7 is Mary J. Corbitt, Stenographic and Report Typing.

ORANGE BLOSSOMS. . .Wedding bells rang on August 24 when Jerry Williams, Space Station Research Group, said "I do" to Annette Nixon, Hampton, at the Hampton Baptist Church. . .Robert E. Smith, Analysis and Computation Division, took his final vows with Carol W. Gardner on August 24.

LANGLEY DISPLAY. . .Langley Center will have a static display in Hangar 535 as a part of the Air Force Kid's Day program tomorrow from 10 a.m. until 2 p.m.

PROFESSORS TO VISIT CENTER

Dr. A. R. Kuhlthau, Associate Dean of the School of Engineering; Dr. George B. Matthews, Department of Aerospace Engineering, and Dr. James W. Moore, Department of Mechanical Engineering, University of Virginia, will be at the Center on October 4 to confer with students interest- in doing graduate work at the university.

Dr. James B. Eades, Head of the Aerospace Engineering Department, and Dr. James A. Jacobs, Head of the Physics Department, Virginia Polytechnic Institute, will visit the Center on October 10 to consult with employees interested in working for an advanced degree at VPI.

Employees wishing to consult with these professors may call the Training Office, 2326, for an appointment.

IEEE MEETS OCTOBER 4

Robert E. Innis, American Optical Company, Southbridge, Massachusetts, will speak at a meeting of the Hampton Roads Section of the Institute of Electrical and Electronics Engineers on October 4 at 8:30 p.m. at the Chateau Restaurant, Hampton. Innis will speak on "Fiber Optics".

The meeting will be preceded by a social hour beginning at 6 p.m., followed by dinner at 7:15. Persons desiring to make dinner reservations may call Bill Fuller, 4616.

GOLF AND SOFTBALL. Claud Pittman (right) receives a set of irons from Ray Goodman, Chairman of the Activities Association's Activities Committee, for recently winning the NASA Blind Bogey event at the Langley Golf Course. Pittman is also manager of the Langley All-Star Softball Team which will play a team from Lewis Research Center tomorrow at 11:30. The game will be played on the diamond nearest the Activities Building and employees are invited to bring the entire family out for the event. Refreshments will be available on the grounds.

UNITED FUND CAMPAIGN

(Continued from page 1)

Marvin Forrest; Electrical Systems, Cletus Vincke; Flight Vehicles and Systems, Robert McArthur; Mechanical Service, Robert Turner; Plant Maintenance, Dale Emswiler; Research Models and Facilities, Arthur Norsworthy.

Office of Assistant Director for Administration, Edward Maher; Administrative Services, Cornell Burcher; Fiscal, Robert Fairbairn; Personnel, Jess Ross; Photographic, William Guy; Procurement, Edward Chamberlin; Cafeterias, Tracy Phelps; Credit Union, William Pickens.

Assisting Dr. Duberg in the advanced solicitations will be:

Office of Director, A. I. Neihouse; Flight Reentry, George Recant; Scout Project, Abraham Leiss; Analysis and Computation, Thomas Andrews; Applied Materials and Physics, Paul Hill; Aero-Physics, John Becker; Flight Mechanics and Technology, J. Vogelwede; Dynamic Loads, Dennis Martin; Full-Scale Research, Mark Nichols; Instrument Research, Jim Stitt; Research Reports, Henry Fedziuk; Structures Research, Bill Brooks; Space Mechanics, W. H. Phillips.

Office of Chiefs, Technical Services and Administrative Services, Marvin Forrest; Research Models and Facilities, Ray Hooker; Flight Vehicles and Systems, Bart Geer; Electrical Systems, John Knemeyer; Plant Maintenance, Milfred Cook; Mechanical Service, William Mayo.

Office Services, Edward Maher; Personnel, Charles F. Barnett; Fiscal, Edward Howe; Photographic, Wayne Williams, and Procurement, Sherwood Butler.

FOR SALE: 1957 Chevrolet. Johnson, 826-1274.
WANTED: Home for puppy. Burdette, 826-5174.
FOR SALE: 1961 Oldsmobile 88, $1800. Weidner, PA 37216.

LANGLEY RESEARCH CENTER

LANGLEY RESEARCH CENTER CONTRIBUTES TO EFFORTS OF NASA DURING FIRST FIVE YEARS TO ADD TO KNOWLEDGE OF UNIVERSE

The law which established the National Aeronautics and Space Administration on October 1, 1958, required that NASA "...provide for research into problems of flight within and outside the Earth's atmosphere, and for other purposes." The former National Advisory Committee for Aeronautics, including the Langley Research Center, became the nucleus of the new organization.

Continuing goals set forth by the President and the Congress include: unmanned lunar and planetary exploration; development and application of communications and weather satellites; development of launch vehicles and propulsion systems; extended aeronautical research; expansion of knowledge relating to space and how man can adapt to it; and international cooperation in space research.

Space exploration became a major instrument of national policy with President Kennedy's statement to Congress on May 25, 1961, "...that this Nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth."

Achievements: With more than 100 major launches the first five years, NASA has sent into space weather satellites, deep space probes, communications satellites, manned orbital space flights, and made numerous scientific discoveries. Thousands of sounding rockets have been launched to study the atmosphere. People the world over, and especially Americans, now know the Earth is somewhat pear-shaped rather than a perfect sphere. They have heard about and have some knowledge of the X-15 research airplane; the Van Allen radiation belts; man-made satellites; Echo, Telstar, Relay and Syncom; Mariner and Venus fly-by.

Man-In-Space: Project Mercury, the first of three phases in achieving the nation's objective to reach the Moon, was successfully completed with the 22-orbit flight of Astronaut L. Gordon Cooper on May 15-16, 1963. The Mercury project came out of pioneering work at the Langley Research Center, Hampton, Virginia, and grew into a truly national effort by the time John H. Glenn Jr. made his historic three-orbit flight February 20, 1962. The next two phases to the Moon are the Gemini and Apollo projects.

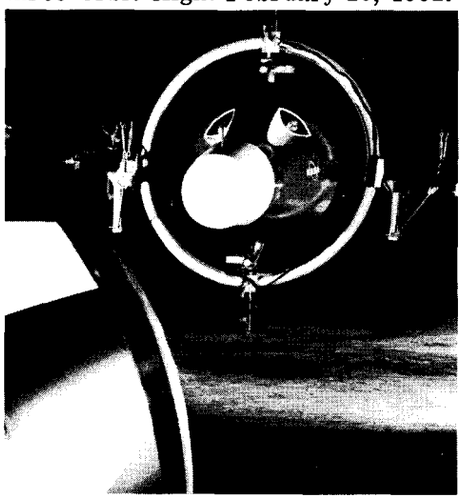
Flight to Venus: The flight of Mariner II was of major scientific significance. Launched August 27, 1962, it flew by Venus December 14, 1962, extending the space communications record to 54.7 million miles. It transmitted to Earth vast amounts of data about Venus and interplanetary space. Follow-on programs will attempt to scan Mars. NASA impacted the Moon with the Ranger IV, launched April 23, 1962. Although the scientific objectives were not achieved, the flight helped prove the technology of an Earth "parking orbit."

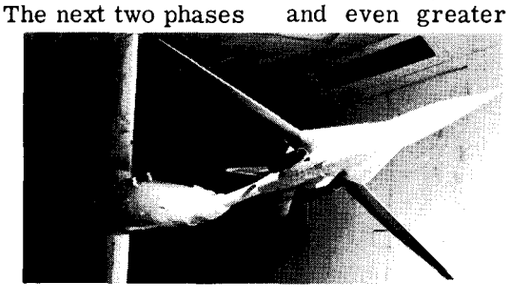
Weather Satellites: The first direct benefit to mankind from space technology came with the highly successful meteorological satellites. The TIROS (for Television Infrared Observation Satellite) has photographed vast cloud formations and provided early warnings of hurricanes. The first of a series of seven TIROS was launched April 1, 1960. TIROS VII was launched June 19, 1963.

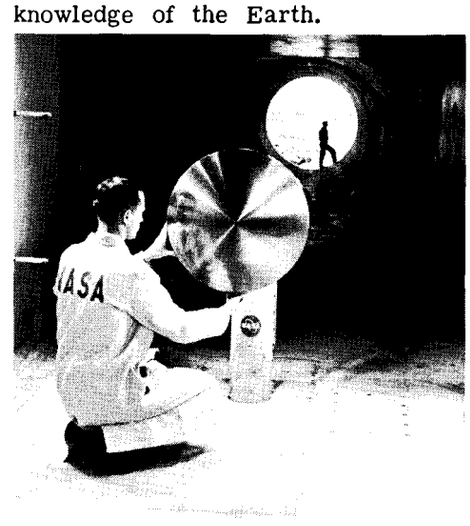
Communications Satellites: Telstar I was launched by NASA July 10, 1962-- the first of the active communications satellites. Linking two continents, it transmitted voice, teletype, photos, and television. It was followed promptly by NASA's Relay I which linked three continents. Both proved the feasibility of an "orbiting switchboard" for communications between continents. NASA's experimental Syncom II, launched July 26, 1963, gave promise of a truly operational communications system.

Aeronautical Research: NASA has continued a broad program of aeronautical research and flight testing to assist the design and development of civil and military aircraft. Scope of the work ranges from helicopters to the fringe of space. A stepped-up research program is supporting the national effort for a supersonic commercial air transport.

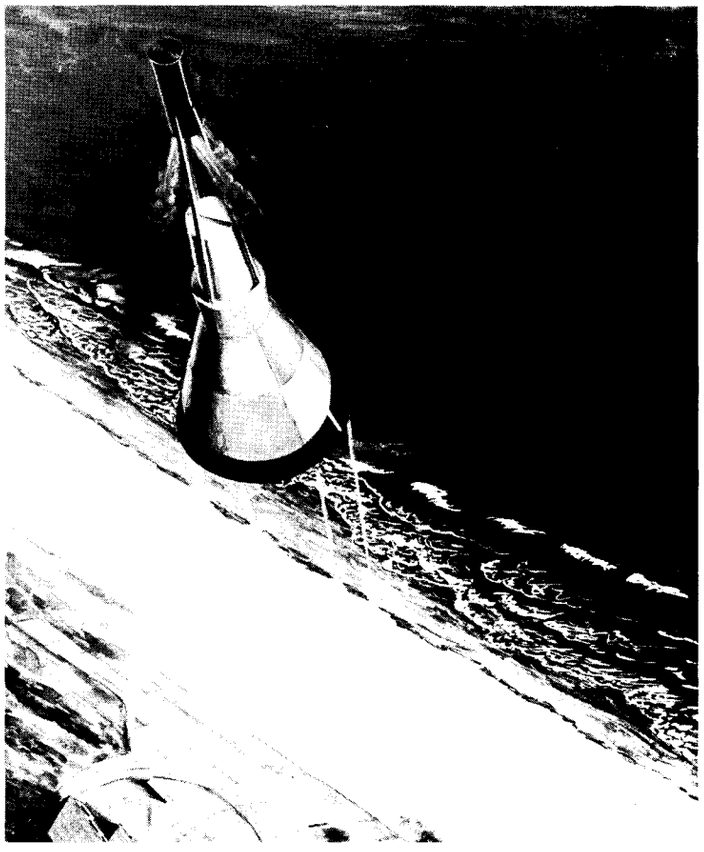
Scientific Knowledge: In five years of NASA, scientists have gone well beyond the realm of science fiction in devising a variety of space vehicles. From these and others yet on the drawing boards will come greater knowledge of the universe, greater knowledge of the Earth's atmosphere, and even greater knowledge of the Earth.

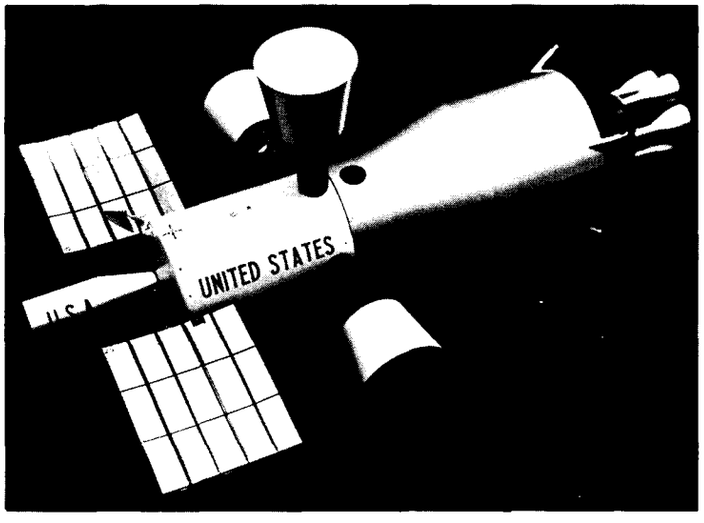


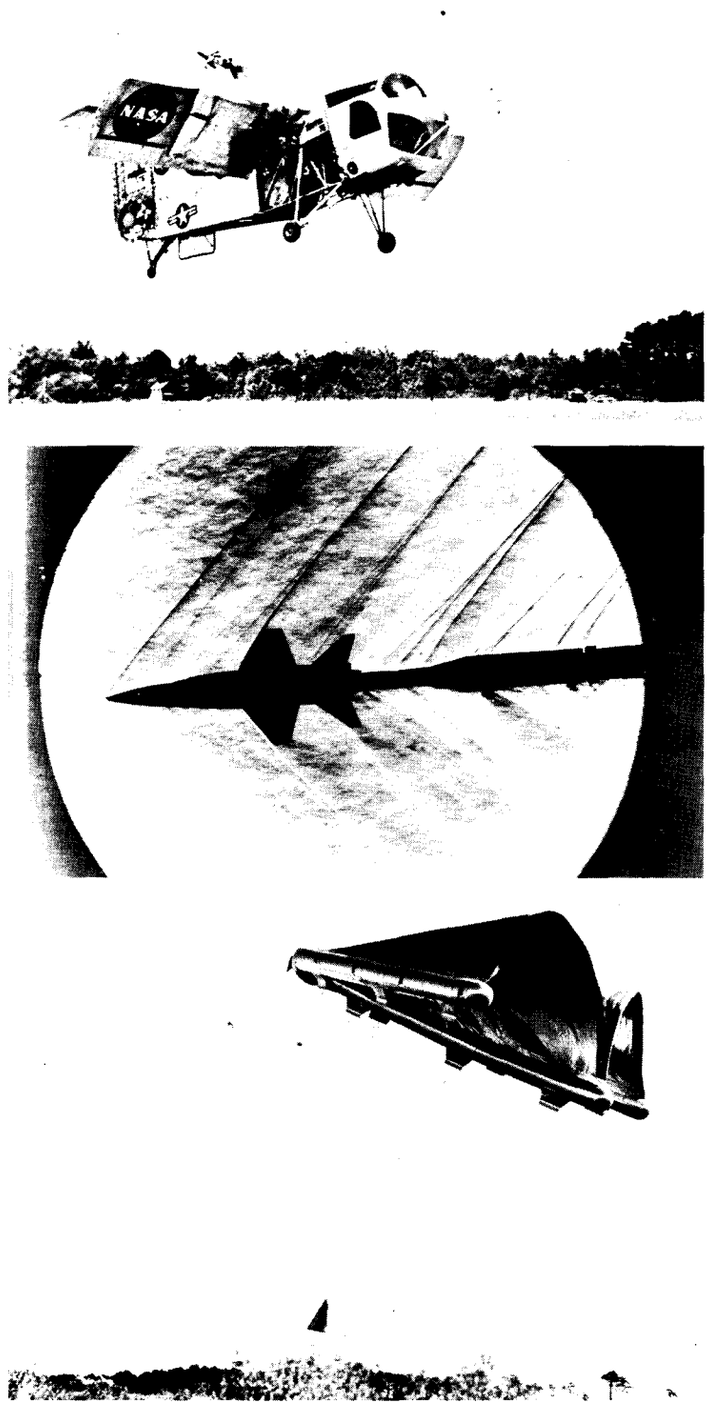




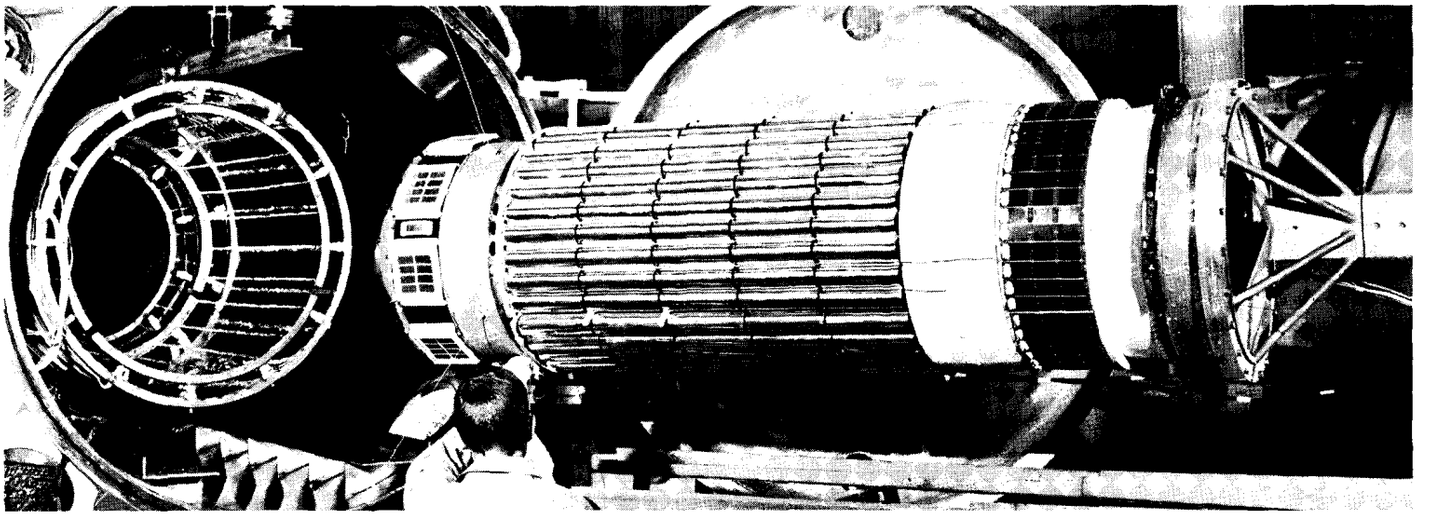
SPACE VEHICLE Rendezvous Docking Facility (left) provides information for Gemini flights; Project FIRE model test (right) is preliminary to flight to obtain lunar mission reentry data; Langley concept (above) is subject of research in national effort to develop a 2,000 mph commercial transport.

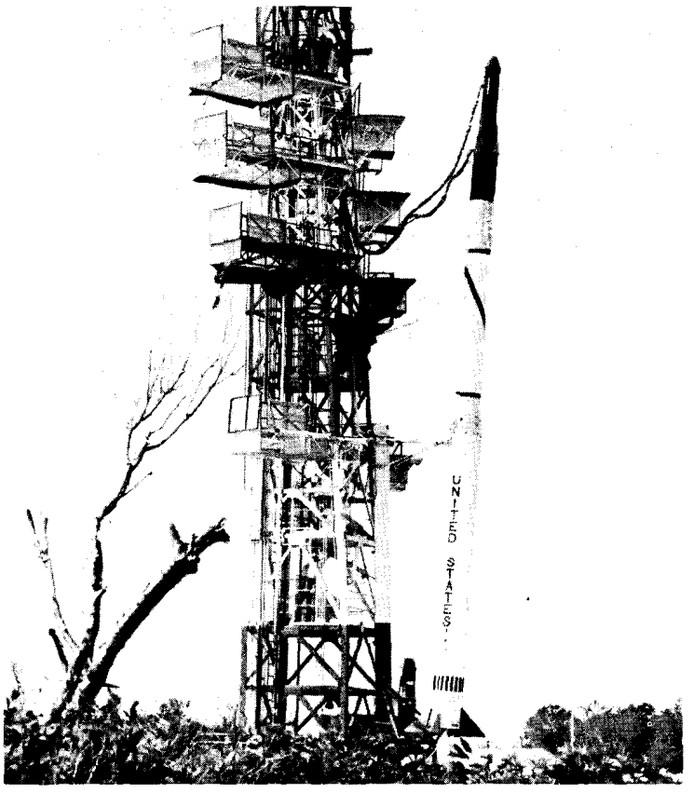


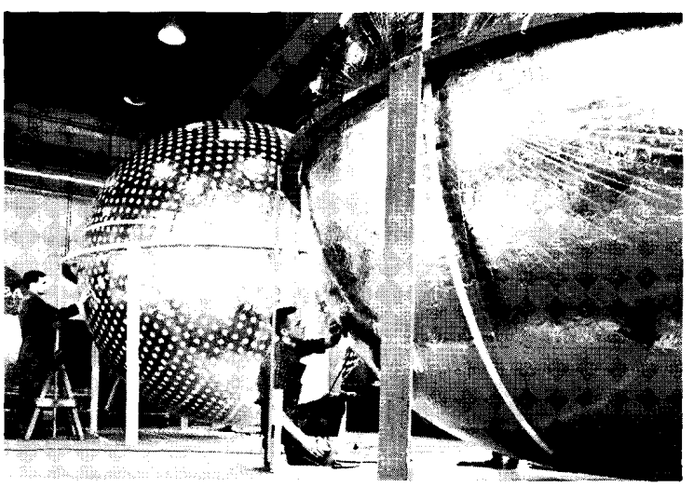




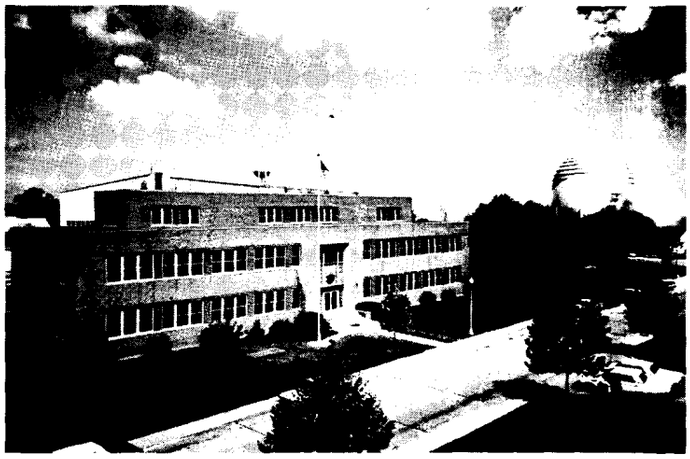
ARTIST'S CONCEPT (top left) depicts a flight test of a spacecraft escape system, one of a number of scientific investigations conducted by Langley in support of Project Mercury. Typical of current space research are basic studies of a proposed manned orbital laboratory (center left), wind tunnel buffeting tests of a Saturn-Apollo model with escape system (lower left), and free-flight tests of the paraglider as a recovery system for space vehicles. Langley has conducted a variety of aeronautical research, including development studies on the X-15-- a model of which is shown undergoing stability, control, and aerodynamic performance tests in a wind tunnel (center right) as shock waves are recorded through use of special photography. The vertical takeoff-landing concept (top right) with rotating wing is one of several VTOL aircraft flown by Langley research pilots.

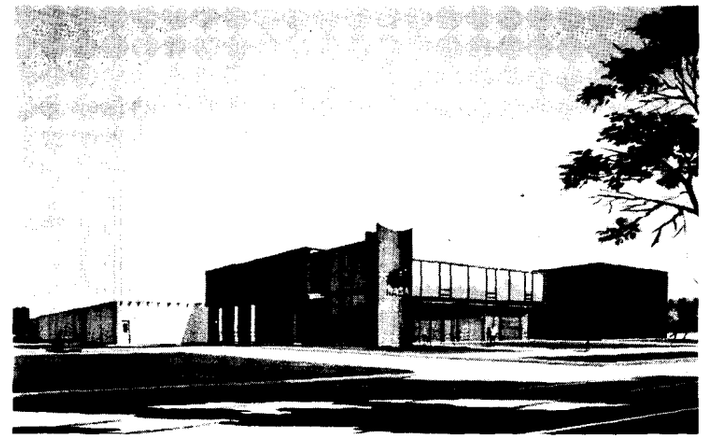


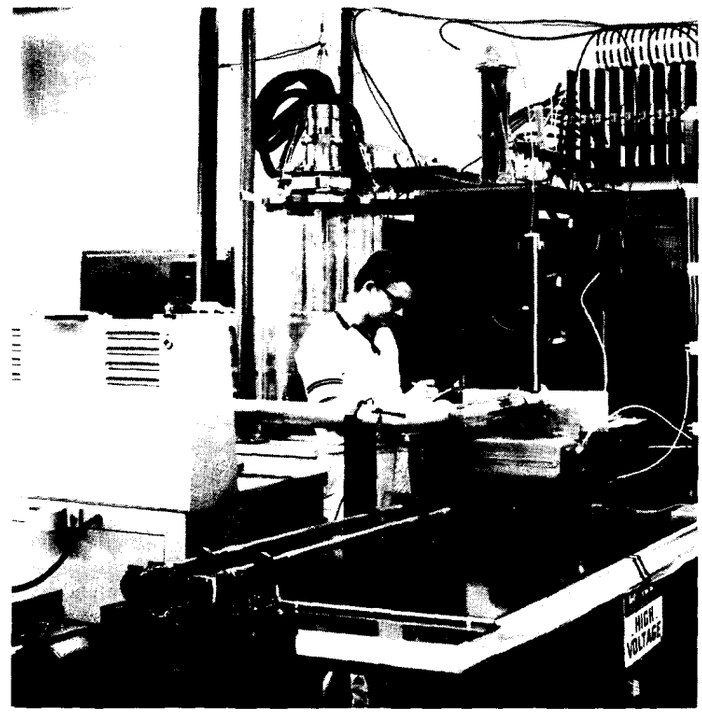


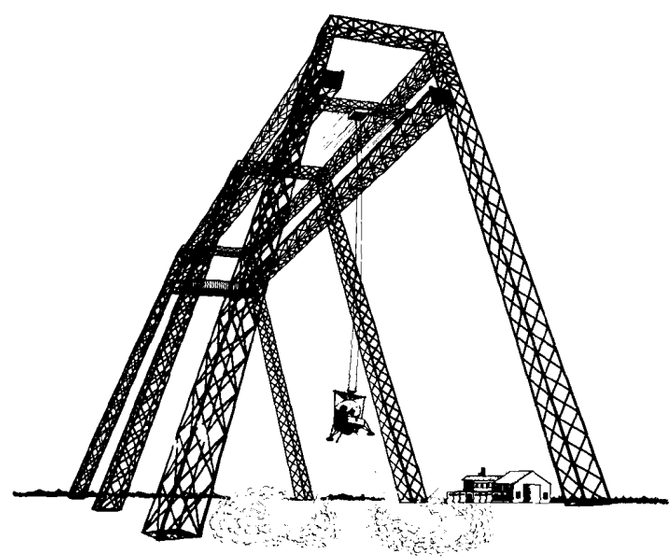


EXPLORER XVI, which provided extensive information on the penetration hazard of micrometeoroids-- particles of various sizes that travel through space at high velocities-- is prepared for a pre-flight test in a vacuum chamber (top). Explorer XVI was launched at Wallops Island, Virginia, by a four-stage Scout. The Langley-developed Scout (center right) is the first all-solid fueled launch vehicle to propel a satellite-- the inflatable 12-foot polka-dot Explorer IX-- into orbit. Explorer IX is relaying data on atmospheric drag. Two 12-foot spheres (right) are shown in a Laboratory at Langley. Preliminary to the launching into orbit of Echo I, technicians at Langley work on two 100-foot balloons to determine the proper technique for folding them. Echo I was carried aloft folded inside a 26-1/2-inch metal container and automatically ejected and inflated in space.









LANGLEY HEADQUARTERS Building (top left) is flanked by huge helium and vacuum spheres, typical new space age structures. Variety of research activity at Langley is evidenced by some of its unique facilities: Visual Docking Facility (center left) simulates the Gemini cockpit as the televised image of the Agena target vehicle in the window indicates a rendezvous test mission is in progress. Lunar Landing Research Facility (lower right) is designed for use in developing techniques for landing on the Moon's surface. Co-axial plasma accelerator (center right) is part of a complex of facilities used in basic research in magneto-plasmadynamics. Space Radiation Effects Laboratory (top right), with a 600 million electron volt synchrocyclotron and associated equipment, will be an important research facility and the focal point for a graduate study science center. The synchrocyclotron is being established on the Virginia Peninsula, about ten miles from Langley.

A conference on Supersonic Transport Feasibility Studies and Supporting Research was held at the Center last week. Left photo - Attending the conference were Gordon M. Bain (left), Federal Aviation Agency, and Najeeb E. Halaby, Director of FAA. The supersonic transport is being developed under FAA management. Right photo - Shown during lunch are (clockwise): Bain; Charles H. Zimmerman, NASA Headquarters; Halaby; Charles J. Donlan, Langley's Associate Director; Laurence K. Loftin, a Langley Assistant Director; De E. Beeler, Associate Director at Flight Research Center; Dr. Floyd L. Thompson, Langley Director, and Abe Silverstein, Director at Lewis Research Center.

OPEN SEASON FOR HEALTH PLANS

All employees enrolled in plans offered under the Federal Employees Health Benefits Program will have an opportunity to change their enrollment during the open season scheduled for October through October 15. Eligible employees who are not enrolled will be able to enroll during this open season.

Changes enrolled employees may make are: change from one plan to another, change from one option to another option in the same or different plan, change from self only to self and family, or the reverse.

In cooperation with the insurance carriers, the Civil Service Commission has rewritten all the brochures describing the health benefits plans which participate in this program, because most of them have changed benefits or rates or both.

Before October 1, each eligible employee will receive an open season instruction pamphlet and brochures of the two Government-wide plans.

Employees who do not want to make any change in their enrollment need take no action; their present enrollment will continue, and any change in benefits or rates will automatically apply to them. Since most of the plans are making changes, employees should read the instruction pamphlet and their new brochures very carefully.

An employee who does want to change his enrollment, or who is not now enrolled and wants to enroll, must complete a new Health Benefits Registration Form (Standard Form 2809) which may be obtained from the Employee Services Section, Room 101, Building 587. The completed registration form must be returned to the Employee Services Section no later than October 15.

WANTED: Alternate drivers from Stuart Gardens to W.A. on 8 shift. Holt, 4521.

WANTED: Driving combination from Alleghany Rd. to E.A. on 8 shift. Cauchon, 2352.

WANTED: Ride or driving combination from Warwick Gardens to E.A. on 7:30 shift. Robert Moore, 2345.

SUPERSONIC TRANSPORT STUDIES REPORTED AT NASA CONFERENCE

Feasibility studies nearing completion for NASA by two major airframe companies confirm that a solid foundation of research and advanced industrial technology exists on which the United States program to develop and build a supersonic airliner can be based.

The studies began in January after eight years of experiment and analysis by several NASA research centers had evolved four aerodynamic concepts which appeared promising as supersonic commercial transports. Contracts for the studies were awarded by the Langley Research Center to the Boeing Company, Airplane Division, Renton, Washington, and the Lockheed California Company, Burbank, Calif.

Contractor reports made during a three-day technical session at the Langley Center on September 17, 18, and 19 indicate that two of the four airplane concepts studied--configurations known as SCAT-16 and SCAT-17 -- appear to be the most promising from the standpoint of commercial design.

SCAT-16 is an airplane concept evolved by scientists and engineers of the Langley Center. It uses the principle of the variable sweep wing to provide good flying characteristics at the low speeds needed for landing and take-off as well as for efficient supersonic cruise.

SCAT-17 grew out of research conducted at the Ames Research Center. Its distinguishing features are a fixed delta (triangular) wing mounted well aft on a long fuselage with canard (forward of the wing) control surfaces.

XXXXXXXXX

WANTED: Ride from Kecoughtan Court Apartments to W.A. on 8 shift. Farrior, 4770.

WANTED: Ride from Greenwood Farms to W.A. on 8 shift. Wells, 4568.

FOR SALE: Mahogany dining room suite with large table, 6 chairs and china cabinet. Teichman, CH 4-2410.

FOR SALE: White aluminum awnings with brick red trim, sizes 96, 46, and 30 inches in width. Buchanan, LY 6-0643.

ANNUAL AWARDS CEREMONY PLANNED FOR SEPTEMBER 30

Two hundred and fifteen employees will receive 40, 30 and 20-year service emblems at the Annual Honorary Service Awards Ceremony on Monday, September 30 at 10 a.m. in the Activities Building.

A number of other awards will also be made during the ceremony.

T. Melvin Butler, Assistant Director for Administration, will preside and Dr. Floyd L. Thompson, Director, will present the emblems and Certificates of Service to staff members with 40 and 30 years of service. Division chiefs will present the emblems and certificates to members of their division who have completed 20 years of service.

Forty-year pins will be presented to the following: Aaron Mills, Mechanical Service Division; Clarence B. Kline, Flight Vehicles and Systems Division, and George C. Lumpkin, Fiscal Division. Dr. Thompson will receive his 40-year pin in ceremonies at Washington Headquarters Oct. 1.

Receiving 30-year pins will be: Joseph F. Grizzard, Procurement Division; Charles A. Clarke, Full-Scale Research; Young V. Houston, Flight Mechanics and Technology; Robert D. Ross, Structures Research, August V. Sansone, Electrical Systems; and Edwin W. Watson and Carl I. Wood, Mechanical Service Division.

ACCIDENT POLICY LIBERALIZED

A letter has been received at the Center from Home Life Insurance Company advising employees that the Travel Accident Group Insurance plan will be liberalized to provide the following coverage while on an official business trip in respect to personal travel:

Personal travel will be covered on Saturdays, Sundays, and legal holidays.

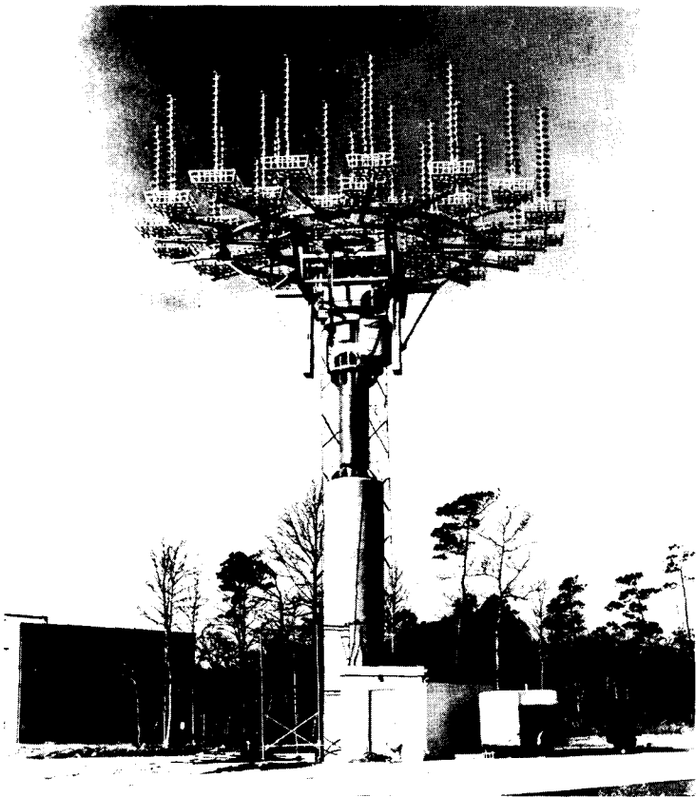
Personal travel will be covered during authorized or approved annual leave or leave of absence if such leave is three consecutive days or less and falls within the official business trip.

The plan also covers all business travel if the destination of the trip is more than 50 air miles from the regular duty station or the employee is entitled to per diem or actual subsistence expenses, including travel whereby time required for the business trip exceeds the authorized per diem allowance and the employee would be required to take leave time to complete the trip.

The policy not only covers the insured while on any conveyance (except a conveyance used for test research or experimental purposes) but is also an all-risk coverage during a business trip. A few examples would be if death resulted from a traffic accident, a fall, an explosion, a fallen object, drowning, homicide, or any other violent external means. The plan has been designed to give 24-hour coverage while on a NASA business trip.

For $50 a year an employee may obtain $100,000 of protection or he may elect $50,000 coverage for $25 a year. The enrollment card, together with appropriate annual payment, should be sent to the Personnel Office, Building 587, as soon as possible. The insurance will become effective by October 1 provided at least 1,500 employees, including all NASA installations, have enrolled.

WANTED: Alternate drivers from Norfolk to W.A. on 7:30 shift. Haynes, 4766.



One of the many structures visitors to Wallops Station will see is this "G.B." (general bronze) high gain antenna which receives messages from the TIROS weather satellites. This antenna locks on the beacon which transmits television pictures and infrared data from the satellite. Instructions are also sent via this antenna to the satellite.

WALLOPS PLANS OPEN HOUSE

In observance of NASA's Fifth Anniversary October 1, Wallops Station will be open to the general public for a self-guided, "do-it-yourself" tour on Saturday and Sunday, September 28 and 29, from 10 a.m. to 5 p.m.

Visitors will be permitted to tour some facilities on the main base as well as the launch sites on Wallops Island. The main base and Wallops Island are about 10 miles apart. To view both places will take two or three hours. Visitors will not be permitted to get out of their cars on the island.

A number of launch vehicles and models will be on display both at the main base and on the island. Visitors will also see inside the control center from which all launches are monitored and controlled, long range tracking radars, launch pads, blockhouses, assembly shops and related facilities.

Those taking the tour may go either to the main base or to the island first. Instruction pamphlets will be distributed at both gates.

WANTED: Ride from vicinity of Chapel, Lee and Stuart Streets to E.A. on 8 shift. Dunn, 2305.

WANTED: Copy of "IRE Transactions on Communication Systems", Sept. 1962. T. Lawford, 2377.

NOTICE: Will the person who borrowed the library book "Vectoral Mechanics" by E. A. Milne please call R. J. Mayhue, 3431.

WANTED: Ride or driving combination from Foxridge to W.A. on 7:30 shift. Hurst, 4625.

Langley Researcher

VOLUME 2, NUMBER 21 LANGLEY RESEARCH CENTER OCTOBER 11, 1963

NASA HONORS INDIVIDUALS ON ITS FIFTH ANNIVERSARY

Dr. Floyd L. Thompson, Director; Charles J. Donlan, Associate Director, and eight other Langley-connected researchers were honored in Washington last week during a special NASA awards ceremony in commemoration of the space agency's fifth anniversary.

A total of 23 citations were presented with Langley receiving the highest number of individual honors.

Dr. Thompson received his 40-year service pin and Donlan was presented the NASA Medal for Outstanding Leadership.

The event was held in the Natural History Museum's Auditorium. Vice President Lyndon B. Johnson, chairman of the President's National Aeronautics and Space Council, was keynote speaker.

Awards were presented by NASA Administrator James E. Webb, Deputy Administrator Dr. Hugh L. Dryden, and Associate Administrator Dr. Robert C. Seamans, Jr.

In receiving the Outstanding Leadership Medal, Donlan was cited "for outstanding leadership in connection with the establishment of organizational and technical concepts for Project Mercury, including astronaut selection and training; for developing the original technical concepts for Project Apollo; and for continued contributions to manned space flight technology through the planning and direction of programs of advanced research that effectively support current and future flight project development."

(Continued on page 7)

ONE-DAY SOLICITATION SET FOR TODAY IN CAMPAIGN

Today 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 Rufus O. House, Chairman of the Center drive.

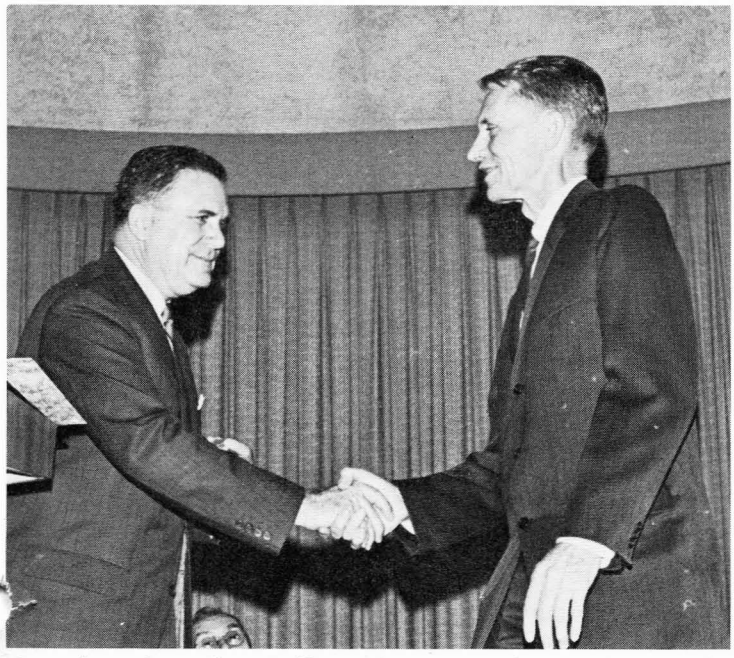
The pace for the Center's effort was set this week when the advanced solicitation of key personnel was conducted under the direction of Dr. John E. Duberg, Technical Assistant to the Director.

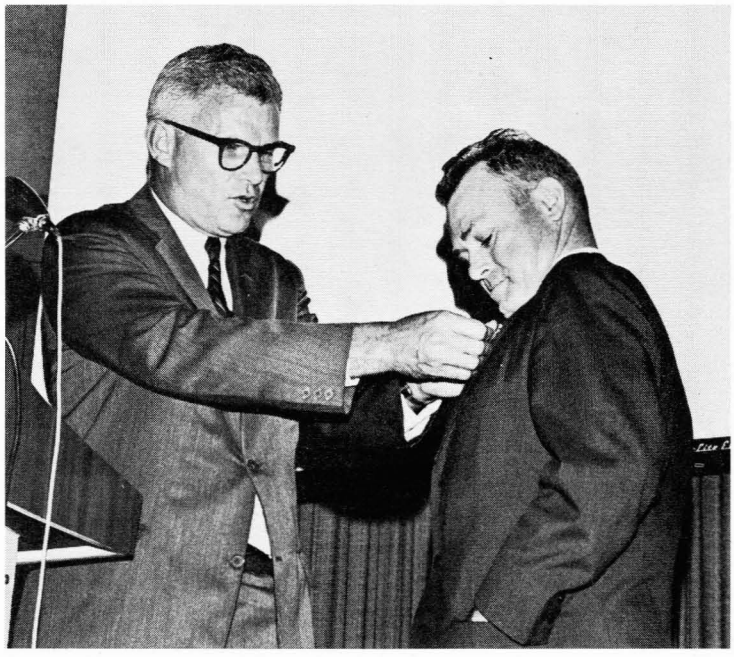
Dr. Duberg reported that as of press time on Wednesday, advanced gifts had reached a total of $20,380. This represents an average donation of $47.07 from 433 staff members. Dr. Duberg stated that the total is expected to reach a higher figure as a number of persons have not been contacted because they are on travel or leave.

Last year staff members donated a total of $56,663.20 to the drive. House stated that he is confident that the Langley staff will live up to its reputation of being a leader in the community effort. He also pointed out that pledges have always meant the success of such a drive and he urged employees to use the pledge system as quarterly payments spread out over the year permit an employee to make a more generous contribution.

House reminded staff members that, although he is anxious to put the drive over the top today, pledges and cash donations will be accepted by solicitors throughout the month of October.

(Continued on page 3)





A number of Langley staff members were honored in Washington last week during a special NASA awards ceremony. Left photograph - Dr. Floyd L. Thompson, Director of the Langley Research Center, receives his 40-year service pin from NASA Administrator James E. Webb. Right photo - Dr. Robert C. Seamans Jr., Associate Administrator, presents the NASA Medal for Outstanding Leadership to Charles J. Donlan, Langley Associate Director.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

CAMERA CLUB. . .The Langley Camera Club will meet on October 21 at 7:30 p.m. in the Activities Building. The contest for the month will be an open category for color slides.

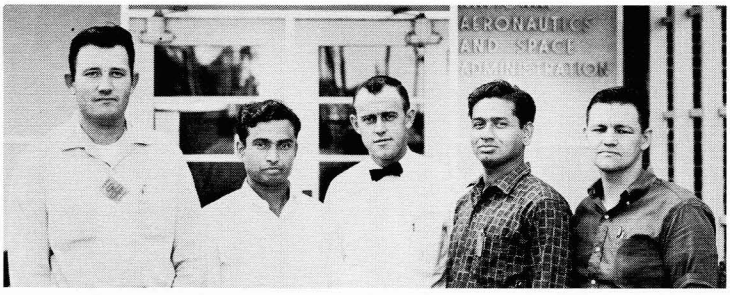
ASTRONOMY CLUB. . .The Skywatchers Astronomy Club will meet on October 14 at 7 p.m. in the Activities Building. All interested persons are invited to attend.

ENGAGEMENT. . .Making plans for a March wedding are Jeanette Constance, Administrative Services, and Fred Kern, Instrument Research.

SERVICE PLAN REPRESENTATIVE. . .Richard F. Brody, Government-wide Service Plan representative, will visit the Center on October 16 at 2 p.m. Employees having problems concerning their Government-wide Service Benefit Plan may call Linda Hale, 2323, for an appointment.

ORANGE BLOSSOMS. . .Wedding bells rang on September 24 when Ruth Adams, Structures Research, took her final vows with Jim Corsky, Hampton.

BABY DERBY. . .Announcing the birth of a son, Robert Keith, on September 29 is Robert Spruill, Data Reduction. Celebrating the birth of a son on September 23 are Sue, Full-Scale Research, and Robert Miserentino, Structures Research.



Two technical representatives of the Government of India, A. P. J. Abdul Kalam and D. Easwara Das, are visiting installations of the NASA as part of a cooperative effort between the United States and India. They arrived at Langley Center last week after spending the month of September at Wallops Station. Here they are conferring with three members of the staff of Wallops Station. They are (from left): Jack Hill, NASA; A. P. J. Abdul Karam; Robert Long, NASA; D. Easwara Das; and Rojer Navarro, NASA. The Indian representatives will spend two weeks at Langley for discussions of rocket research techniques with Langley scientists and engineers.

TRAVEL ACCIDENT INSURANCE PROGRAM EXTENDS DEADLINE

The effective date of NASA's new Travel Accident Insurance Plan has been extended to November 1. This extension is a result of distribution problems of promotional material and the timing of the initial enrollment period. Comments and reactions to the plan have been encouraging and officials believe the goal of 1,500 enrollees will be achieved by November 1.

The plan has been specially tailored for NASA employees who travel on official business. It is being offered to satisfy the requests of hundreds of employees who were unable to obtain the extensive benefits covered under this plan.

Under the plan all business travel will be covered if the destination of the trip is more than 50 air miles from the regular duty station, or if the insured is entitled to per diem or actual subsistence expense including travel whereby time required for the business trip exceeds the authorized per diem allowance and the insured would be required to take leave time to complete the trip.

While on official business trips in respect to personal travel, personal travel will be covered on Saturdays, Sundays, and legal holidays. Personal travel will also be covered during authorized or approved annual leave or leave of absence if such leave is three consecutive days or less and falls within the official business trip.

The plan provides all risk coverage during any business trip. All risk coverage means accidental death resulting from traffic-accident, falls, explosions, drownings, fallen objects, homicide, or by any other violent external means.

There are no limits placed on the number of trips or the duration of the trips.

The insured is also covered on NASA owned and operated aircraft, non-scheduled, private contract, non-contract, and military aircraft, and any conveyance such as private, rented, or leased automobiles, bus, train, boat, etc.

World-wide coverage protects the insured anywhere.

An employee may elect $100,000 or $50,000 of coverage for a yearly premium of $50 or $25, respectively. The enrollment card, together with appropriate annual payment, should be sent to Employee Services Section, Building 587, as soon as possible.

NASA BOWLING LEAGUES

TENPIN LEAGUE

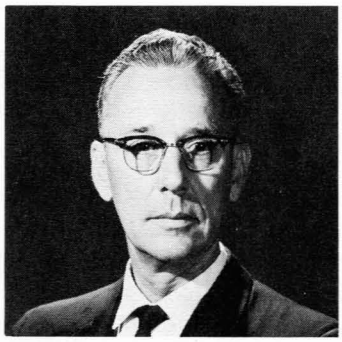
After two weeks of bowling in the Tenpin League, Unitary, Phantoms and Johnnies Raiders are tied for first place in Group A with 7 wins and 1 loss each. Latecomers lead Group B with 8 wins and no losses and Ranch House and Alley Oops are tied for second with 7 wins and 1 loss.

Leading with high averages in the A Division are Henry Lee with 193 and Bill Wood with 191.

Leading in the high average category in B Division are Amos Spady with 177 and Ralph Joslin with 176. Anna Belle Watts has high average for the women with a 164.

DUCKPIN LEAGUE

Light Machine No. 1 leads the Duckpin bowlers with 14 wins and 2 losses and ACD and Pin Poppers are tied for second with 10 wins and 6 losses each. Top scores last week were rolled by John Dupere with a 161 game, Ed Eggleston with a 391 set and Mary Edwards with a 140 game and 345 set.



In the photograph at left, Dr. Floyd L. Thompson, (center), Langley Director, launched the Center's United Fund campaign with his donation to Dr. John Duberg, head of advanced solicitations. Looking on is Rufus O. House, chairman of the Center's effort. William B. Mayo (above photo), Chief of Mechanical Service Division, is assisting House in the campaign effort as vice-chairman.

IEEE MEETS OCTOBER 22

Alfred G. Beswick, Instrument Research Division, will speak on "The NASA Langley Research Center Micrometeoroid Hazard Research Satellite Program, Description, and Experimental Results" at a meeting of the Hampton Roads Section of the Institute of Electrical and Electronics Engineers on October 22 at the Norfolk Yacht and Country Club.

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.

Beswick will give a brief description of what is known and unknown about the characteristics of meteoroids and the hazards they represent to space flight. The design philosophy of the S-55 micrometeoroid hazard research satellite series which was employed to investigate the hazards by direct in-place measurements will also be described. He will present details of the S-55A and S-55B Explorer XIII and XVI micrometeoroid satellites, including the showing of a documentary film on the mechanical, electrical, and experimental parameters of the satellite. He will also discuss meteoroid impingement results from Explorer XIII and XVI satellites and how this new knowledge fits into the present day understanding of the near earth meteoroid environment.

Persons planning to attend the meeting are asked to call Frank Senft, 3461, or Bob Fuller, 4616, by noon, October 21.

EMPLOY THE HANDICAP WEEK

President Kennedy has designated this week as National Employ the Physically Handicapped Week.

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.

Federal activities have proved in more than 195,000 cases that it is good business practice to hire the handicapped.

FOR SALE: 8 X 7-foot garage door. Holup, 898-6114.

ONE-DAY SOLICITATION

(Continued from page 1)

Division chairmen, who are directing the activities of the corps of solicitors, are reminded to make a report by the end of today to the respective financial chairmen to facilitate a proper evaluation of the one-day drive effort.

Barbara Durling, Dynamic Loads Division, is West Area financial chairman and Helen Willey, 8-foot Tunnels Branch, is East Area financial chairman.

NEW EMERGENCY BROADCAST SYSTEM REPLACES CONELRAD

An Emergency Broadcast System (EBS) has replaced CONELRAD, placing into effect a basic change in the Nation's system to provide official information and directions to the public in event of a civil defense emergency.

This change means that in a civil defense emergency, CONELRAD radio stations will no longer switch to 640 or 1240 kilocycles, but will continue to broadcast on normal frequencies at normal power.

AM stations that are not a part of the EBS, and FM and television stations will go off the air. Some of these facilities will be incorporated into future refinements and extensions of EBS.

The change from CONELRAD was made possible by a Defense Department determination that enemy navigational and targeting devices and techniques no longer require or would use radio transmissions to guide bombers or missiles to targets.

The new EBS network will permit wider dissemination of emergency information to the public due to use of normal broadcast power. Because of less complex switching arrangements and the prospect that more stations will be added to the system, EBS will be able to react faster and is less vulnerable to damage than CONELRAD.

EMPOYEES RECEIVE AWARDS

At the Center's Annual Awards Ceremony held September 30, six employees received Sustained Superior Performance Awards and ten staff members were presented cash awards for suggestions.

Receiving Superior Performance Awards were: Harold W. Ayres, Mechanical Service; William A. Carmines and Wilbert C. Falk, Flight Vehicles and Systems; Louise P. Earnhardt, Fiscal; Theodore E. Larson, Instrument Research, and Robert G. McCann, Flight Mechanics and Technology.

The individual commendations read as follows:

Ayres - "For his superior performance in applying the technique of vacuum furnace copper brazing to water cooled shields for force measuring instruments in the Instrument Construction Section."

Carmines - "For his outstanding contribution as Project Manager of the Flashing Light and Balloon Drag Experiments for the MA-9 mission."

Falk - "For his outstanding direction and contributions as Technical Project Engineer in the mechanical design and development of the completely successful Radio Attenuation Measurement Payload B-2."

Mrs. Earnhardt - "For high quality, high quantity work performance as Supervisory Time, Leave and Payroll Clerk."

Larson - "For the intense interest shown in his work which has brought about a significant increase, both in quality and quantity, in vacuum measurements test programs."

McCann - "For his exceptional and outstanding work in devising, designing and fabricating an extremely reliable and functional modification of the primary flight control system which he installed in the H-37 Sikorsky twin engine troop carrier helicopter, and for his outstanding performance in assuming the duties of his supervisor during the crew chief's absence."

All of the suggestion awards were received by members of Mechanical Service Division with the exception of Vernon W. Saunders, Flight Mechanics and Technology Division. Saunders received $250 for a starting system for the English manufactured turbo jet engine.

The other awards were as follows: Littleton S. Burgess, $75 for a numerical tape rewinder; Raymond L. Clark, $50 for "Clark Insulator" for cryogenic lines and reservoirs; Quinton C. Davis, $100 for live tailstock chuck for lathes; Howard B. Miller, $50 for an improved concept pertaining to swaged wire thermocouple assemblies; Wilton J. Miller, $500 for testing technique for evaluating hydroplaning effects on airplane and automobile tires; Harold T. Pritchard, $250 for spherical turning and boring attachment; John R. Smith, $50 for installation of a counter on movie film drums for use in filming experimental tests, and James H. Watson, $50 for polishing tools.

FOR SALE: Convertible carriage stroller. McDonough, 838-1989.

FOR SALE: Male Dachshund dog with registered pedigree, $50. Harless, 431 Shelton Rd., Hampton, after 5 p.m.

FOR SALE: Lane mahogany cedar chest, mahogany corner table and platform rocket. Sivertson, 898-6409.

FOR SALE: 1959 Volkswagon, $1295. Belda, 244-6811.

FOR SALE: 1951 Morris Minor. Miller, PA 2-8993.

Sustained Superior Performance Awards were recently presented to the above employees. They are (from left): Harold W. Ayres, William A. Carmines, Louise P. Earnhardt, Wilbert C. Falk, Theodore E. Larson, and Robert G. McCann.

AN OUNCE OF PREVENTION

This is the final day of Fire Prevention Week for 1963. Duane McSmith, Fire Protection Inspector, pointed out that this week was set aside to stress the importance of an adequate year-round fire protection program in the home as well as on the job.

McSmith stated the annual life loss in residential fires indicates that much can be done to improve the life safety record in dwelling fires. If each family would prepare and practice a fire emergency plan, lives could and would be saved. Home fire drills are particularly important where children, elderly people or invalids are involved.

An adequate home fire drill should include attention to the following items as a minimum: A family meeting should be held to discuss the threat of fire, review the floor plan of the dwelling and select the best escape routes. Each member of the family capable of using the telephone should know the fire department telephone number and the proper procedure for reporting a fire. Thought should be given to the advisability of sleeping with bedroom doors closed and each member should be instructed, in the event of fire, to feel the top of any closed door for heat before opening.

Windows should be checked to assure that at least one window in each room is big enough to get through and can be opened. If the window is on the second floor and does not provide access to a porch roof or other roof, a rope ladder or commercial folding fire escape can be provided at a nominal cost. Family members should be instructed in how to remove screens and in the technique for getting down from a window. This is done by going out on the stomach, feet first, and hanging from the sill before jumping, to reduce the height of the fall.

Where needed, a ladder should be kept available and everyone, including the neighbors, should know where it is and how to raise it. Finally, the very important item of a meeting place should be arranged. After escape everyone should gather at a pre-selected spot to make sure no one is overlooked.

FOR SALE: 1958 Buick Super hardtop and 1953 Buick parts including engine. Dawson, PA 3-2006.

VIRGINIA ENGINEERS GROUP TO HEAR ADDRESS BY BECKER

John V. Becker

John V. Becker, Chief of Aero-Physics Division, will be guest speaker at a meeting of the Engineers Club of the Virginia Peninsula on Thursday, October 17 at 8 p.m. at Eli's Restaurant, Hampton.

Becker will speak on "Reentry From Deep Space." He will cover the historical development of scientific and technical interest and flight applications of reentry into the earth's atmosphere, or the atmosphere of other planets, from the era before development of the ICBM to future reentry flights from deep space at velocities up to 50,000 miles per hour. Included in this wide range of velocities is that for reentry of the Apollo vehicle returning from its lunar mission, thus the science of reentry flight bears a vital relation to this mission.

Becker is an authority on high-speed flight, particularly at the extreme conditions encountered in the reentry of space vehicles into the earth's atmosphere. In recognition of his international reputation in the field of reentry, he has given numbers of lectures and prepared several summary articles over the past few years. In the summer of 1961 he presented an invited paper on "Aerodynamics of Reentry Trajectory Control" to the International Academy of Astronautics in Paris. More recently he prepared the widely-read article "Reentry from Space" for Scientific American. He is presently completing a technical appraisal of the state-of-the-art in reentry for a forthcoming issue of "Astronautics and Aerospace Engineering."

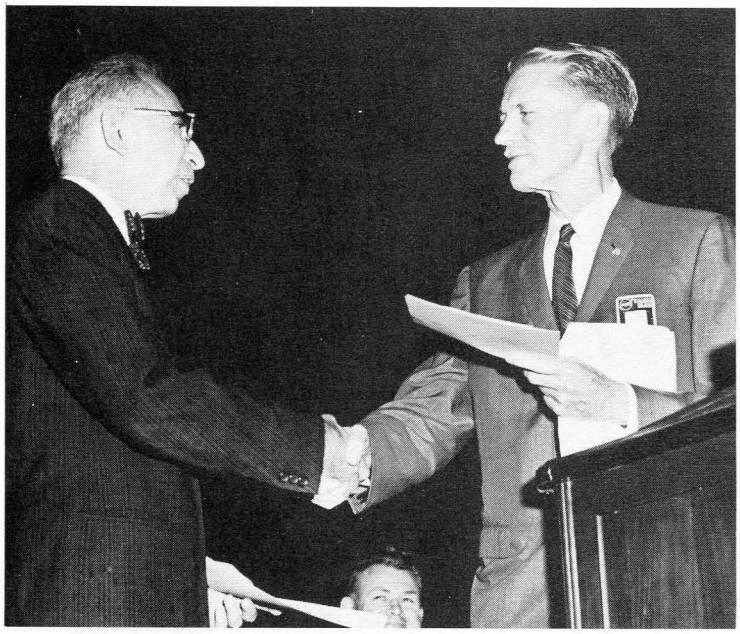
In 1945, a dozen years before the first Sputnik, Becker conceived the design of this country's first major hypersonic wind tunnel and supervised its development and use in early explorations of hypersonic aerodynamics and frictional heating at equivalent speeds up to 18,000 feet per second. He headed a group of scientists at Langley whose analyses of these first results proved the feasibility of manned hypersonic flight. The group evolved a formal proposal for a hypersonic research vehicle which became the NASA-Air Force X-15 research airplane, now being flown successfully to the fringes of space at speeds of 4,000 miles per hour and higher. A few years later the researches of the group led to workable designs for highly maneuverable winged vehicles capable of reentry from space at 17,500 miles per hour. These studies provided the basis for the NASA-Air Force Project Dyna Soar, a research vehicle to explore the problems of the reentry from space of maneuverable manned vehicles.

Becker has accumulated numerous honors and recognitions during his career at Langley Center.

FOR SALE: Sofa bed - $75, 3/4 mattress and box springs - $40. Schryer, 877-1729.

FOR SALE: 1960 Comet - $1095. Batten, PA 2-4679.

FOR SALE: All metal covered utility trailer, 1000-lb. capacity, used one summer for camping. Stone, 596-0617.



Dr. Samuel Katzoff, Assistant Chief of the Applied Materials and Physics Division, receives NASA's Special Service Award from Dr. Floyd L. Thompson, Director.

DR. KATZOFF PRESENTED SPECIAL SERVICE AWARD

Dr. Samuel Katzoff, Assistant Chief of the Applied Materials and Physics Division, received NASA's highest local-level award last week at the Langley Center's Annual Awards Ceremony.

The Special Service Award, presented by Dr. Floyd L. Thompson, Director, was accompanied by a $500 check and a commendation for his "outstanding service in developing approaches to technical problems and aiding in their solutions and for motivation and guidance to the Center's staff."

Dr. Katzoff was cited for his attention to programs aimed at developing scientific ability in inexperienced personnel and to professional internships. His recent work on micrometeoroid studies and on the water and oxygen reclamation and air purification aspects of spacecraft life support systems were also noted.

A native of Baltimore, Maryland, Dr. Katzoff received his B.S. and Ph.D. degrees in Chemistry from Johns Hopkins University and joined the Langley staff in March 1936 as a junior physicist. In his present position he is particularly involved in work with high temperature materials, reentry physics and heat transfer at hypersonic speeds.

He is an associate fellow of the American Institute of Aeronautics and Astronautics and a member of both the Research Society of America and the American Association for the Advancement of Science.

FOR SALE: 3-bedroom rancher in Riverdale. Cramer, 838-0700.

FOR SALE: 1962 Welbilt air conditioner, 6400 btu, 7.5 amp. Newcomb, 596-8241.

FOR SALE: Maple crib and mattress - $30, stroller - $17. Brooks, 826-2048.

FOR RENT: Furnished 4-room apt. Ahlmark, PA 3-3577.

FOR SALE: 14-foot Echocraft boat with 60 hp Mercury engine, set of Craftsman's tools and 2-drawer tool box. Young, 2305 Shell Rd., Lot 84.

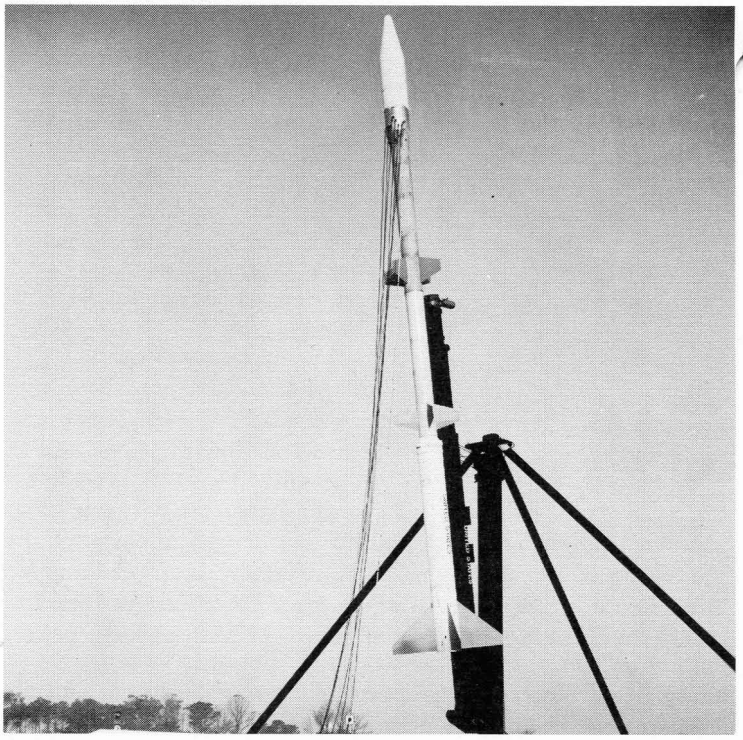
SOCS VEHICLE LAUNCHED FROM WALLOPS STATION

A Project SOCS (Spacecraft Orientation Control System) flight was successfully conducted at Wallops Station on September 20. Lift-off occurred at 10:46 a.m. after a countdown which began at 4 a.m.

The purpose of the SOCS flight program is to obtain spaceflight confirmation of the capture capability, sensitivity, and reliability of both solar and planetary orientation control systems for spacecraft. This vehicle was used to determine the capabilities of the NASA-developed solar orientation control system when used for pointing the axis of a rigid body toward the sun. The solar orientation control system consists of a sun-sensor and signal processing circuitry which operates control valves for cold gas jets. The sun-sensor utilizes photovoltaic cells in a unique geometry to minimize exposure of the sensing elements, and yet provides high sensitivity and a spherical field of view for capture capability in both the pitch and yaw planes.

In this flight test, the several stages of the Javelin launch vehicle ignited, burned, and separated according to plan. The third-stage fins were canted slightly to spin-up the fourth stage and the attached payload. The fourth stage and payload were thus spin stabilized after separation from the third stage. After burnout of the last stage, the payload and the last stage were despun to zero rotational speeds by means of a yo-yo device, and the heat shield was then separated into two halves to expose the orientation sensors.

An examination of the 18-channel telemetry records after the flight revealed that the control system required about four minutes after heat shield ejection to turn the spacecraft through an initial yaw angle of 40 degrees and a pitch angle of 10 degrees and "lock-on" to the sun. Proper orientation of the spacecraft was maintained until it reentered the earth's atmosphere.



Project SOCS spacecraft on launcher at Wallops Station.

Representatives of the large team of Langley Center personnel who worked on the SOCS Flight Project which was successfully launched September 20. Front row (from left): W. J. O'Sullivan, J. D. Maynard, M. L. Sisson, F. E. Jennings, Project Management; Anthony Fontana, M. L. Brumfield, D. J. Parker, W. F. Hunter, J. J. Mathis, C. A. Downing, E. S. Trimble, A. E. Barker, and S. M. Mills, Control System. Second row - A. E. Bruns, W. L. Gaster, Pyrotechniques; R. E. Haynes, C. F. Herman, E. N. Koch, E. L. McClelland, M. W. Appleton, Telemeter; J. E. Michael, D. S. Childress, C. G. Morgan, Electrical System. Third row - W. S. Blanchard, Aerodynamics and Trajectory Analysis; W. G. Witte, Thermal Analysis; V. L. Alley, C. P. Young, A. H. Gerringer, Dynamic Analysis; Winnie Askew, Louise Dreisbach, R. L. Kurtz, I. E. Tilley, D. E. Johnson, K. Rexrode, R. W. Hogg, Environmental Testing. Back row- J. D. Pride, R. T. Sherrill, C. E. Drummond, G. L. Webb, Vehicle and Payload Design; B. R. Holston, Contract Administration; C. W. Kruse, G. M. Jurscaga, E. N. Vandenbree, K. Lambroff, Fabrication and Assembly.

NASA HONORS INDIVIDUALS

(Continued from page 1)

Langley scientists receiving cash awards "for outstanding personal efforts contributing significantly to the nation's civilian program" were: Robert L. Trimpi, $3,000; Charles H. McLellan, $2,000; James H. Schrader, $1,500, and Frank L. Clark, Charles B. Johnson, Wayne D. Erickson, and Roger I. Buchanan, $1,000.

Dr. John C. Houbolt, formerly of Langley, was awarded the NASA Medal for Exceptional Scientific Achievement.

Trimpi, Head of the Reentry Physics Branch, Aero-Physics Division, received his cash award for the practical development of an expansion tube for hypervelocities. It is designed to produce velocities in the range of 45,000 feet per second, temperatures up to 50,000 degrees Fahrenheit, and pressures reaching 50 million pounds per square inch on test models of spacecraft.

Charles H. McLellan, Head of Mission Analysis Group, Aero-Physics Division, was cited for his invention of wedge tails for hypersonic aircraft--aerodynamic vehicles capable of flight exceeding five times the speed of sound. Highly effective in hypersonic air flows, the wedge tail provides longitudinal and directional stability while greatly reducing the size of tail surfaces. The only flying hypersonic plane, the X-15 research aircraft, uses this principle as one of its most noteworthy and successful features. Tail surfaces of the X-15 are in the shape of a wedge from front to back, with the thick, blunt portion at the rear. The concept has been used in all hypersonic aircraft designs since the X-15, including the Air Force's Dyna-Soar vehicle.

Schrader, a member of the Communications Research Section, Instrument Research Division, received an award for his invention of a multiple-input radio receiver. The receiver employs a unique loop technique that permits achieving the performance capability of a large collecting antenna by linking a number of smaller parabolic antennas at much less cost than that of a single large one. Sixteen 120-foot diameter parabolic antennas would cost half that of a single 480-foot parabolic antenna, NASA officials reported.

Frank L. Clark, Charles B. Johnson, and Wayne D. Erickson, all of the Aero-Physics Division, shared a $1,000 award with Roger I. Buchanan, Research Models and Facilities Division, for the invention of a hypersonic test facility used to study and test ablation materials and prototype aeronautical and space vehicles. It is capable of achieving Mach numbers (air velocities) in the range of 12 to 20, or 12 to 20 times the speed of sound. Unique features are the designs of the heat exchanger, graphite heater elements, and the temperature probe.

Dr. Houbolt, formerly of Langley and now with Aeronautical Research Associates of Princeton, Inc., Princeton, N. J., received the Medal for Exceptional Scientific Achievement for his foresight, perseverance, and incisive theoretical analysis of the concept of lunar orbit rendezvous, revealing the important engineering and economic advantages that have led to its adoption as a central element in the U.S. manned lunar exploration.

FOR SALE: 1960 Impala 2-door coupe, $1300. Holloway, UN-83882.

FOR SALE: Two Community Concert season tickets. Call Freynick, 722-1412.

Charles J. Donlan (left), Associate Director, throws the first ball to start the softball game between the Langley All-Stars and the Lewis Research Center All-Stars. Batter is Bob Allen, Administrative and Technical Staff Officer at Lewis. Acting as catcher is Gene Manganiello, Lewis Deputy Director, and acting as umpire is Melvin Butler, Langley Assistant Director for Administration. Langley won the game with a final score of 10-9.

LANGLEY SOFTBALL TEAM DEFEATS LEWIS CENTER

The Lewis Research Center's All-Star Softball team was defeated by a Langley All-Star team 10-9 on September 28. The game opened disastrously as the Lewis team scored six runs in the top half of the first inning. Langley fought back with three in the first and three in the second to tie the game. Lewis moved back in front by scoring three in the third but was scoreless the rest of the way. Langley got two in the third, one in the fifth, and one in the seventh to win the ball game.

The Lewis team had a celebrity on their roster in the enormous form of Bill Kerslake who has twice represented the United States in the Olympic games as a heavyweight on the Greco-Roman wrestling team. Bill is about 6 feet, 3 inches tall and weighs over 300 pounds. Fortunately for Langley, he failed to get good wood on the ball.

Playing on the Langley team were the following: Thayer Sheets, Marvin Dow, Jim Smith, Bill Brewer, Ernie Anglin, Moses Farmer, Tom Foughner, George Lawrence, Ray Midden, Paul Jarvis, John Young, Ed Phillips, Charles Ruhlin, and Claud Pittman, manager.

YOUTH SCIENCE CONGRESS

NASA and the National Science Teachers Association will sponsor a Youth Science Regional Congress October 17 and 18 at the Langley Center and Hotel Chamberlin.

Science papers will be presented by 25 students who won in local competition. Three winners will be selected to compete in the national contest in Washington. The students represent Virginia, North Carolina, and South Carolina.

On Thursday, the group will visit the Langley Center and will be welcomed by Dr. Floyd L. Thompson, Director. Five papers will be given at the Center and five will be presented at the Hotel Chamberlin.

On Friday, Charles J. Donlan, Associate Director, will greet the group at the Chamberlin where the remaining 15 papers will be presented.

The three winners will be announced at a banquet which will be held at 7 p.m. on Friday at the Chamberlin. Guest speaker for the event will be Dr. George F. Pezdirtz, Applied Materials and Physics Division.

A number of ceremonies were held October 1 in observance of NASA's Fifth Anniversary. The photographs on the top row were taken at the dedication ceremony of the Mercury spacecraft in the Aerospace Park on Mercury Boulevard. In the left photo, Dr. Floyd L. Thompson, Director, presents the spacecraft to the City of Hampton. Seated on the platform (from left) are: John W. Crowley, retired NASA official; Mrs. Edwin C. Kilgore, Mayor of Hampton, and Charles J. Donlan, Associate Director. The photographs on the bottom row were taken at the cake cuttings in the two cafeterias. The ceremonies were attended by employees who entered on duty October 1, 1958, the day NASA was established. Left photo - Shown in the East Cafeteria are: Ralph H. Caldwell, David S. Vann, Dorina Unsworth, Assistant Manager, East Cafeteria; James W. Gormsen, Robert L. Ferguson, and Douglas W. Whipple. Right photo-Attending the ceremony in West Cafeteria were: David B. Robelen, Bill R. Rouse, Samuel D. Johnson, Lucille Bosher, Assistant Manager, West Cafeteria; Tracy Phelps, Food Service Director; William J. Debnam, and Wayne S. Slemp.

TURKEY SHOOT PLANNED

The Activities Association's Annual Thanksgiving Turkey Shoot will be held on Saturday, November 2, at the Activities Building.

Matches will start at 9 a.m. and continue until 5:30 p.m. The winner of each match will receive a turkey. No admission will be charged other than 50 cents for each shot.

Firearms will be furnished by the Activities Association or contestants may use their own. The Association will supply 12, 16, and 20-gauge shotgun shells for the shoot. The maximum charge of powder and minimum size of shot should not exceed 3-3/4 drams for powder and number 8 for shot.

The shoot will be supervised by M. E. Cook, NASA Rifle Club, and any ammunition brought to the match must be turned over to the person in charge of ammunition.

In the interest of safety, all contestants are requested to keep the actions of their firearms opened while on the grounds of the Activities area except when on the firing line.

NOTICE TO MODEL FLYERS

Model flying on Langley Field is subject to Air Force approval, under control of Base Operations. Present Base regulations authorize Air Force and NASA model club members and their guests to fly models under specific circumstances. In general, free flight and radio control type model flying is subject to Air Force approval as are control line models if flown on Air Force property.

Under the current regulations, model flying activity must be cleared with Base Operations and only the following persons are authorized to obtain clearance: Jack Barbour, William Block, Joseph Boyle, Robert Champine, James Eggers, Jarrett Huffman, Charles Libbey, Hewitt Phillips, Earl Popp, David Robelen, and George Ware.

The list is revised quarterly to assure representation by active flyers. For further information, contact John Worth, 2246.

FOR SALE: 1961 Chevrolet Biscayne. Hickerson, PA 37216.
FOR SALE: 1961 Valiant, 4-door. Saunders, 826-1123.
FOR SALE: 1957 Ford convertible. Jewell, 826-3170.

Langley Researcher

VOLUME 2, NUMBER 22, LANGLEY RESEARCH CENTER OCTOBER 25, 1963

NASA REORGANIZATION PLANS TO BE EFFECTIVE NOVEMBER 1

Moves to improve even further a performance record that saw the success ratio of NASA's space flights climb from 36 per cent to 83 per cent in its first five years were announced by James E. Webb, NASA Administrator.

Organizational changes designed to meet the increasing demands of advanced space programs by strengthening lines of authority and responsibility between NASA Headquarters and its field installations become effective November 1.

The actions involve consolidating authority and responsibility for both the management of major programs and direction of the development and research centers primarily required to carry out these same programs; and realigning certain headquarters organizational elements responsible for agency-wide supporting services.

Responsibility for over-all management of NASA's major programs as well as the research and development centers will be assigned three officials. All will report to Dr. Robert Seamans, Associate Administrator--NASA's general manager.

Under the organizational structure now in effect center directors receive project or mission management direction from one or more headquarters program directors, while direction for general operation of the centers comes from the associate administrator, Dr. Seamans.

The new structure merges these lines of authority and responsibility so that each center director will have a single contact at headquarters for all center matters. This will assure integration of both technical and management activities at a single point short of the general manager. This will speed decision making.

Dr. George Mueller will be Associate Administrator for Manned Space Flight. He will direct this program and the management affairs of the three centers primarily involved in the manned space flight program--the George C. Marshall Space Flight Center, the Manned Spacecraft Center, and the Launch Operations Center. He is now Deputy Associate Administrator for Manned Space Flight Centers and Director of the Office of Manned Space Flight.

Dr. Raymond Bisplinghoff, Director of the Office of Advanced Research and Technology, becomes Associate Administrator for Advanced Research and Technology. This is the program which provides technical knowledge essential to advancing aeronautical and space missions. He will also direct the efforts of four NASA research centers primarily involved in the Agency's advanced research program--Ames Research Center, Flight Research Center, Langley Research Center, and Lewis Research Center.

Dr. Homer Newell, presently Director of the Office of Space Sciences, becomes Associate Administrator for Space Sciences and Applications. He will be responsible for communications, weather, and related peaceful applica-

(Continued on page 8)

14 CANDIDATES FOR SPACE FLIGHT NAMED BY NASA

NASA has selected 14 new astronauts, all prime candidates to be the first Americans to set foot on the moon.

Giving the newcomers an edge on being first to the moon is their ages--averaging 30.9 years. The youngest is 27.

The new astronauts are as follows:

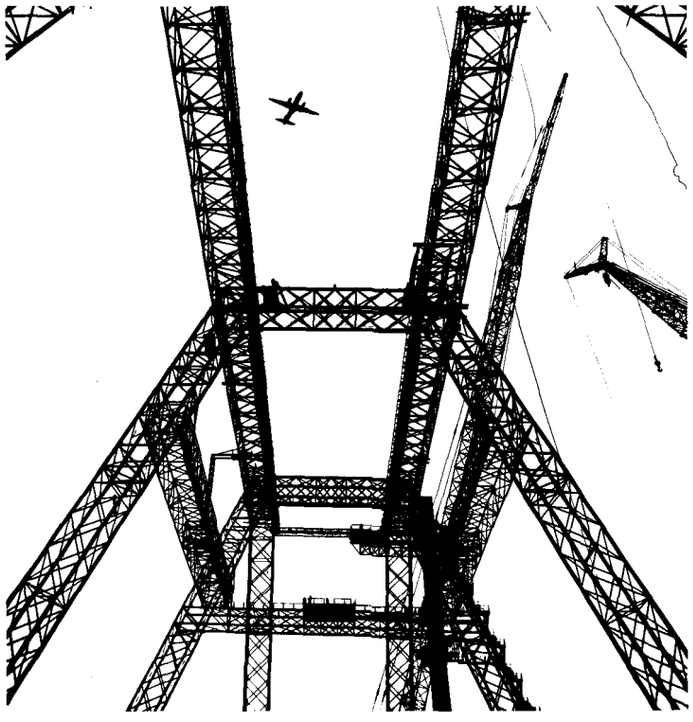
Major Edwin E. Aldrin Jr., 33, Air Force. He was born in Glen Ridge, N.J. and he is stationed at the Manned Spacecraft Center. He is the father of three.

Captain William A. Anders, 30, Air Force. He was born in Hong Kong and he was last assigned as nuclear engineer-instructor pilot, Air Force Weapons Laboratory, Kirtland Air Force Base, N.M. He is the father of four.

Captain Charles A. Bassett II, 31, Air Force. A native of Dayton, Ohio, his last assignment was experimental test pilot and engineering test pilot, Fighter Project Office, Edwards Air Force Base, Calif. He is the father of two.

Lt. Alan L. Bean, 31, Navy. He was born in Wheeler, Texas, and was assigned to Attack Squadron 44 at Cecil Field, Florida. He is the father of two.

(Continued on page 3)



This photograph of the Lunar Landing Research Facility, taken by Bob Nye, staff photographer for Langley Researcher, appeared on the cover of the October 14, 1963 issue of Aviation Week. The facility will provide a controlled laboratory in which NASA scientists will work with research pilots to explore and develop techniques for landing a rocket-powered vehicle on the Moon, where gravity is only one-sixth as strong as on Earth.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

WEDDING BELLS. . .Robert T. Taylor, Full-Scale Research Division, took his final vows with Patricia Rae Mackey, Newport News, on October 12 at St. Rose of Lima Catholic Church. Carolyn Lively, IRD, was a bridesmaid. Faye Hollowell, Engineering Contract Support Section, was married to Malcolm Bunch, Newport News, on October 11.

ROSE SHOW RESULTS. . .When the laurels were handed out at the recent Norfolk Rose Show, most of the honors went to Basil Brinkley, Research Models and Facilities Division. He had the best rose in the show and the third best for which he was awarded Gold and Bronze Medal Certificates from the American Rose Society. As sweepstakes winner, with 17 blue ribbons, 5 red, and 2 yellow, he was awarded the Norfolk Rose Society's silver trophy. Grace Shackelford, Technical Editing Section, recently won a Bronze Medal Certificate for the best grandiflora exhibited at the Garden Clubs of Virginia's state-wide rose show at Mariner's Museum.

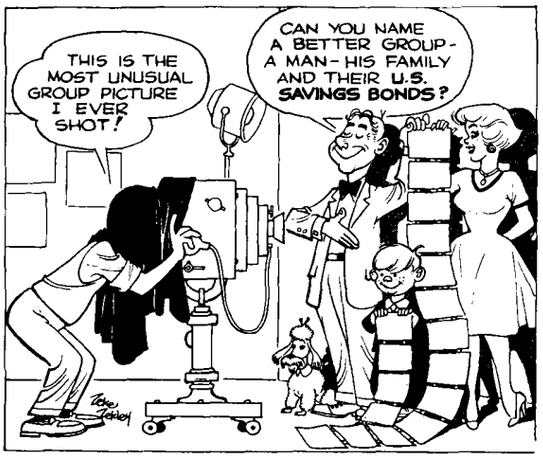
GOLD BOND STAMPS. . .The Gold Bond Stamp Company is helping the Peninsula Association for Retarded Children to acquire a badly needed station wagon. They have offered to give the association 10 points for the back of every stamp book that is redeemed. Employees can help this effort when redeeming Gold Bond Stamps by requesting the backs of these books for the Retarded Children. For further information call Mrs. W. H. Gordon, LY 5-0478 or Mrs. Ottoway, CH 5-8728.

SQUARE DANCE LESSONS. . .A new class in square dancing is scheduled to begin November 5 at Sedgefield Elementary School, Newport News. Classes will be held on Tuesday nights from 8 to 10:30 and run approximately 20 weeks. Cost is 50 cents per person per lesson. For further information contact Doris Vandeveer, 826-0353.

NEW ARRIVALS. . .Celebrating the birth of a son on September 26 is Otis Childress, Electrical Systems Division. A daughter was delivered to the Wayne Slemp household on September 25. The father works in Applied Materials and Physics Division.

IRD SOCIAL CLUB. . .The IRD Social Club will open their fall social season with a dance tonight at the Activities Building. Music will be furnished by Frank Wells. Featured with the group will be a comedy act by the Marlands and dancing by Kay Potter and Skip Cooper. Tickets may be obtained from Joe Siefring, IRD.

"ZEKE" SAYS:



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of October 28:

Monday - Cream of tomato soup, seafood plate .60 (includes 1-3/4 oz. fish portion, two fried scallops, 1-1/2 oz. crab cake, two fried shrimp, one fried oyster and cole slaw), Spanish pot roast .50, barbecued spareribs .45, Austrian ravioli .25.

Tuesday - Bean soup, half-pound chopped sirloin steak .55, shrimp-crab meat Newburg .45, breaded veal cutlet, Parmesan .45, cheese omelette.

Wednesday - Chicken-noodle soup, fried clams .55, chicken and dumplings .45, liver and onions .35, hamburger .25, half-pound Delmonico steak .80.

Thursday - French onion soup, roast ribs of beef .50, grilled pork chops .45, fried fish .35, macaroni and wieners .25.

Friday - Clam chowder, grilled steak .65, fried oysters .45, broiled fish .35, chili con carne .25.

The menu for the week of November 4 is as follows:

Monday - Cream of potato soup, roast veal with dressing .55, shrimp jambalaya over steamed rice .45, Salisbury steak .40, fish cakes with cole slaw .25.

Tuesday - Vegetable-beef soup, roast beef .50, boiled ham and cabbage .45, stuffed pepper .35, grilled cheese and bacon sandwich .25.

Wednesday - Bean soup, hot roast beef sandwich with mashed potatoes and gravy .50, roast fresh ham with apple sauce .45, creamed dried beef on toast .35, pizzaburger .30.

Thursday - Chicken-noodle soup, grilled steak .65, deep fried shrimp .45, barbecued chicken .40, baked hash .25, lobster tail $1.

Friday - Clam chowder, Spanish pot roast .50, stuffed flounder .40, broiled fish .35, hot dog .20.

NOTICE: Contractor representatives who are visiting Lang- Research Center are requested to get their contractor badges from the Badge and Pass Office at the West Gate.

WANTED: Driving combination from Norfolk to W.A. on 7:30 shift. Hudgins, 4851.

WANTED: Alternate drivers from Stuart Gardens to W.A. on 7:30 shift. Bowen, 4571.

FOR SALE: Two Accoustic Research 1 high fidelity speakers. Freeman, UN 8-9060.

FOR RENT: Room for gentleman. Holloway, PA 2-6168.

NEW ASTRONAUTS NAMED

(Continued from page 1)

Lt. Eugene A. Cernan, 29, Navy. Born in Chicago, he was a student at the U.S. Naval Postgraduate School at Monterey, Calif. He is the father of one.

Lt. Roger B. Chaffee, 28, Navy. He was born in Grand Rapids, Michigan and was assigned to the Student Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio. He is the father of two.

Capt. Michael Collins, 32, Air Force. Born in Rome, Italy, he was an experimental flight test officer at Air Force Flight Test Center, Edwards Air Force Base, Calif. He is the father of three.

R. Walter Cunningham, 31, a civilian. He is a native of Creston, Iowa, and was a UCLA doctorate candidate.

Capt. Donn F. Eisele, 33, Air Force. He was born in Columbus, Ohio, and was flight commander and experimental test pilot at Air Force Special Weapons Center, Kirtland Air Force Base, N.M. He is the father of three.

Capt. Theodore C. Freeman, 33, Air Force. He is a native of Haverford, Pa., and was last assigned as flight test aeronautical engineer and experimental flight test instructor at the Air Force's Aerospace Research Pilot School, Edwards AFB, Calif. He is the father of one.

Lt. Cmdr. Richard F. Gordon Jr., 34, Navy. Born in Seattle, Washington, he was a student at Naval Postgraduate School, Monterey, Calif. He is the father of six.

Russell L. Schweickart, 27, a civilian. He was born in Neptune, N.J. and was a research scientist at Experimental Astronomy Laboratory at Massachusetts Institute of Technology. He is the father of four.

Capt. David R. Scott, 31, Air Force. Born in San Antonio, Texas, he was a student at the Air Force Aerospace Research Pilot School, Edwards AFB, Calif. He is the father of two.

Capt. Clifton C. Williams Jr., 30, Marine Corps. Born in Mobile, Alabama, he was last assigned as a student at Marine Corps Intermediate Staff and Command School, Quantico, Virginia. He is the only bachelor of the 30 astronauts selected since the space program began.

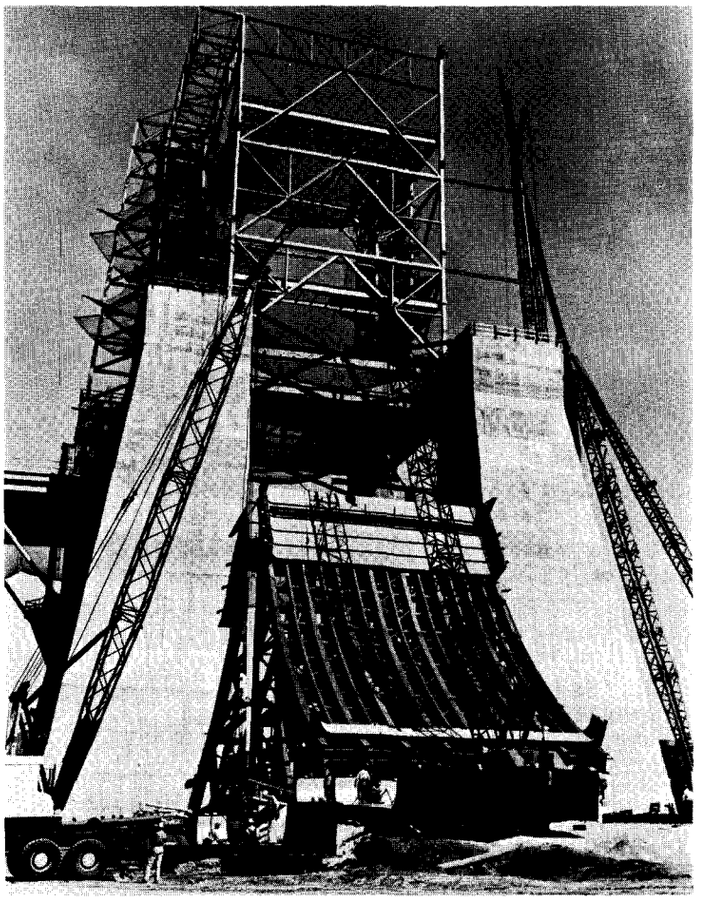
The Air Force produced seven of the new candidates, the Navy four, the Marines one, and two are civilians.

Of the 30 astronauts now named, 14 are Air Force, 10 Navy, 2 Marine Corps and 4 civilians.

The original group named in 1959 contained seven men with an average age at that time of 34.5 years. The second group of nine was selected in 1962 with an average age of 32.5

NOTICE: The Martin Company of Washington D.C., now has an answering service on the Peninsula. Employees wishing to contact the office may call CH 4-1411 between the hours of 9 a.m. and 6 p.m. daily.

WANTED: Driving combination from Victoria Blvd. and LaSalle Ave. to E.A. on 8 shift. Redd, 2201.
WANTED: Driving combination from Bethel Pk. to W.A. on 8 shift. Beasley, 3389.
WANTED: Ride from Jefferson Ave. and Mercury Blvd. to W.A. on 8 shift. Block, 3331.
WANTED: Ride from Tidewater Dr., Norfolk, to W.A. on 8 shift. Kelsey, 3421.
FOR SALE: 1961 Falcon, 4-door, $950. Phillips, PA 31820.



A gigantic Saturn V booster test stand is rapidly taking shape at the Marshall Space Flight Center where Saturn rockets are built and tested. The concrete pillars seen here are nearly 150 feet tall; on top of them is going up more than 100 feet of steel superstructure. A derrick will be mounted atop the steelwork, giving the entire structure a height of 405 feet. The stand, to be completed early next year, will be used for static firing the 7.5 million pound thrust Saturn V booster, the first stage of the U.S. manned moon rocket.

TURKEY SHOOT NOVEMBER 2

Center sharpshooters are reminded that the Activities Association's Annual Thanksgiving Turkey Shoot will be held on Saturday, November 2 at the Activities Building.

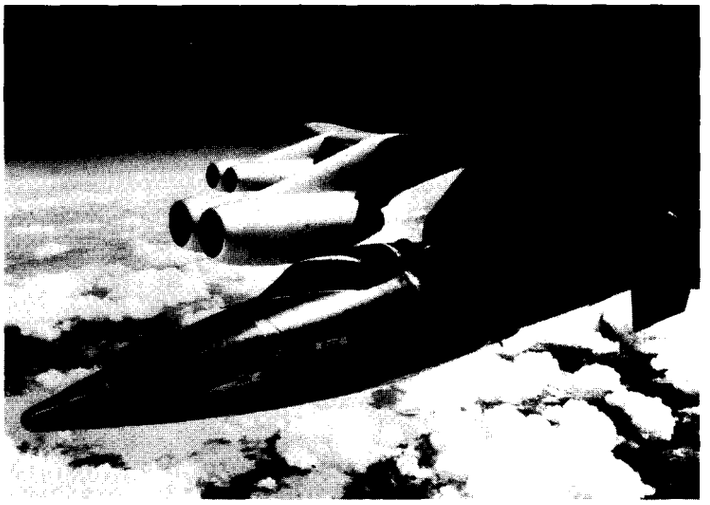
Matches will start at 9 a.m. and continue until 5:30 p.m. The winner of each match will receive a turkey. No admission will be charged other than 50 cents for each shot.

Firearms will be furnished by the Activities Association or contestants may use their own. The Association will supply 12, 16, and 20-gauge shotgun shells for the shoot. The maximum charge of powder and minimum size of shot should not exceed 3-3/4 drams for powder and number 8 for shot. Controlled chokes for shotguns will be permitted.

The shoot will be supervised by M. E. Cook, NASA Rifle Club, and any ammunition brought to the match must be turned over to the person in charge of ammunition.

In the interest of safety, all contestants are requested to keep the actions of their firearms opened while on the grounds of the Activities area except when on the firing line.

Lunch may be purchased at the bar in the Activities Building.



Nestled under the wing of a giant B-52 Air Force bomber from which it is launched, this sleek X-15 research airplane is poised for another of its many experimental missions. It has far exceeded its design goals and holds the world altitude record.

GRAY NAMED TO NASA POSITION

NASA has announced the appointment of Edward Z. Gray as Director of Advanced Studies, Office of Manned Space Flight.

Gray will be responsible for planning and directing studies for possible future manned space flight projects. Studies currently underway include manned orbital laboratories, planetary missions, lunar base, future launch vehicles and engineering systems in support of manned space flight.

Gray succeeds Dr. William A. Lee who has headed the OMSF advanced study effort since early in 1962. Dr. Lee is joining the Apollo Spacecraft Program Office at Manned Spacecraft Center.

Before joining NASA Gray was associated with the Boeing Aircraft Company, Seattle, Washington, for 24 years. His most recent position with the firm was Development Program Manager of Advanced Space Systems, Aero-Space Division. Previously, he held a number of posts in systems engineering management of Boeing's aerospace projects. He was a design engineer for the Boeing jet aircraft series in addition to DynaSoar and Minuteman programs.

He has served on numerous governmental and aerospace industry technical committees and was Chairman of the NASA Research Advisory Committee on Structural Loads in 1958-59. He has served as a consultant on space systems to the U.S. Navy for Project "Starlight".

Gray, age 48, is a native of Portland, Oregon. He was graduated from Oregon State University in 1938 with a Bachelor of Science degree in civil engineering and completed advanced work in engineering aerodynamics at the University of Washington.

FOR SALE: 3-bedroom house with fenced in backyard. Stroup, 826-2267.

FOR SALE: 1962 Mercury, 2-door hardtop. Martin, 596-0484.

FOR RENT: 3-bedroom stucco house. Warren, 722-6594.

FOR RENT: Bedroom with kitchen privileges. Watkins, 838-1983 or PA 2-8613.

FOR SALE: 21-inch TV console with AM and FM radio and record player - $40. Voros, 877-3050.

CITY OF GENOA HONORS WALKER

Joseph A. Walker, chief research pilot for NASA and the man who has flown the rocket-powered X-15 research plane higher and faster than anyone, has been awarded the Christopher Columbus International Prize for Communications by the City of Genoa, Italy.

The presentation was made at a ceremony in Genoa earlier this month. The United States Ambassador to Italy, G. Frederick Reinhardt, accepted the gold medal on behalf of Walker who was unable to attend.

The Columbus medal is presented each year on the birth anniversary of the gamous Genoese navigator and explorer during the annual International Communications Conference in Genoa.

The citation accompanying Walker's medal described him as the "test pilot chosen as a magnificent example of high skill, courage, solid training and intellectual, physical, and moral strength which honor human progress."

The international medal honors distinguished contributions, made during the preceding four years, of technical or scientific and social significance in one of five areas of communications--land, sea, air, space, and postal and telecommunications.

Walker's fastest flight in the X-15 was 4,104 miles per hour, June 27, 1962. He piloted the research plan to a maximum altitude of 354,200 feet, or 67 miles, August 22, 1963.

During his 18 years as a government test pilot, Walker has received many awards for his contributions to aeronautics and research, including the 1961 Octave Chanute Award of the Institute of Aerospace Sciences. He and fellow X-15 pilots were presented jointly with three coveted honors, the Harmon International Aviator's Trophy (1961), the Robert J. Collier Trophy (1961), and NASA's Distinguished Service Medal (1962). In 1956 he was awarded the NASA Exceptional Service Medal for action following an in-flight explosion in the X-1A.

Among other Walker awards are the Air Force Association's Schilling Trophy (1961), the 1961 Kincheloe Award of the Society of Experimental Test Pilots, the Golden Fleece Award (1961) of the U.S. Association of Wool Manufacturers, and the Air Force Exceptional Civilian Service Medal.

Walker was graduated with a B.A. degree in physics in June 1942 from Washington and Jefferson College, Washington, Pa., and in 1962 the college awarded him the Honorary Degree of Doctor of Aeronautical Sciences.

NASA GOLFERS MAY PLAY 3 DAYS ON BASE COURSE

The Langley Golf Association has given NASA employees three days to play next week - October 28 and 30 and November 1. Golfers may play all three days or only one. Green fees are one dollar per day plus one dollar for prizes. Golfers are asked to sign up with Charlie Rayle at the Pro Shop. The more rounds played the better chance to win.

Nine prizes will be given - 3 for 3 best scores, 3 for 3 best scores using handicap, if golfer has played twice previously on NASA days, and 3 for low number of putts.

Chick Harbert will play a nine-hole exhibition match and give a golf clinic at Langley on October 29.

Jim Jones, Aero-Physics Division, and Ray Goodman, Heavy Machine Shop, were two of the winners in the Langley Golf Association's Fall Tournament.

AIAA MEETS OCTOBER 30

The Hampton Roads Chapter of the American Institute of Aeronautics and Astronautics will meet Wednesday, October 30 at the Fort Eustis Officers' Club (Main Dining Room). The meeting will be a joint affair with the Dixie Post, American Ordnance Association.

Guest speaker will be Dr. Louis E. Eilers, President of Tennessee Eastman Company. His talk will concern Eastman Kodak's part in national defense.

A native of Gillespie, Illinois, Dr. Eilers attended Blackburn College, received a B.S. degree from the University of Illinois, his M.S. degree from the University of Virginia, and his Ph.D. from Northwestern University. Blackburn College recognized Dr. Eilers for his outstanding accomplishments in science with an honorary Doctor of Science degree in 1957.

He joined the Eastman Kodak Company in 1934 as a chemist in cellulose research at Kodak Park Works. He rose steadily in the Kodak hierachy to become president of a whole complex of companies including Tennessee Eastman Company, Texas Eastman Company, Carolina Eastman Company, and Eastman Chemicel Products, Inc.

He is a member of Alpha Chi Sigma, Sigma Xi, American Chemical Society, and the Photographic Society of America.

The meeting will be preceded by a social hour at 6:30 p.m., followed by a dutch treat dinner at 7:30. The cost of the dinner will be $2.50 per person. The meeting is open to guests and wives of members. Reservations may be made by calling Carl A. Sandahl, LY 6-2392, John Ward, LY - 5-0869, or Emanuel Boxer, CH 5-6212, before October 26.

FORMER EMPLOYEE DIES

Dr. William A. Aery, former member of the Center staff, died October 16 in Dixie Hospital.

He was born September 24, 1882 in New York City and was a graduate of Columbia University. He came to the Peninsula in 1906 as an instructor of sociology, history and economics at Hampton Normal and Agricultural Institute, now Hampton Institute.

He served at different periods as director of the Normal School and Academy, director of summer school, and director of education. In 1910 he became chief publicist for the college and founded the press service.

His stories were printed in thousands of magazines and newspapers and he authored 402 articles for the college publication, Southern Workman. He was also a special correspondent for the New York Times.

He retired from the school in 1939. He came out of retirement July 20, 1942 to join the Center's Personnel Division and resigned May 28, 1948

He is survived by a daughter, Mrs. Roland E. Olson.

He was vice-president and chairman for scholarship for Peninsula Catholic Scholarship Funds, Inc., served as chairman of the board of Hampton Red Cross Chapter, was president of Hampton Girl Scout Council, and a founder of the Peninsula Institute of Public Affairs and the Peninsula Cooperative Association.

FOR SALE: 9-inch DeWalt saw on 6-foot stand. Woolard, 595-0484.

FOR SALE: All-metal luggage trailer. Brown, 722-1697.

FOR SALE: 14-foot boat with 25 hp Evinrude motor, controls, windshield, etc., $450. Verser, UN 8-4731.

FOR SALE: Cleveland cornet and case. Press, 826-0038.

UNITED FUND CAMPAIGN

Division	Total	Percentage
Office of Research Direction	$2971.00	98
Flight Reentry	917.00	96
Scout Project	666.00	91
Aero-Physics	2663.00	48
Analysis and Computation	2432.25	90
AMPD	3475.45	88
Dynamic Loads	3606.00	79
Flight Mechanics and Tech.	2453.00	88
Full-Scale Research	3937.25	87
IRD	5819.40	78
Chance Vought Employees	103.00	100
Research Reports	821.00	90
Space Mechanics	1411.00	53
Structures	3270.50	92
Off., Chief of Eng. and Tech.	970.00	100
Electrical Systems	2396.75	93
FVSD	2189.00	85
Mechanical Service	7403.25	91
Plant Maintenance	1392.20	96
RMFD	2435.30	93
Off., Asst. Dir. for Admin.	457.75	97
Administrative Services	863.94	94
Fiscal	1465.80	95
Personnel	818.00	100
Photographic	651.50	98
Procurement	1221.00	87
Cafeterias	126.25	100
Credit Union	-------	--
Anonymous	65.00	--
TOTALS	$57,001.59	87

Rufus O. House, Chairman of the Center's United Fund effort, stated that a number of employees have not been solicited yet because they have been on travel or leave. Each person will be contacted before a final report is made.

ENGINEERS' CLUB SEEKS MEMBERS

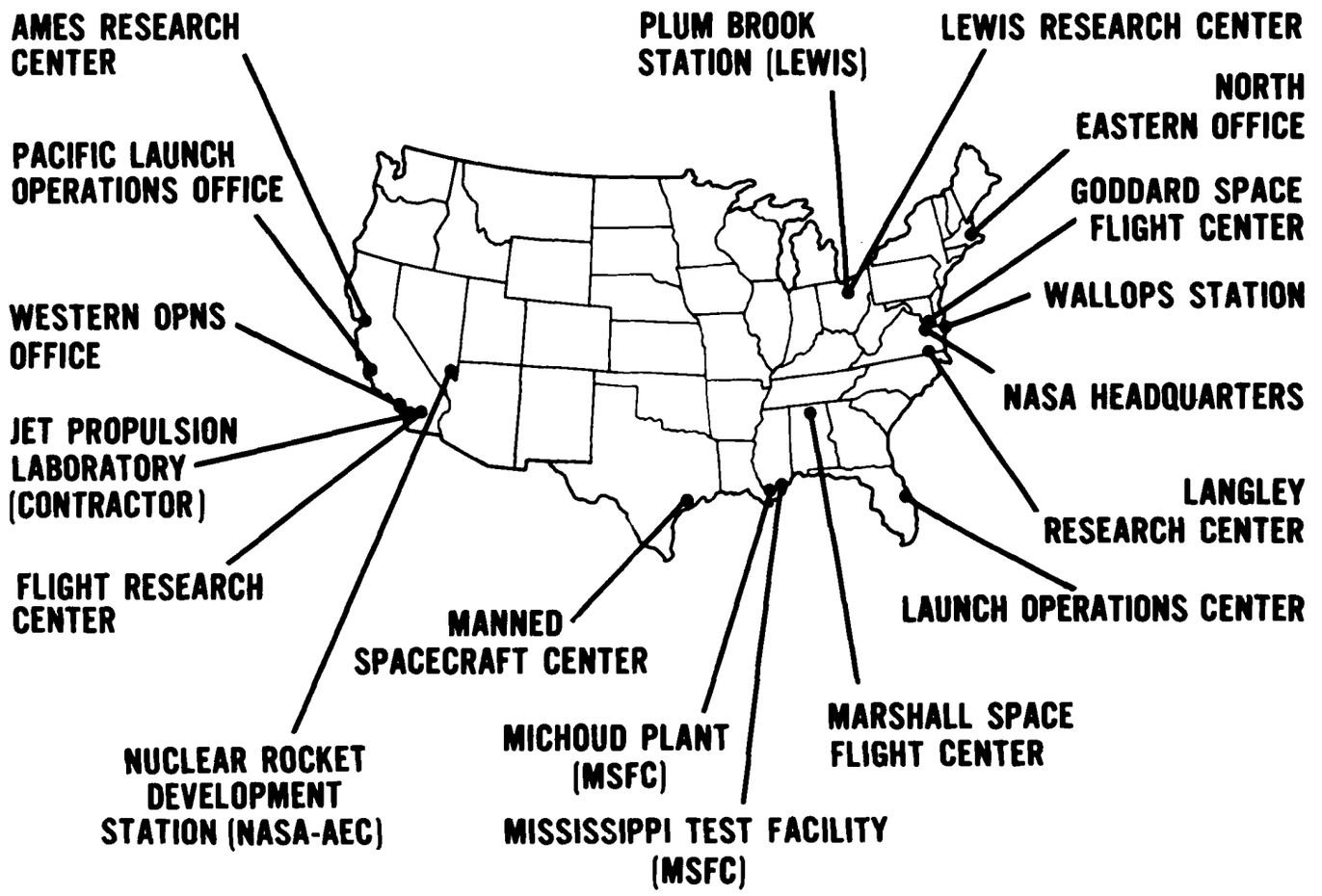
The Engineers' Club of the Virginia Peninsula invites all interested staff members to join the organization. Briefly, the purpose of the club is to augment the potentials of the engineering profession, to stimulate a greater interest among engineers in the welfare of their community, and to encourage sociability among members of the club.

The activities of the club include monthly technical lectures on a variety of subjects and scheduled field trips with an informal fellowship hour and a dutch treat dinner preceding each meeting. Other activities are carried on by nine standing committees drawing on the resources of the 500 members from NASA, Newport News Shipbuilding and Dry Dock Company and about 35 other companies and organizations.

Contact one of the following membership committeemen for additional information and application forms: John W. Paulson, 2295; Andrew R. Wineman, 4895; Herbert G. Hardrath, 4484; Roy Steiner, 4539 or Harry L. Runyan, 4627.

SINGLETON CLUB NOTICE: All single NASA employees are invited to attend the Singleton Club's fall dance at 8 p.m. on November 8 in the Chesapeake Room, Fort Monroe Officers Club. For reservations call Frances Taylor, 4842, or Jack Safran, 4524.

NASA INSTALLATIONS



NASA CENTERS. In the five years since the National Aeronautics and Space Administration was established, it has grown from four to eighteen centers. Ten of these are major research centers. A nineteenth facility, not shown on the above map, is being built at the White Sands Missile Range in New Mexico.

ENGLE EIGHTH MAN TO FLY X-15

Air Force Captain Joe H. Engle has become the eighth man to pilot the rocket-powered X-15 research plane.

Captain Engle made his initial flight October 7 in the X-15 No. 1, landing at Edwards Dry Lake 8 minutes after air launch from a B-52 over Hidden Hills, California. The 31-year-old captain is the youngest pilot assigned to the joint NASA-Air Force-Navy X-15 research program.

He reached a maximum altitude of 77,000 feet during the 125-mile flight. His top speed was 2,795 miles per hour, or Mach 4.23. Burning time of the 57,000-pound thrust rocket engine was 118 seconds.

Captain Engle, a native of Chapman, Kansas, is a graduate of the USAF Aerospace Research Pilots School at Edwards Air Force Base and is assigned to the AF Flight Test Center there. He has about 2,800 hours of flying time, mostly in jets. Engle's flight followed extensive training under the direction of John B. McKay, veteran NASA X-15 pilot.

WANTED: Ride from vicinity of Chapel, Lee and Stuart Streets to E.A. on 8 shift. Dunn, 2305.

TWO EMPLOYEES RETIRE

Peter P. Pavlik, Illustrator in Research Reports Division, and Charles P. Wilson, Wood Modelmaker in the Model and Pliant Structures Shop, retired from the Center this month.

Pavlik is a native of Palmerton, Pennsylvania. He attended New York High School of Printing in New York City and served in the U.S. Army from September 25, 1940 to December 19, 1947. He joined the Center staff on January 14, 1948 as a binder and finishing worker and retired on October 10.

Wilson was born in Richlands, Virginia. He attended Richlands High School and worked for the Jewell Ridge Coal Corporation in Jewell Ridge from 1925 to 1943. He entered on duty at the Center on June 16, 1943 as a woodworker and retired on October 25.

LOST: Pair glasses with black frames. Gudikunst, 4705.
WANTED: Waterproof tarpaulin at least 11 x 11 feet square. Freynik, 722-1412.

EXPLORER XIV SATELLITE STOPS SENDING TELEMETRY

After almost ten months of successful operation, the modulation of the NASA's Explorer XIV "space weather" satellite transmitter has stopped working.

Officials say there is only a remote chance the satellite will resume normal operation.

First indications that data transmission problems had developed came in August when the satellite's transmitter failed to modulate properly. Modulation is done through an encoder which takes signals from the instruments making scientific measurements and converts them into signals suitable for the transmitter. These signals are then sent to ground stations by the transmitter.

Although intermittent signal modulation has occurred since August, almost no usable data have been received. Cause of the problem has not been pinpointed. A similar problem occurred early this year, but the satellite resumed normal operation after a 14-day blackout.

Goddard's Explorer XIV project manager, Paul G. Marcotte, said the satellite still is transmitting an unmodulated carrier signal giving information on the satellite's position. "We will be able to use this orbital information in planning future highly eccentric Earth orbit missions," Marcotte said.

Explorer XIV, a 89-pound, solar cell-powered satellite was launched by a Delta vehicle on October 2, 1962. Originally its orbit took it more than 61,500 miles away from Earth and as close as 173 miles.

Gravitational influence of the Sun and Moon have reduced the apogee to 60,220 miles and increased the perigee to 1,280 miles after 10 months in orbit. The period is about 37 hours.

During its ten months of operation, Explorer XIV radioed some 6,500 hours of data on the six scientific experiments aboard. Although all the data have not been analyzed, University of New Hampshire Scientist, Dr. L. Cahill said a number of new insights have been provided into various space phenomena such as:

A mapping of energetic particles shows that the Earth's magnetosphere flares away from the Earth to take an ogival shape similar to a somewhat pointed oval.

General confirmation that the vector magnetic field merges gently from its dipole configuration to a radial field with increasing distance on the night side of the Earth near the equatorial plane.

Further evidence probably supporting Explorer VI's finding of a ring current flow on the night side of the Earth.

Explorer XIV is part of the program directed by NASA's Office of Space Sciences. Program manager is Eugene Ehrlich. Experiments were provided by Goddard, Ames Research Center, the State University of Iowa, and the University of New Hampshire.

FOR SALE: 1/2 ton trailer, $35. Simmons, 826-5332.

WANTED: Gentleman to share 6-room furnished apartment in Newport News. Coffey, CH 4-8358.

WANTED: Driving combination from Newmarket to W.A. on 8 shift. Page, 3415.

WANTED: Passengers or driving combination from Stoneybrook to W.A. Strehle, 4811.

FOR SALE: 1947 Lincoln Continental, $1300. Reid, TW-8-5623.

ALFRED C. LOEDDING DIES

Alfred C. Loedding

Alfred C. Loedding, Technical Advisor with the U.S. Air Force Liaison Office, Langley Research Center, died October 10 in Williamsburg Community Hospital after a long illness.

A native of Ambridge, Pennsylvania, he was born February 17, 1906. He graduated from Ambridge High School in 1925 and received his B.S. degree in Mechanical Engineering and Aeronautical Engineering from New York University (Daniel Guggenheim School of Aeronautics) in 1930.

Following graduation he became associated with General Aviation in Passaic, New Jersey, as an aeronautical engineer. In February 1937 he went with the Bellanca Aircraft Corporation in Delaware as Chief Stress Analyst. His group was responsible for the development of the now famous Bellanca Cruise Master, which is still in production as a top performance private aircraft. During the following years he gained valuable experience as an aeronautical engineer and consultant, and he gained recognition while still promoting application of rocketry to aircraft for the improvement of performance and safety.

Loedding went to Wright-Patterson Air Force Base in May 1938. He remained there until 1951 when he accepted a position as Director of Jet Research at the Unexcelled Chemical Corporation, Cranbury, New Jersey. In 1955 he returned to Wright-Patterson and remained there until he accepted a position at Langley in August 1960.

Loedding was a pioneer in developing solid fuel rockets, having done the first research work in 1938 for the Air Force at Wright-Patterson. He worked with the Air Force intelligence in the investigation of the flying saucer reports. He designed one of the components of the air-to-air refueling system now in use and had many other designs and patents to his credit.

He is survived by his wife, Mrs. Marion Baer Loedding, and two sons, James A. Loedding of San Francisco and Donald R. Loedding of Northbrook, Illinois.

BASKETBALL LEAGUE NOTICE

Employees interested in joining a team or entering a team in the NASA Basketball League are requested to call Kal Grunwald, 4479 or 4462, before November 12. No teams will be accepted in the league after this date.

FOR SALE: 1955 Chevrolet. Lowe, PA 2-20179.

WANTED: Driving combination from vicinity of South Colony and Lucas Creek to W.A. on 8 shift. Raper, 4463.

WANTED: Ride from Williamsburg to E.A. on 8 shift. Turner, 2251.

WANTED: Ride or driving combination from Old Buckroe Rd. and Ambrose Rd. to W.A. on 8 shift. Imig, 4439.

LOST: "Acoustical Society of America Journal", Vol. 3 and 4, July-April 1931-1933. Jackson, 4581.

WANTED: Driving combination from Pine Chapel to E.A. on 8 shift. Hoell, 2201.

NASA REORGANIZATION PLANS

(Continued from page 1)

tions. He will also direct management of the Goddard Space Flight Center, Wallops Station, Pacific Launch Operations Office, and administer NASA's contract with the California Institute of Technology for operation of the Jet Propulsion Laboratory. Under the new organization, Robert Garbarini, Director of the Office of Applications, becomes Director of Applications and reports to Dr. Newell.

Consolidation of space sciences and applications will simplify management since both programs work with the same centers and use essentially the same launch systems.

The Office of Tracking and Data Acquisition, headed by Edmond C. Buckley, will continue to provide the focal point for obtaining integration in these services and facilities within NASA and with agencies of the Department of Defense.

The reorganization will relieve Dr. Seamans, as associate administrator and general manager, of direct responsibility for the over-all management of centers and significantly reduce the number of individuals now reporting directly to him. This will allow him as general manager to devote additional time in concert with the Administrator and Deputy Administrator to broad agency matters.

Several officials reporting directly to the administrator and responsible for agency-wide support functions will become Assistant Administrators.

Functions of some of these offices have been realigned. Julian Scheer will become Assistant Administrator for Public Affairs, responsible directly to the Administrator for the duties he now performs as Deputy to Dr. George Simpson, Assistant Administrator for Technology Utilization and Policy Planning.

In addition to retaining his present responsibilities as Assistant Administrator for Technology Utilization and Policy Planning, Simpson will assume a second title as Associate Deputy Administrator of the Agency. In the latter capacity, Dr. Simpson will coordinate work of staff members reporting directly to the Administrator and the Deputy Administrator, Dr. Hugh L. Dryden.

Richard Callaghan, a special assistant to the administrator, will become Assistant Administrator for Legislative Affairs. Paul G. Dembling, director of that office, will become Executive Director of the newly-created Policy Planning Board. This board will review, re-formulate, and evaluate for completeness and effectiveness policies embracing the full scope of NASA activities.

Arnold Frutkin, director of the Office of International Programs, retains that responsibility as Assistant Administrator for International Programs.

The title and function of John A. Johnson as the Agency's General Counsel is unchanged.

As Associate Administrator and General Manager, Dr. Seamans will have a staff of five persons, headed by Walter L. Lingle as deputy.

In addition, and reporting directly to Dr. Seamans are the following:

Earl D. Hilburn, now Deputy Associate Administrator for other than manned space flight centers, assumes Lingle's present responsibilities as Deputy Associate Administrator for Industry Affairs. He will also assume, in addition to varied allied duties, responsibility from the Office of Programs for directing quality assurance and reliability activities.

John Young, Director of the Office of Administration, retains that function as Deputy Associate Administrator for Administration.

D. D. Wyatt, Director of the Office of Programs, continues a similar function as Deputy Associate Administrator for Programming.

Adm. Walter Fredrick Boone (USN Ret.) continues as Deputy Associate Administrator for Defense Affairs.

Nellie Medaris (left) and Julia Lancaster, both of the Large Supersonic Tunnels Branch, Full-Scale Research Division, have returned to work after taking advantage of the NASA Employees Association's seventh annual 30-day tour of Europe. Holding the door for the travelers is M. Leroy Spearman, Head of the Large Supersonic Tunnels Branch.

HARVEST DANCE PLANNED

The Activities Association will open its fall social season with a Harvest Ball on November 15 at the Activities Building.

Music for the informal affair will be furnished by Bill Clements and his 11-piece band and dancing will be from 9 p.m. until 1 a.m.

Admission will be $2.50 per couple, including setups. Tickets may be purchased from the following members of the Executive Board: Herbert J. Pelton, Procurement Division; A. J. Voitlein, Flight Mechanics and Technology Division; Virginia LaPrade, Reproduction Section; Ray Goodman, Heavy Machine Shop; Herbert Boulter, IRD; Margarette Vick, Aero-Physics; Betty Joyner, Aero-Physics; and William C. Walton, Dynamic Loads Division.

Couples are urged to get a group together and enjoy an evening with members of their section or branch. Groups of six couples or more may make reservations by calling 4583.

WANTED: Driving combination from Beaconsdale to W.A. on 8 shift. Egan, 4826.

WANTED: Ride or passengers to Greensboro, N.C. on week-ends. Raiford, 4643.

Langley Researcher

VOLUME 2, NUMBER 23 LANGLEY RESEARCH CENTER NOVEMBER 8, 1963

NASA NAMES COMMITTEE TO STUDY ELECTRONICS CENTER LOCATION

Appointment of a fact-finding committee to evaluate the advantages and disadvantages of potential geographic locations for its proposed Electronics Research Center was announced recently by NASA.

Chairman of the survey committee is Francis B. Smith, Chief of Langley's Instrument Research Division. Wendell H. Pigman, Staff Assistant, NASA Electronics Task Group, NASA Headquarters, has been designated committee secretary.

Other members are: Dr. G. Allan Smith, Chief, Guidance and Control Systems Branch, Ames Research Center; Dr. B. Richard Teare Jr., Dean of Engineering and Science, Carnegia Institute of Technology; C. R. Morrison, Director, Program Support and Advanced Systems, NASA Office of Tracking and Data Acquisition, Washington.

The new center is being established to give NASA (1) sufficient internal research competence to identify and put in motion in industry and universities the specific research activities needed for national space capability, and (2) project management competence in very advanced areas of electronics similar to that previously established in other areas of space and aeronautics research.

The five-man committee, to meet the requirements of Public Law 88-113, will draw up procedures and criteria for comparing proposed locations and then evaluate data on such factors as national, regional, and area concentrations of industrial, professional, and academic facilities in the electronics field. Upon completion of the committee study, a written report will be submitted to James E. Webb, NASA Administrator. The Administrator will make the final determinations relating to the geographic location of the research center and report his findings to Congress. (Continued on page 4)

HARVEST DANCE PLANNED

Center socialites are reminded that the Activities Association will open its fall social season with a Harvest Ball on Friday, November 15 at the Activities Building.

Music for the informal affair will be furnished by Bill Clements and his 11-piece band and dancing will be from 9 p.m. until 1 a.m.

Admission will be $2.50 per couple, including setups. Tickets may be purchased from the following members of the Executive Board: Herbert J. Pelton, Procurement Division; A. J. Voitlein, Flight Mechanics and Technology Division; Virginia LaPrade, Reproduction Section; Ray Goodman, Heavy Machine Shop; Herbert Boulter, IRD; Margarette Vick, Aero-Physics; Betty Joyner, Aero-Physics; and William C. Walton, Dynamic Loads Division.

Couples are urged to get a group together and enjoy an evening with members of their section or branch. Groups of six couples or more may make reservations by calling 4583.

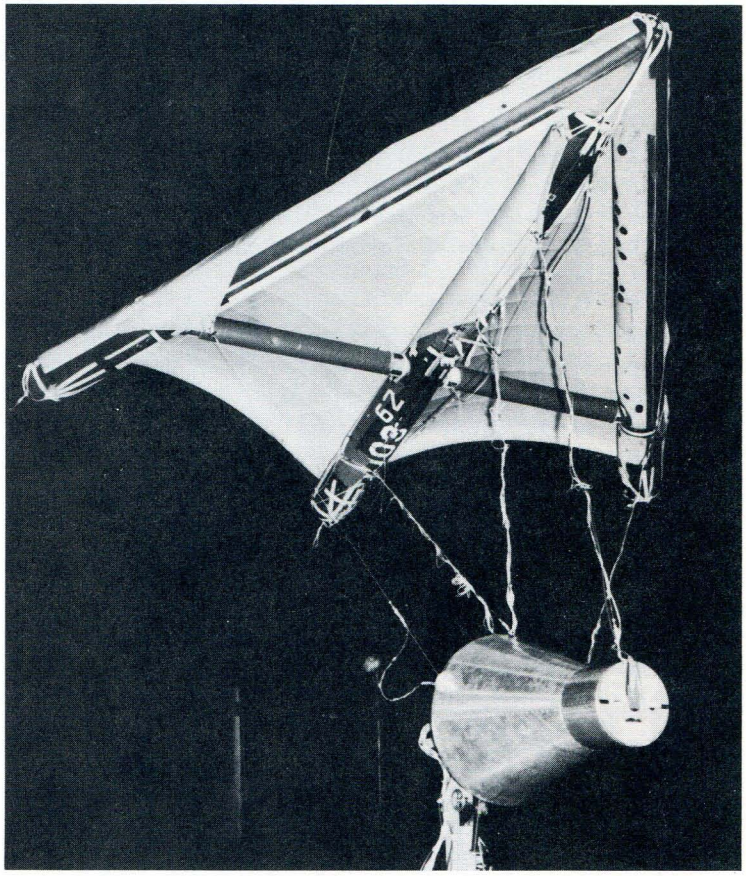
STAFF DONATES RECORD TOTAL TO UNITED FUND

As of press time on Wednesday, Center employees had set an all-time high record in the United Fund effort by contributing or pledging a total of $60,445. This represented contributions from 4,063 staff members for 95.2 per cent participation and an average contribution of $14.88.

Rufus O. House, Chairman of the Center effort, stated that this is the first time in the history of the campaign drives that employees have reached the $60,000 mark. He pointed out that it is gratifying to see such a generous response and a willingness to work together for a worthwhile community endeavor.

House urged division chairmen to send in their final reports to the financial chairmen as soon as possible so the drive can be closed.

A final standing of division participation during the drive will be published in the next issue of Langley Researcher.



The Rogallo flexible wing which will be used to maneuver the Gemini space capsule to a safe landing after orbit, is shown undergoing further tests at the Ames Research Center. Here one-half scale models of the wing and spacecraft are checked for deployment stability and ease of handling. Gemini will orbit two astronauts for periods of a week or longer as they engage in orbital experiments.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ENGAGEMENTS. . .Making plans to desert the bachelor ranks is Martin Hykin, Instrument Research Division. He is engaged to Ann Roberson of Hampton and plans call for a summer wedding. . .Making plans for a December wedding is Thomas Lee Pressley, Mechanical Service Division. He is engaged to Marjories Lyn Powell, Colorado Springs. . .Stephen Paul Horvath, Mechanical Service Division, has announced his engagement to Mary Dianne Jones, Newport News. The wedding will take place in February.

SINGLETON CLUB. . .All single NASA employees are invited to attend the Singleton Club's fall dance at 8 o'clock tonight in the Chesapeake Room, Fort Monroe Officers Club. For reservations call Frances Taylor, 4842, or Jack Safran, 4524.

CAMERA CLUB. . .The Langley Camera Club will meet on Thursday, November 14 at 7:30 p.m. in the Activities Building. The contest for the meeting will be an open category color event. All persons interested in photography are invited to attend.

INDEMNITY PLAN REPRESENTATIVE. . .Rollin Slinger, Field Representative of the Indemnity Benefit Plan, Federal Employees Health Benefit Program, will visit the Center on November 12 from 3 p.m. until 4. Employees having problems or questions concerning the Indemnity Benefit Plan may call Linda Hale, 2323, for an appointment.

APPRENTICE DANCE. . .The Apprentice Alumni Association will sponsor a Thanksgiving Dance on Saturday, November 23 at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. to the music of the Unpredictable Cabare'ts. Tickets are three dollars per couple and includes free set-ups. Tickets may be obtained from Frank Penland, 2326; Corkie Collie, 4587; Bill Holliday, 4641; Mike Harvey, 4587; James Neal, 4711, or Bill Fogle, 3358.

BASKETBALL LEAGUE NOTICE

Employees interested in joining a team or entering a team in the NASA Basketball League are requested to call Kal Grunwald, 4479 or 4462, before November 12. No teams will be accepted in the league after this date.

FOR SALE: 16-foot fiberglas boat with 40 hp motor, tilt-bed trailer, convertible top, etc. Rhinehart, 826-5599.
FOR SALE: Guinea pigs. Pride, 838-1054.

Popsie by Zeke Zekley

" ... SOME OF MY SAVINGS BONDS MATURED !!"

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 11:

Tuesday - Minestrone soup, roast ribs of beef .50, baked lasagna .45, grilled pork steak .40, franks and beans .25.

Wednesday - Vegetable-beef soup, grilled steak .60, corned beef and cabbage .45, beef stew .40, barbecued sandwich .25.

Thursday - Cream of tomato soup, pot roast of beef .45, broiled ham slice .40, fried chicken .35, baked beef hash .25.

Friday - Clam chowder, roast leg of lamb with mint jelly .50, broiled halibut .35, fried flounder .35, macaroni and wieners .25.

The menu for the week of November 18 is as follows:

Monday - Bean soup, Swiss steak .50, baked ham .40, stuffed cabbage .35, cheese omelette .25.

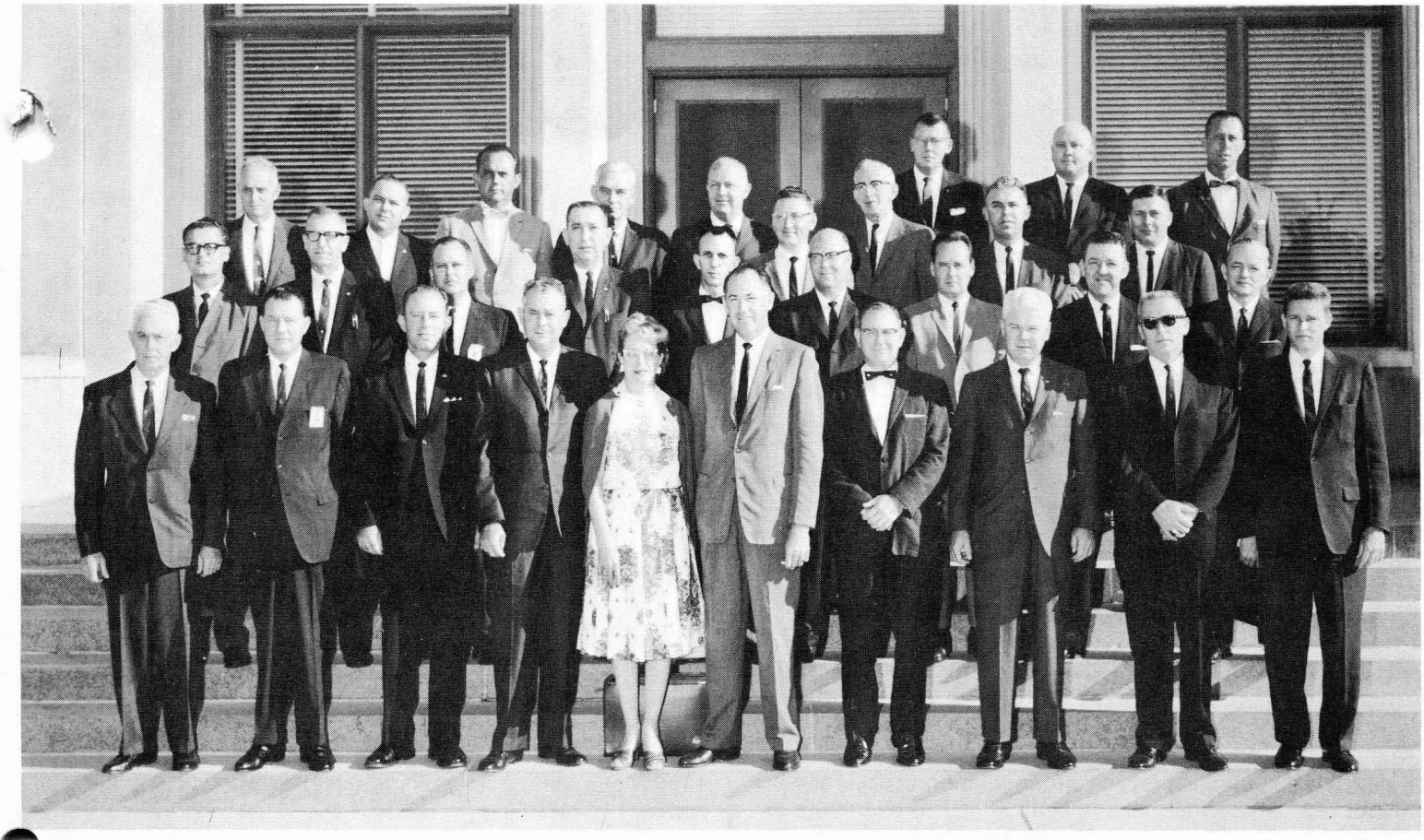
Tuesday - French onion soup, roast beef .50, chuckwagon steak with onion gravy .45, liver and onions .35, Austrian ravioli .25.

Wednesday - Tomato-barley soup, roast veal with dressing .55, Salisbury steak .40, smoked pork sausage with applesauce .40, chili con carne .25.

Thursday - Vegetable-beef soup, grilled steak .60, barbecued beef chunks over steamed rice .45, fried chicken .35, roast beef hash .25.

Friday - Clam chowder, roast ribs of beef .50, chicken livers with bacon .40, broiled fish .35, fried fish .35, hamburger .25.

WANTED: Used wood lathe. Schrader, 877-2306.
FOR SALE: 1961 Impala convertible, $1850. Apperson, 877-1542.
FOR SALE: Stereo with AM and FM radio in walnut cabinet - $150. Cottle, 722-0450.
FOR RENT: 2-bedroom furnished trailer. Lindsay, 595-0643.



The annual NASA Property and Supply Management Conference was held recently in San Francisco. Attending conferees, representing all NASA organizations, toured nearby Ames Research Center with special emphasis on the property and supply operations. They are front row (from left): John E. Bonnell and Karrell W. Reynolds, Ames; Hazen L. Walker, Manned Spacecraft Center; Rampy B. Collinsworth, Marshall Space Flight Center; Helen Faber, Ames; W. N. McClintock, Launch Operations Center; Frank A. Lofurno and David Buchanan, Langley Research Center; Orville Parsons, Flight Research Center, and Lavern S. Hanson, NASA Headquarters. Second row: Robert L. Lilliston and Eugene P. Beach, Wallops Station; Arthur C. Volkman, Ames; J. W. Herring, Marshall Space Flight Center; James T. Campbell and W. C. Hewitt, NASA Headquarters; Carlos D. Gang, Western Operations Office; Willis E. Beck, Lewis Research Center, and John R. Harbison, NASA Headquarters. Third row: Alvin S. Hertzog, Ames, Thomas V. Lee and Jesse E. Robinson, Goddard Space Flight Center; Raymond F. Wilson and William C. Stephenson, Jet Propulsion Laboratory; N. Michael Luker, Pacific Launch Operations Office; Francis L. Jenne, JPL; Edward J. Skochin, NASA Headquarters, and Lloyd J. Walsh, Flight Research Center. Back row: Charles J. Eckert and John W. Edrington, Manned Spacecraft Center, and Vernon L. Jansen, Launch Operations Center.

TURKEY WINNERS ANNOUNCED

A total of 90 turkeys were won at the Activities Association's annual Thanksgiving Turkey Shoot. Winners may pick up the turkeys after 3:30 p.m. on November 26 at the Activities Building. Winners are requested to bring their stubs along for identification.

Sharpshooters who won in the matches were as follows: D. Morgan, T. Freeman, A. M. Boykin, F. F. Margosian, L. Hamilton, C. W. Osborne, Mr. Mitchell, L. Warren, J. Walker, R. C. Wilson, L. E. Wilkinson, Victor Wilson, Mr. Proctor, H. C. Strader, W. H. Belcher, R. Freeman, R. T. Siler, J. Pittman, P. Howard, and John Unangst. S. S. Thompkins won a turkey in the volunteer help drawing.

Winning in the drawing were the following: Irving Abel, W. E. Beddoes, Arthur Combs, Walter Cook, Tom Carpini, J. L. Davis, Charles Rawls, Richard Diggs, Paul Epley, Bernard Ellis, Howard Ferrall, Jim Farris, Jack Fowler, Ben Freeman (3 turkeys), L. B. Garrett, Lois Harris, Linda Hale, Joe Harrison, Fred Heath.

Joseph Holloway, Eugene Hoge, B. W. Hogge, Stuart Johnson, Leroy Jones, Betty Joyner, Mike Jurscage, B. Z. Henry, Neal Kelly, Tom Lindsay, Don Loving, R. T. Magee, C. J. May, William Messick, Thomas Moody, Charles Nicholas, Steve Park, Barbara Peck, H. R. Perkins, T. W. Preston, Joseph Purgold, T. E. Quail, J. E. Rainey, H. C. Roehm, Vernon Rogers, Stuart Rose, Samuel Scott.

J. L. Simmons, Charles C. Smith, E. G. Soter, Jack Tarrh, Doris Vanderveer, Frank Veney, John Wharton, C. P. Young, Stu Rigley, Willard Youse (2 turkeys), Bill Williams, Janet Constance, Wayne Silver (2 turkeys), L. E. Wilkinson, George Palko, W. L. Whitley, John Belveal, C. T. Moore (2 turkeys), and Mary Suit.

WANTED: 2 drivers from Tuckahoe and Winterhaven to E.A. on 8 shift. Goble, 2312.

FOR SALE: 16 mm home movie outfit, Bell and Howell model 173 Filmo projector and 16 mm f/1.9 magazine load movie camera, $130. Leonard, 722-2071

WANTED: Alternate driver or ride from Warwick Gardens to W.A. on 8 shift. Fansler, 3337.

ELECTRONICS CENTER LOCATION

(Continued from page 1)

Webb pointed out that the new center will conduct sufficient basic and applied research to keep its staff abreast of advanced developments in the electronics field, but will also have as a major responsibility the approval of and technical monitoring of university research and produc- contracts. It will be responsible for fully utilizing the research competence and potential of universities and industries throughout the nation, rather than creating new resources. The importance of this new center is emphasized by the fact that NASA electronics research and development represents a substantial portion of the investment the nation is making in space research and exploration.

In authorizing funds for the center, Congress stipulated that none may be expended until after the NASA Administrator transmits to the Congress a report detailing the geographic location, need for, and nature of the research center. House and Senate committees then will have 45 days in which to review the studies and indicate any objections.

The space agency requested $5 million for the electronics center in the 1964 fiscal year. Congress authorized $3.9 million, subject to the report requirements, noting that an additional $1.1 million was available for advanced planning.

When NASA was established in 1958, a number of existing research centers in areas other than electronics were transferred to it. Others have been added to provide substantial internal NASA research and research management competence to insure a sound technical foundation for the nation's space program through utilization of both in-house and non-governmental research facilities to the fullest extent possible. Electronics research, however, has evolved within NASA on a decentralized basis, primarily as an adjunct to the development of boosters, spacecraft, and ground support systems.

The current in-house effort is diffused and relatively small and has limited NASA's contractual research efforts in electronics. The lack of a group of able, experienced scientists and engineers concentrating on space electronics research and relating contracted research to the overall space program has not provided an adequate technical base for the phase of NASA's program now being entered. Substantial electronics research support will be needed as the prime contracts for boosters and spacecraft are concluded and emphasis shifts to spacecraft guidance, control and communications, and linkages of these to NASA's worldwide network of ground control data acquisition, and deep space communications.

The basic purpose of the Electronics Research Center is to correct the existing deficiency and to provide NASA with the personnel and resources to properly plan, conduct, direct, supervise, and utilize electronics research and selected advanced development.

As in the past, contracts and grants to industry and universities will be utilized as much as possible in performing the required work. More than 90 percent of NASA's overall work and 70 percent of its research are performed under contract.

FOR RENT: 2-story house in Fox Hill. Crigler, 826-0196.
WANTED: Set of left handed golf clubs. Wagner, UN 84104.
FOR SALE: New G.E. portable TV - $80. Will, 595-1787.

Ruth Zane, Administrative Assistant for NASA's Langley Research Center Field Projects Office, PMR, at Point Arguello was honored for her long service when V. Dean Crowder, Head of Langley's Field Projects Office, presented her with a 20-year service pin and certificate during ceremonies held recently in the NASA conference room at the U.S. Naval Missile Facility, Point Arguello. Mrs. Zane joined NASA on August 20, 1962. Her federal service career began when she was employed as a secretary for the U.S. Maritime Commission in Alameda, California, in 1943. In January 1957 she went to work for the U.S. Navy as Supervisory Clerk at the U.S. Naval Missile Center, Point Mugu, Calif., and transferred to the Vandenberg Air Force Base in 1961 where she worked as secretary in the U.S. Air Force until her assignment to NASA.

TIROS VI ENCOUNTERS TROUBLE

The TIROS VI weather satellite is no longer transmitting useable cloud cover pictures after a record 13 months of successful operation.

NASA said that a malfunction in the focus current regulator is causing distortion in the pictures received from the satellite.

Except for this one item all other parts of the camera system in the spacecraft are operating normally. Engineers from Goddard Space Flight Center are conducting a series of experiments to determine why the focus current regulator is malfunctioning and what, if any, corrective action can be taken.

TIROS VI was launched from Cape Canaveral September 18, 1962 and has operated more than three times its expected lifetime. Original life expectancy of TIROS satellites was expected to be from 3 to 4 months. However, all but the first TIROS have exceed this life span.

During its 13 months of operation, TIROS VI recorded a long list of accomplishments. Along with TIROS V, it supported the flights of Astronauts Walter Schirra and Gordon Cooper. It detected sand storms in Saudi Arabia; ice conditions in the southern and northern hemispheres; 13 hurricanes--including the recent Flora--typhoons and tropical storms.

NOVEMBER 20 DEADLINE FOR TRAVEL INSURANCE

NASA's new Travel Accident Insurance Plan became effective November 1. Additional enrollments may be accepted through November 20 for coverage effective retroactively to November 1. Subsequent enrollments may be made at quarterly intervals.

The plan is designed to satisfy the requests for travel insurance of NASA personnel who travel on official business.

It covers all business travel if the destination of the trip is at least 50 air miles from the regular duty post or if the insured is entitled to per diem or actual subsistence expense including travel whereby time required for the business trip exceeds the authorized per diem allowance and the insured would be required to take leave to complete the trip.

Personal travel associated with official business trips is covered on Saturdays, Sundays, legal holidays, and during authorized annual leave or approved leave of absence, if such leave is of three consecutive days or less and falls within the official business trip.

The plan provides all risk coverage during any business trip. This means accidental death resulting from traffic accidents, falls, explosions, drownings, fallen objects, homicide, or by any other violent external means is covered.

The coverage is world-wide and is not limited as to number or duration of the trips.

Coverage is for NASA owned and operated aircraft, non-scheduled, private contract, non-contract, and military aircraft, and any conveyance such as private, rented, or leased automobiles, boats, buses, trains, etc.

An employee may elect coverage of $100,000 or $50,000 for an annual premium of $50 or $25, respectively. The enrollment card, together with the appropriate annual payment should be sent to Employee Services Section, Building 587, as soon as possible.

ASME PLANS TECHNICAL SESSION

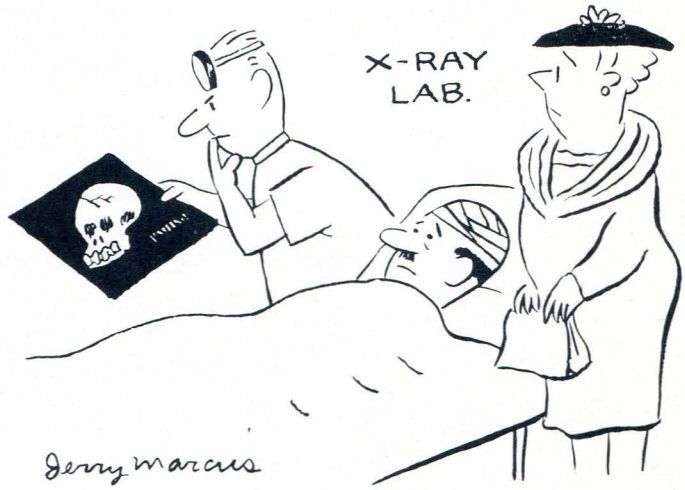
The Eastern Virginia Section of the American Society of Mechanical Engineers will hold a Technical Papers session on Tuesday, November 19. The dinner meeting, to being with a social hour at 6:30 p.m., will be held at the Warwick Hotel.

Robert C. Basford, Flight Vehicle and Systems Division, will speak on "Design Problems with Hydrogen Peroxide." His talk will cover the factors which determine the design for hydrogen peroxide systems including materials classification, materials evaluation, preparation of materials and equipment for contact with hydrogen peroxide, as well as the principal uses of hydrogen peroxide. Basford holds a B.S. degree in Mechanical Engineering from Virginia Polytechnic Institute.

John S. Meckley, Newport News Shipbuilding and Dry Company, will present a paper on "Statistical Sampling Applied to Non-Destructive Test Inspection." He will discuss the ramifications and problems of using statistical sampling for magnetic particle inspection of certain types of submarine welds in regard to a proposed sampling procedure. Meckley received a B.S. degree in Industrial Engineering from the University of Michigan in 1958 and has served as president of the Southeastern Virginia Chapter of the American Institute of Industrial Engineers.

Dan Heflin, Junior Design Supervisor in the Machinery Design Division of the Newport News Shipyard. will speak on "Anaerobic Compounds for Thread Sealants." These anerobic compounds are applied in fluid form and when deprived of air they harden. The use of these compounds as a locking device or sealant for screws will be discussed. Heflin is an Industrial Engineer and graduate from VPI. He served with the U.S. Army Corps Engineers and was employed in the Methods and Standards Division of the E.I. DuPont Company.

"Anybody who goes out on a night like this ought to have his head examined."



GOLF WINNERS NAMED

In the NASA Golf Tournament held last week at the Langley Golf Couse, Bernard took low gross honors with a score of 81. Bruce Dunn came in second with 83 and Oscar Jennings was third with 84.

Low net honors went to Woodrow Johnson, Ray Goodman, and George Johnson.

Winning the three prizes for the lowest number of putts were Dave Carter, Bill McMillian, and J. R. Bloxom.

WANTED: Ride from Newmarket to W.A. on 7:30 shift. King, 4691.

FOR SALE: 1963 Dodge Dart. King, CH 7-3817.

WANTED: Alternate driver from Wythe to W.A. on 8 shift. Regone, 4766.

FOR SALE: B flat clarinet, $60. Regone, CH 4-3642.

KEY NASA TRACKING SITE DEDICATED AT ROSMAN N.C.

A key station of NASA's Satellite Tracking and Data Acquisition Network (STADAN) near Rosman, N.C., was dedicated October 26.

The Rosman facility will be the hub of NASA's east-west and north-south tracking and telemetry stations in the United States and abroad for the ground support of the new generation of scientific satellites, such as the Orbiting Geophysical and the Orbiting Astronomical Observatories.

Principal speakers at the dedication ceremonies sponsored by the State of North Carolina for the new $5 million facility included the host, Governor Terry Sanford, and North Carolina Senators Sam J. Ervin, Jr., and B. Everett Jordan. Among NASA representatives were Dr. George L. Simpson Jr., Assistant Administrator for Technology Utilization and Policy Planning; Edmond C. Buckley, Director of the Office of Tracking and Data Acquisition; and Dr. Harry J. Goett, Director of the Goddard Space Flight Center. U.S. Representative Roy A. Taylor served as master-of-ceremonies.

Basic equipment at the Rosman site is an 85-foot diameter parabolic antenna capable of receiving the vast flow of telemetry from the numerous experiments aboard the large orbiting observatories. The station will track and transmit commands to the spacecraft in addition to receiving their scientific information.

The geographic location together with its telemetry capability give the Rosman station capacity for ground support to circular orbits in low inclination to the equator, polar orbits of north-south flight, and highly elliptical orbits such as that of the Eccentric Geophysical Observatory with perigee of 150 miles and apogee of 60,000 miles.

The site, about 35 miles southwest of Asheville and about seven miles from Rosman in the Pisgah National Forest, is almost completely free from radio frequency noise, making possible reception of low power (five watts or less) transmitters on spacecraft thousands of miles away.

The Rosman station is connected by telephone lines and by radio communication with the Goddard Space Flight Center where data received from spacecraft is processed and analyzed by scientists in space research and exploration.

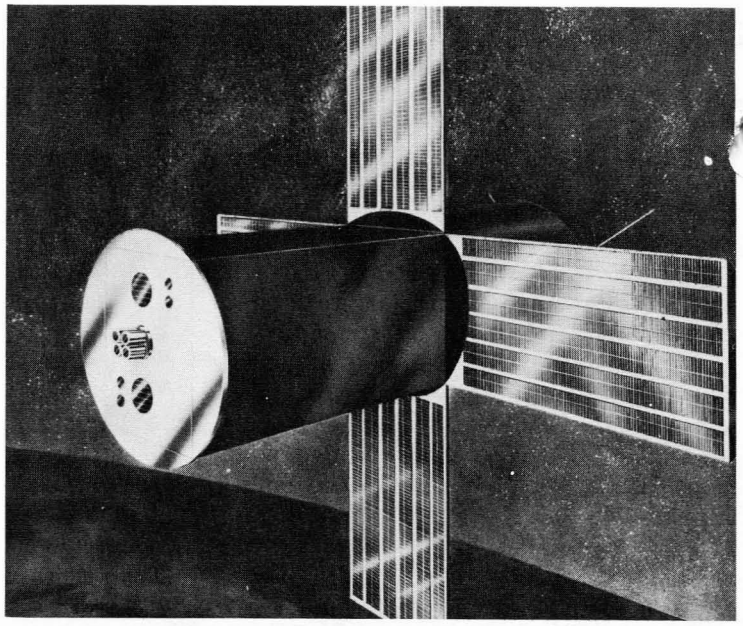
RANGER 6 LAUNCH RESCHEDULED

The launch of Ranger 6 by NASA from Cape Canaveral has been rescheduled from the last quarter of this year to the first quarter of 1964.

Deficiencies were found by NASA's Jet Propulsion Laboratory in a number of small transistor diodes from the same shipment of these devices as were installed in the Ranger 6 spacecraft. Despite the fact that the spacecraft had successfully completed its acceptance testing at JPL a decision has been made to reschedule the launch.

All of the diodes in the spacecraft--there are some 230 in the central computer and sequencer and 12 in the attitude control system--will be replaced to assure that faulty diodes which could cause a malfunction in flight are eliminated.

A diode is an electronic component--as small as a grain of wheat--which is essentially the equivalent of a miniaturized vacuum tube. In a sizeable fraction of the particular type tested at JPL, it was discovered that extremely small flakes of gold used in a bonding process in the manufacture of the diodes were loose inside the device's glass case. Under either vibration or zero gravity conditions, these flakes could cause the diode malfunction.



Artist's concept of one of the eight Advanced Orbiting Solar Observatories that NASA plans to build and launch at a rate of two each year beginning in late 1967. AOSO, as this satellite is known, is designed as a stabilized platform for solar-oriented scientific instruments.

NEW APPRENTICES JOIN STAFF

Thirty-seven new apprentices recently joined the Center staff. They will pursue a four-year course in related studies and shop work leading to a journeyman's certificate in their respective trades.

The new apprentices and their places of employment are as follows:

Heavy Machine Shop - Daryl P. Crandlemire, Theodore E. Garris, Martin E. Leatherman, William H. McDaniel, and Fred A. Vaughn Jr.

Light Machine Shop - William W. Fernald, Andrew P. Killmon, and William E. Robbins.

Instrument Construction Shop - Phillip M. Davidson, Robert K. Faison, and Edward H. Ostwald.

General Electrical Service - Jackie C. DeHart, Robert L. Hergert, Wayne C. Hogge, Jerry M. Nichols, Edgar T. Reeves III, John R. Saunders, Richard W. Tyson, Donald W. Velsor, and David P. Whittaker.

Model and Pliant Structures Shop - William H. Garrison, William S. Jones, Donald H. Quisenberry, and Dallas G. Summerfield.

Dynamic Model Shop - William L. King.

Fabrication Shop - William A. Colbert and Gerald E. Miller.

Research Facilities Service - George W. Adkins Jr., George W. Askew, Carl A. Bond, James R. Davis, Burt R. Emerson, Jacob E. Garver, Henry M. Goad, Richard M. Kelsey, Gerald C. Purgold, and Donnie K. Shinn.

FOR SALE: 3-bedroom brick rancher. Illg, TW 8-5003.
FOR SALE: New Renault tire and wheel. Woodall, 877-2176.
FOR SALE: 23-foot Chris Craft cruiser with 2 bunks - $1400. Dennis, PA 2-8850.

DR. SHEA TO HEAD APOLLO SPACECRAFT DEVELOPMENT

NASA has name Dr. Joseph F. Shea to head its Apollo Spacecraft Development effort at the Manned Spacecraft Center.

Dr. Shea, Deputy Director (Systems) in NASA's Office of Manned Space flight since March 1963, was named to the position of Program Manager, Apollo Spacecraft. He will have responsibility for the development of the Apollo Command and Service Modules, as well as for the Lunar Excursion Module. Robert O. Piland will continue in his present position as Deputy Program Manager, Apollo Spacecraft. For the past few months Piland also has served as Acting Program Manager.

Dr. Robert R. Gilruth, Director of the Manned Spacecraft Center said, "I am delighted to have a man of Dr. Shea's outstanding background and high caliber performance join us here at Houston." James C. Elms, Dr. Gilruth's Deputy Director for Development and Programs, who had previously been associated with Dr. Shea on a ballistic missile program, stated, "The development of the Apollo spacecraft is the most challenging task facing this Center. I am most happy that Joe Shea is joining our organization to take over this assignment."

George M. Low, Deputy Director (Programs) in the Office of Manned Space Flight, will assume the added responsibility for the Systems organization.

Before joining NASA in early 1962, Dr. Shea was Space Program Director at Space Technology Laboratories, Los Angeles. From 1959 to mid 1961, Dr. Shea served as Director of the Advanced System Research and Development Division and Manager of the Titan Inertial Guidance Program with A. C. Spark Plug Division of General Motors, Milwaukee. Previously he was employed by Bell Telephone Laboratories, Whippany, N.J., where he was a principal contributor to the development of the Titan I guidance system. He also served as an instructor in engineering mechanics at the University of Michigan.

Dr. Shea was born in New York City on September 5, 1926. He attended the University of Michigan, receiving his Bachelor of Science degree in Mathematics in 1949, Master of Science degree in Engineering Mechanics in 1950, and Doctor of Philosophy degree in Engineering Mechanics in 1955. From 1944-1947 he served in the U.S. Navy with the rank of Ensign.

He is a member of the American Institute of Aeronautics and Astronautics and the Institute of Electronics and Electrical Engineering.

WANTED: Ride from Sinclair Farms area to E.A. on 8 shift. Test, 2300.

WANTED: Driving combination from Deep Park area to E.A. on 8 shift. Lodge, 2231.

WANTED: Driving combination from Norfolk to W.A. on 8 shift. Childs, 4557 or 4591.

WANTED: Ride or driving combination from Hidenwood area to W.A. on 7:30 shift. Leonard Mayo, 4766.

WANTED: Driving combination from vicinity of Newmarket to W.A. on 7:30 shift. Beasley, 4446.

WANTED: Ride or driving combination from Stuart Gardens to W.A. on 7:30 shift. 4446.

FOR SALE: 2-bedroom bungalow in East Hampton. 722-6448.

WINGLESS SPACE 'PLANE' -NASA pilot Milton Thompson stands in front of the M-2 lifting body, a wingless, maneuverable spacecraft capable of orbiting the Earth and. landing airplane fashion. The craft is now being flight tested at NASA's Flight Research Center. Tests are aimed at finding a vehicle to ferry astronauts back from space.

WINGLESS VEHICLE FLIGHT TESTED

Scientists seeking a space craft capable of being carried into orbit and then ferrying an astronaut back to a safe landing on Earth have begun flight testing a small wingless vehicle at NASA's Flight Research Center.

The craft is known as the M-2 lifting body because it soars without wings. It can be maneuvered by a pilot and lands in horizontal touch down, two important features in space ferry missions.

In previous tests completed last September, the M-2 was towed to heights above 10,000 feet at about 135 miles per hour. Cut free of the tow by the pilot, the lifting body descended at about 4,000 feet per minute. During this glide, the pilot executed 360 degree turns in either direction at varying angles of bank.

At 400 feet above ground, the pilot flattened out the descent and landed smoothly at about 80 miles per hour. A solid propellant rocket with 240 pounds of thrust is provided for pilot-optional use to cushion the landing.

With landing gear, vertical fins, elevons and pilot canopy as its only identifiable features, the slender half-cone body with its nose flattened to reduce reentry friction represents a complete departure from conventional aircraft and current spacecraft.

The concept of wingless lifting bodies is based on gaining aerodynamic stability and lift from the body alone, eliminating the need for wings.

NASA scientists say the M-2 configuration could give an astronaut more than 1,000 miles of lateral maneuverability after entering the Earth's atmosphere after a space flight and allow him to land horizontally at almost any suitable area he chooses.

Current tests are probing the M-2's low speed flight characteristics and man's ability to control it at low speeds, particularly during the landing phase. Also studied will be other general handling qualities, in-flight stability, control effectiveness and pilot visibility factors.

NASA TENPIN LEAGUE

In the NASA Tenpin Bowling League Johnnia's Dine 'N' Dance leads Division A with 21 wins and 7 losses. Crusaders are in second with 20 wins and 8 losses. Earl Van Landingham rolled high game with 234 and Joe Twigg took high set with 605.

In Division B, Misfits, Ten Benders and Sudz are tied for first place with 20 wins and 8 losses each. Top game and set was rolled by C. Gerrity with 254 and 603, respectively.

DIVISION A

Team	W	L
Johnnia's	21	7
Crusaders	20	8
Alley Cats	18	10
Hornets	17	11
Tom Cats	17	11
Unitary	17	11
Pin Wigglers	16	12
Spare Oops	15	13
Flyers	14.5	13.5
Phantoms	14	14
Devious	14	14
Short Circuits	13.5	14.5
Flight Eng.	13	15
Galaxies	12	16
Electronic	11	17
Malfunctions	11	17
Odd Balls	10	18
Payloads	9	19
A-OK's	9	19
Frame Ups	8	20

DIVISION B

Team	W	L
Misfits	20	8
Ten Benders	20	8
Sudz	20	8
Ranch House	19.5	8.5
Latecomers	19	9
Bowling Belles	17.5	10.5
Hucksters	17	11
Sandbaggers	15	13
Spare Parts	14.5	13.5
Alley Oops	13	15
Greenhorns	13	15
Cee Pees	12	16
Dynamos	12	16
Analogs	11	17
Tarey Drive In	11	17
Gliders	10	18
Barristers	10	18
Question Mark	18	18
Dilly's	9	19
CCCP	6.5	21.5

WILLIAMS TO HEAD MANNED SPACE FLIGHT OPERATIONS

Dr. George E. Mueller, Associate Administrator for Manned Space Flight, NASA, has named Dr. Walter C. Williams, former member of the Langley Center staff, to be Operations Director for all Manned Space Flight Missions.

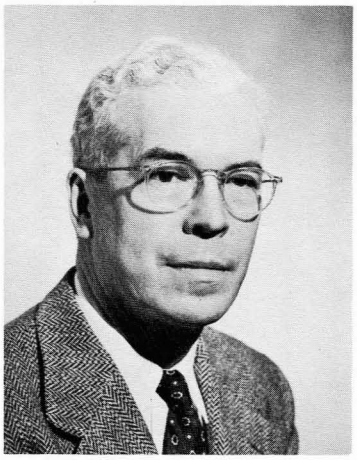
Dr. Williams, who was Deputy Director of Manned Spacecraft Center for Mission Requirements and Flight Operations at Houston, assumed his new duties November 1 as Deputy Associate Administrator for Manned Space Flight Operations in NASA Headquarters.

Dr. Williams will supervise operations for Manned Space Flight Missions at the Manned Spacecraft Center, Marshall Space Flight Center, and Launch Operations Center. During manned space flight missions he will have full authority and responsibility for conduct of the flights. All NASA, DOD, and other teams participating in the operation will report to him for direction.

Dr. Williams joined the Langley Center staff in 1940 as a Junior Aeronautical Engineer. He transferred to Flight Research Center in 1948 and for the past 16 years he has managed the operational phases of advanced research type aerospace projects, including the X-15 aircraft and Project Mercury. During this time he has made many outstanding contributions in the field of high-speed flight research and was awarded the NASA Distinguished Service Medal for his outstanding technical leadership as the Director of Operations for Project Mercury.

FOR SALE: HRO-5 receiver. Houghton, PA 2-4489.

DR. REID RECEIVES AWARD



Dr. Henry J. E. Reid

Dr. Henry J. E. Reid, who served at the Langley Research Center for four decades before his retirement in June 1961, has been selected by the National Aeronautic Association as an "Elder Statesman of Aviation" in recognition of "his significant and enduring contributions over the years to the progress of aeronautics, and his demonstrated qualities of patriotism, integrity, and moral courage worthy of emulation."

Dr. Reid, who was Director at Langley for more than 34 years, told the Langley Researcher that he considered his award to be "a recognition of the Langley Laboratory of the former NACA and of the policies and guidance of the early Committee members and the continuance of these policies throughout the years by members of the Headquarters staff, which included such aeronautical pioneers as Dr. George W. Lewis and Dr. John F. Victory. I feel grateful for having had a part in the fine work of Langley over the years and am particularly glad to see the excellent work that Langley and its alumni have been carrying on since the NASA was established."

Dr. Reid received the award October 29 at a ceremony in Washington, D.C., sponsored by the Aero Club of Washington, a chapter of NAA.

EMPLOYEES DONATE BLOOD

The Bloodmobile visited the Center recently and staff members donated a total of 166 pints of blood.

Eric Eggleston, Mechanical Service, reached the five-gallon mark and Theodore Larson, IRD, completed his four-gallon quota.

Reaching the three-gallon mark were Winfree Arnold, Frances Powell and Elliott Gay, all of Mechanical Service, and Isaac Miller, Instrument Research.

Receiving two-gallon pins were Graydon Elliot and Ward Schoonover, Flight Mechanics and Technology; Sandy Stubbs, Structures Research; Kaleb Osborn, Research Models and Vehicles; Moses Long, Flight Vehicles and Systems; Oren Jones, Thomas P. Kelly and Roland Tully, Mechanical Service; William Kaufman and Walter Gregory, Electrical Systems; Alvin Lunsford, Plant Maintenance; Harry Norton, Full-Scale Research; John McFall, Applied Materials and Physics, and Harry Broskie, Photographic Division.

One-gallon pins were presented to Harry Compton, IRD; Roger Buchanan, Research Models and Facilities; James Burden, Mechanical Service, and Francis Capone, Full-Scale Research.

Assisting during the visit were Dr. John Massey, Dr. John McLellan, and Dr. L. P. Bragg.

The next Bloodmobile visit to the Center will be Dec. 11.

WANTED: Passengers to St. Petersburg, Florida area on December 20. Joe Nolan, 4851.

WANTED: Ride from East Pembroke Avenue to W.A. on 7:30 shift. Moody, 4503.

Langley Researcher

VOLUME 2, Number 24 LANGLEY RESEARCH CENTER NOVEMBER 22, 1963

STAFF MEMBERS RECEIVE AWARDS FOR INVENTIONS

Eleven employees and a former staff member recently received cash awards for suggestions that might possibly result in the granting of patents by the United States Government in connection with their inventions on the job.

Milton A. Wallio, Electrical Systems Division; William L. Wells, Applied Materials and Physics Division, and Robert F. Mayo, formerly of AMPD, shared a $400 award for their suggestion entitled "Electric-Arc Heater." Wallio was born in Virginia, Minnesota. He received his B.S. degree in Electrical Engineering from the University of Minnesota and joined the Center staff on February 7, 1949. Wells is a native of Lafollette, Tennessee. He is a graduate of Tennessee Polytechnic Institute with a degree in Mechanical Engineering. He entered on duty July 23, 1959.

Mark R. Nichols, Chief of Full-Scale Research Division, received a $300 award for his suggestion on "Nacelle Afterbody for Jet Engines." Nichols is from Newark, Delaware. He received his B.S. degree in Aeronautical and Mechanical Engineering from Alabama Polytechnic Institute and started his NASA career on September 3, 1940.

Numa E. Thomas, an Optical Instrument Specialist in Instrument Research Division, was presented $300 for his suggestion entitled "Optical Communications Device." He hails from Jackson Springs, North Carolina, and joined the Center on May 16, 1946.

William H. Kinard, Applied Materials and Physics Division, and Charles C. Laney Jr., Instrument Research, shared a $100 award for their suggestion on "Micrometeoroid Velocity Measuring Device." Kinard claims Columbia, South Carolina as his birthplace. He received his B.S. degree in Mechanical Engineering from Clemson College and entered on duty May 24, 1955. Laney hails from Lando, South Carolina. He graduated from Virginia Polytechnic Institute with a degree in Electrical Engineering and joined NASA on July 1, 1957.

Francis M. Rogallo, Head of 7 x 10-Foot Tunnels Branch of Full-Scale Research Division, received $100 for his suggestion on "Target Kite." He is a native of Sanger, California and received his degree in Aeronautical Engineering from Stanford University. He started his NASA career on July 13, 1936.

Otto F. Trout Jr. and Paul R. Hill, both of Applied Materials and Physics Division, shared a $200 award for a suggestion on "Heat Protection Apparatus." Trout was born in Pittsburgh, Pennsylvania. He entered on duty June 13, 1940 and received his B.S. degree in Chemistry from the College of William and Mary in 1948. Hill, who is Assistant Chief of AMPD, is a native of Odebolt, Iowa. He received his B.S. degree in Mechanical Engineering from the University of California and joined the Center staff on July 10, 1939.

(Continued on page 3)

EMPLOYEES DONATE $60,869 TO UNITED FUND CAMPAIGN

A final report on the Center's United Fund Campaign showed that employees contributed or pledged a record total of $60,869.25. Of this total, $125 was donated by employees of Chance Vought Corporation, Philco, and Technitrol Engineering Corporation. The Center's total represented contributions from 4,086 staff members for 94.5 percent participation.

Rufus O. House, Chairman of the Center's Drive, stated that it is gratifying to see the Center go over the $60,000 mark for the first time in the history of the campaign drive. He said there is reason to be proud of the competent creative work force we have at Langley, but it is special effort such as the United Fund Campaign that gives us an opportunity to help further the community.

The following divisions and groups reported 100 percent participation: Office of Research Direction, Research Reports Division, Office of Chief of Engineering and Technical Services, Research Models and Facilities Division, Office of Assistant Director for Administration, Fiscal Division, Personnel Division, Procurement Division, Cafeterias, and Credit Union. Also reporting 100 percent participation were employees from Chance Vought Corporation, Philco, and Technitrol Engineering Corporation.

Final division standings are shown on Page 8 of this issue.

Miss Ruth T. Belle, Special Files Section, Administrative Services Division, receives a Sustained Superior Performance Award from Edward T. Maher, Chief of Administrative Services Division. Miss Belle received a check and certificate "for her superior job performance in her new assignment" as Descriptive Cataloging Librarian.

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

DIVISION PARTY. . .The Aero-Physics Division will have a dinner-dance on Saturday, December 7 at the Activities Building. A social hour will be held at 6:30 p.m. followed by a buffet dinner at 7:30 and dancing from 9 until midnight. Music will be furnished by the Fort Monroe seven-piece combo.

ENGAGEMENTS. . .Sporting a new sparkler on the third finger left hand is Dianne Lassiter, Personnel Records. She is engaged to Ernest Mason, Hampton, and plans call for a winter wedding. . .Making plans to join the ranks of newly weds is Annette Louette Dail, Administrative Services Division. She is engaged to Lanney Edward Moseley, Virginia Beach, and the wedding will take place on December 21.

HUNT CLUB. . .The Langley Hunt Club plans a drive hunt on their hunting lease tomorrow. Plans are also being made for future hunts. Members may obtain additional information from Sgt. H. S. Brackeen, Langley extension 24127.

NEW HEIR. . .Announcing the arrival of a son on November 7 is William E. Zorumski, Flight Vehicles and Systems Division.

APPRENTICE DANCE. . .Langley socialites are reminded that the Apprentice Alumni Association will sponsor a Thanksgiving Dance tomorrow at the Activities Building. Dancing will be from 9 p.m. until 1 a.m. to the music of the Unpredictable Cabare'ts. Tickets are three dollars per couple including free set-ups and they may be obtained from Frank Penland, 2326; Corkie Collie, 4587; Bill Holliday, 4641; Mike Harvey, 4587; James Neal, 4711 and Bill Fogle, 3358.

STOCK NOTICE

Officials of the Stock Section announced that requests for 1964 desk and wall calendars should be submitted by Monday, December 9.

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.

WANTED: Ride or driving combination from Mathews to W.A. on 8 shift. Buchanan, 3312.

WANTED: Passengers to help drive to Shreveport, La., via Atlanta on December 21. Nelson, 4891.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of November 25:

Monday - Chicken noodle soup, hot roast beef sandwich with mashed potatoes and gravy .50, chicken and dumplings .45, grilled pork steak .40, hot dog .20.

Tuesday - Cream of tomato soup, country style chopped steak with onion gravy .50, pot roast of beef .45, fried chicken .35, chili con carne .25.

Wednesday - Thanksgiving dinner including tomato juice, Waldorf salad, roast young tom turkey, cranberry sauce, dressing, whipped potatoes, giblet gravy, buttered asparagus, pumpkin pie or mince pie, hot rolls, butter, bread, coffee or tea .65. Milk will be available at usual prices and franks and beans will be served

Friday - Clam chowder, roast beef .50, broiled fish .35, fried fish .35, baked hash .25.

The menu for the week of December 2 is as follows:

Monday - Bean soup, Swiss steak .50, breaded veal cutlet .45, creamed dried beef on toast .35, barbecued sandwich .25.

Tuesday - Vegetable-beef soup, roast ribs of beef .50, corned beef and cabbage .45, grilled pork chops .45, fish cakes and cole slaw.

Wednesday - Cream of potato soup, pot roast of beef .45, meat loaf .40, liver and onions .35, macaroni and wieners .25.

Thursday - Tomato-barley soup, grilled rib eye steak .65, shrimp Newburg .45, fried chicken .35, baked hash .25.

Friday - Clam chowder, baked Smithfield ham .55, roast beef .50, crab cakes with tartare sauce .45, broiled fish .35, hot dog .20.

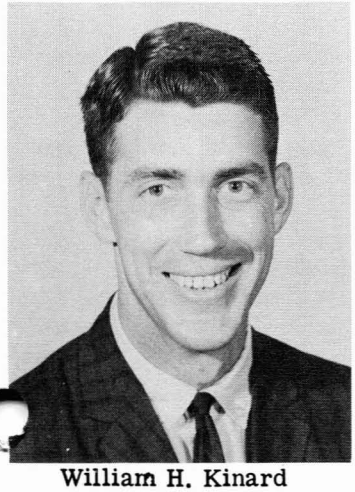
WANTED: Passengers to Tennessee during Thanksgiving week-end. Dodds, 4542.

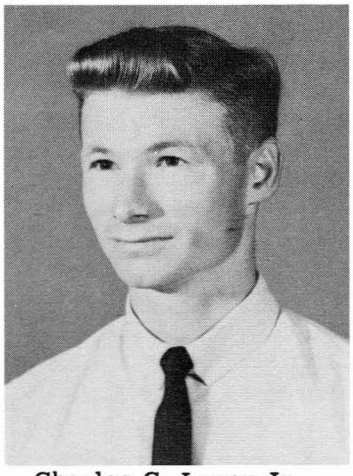
Milton A. Wallio

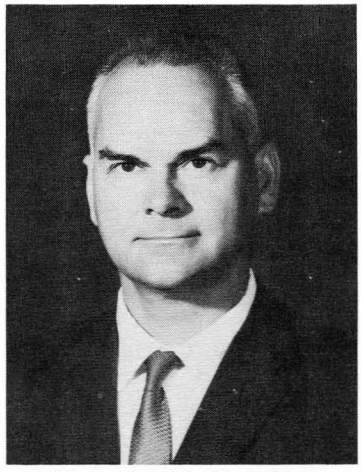
William L. Wells

Mark R. Nichols

Numa E. Thomas


William H. Kinard


Charles C. Laney Jr.

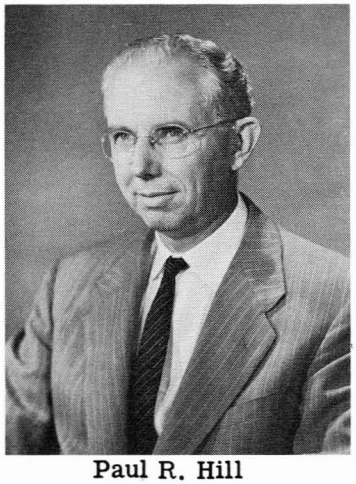

Francis M. Rogallo

Otto F. Trout Jr.

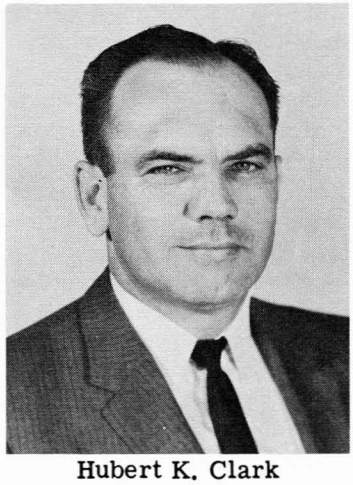
WIN AWARDS

(Continued from page 1)

Franklin W. Booth, MORL Studies Office, and Hubert K. Clark, Flight Vehicles and Systems Division, shared a $100 award for a suggestion entitled "Thermal-Compressor for Space Use." Booth was born in Newark, New Jersey. He attended the University of Pennsylvania, Rider College, and Rutgers University. He entered on duty November 22, 1939. Clark is a native of Charlotte, North Carolina. He received his B.S. degree in Mechanical Engineering from Duke University and joined NASA on May 15, 1952.


Paul R. Hill

Franklin W. Booth


Hubert K. Clark

FOR SALE: Riding boots, bamboo chaise lounge, Scuba regulator, kitchen cabinet, draftsman drawing table, baseball mitt, heavy electric wire, chairs, tables, assorted tools, dishes, etc. PA 2-5847.

FOR RENT: Room for gentleman. Sinclair, PA 3-6715.

FOR RENT: Room for gentleman. Chapman, PA 2-4029.

WANTED: Set of Worldbook Encyclopedia, 1960 edition or later. Dickens, 826-1844.

FOR SALE: 1957 Buick Special - $300. Credit Union, 4607.

FOR SALE: Mouton coat size 12. Eadie, 723-7092.

WANTED: Automobile repair equipment including floor jack not under 1-1/2-ton, 1/2-inch electric drill, electric sander, etc. Saunders, PA 3-5578 after 5 p.m.

WANTED: Ride or driving combination from Southampton to W.A. on 7:30 shift. Pierce, 4630.

WANTED: Ride or driving combination from Chestnut Ave. and Briarfield Rd. to W.A. on 7 shift. Bailey, 3383.

WANTED: Stancor A-8072 hi-fi output transformer or equivalent. Brooks, 722-5279.

FOR SALE: Membership in Langley Hunt Club - $20. Call Fontana, 723-1425.

Lost: Brown cardigan sweater. Smith, 2241.

DAMAGED X-15 TO BE MODIFIED

The X-15 airplane No. 2 will return to flight status early next year in an extended hypersonic flight research program with a higher speed capability, as the result of a decision by the U.S. Air Force. The airplane, damaged last November in a landing accident, will be repaired and modified to increase its speed and utility for conducting aerospace experiments.

The Air Force has signed a letter contract with North American Aviation, Inc., builders of all three X-15s, to do the work. With an increased propellant capacity for its rocket engine, the X-15 No. 2 will have a longer flight duration. The decision marks the first major change in the X-15 configuration since the airplane was designed nearly eight years ago.

The modified aircraft, one of three operated by NASA and the Air Force at Edwards AFB, Calif., will carry an additional 13,500 pounds of propellants to increase engine running time to 145 seconds at full throttle. Present maximum is 86 seconds at 100 per cent thrust. The added burning time theoretically will raise the speed by some 1300 mph but because of structural and aerodynamic heating, and other considerations, the actual increase will be somewhat lower.

Although the modifications will increase the speed, the X-15 flights will be restricted to its present altitude capability. NASA engineers explain that the ceiling is limited by the problem of reentering the Earth's atmosphere from nearby space. That limitation is due to factors of high dynamic pressure, high g-forces in recovery and heating limitations on the airplane structure.

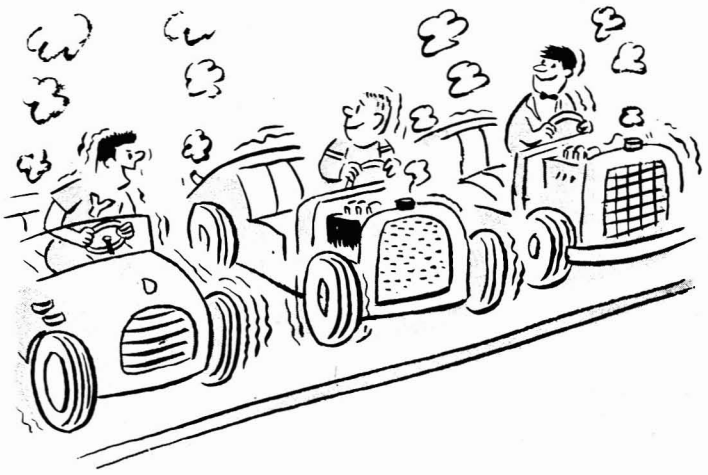
Main modifications to the damaged airplane will be made to its landing gear, wings and fuselage. Other modifications include the addition of external droppable tanks to carry liquid oxygen and ammonia propellants, and pressurizing helium gas.

Another important change will be the provision for installation of two 50-gallon spherical tanks at the center of gravity in the reworked fuselage mid-section, to store liquid hydrogen for anticipated advanced propulsion experiments. The airplane may be used in the future as a test bed for ramjets slung under the fuselage. It will be lengthened two feet and will stand a few inches higher on the ground because of modifications and strengthening of its nose wheel and main landing-skid gear.

Additional engineering design and test work will be performed to develop windshield materials to accommodate the increased heating and thermal stresses on the windshield and framework. Methods for applying ablative materials to the X-15 for heat protection will be provided. Although the aircraft originally was designed for 1,200-degree (F) temperature limits, it has reached a peak of 1,323 degrees on some flights.

Other modifications will permit quick removal of the ventral fin and attachment of experimental packages in its place. Another change will enable technicians to install removable wing-tip panels for materials research. Minor changes are being made to the B-52 airplanes which carry the X-15 aloft to launch at 45,000 feet.

The X-15 was conceived and built to obtain research information on aerodynamics, structures, heating problems, stability and control, operational and biotechnological factors and other data at a variety of speed and altitude combinations. The X-15 is operated under a joint NASA-Air Force-Navy flight research program for manned, winged vehicles, at hypersonic speeds in the atmosphere and nearby space.



"Let's have a race to Main Street."

X-15 No. 2 was extensively damaged November 9, 1962, in an emergency landing at Mud Lake, Nevada. The pilot, John B. McKay, NASA, escaped with minor injuries. The plane is being modified at North American's Los Angeles Division plant, where it was built. The other two X-15s are in operation at NASA's Flight Research Center.

Original design goal of the X-15 program was a peak altitude of at least 250,000 feet and speed of 4,500 mph. Air Force and NASA pilots have flown the airplane to a top speed of 4,104 mph and have topped Mach 5.0 (about 3,500 mph) more than 40 times. It has made seven flights at the design altitude goal or higher and achieved a maximum of 354,200 feet.

The small black airplane, powered by a Thiokol Chemical Corp. Reaction Motors Division YLR-99 rocket engine of 59,000 pounds thrust, is taken to altitude by the B-52, then released to fly on its own power before gliding to a landing on the hard, flat bed of Rogers Dry Lake at Edwards Air Force Base. The three X-15s have made a total of 93 flights to date.

In addition to the increased speed advantage, the modified X-15 will be useful for more aeronautical and space experiments. These "follow-on" studies, which use the X-15 as a "service" airplane, include work with star-tracking camera equipment, propulsion, control systems, and materials tests.

MASS POLIO IMMUNIZATION PROGRAM STARTS DEC. 8

Plans are being made for the mass polio immunization of the entire Peninsula using the live Sabin oral polio vaccine. The program is being sponsored by the Newport News Medical Society in conjunction with the Hampton Medical Society and the Hampton Roads Junior Chamber of Commerce. Simultaneously a similar program will be staged in Williamsburg, James City and York County by the Williamsburg Medical Society.

Center employees are urged to take advantage of this mass immunization program. All children and adults from the age of six weeks are eligible.

The oral monovalent polio vaccine will be administered to the public on the Peninsula from 12 noon to 5 p.m. on the following Sundays: December 8 Type I, January 19 Type III and March 1 Type II. Those individuals who have already received the Salk injections should also receive the oral vaccine. Once an individual has completed the oral vaccine further injections of the Salk vaccine are not necessary.

The vaccine will be given at various schools and public buildings throughout the area. The locations will be listed in the newspaper and announced over radio and TV.

The Sabin vaccine is taken by mouth - 2 drops on a tiny sugar cube. It is odorless, tasteless, causes no side reactions or after-effects regardless of age, sex or allergy.

Contributions for the vaccine are voluntary; however, at least 25 cents for each dose is suggested to cover cost. If an individual cannot pay that amount, the vaccine will be provided free of charge. No one will be refused.

MYERS NAMED TO NEW POSITION

Boyd C. Myers II has been appointed to the new position of Deputy Associate Administrator for Advanced Research and Technology (Resources and Field Operations). The appointment was announced by Dr. Raymond L. Bisplinghoff, Associate Administrator for Advanced Research and Technology.

Dr. Bisplinghoff explained that Myers' position was created to meet new responsibilities placed on the Office of Advanced Research and Technology with respect to certain NASA field centers primarily involved in advanced research.

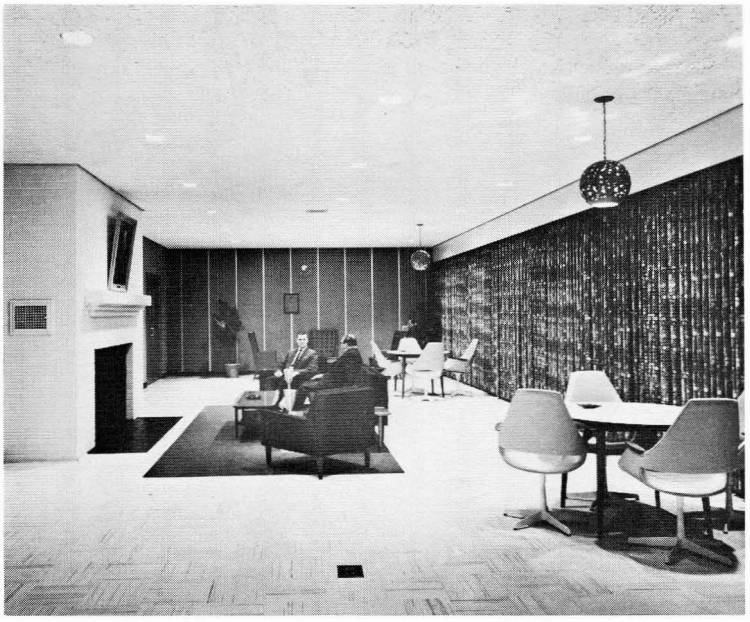
Myers will devote his full time to the activities of five installations: Ames Research Center, Lewis Research Center, Langley Research Center, Flight Research Center, and Nuclear Rocket Development Station (NRDS) --a joint NASA-AEC facility near Mercury, Nevada.

Myers will also be responsible for integrating related research activities among other NASA program offices and field centers.

Coinciding with Myers' appointment is a realignment of the Program Review and Resources Management Division which he has headed since its creation two years ago. P. M. Lovell Jr., has been appointed director of the new Division of Programming and Resources Management.

The division will have two branches: a Program Branch, with Lovell as chief, and a Resources Branch, with Melvin B. Eagle as chief.

FOR SALE: Volume 18, Radiation Lab Series "Vacuum Tube Amplifiers" - $9. Hearn, Box 351-A, Showalter Rd., Yorktown.



Joel Zoeffel (facing camera), Public Affairs Office, and Bruce Amole, Activities Coordinator, enjoy the luxury of the newly decorated lounge in the Activities Building. The predominate colors are brown, beige and yellow.

LOWELL RECEIVES NASA GRANT

The Lowell Observatory, Flagstaff, Arizona, will receive $236,520 from NASA to help establish a facility for lunar and planetary scientific research.

The International Astronomical Union requested Lowell in August 1961 to establish for the Western Hemisphere a repository of lunar and planetary research materials--particularly photographs. The Eastern Hemisphere center is at the Meudon, France, observatory.

The NASA grant will provide a building at the Observatory site for photographic processing, storage and research.

NASA's Director of Space Sciences, Dr. Homer E. Newell, commented, "Our Mariner and Voyager planetary spacecraft require design information which can only be supplied by a ground-based observational program. The facilities at Lowell Observatory will provide laboratories which can contribute significantly to the success of future NASA programs within the required time scale."

Newell said that this facility will for the first time make possible comparative studies of photographic plates taken of the Moon and planets from observatories all over the world. From its own observations, Lowell already has amassed the largest collection of planetary photographic plates in the country.

Last July, NASA made a three-year grant of $174,000 to the Lowell Observatory to support research in planetary astronomy. NASA also is supporting ground-based research at observatories at the University of Arizona and at New Mexico State, Georgetown, Harvard, and Yale Universities.

WANTED: Ride from Deep Park Apartments to W.A. on 8 shift. Hillebrand, 4452.

WANTED: 1 or 2 alternate drivers from Northampton to W.A. on 8 shift. Gaskins, 3321.

WANTED: Driving combination from Mercury Blvd. and Whealton Rd. to W.A. on 7:30 shift. Ellison, 4503.

FOR SALE: Gibson's Les Paul electric guitar with dual pick-up and case - $100. Iley, PA 3-3039 after 5:30.

CHANGES IN SATURN MISSION

NASA has announced a rephasing of manned flight missions among the three Saturn class vehicles: the Saturn I, Saturn I-B, and Saturn V.

Principal changes in planned manned flight missions include acceleration of the critical Saturn IB/Apollo spacecraft phase and deletion of four previously scheduled Saturn I/Apollo spacecraft flights.

Engineering design and development effort related to the Saturn I manned flight program will be redirected to the Saturn I-B and Saturn V programs. Concentration of effort and resources on these phases of the manned lunar landing program is expected to increase the assurance of meeting vital Saturn I-B and Saturn V-based Apollo spacecraft milestones by taking advantage of the larger payload capability of the Saturn I-B to make an earlier launch of an all systems lunar orbit configuration--command module, service module, and LEM. In addition, it is now planned to begin Apollo manned flights using this full configuration from the start thereby providing greater assurance of astronaut safety and successful completion of the manned orbital phase of the lunar landing mission.

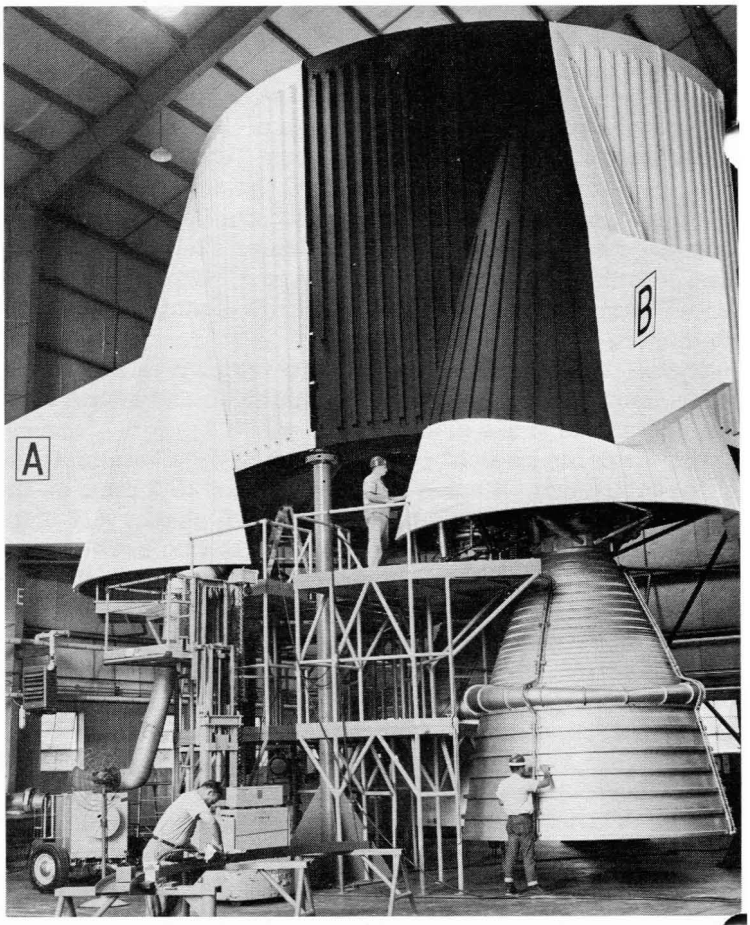
The program of two Saturn vehicles, Saturn I/I-B and Saturn V, is based on the maximum use of common stages. The Saturn I, a two-stage vehicle, capable of placing 10 tons in earth orbit, was to be used to test Apollo command and service modules. The Saturn I-B is an uprated version of the Saturn I vehicle capable of placing 16 tons in earth orbit and will be used to test the complete lunar orbit configuration of Apollo - the command module, service module and lunar excursion module (LEM). The Saturn I-B uses the same first stage as Saturn I. Its second stage, the S-IVB, which replaces six 15,000 pound thrust engines on the S-IV stage with a 200,000 pound thrust engine, is also the third stage of the Saturn V, the vehicle which will send the astronauts on their lunar mission.

The decision to rephase the Saturn based manned flight missions, based on studies initiated several months ago, was made possible by the success of the four Saturn I research and development launchings, the successful ground tests of the liquid hydrogen stages and the J-2 engine. The decision also permits the introduction of a flight test concept of all-up testing. In this approach launch vehicle stages, and spacecraft modules are tested in their final configuration on each flight. Previous planning had called for a gradual buildup of subsystems, systems stages and modules in successive flight tests. Experience in other missile and space programs has demonstrated that "all-up testing" is the quickest way of reaching final mission objectives.

The six remaining Saturn I development flights will be carried out to provide vehicle development data essential to the Saturn I-B and Saturn V programs as well as to gather important information on micrometeorites.

Although the cancellation of Saturn I based manned Apollo flights results in a later (9 months) first flight of a manned orbital Apollo, the on-going Gemini program will provide the astronauts with the flight operations experience that otherwise would have been gained from the Apollo/Saturn I missions. Moreover, deletion of the Apollo/Saturn I manned flights saves $50 million and is a step which helps NASA to stay within the $5.35 billion authorized for fiscal year 1964.

Want some cash for emergencies--see your Credit Union



The size of the 350-feet-tall Saturn V moon rocket is illustrated by this "soft" mockup of the thrust structure or "business end," of the S-IC stage nearing completion at Marshall Space Flight Center. The booster, 33 feet in diameter and 138 feet long, will be powered by five F-1 engines developing 7.5 million pounds thrust to start the monstrous vehicle on its journey into space. Two mock engines are shown mounted beneath the thrust structure. The first booster is scheduled for ground test firing late in 1964.

LIBRARY NOTICE

A number of Library bound volumes have been misplaced by Center personnel. Employees having any of the following volumes are requested to return them to the Technical Library, Building 1244:

Acoustical Society of America Journal, vol. 21, 1949; Aeronautical Quarterly, vol. 1, May 1949-Feb. 1950; Bell System Technical Journal, vol. 35, 1956; Journal of the Aeronautical Sciences, vol. 21, 1954 and vol. 24, 1957; Journal of the Optical Society of America, vol. 37, 1947; Journal of the Royal Aeronautical Society, vol. 39, 1935; Physical Review, vol. 2S.56, July-Dec. 1939; Physical Society, Proceedings, vol. 60, Jan.-June 1948 and Section B, vol. 68, 1955; Physics of Fluids, vol. 2, 1959; Review of Scientific Instruments, vol. 26, July-Dec. 1955; Reviews of Modern Physics, vol. 14-15, 1942 1943; Zeitschrift fur Physik, vol. 135, May-Sept. 1953 and vol. 151, April-July 1958.

WANTED: Ride or driving combination from Fairfield or Foxbridge area to W.A. on 7:30 shift. Brown, 4835.

WANTED: Ride from Deer Park Apartments to W.A. on 8 shift. Porter, 4890.

WANTED: Ride from Fourth St., Buckroe, to W.A. on 8 shift. Sandra Ghivizzani, 3415.

MERCURY BATTERIES CAN EXPLODE

Safety officials have cautioned employees that mercury batteries can explode.

The following incidents of battery explosions are cited as examples:

During a cleanup campaign in a laboratory, scrap instrument components were being collected for salvage purposes. Ten mercury batteries, which had been wired in series and replaced in their original packing box, were placed in a large cardboard box with other electrical components, including a number of metal chassis. Mercury batteries are known to explode under proper conditions when shorted, and two of these did explode at about five-minute intervals about 30 minutes later. Particles of graphite and paper were blown out of the box and deposited on the ceiling nine and one-half feet above and on the floor around the box, although the cardboard box was not damaged. No injuries resulted.

A small 10.7-volt mercury battery was installed in a portable radiation counter. A short time later a hissing noise was heard and a technician removed the battery and tossed it into a corner under a bench to get rid of it as quickly as possible. The battery then exploded, ricocheted, and landed in another room, 75 feet away.

At another location, an explosion occurred after a 20-volt battery was placed on a shelf with the alligator clip of one lead connected to the other insulated lead. The short occurred apparently when teeth of the alligator clip punctured the insulation.

Some obvious safety tips on the use of mercury batteries are listed below:

Take out of service any batteries which show signs of corrosion.

Avoid short circuits and rough use which might cause internal short-circuiting.

Do not subject either charged or discharged batteries to fire or external heat. The explosions are usually caused by a chemical action created by heat.

In mercury batteries the electrolyte is not an acid but a strong caustic. First-aid should be given accordingly.

FINAL REPORT ON JOINT DRIVE

William E. Hutcheson, who served as chairman of the Center's 1963 joint fund raising campaign for the National Health Agencies and the Federal Service Joint Crusades, was recently presented a Certificate of Merit. The Center also received the Distinguished Service Award for notable service in the fight against disease and disability.

This year Center employees donated a total of $3,576.85 to the health agencies and $1,444.50 to the joint crusades.

FOUND: Man's raincoat in West Area Cafeteria. Call Tracy Phelps, 4475.

FOR SALE: 1962 Volkswagon sedan. Boykin, 723-2510.

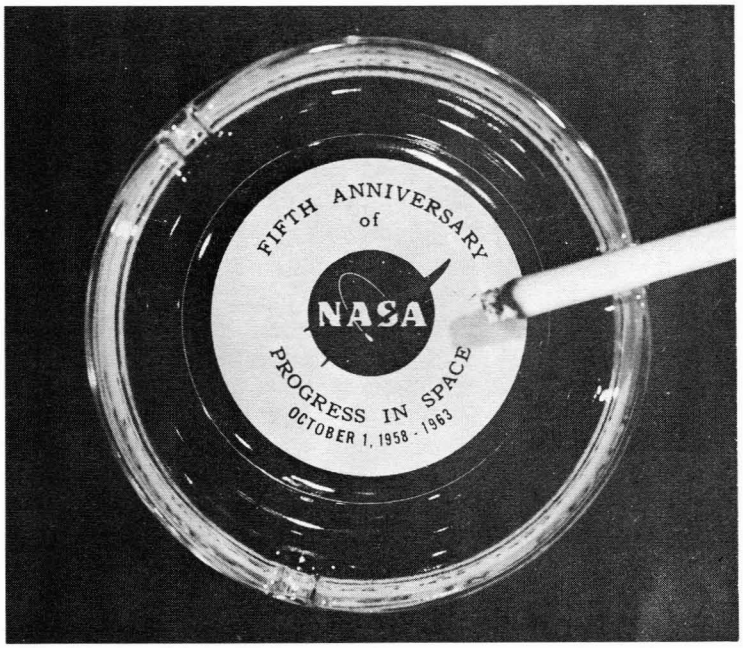
FOR RENT: 3-bedroom rancher. Snyder, 877-3426.

FOR RENT: 2-bedroom furnished apartment. Wells, PA - 835.

FOR SALE: 1952 Jaguar XK120 coupe. Witherspoon, 723-0847.

FOR SALE: Stevens automatic .22 rifle. Senn, PA 30566.

FOR SALE: Single Hollywood bed with foam rubber mattress, also full-size inner-spring mattress. Sandler, 723-4972.



The Activities Association has a number of NASA Fifth Anniversary ash trays for sale at thirty cents each. The ash trays are light amber with the NASA seal in the base.

FIRST SATELLITE TELEPHONE CALL REPORTED FROM WEST GERMANY

The West German Republic has joined the growing list of nations participating in global communications via satellite.

Relay I, the NASA's orbiting communications satellite, was used to carry the inaugural message from a new German ground station to the United States on November 8. Richard Stuecklen, head of the German Republic's Post Office and Telecommunications, talked via the satellite with NASA Administrator James E. Webb. Their conversation was the first official use of the station which joins a world-wide network of ground stations for Relay experimentation.

In his welcoming message Herr Stuecklen expressed his appreciation of the work done by American scientists and technicians in developing communications satellites and in helping to establish the German ground station at Raisting. "I hope," said Herr Stuecklen, "that by taking part in the tests the Deutsches Bundepost can greatly contribute to the solution of problems still outstanding and also toward world-wide understanding."

Webb expressed his pleasure in receiving the call and welcomed "the cooperation of the Federal Republic of Germany in the development of telecommunications by satellite."

Seven ground stations are now in the net concerned with Relay and Telstar experimentation. Wideband stations are located at Andove, Me.; Goonhilly Downs, England; and Pleumeur-Bodou, France. Narrowband stations are located at Nutley, N.J.; Rio de Janeiro, Brazil; Fucino, Italy, and now Raisting.

FOR RENT: 2-bedroom apartment convenient to shopping center and school. Drake, 214 Yeardley Dr., LY 6-6414.

FOUND: Cigarette lighter. Tankersley, 4616.

LOST: Pair prescription sun glasses with black rim near Activities Building. Green, 4835.

SUPERSONIC TRANSPORT STUDY

Engineers and pilots of NASA working in cooperation with the Federal Aviation Agency, have completed a series of studies simulating flight profiles of a supersonic transport (SST). The studies were made at NASA's Flight Research Center, Edwards, California.

Engineers used a two-place Navy A5A jet bomber to study possible air traffic control problems and to obtain operational data for planning future supersonic transport flights. The A5A was used in the simulation tests because it has almost the same thrust-to-weight ratio as an SST at altitudes up to 50,000 feet.

Twenty-one simulated flights were programmed along busy federal airways converging on Los Angeles. The airplane was put in several phases of flight--takeoff, climb, level cruising, and descent. In the climb up to 30,000 feet, subsonic speed was maintained. Then the airplane was flown in level flight at 50,000 feet at supersonic speed of Mach 1.7 (about 1,120 mph). Simulated descents to lower altitude began with deceleration to Mach 1.4. The airplane was slowed to subsonic speed before getting down to 30,000 feet. At 20,000 feet, the engineers simulated the speed at 340 mph--about the speed of current jet transports on let-down operations.

FAA controllers, monitoring the simulated flights, said they had no difficulties during the descent and landing phases; however, they had control problems during the take-offs and climb-out phases because of greater speeds and faster climb.

The tests show that because of the greater speeds pilots must be given more advance notice of changes in flight procedures, such as holding instructions and changes in altitude.

In-flight weather information was found to be an important factor because changes in outside air temperature and pressure conditions greatly influenced the times and distances required to accelerate from subsonic to Mach 2.0 flight.

NASA BOWLING LEAGUE

DUCKPIN LEAGUE

Doodle Bugs and Ten Spots are tied for first place in the NASA Duckpin League. Top scores this week were rolled by John Moore with a 146 game and 414 set and Helen Dupere with a 124 game and 320 set.

STANDINGS

Doodle Bugs	24	16	Lt. Mach. I	20	20
Ten Spots	24	16	ACD	20	20
Strike Outs	23	17	Lt. Mach. II	19	21
Pin Poppers	23	17	Rebel Bombers	14	26
AMC	21	19	Reentry	12	28

FOR SALE: House and lot - $10,000. Freeman, 826-2992.
FOR SALE: Beige cashmer coat size 9 - $35. Hudgins, 826-2155.

FOR SALE: 2 matched speaker cabinets with one 12-inch and two 4-inch Magnovox speakers in each - $35. Call Shemenski, LY 6-7166.

FOR SALE: 1960 Chevrolet Impala. Aucoin, 245-6370.
FOR SALE: 1941 Chevrolet and 1953 DeSoto. Stubbs, PA - 2-1254.
WANTED: Home for puppies. Barnes, 37 Beaconsdale Lane.

UNITED FUND CAMPAIGN

FINAL STANDINGS

Division	Total	Percentage
Office of Research Direction	$2971.00	100
Flight Reentry	917.00	95.7
Scout Project	756.00	95.8
Aero-Physics	3518.50	92.5
Analysis and Computation	2457.25	95.3
AMPD	3515.45	88.8
Dynamic Loads	3937.00	94.4
Flight Mechanics and Tech.	2555.00	94.6
Full-Scale Research	4072.25	90.4
Instrument Research	6391.40	91.7
Research Reports	852.00	100
Space Mechanics	2001.00	91.1
Structures Research	3387.50	98.1
Off., Chief Eng. and Tech.	970.00	100
Electrical Systems	2513.75	97.1
FVSD	2324.00	91.5
Mechanical Service	7715.75	95.3
Plant Maintenance	1429.20	99
RMFD	2526.30	100
Off., Asst. Dir. for Admin.	459.75	100
Administrative Services	863.94	100
Fiscal	1522.80	100
Personnel	818.00	100
Photographic	651.50	97.6
Procurement	1342.00	100
Cafeterias	126.25	100
Credit Union	88.00	100
Anonymous	61.66	
Subtotal	$60,744.25	94.6
Employees of:		
Chance Vought Corp.	103.00	100
Philco	5.00	100
Technitrol Eng. Corp	17.00	100
TOTAL	$60,869.25	

FOR SALE: 6 x 8-foot utility trailer. Cress, CH 5-5536.
FOR SALE: Fully trained Bird dog. Brooks, LY 6-1132.
FOR RENT: Room with twin beds. Nauman, LY 6-017
FOR SALE: 1963 Ford convertivle, $3150. 826 1437.

CHRISTMAS PARTY: The Activities Association's Annual Children's Christmas Party will be held on Sunday, December 15 at the Activities Building. Complete details will be announced in the next issue of Langley Researcher.

Langley Researcher

VOLUME 2, NUMBER 25 LANGLEY RESEARCH CENTER DECEMBER 6, 1963

CHILDREN'S ANNUAL CHRISTMAS PARTY PLANNED DECEMBER 15

Bungles, the TV clown from station WVEC

The Activities Association's Annual Children's Christmas Party will be held on Sunday, December 15, at the Activities Building.

Two shows will be scheduled this year with the first one starting at 1:30 p.m. and the second one planned for 3 p.m.

Featured on the program will be Bungles, the clown from WVEC-TV.

Santa Claus is expected to visit the party and chat with the children.

Tickets are 25 cents per person and may be purchased from District Representatives to the General Assembly. Adults must also have tickets in order to be admitted to the building. No tickets will be on sale at the door.

PICK UP SERVICE EXPANDED

The Center's light delivery service has been expanded and should be used for transporting packages from one building to another. This expanded package delivery service should eliminate the use of taxis for transporting packages.

Employees sending packages through the delivery service should attach a Pick-Up Order, Langley Form 36T017. The Pick-Up Order should indicate the person to whom the package is sent, his organization, and building number. This information is required for prompt delivery.

DOUGLAS AIRCRAFT SELECTED FOR SPACE STATION STUDY

NASA has selected Douglas Aircraft Company for negotiations leading to a follow-on study contract for refinement and evaluation of an NASA Manned Orbital Laboratory concept.

Douglas and the Boeing Company were selected in June from 11 aerospace firms responding to requests for study proposals and were awarded 3-month study contracts. Based upon performance during this period, Douglas was selected for the additional effort.

The 6 to 9-month contract is expected to exceed $1 million in value. Langley Research Center will monitor the contract under the direction of NASA's Office of Manned Space Flight.

The contract will continue the broad-based studies that NASA has been carrying out in evaluating possible new missions within the national space program. Both NASA and the Department of Defense are interested in defining the possible national requirements for a manned orbital research laboratory and have mutually agreed on the scope of this study effort. This contract reflects the close working relationships between the two agencies in defining future elements of the national space program.

The Douglas study will consist of refining the NASA concept of an orbiting laboratory which assumes a cylindrical 6-man spacecraft capable of being launched by the Saturn rocket. The study will examine the feasibility of using equipment to provide intermittent artificial gravity for the spacecraft crew. Douglas also will examine the feasibility of launching both ferry and supply spacecraft on a single vehicle.

Upon completion of this study, both NASA and the DOD will be in a better position to determine the biomedical, scientific and technological problems and advantages involved in the possible future development of a Manned Orbital Research Laboratory.

NEW YEAR'S EVE DANCE

The Activities Association's annual New Year's dance will be held on Tuesday, December 31, at the Activities Building.

The outstanding social event of the year 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 for the affair will be furnished by Janice and the Moonlighters and dancing will be from 10 p.m. until 2 a.m.

Only a limited number of tickets will be sold and the admission will be $6 per couple. Free setups and seasonal favors will be furnished.

Tickets may be purchased from the following members of the Executive Board:

Herbert J. Pelton, Procurement Division; Bob Mitchell, Flight Mechanics and Technology; A. J. Voitlein, Flight

(Continued 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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

ENGAGEMENTS. . .A Center romance reached the engagement stage when Mary Holloway, Personnel Records, and Ramon Barr, Mechanical Services Division, announced their plans to wed in the spring. . .Making plans for a December wedding is Judith L. Berry, Analysis and Computation Division. She is engaged to Lt. Wilson T. Arnold of Loring Air Force Base, Maine.

NEW ARRIVALS. . .Announcing the birth of a daughter, Carol Denise, on November 4 is Bob Averill, Flight Vehicles and Systems Division. . .Passing out cigars and candy is Nelson Catlett, Research Models and Facilities Division. He recently became the father of a daughter.

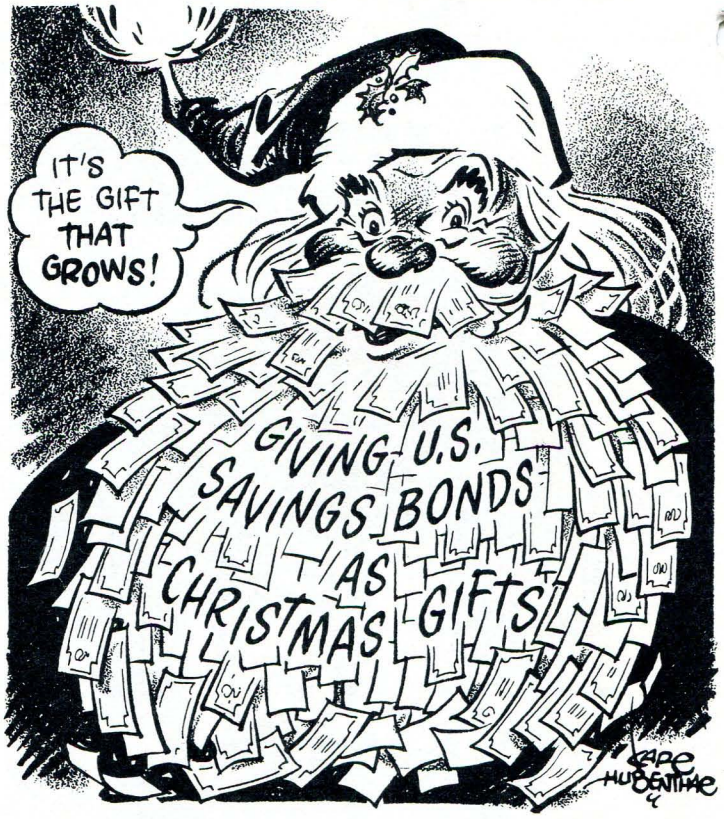
REPRESENTATIVES TO VISIT HERE. . .Richard F. Brody, Government-wide Service Plan representative, will visit the Center December 18 from 2 p.m. until 3. Rollin Slinger, Field Representative of the Indemnity Benefit Plan, will be here on December 19 from 3 p.m. until 4. Employees having problems or questions concerning either plan may call Linda Hale, 2323, for an appointment.

BLOODMOBILE. . .The Red Cross Bloodmobile will make its final visit for 1963 to the Center on December 11. New donors are still needed to help fill the Center's quota. Employees who have not registered to give blood to this worthwhile cause and wish to do so may call East Dispensary, 2243.

CALENDAR REMINDER. . .Requests for 1964 desk and wall calendars should be submitted to the Stock Section by Monday, December 9. 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.

WEDDINGS. . .A Center romance was climaxed Saturday when Patricia Mae Robins and Allen Hallett Whitehead Jr., both of Aero-Physics Division, said "I do" in the First Methodist Church in Hampton. Anne Shortridge, Aero-Physics, was matron-of-honor and Jean Drummond, Security Section, was a bridesmaid. Groomsmen were Charles J. Whidden, Applied and Materials Division; Russell A. Aubrey, Instrument Research, and Lt. J. Gordon Clayton, U.S. Army, formerly assigned to the Center. . .Claude Burge, Procurement Division, took his final vows with Barbara Elizabeth Vick, Hampton, last Saturday at the First Methodist Church in Hampton.

SANTA'S WHISKERS



CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 9:

Monday - Cream of tomato soup, roast veal with dressing .55, spare ribs and sauerkraut .50, beef stew .40, grilled cheese and bacon sandwich .25.

Tuesday - Vegetable-beef soup, roast beef .50, breaded veal cutlet Parmesan .45, spaghetti with meat sauce .40, Western omelette .25.

Wednesday - Split green pea soup, grilled rib eye steak .60, roast fresh ham .40, stuffed flounder .40, Austrian ravioli .25.

Thursday - Bean soup, country style chopped steak with onion gravy .50, boiled ham and cabbage .45, chicken chow mein over crisp noodles .35, meat croquettes with white sauce .25.

Friday - Clam chowder, Swiss steak .50, broiled halibut steak .35, fried flounder .35, hamburger .25.

The menu for the week of December 16 is as follows:

Monday - Chicken noodle soup, Delmonico steak .80, braised beef tips on egg noodles .45, baked ham .40, fried chicken .35, hot dog .20.

Tuesday - French onion soup with croutons, Spanish pot roast .50, deep-fried butterfly shrimp .45, liver and onions .35, tamale pie .25.

Wednesday - Minestrone soup, roast ribs of beef .50, grilled pork chops .45, stuffed flounder .40, barbecued sandwich .25.

Thursday - Vegetable-beef soup, grilled steak .60, corned beef and cabbage .45, smoked pork sausage with apple sauce .40, baked hash .25.

Friday - Clam chowder, pot roast of beef .45, fried oysters .45, tuna patties with cole slaw .40, broiled fish .35,

MASS POLIO IMMUNIZATION PROGRAM STARTS SUNDAY

Center employees are urged to take advantage of the mass polio immunization program of the entire Peninsula using the live Sabin oral polio vaccine. The program is being sponsored by the Newport News Medical Society in conjunction with the Hampton Medical Society and the Hampton Roads Junior Chamber of Commerce. Simultaneously a similar program will be staged in Williamsburg, James City and York County by the Williamsburg Medical Society.

For the information of Center employees the following questions and answers concerning the vaccine are published:

Q. Why a stop polio program?

A. Polio is still a dreaded disease and hits many people in the United States. The recent outbreak of polio in Petersburg points up the necessity for everyone living on the Peninsula to be immunized with the Sabin polio vaccine. The Salk vaccine has reduced the number and severity of polio cases, but has not eliminated polio. Many people have not received the Salk vaccine. Even if they have, they may still be a virus "carrier". The Sabin vaccine is most effective in clearing up the polio virus "carrier."

Q. What is Sabin polio vaccine?

A. A live virus vaccine developed by Dr. Albert Sabin and licensed by the United States Public Health Service. There are three types--each gives lasting protection against a certain kind of polio virus. Over 300,000,000 people in the world already have received Sabin vaccine. It has been proven safe and is endorsed by the American Medical Association, the American Academy of Pediatrics and the U.S. Surgeon General.

Q. What type of vaccine will be administered here?

A. All three types. Type I will be given on Sunday, December 8; Type III on Sunday, January 19, and Type II on Sunday, March 1.

Q. How is the Sabin vaccine taken?

A. By mouth - 2 drops on a tiny sugar cube. Infants over 6 weeks and very young children receive the vaccine by dropper directly in the mouth. It is odorless, tasteless, causes no side reactions or after-effects, regardless of age, sex or allergy. Even diabetics, pregnant women and mildly sick persons can take it safely.

Q. Where will the vaccine be available?

A. The vaccine will be given from 12 noon to 5 p.m. at various schools and public buildings throughout the area. The locations will be listed in the newspaper and announced over radio and TV.

Q. How long will it take to get the vaccine?

A. Only a few moments. A simple registration form will be provided. It will also be printed in the newspapers. You can save time if you will clip it out, complete it at home and bring it to the polio prevention center.

Q. How much will it cost to get the vaccine?

A. Contributions are voluntary. At least 25 cents for each dose to cover cost is suggested. If you can't pay that amount the vaccine will be provided free of charge. No one will be refused.

Q. What if I have already had Salk polio vaccine injections?

A. Everyone must take the Sabin vaccine to eliminate polio, even though you have taken or presently are taking the Salk Vaccine. Salk vaccine provides temporary immunity and requires booster injections at intervals. Sabin vaccine gives lasting protection against all three types

Helen Willey and Barbara J. Durling (seated, left to right), who served as financial secretaries for the Center's United Fund campaign, give a final report of the record-breaking NASA effort to other campaign officials, including Drive Chairman Rufus O. House (center), Program Control Officer and Executive Assistant to the Director. Dr. John E. Duberg (left), Technical Assistant to the Associate Director, was chairman of the advance gifts solicitation, and William B. Mayo (right), Chief of the Mechanical Service Division, was campaign vice-chairman. The drive resulted in total contributions of $60,984, including $60,645 by 4,047 NASA employees representing 95.6 percent of the Langley staff and $339 by personnel of the two NASA cafeterias, the Langley Federal Credit Union, and the local staffs of Ling-Temco-Vought, Inc., Philco, and Technitrol Engineering Corporation. The total not only exceeded the Center's $60,000 goal, but established a new NASA record.

UNITED FUND CORRECTION

United Fund officials expressed regret that Plant Maintenance Division was erroneously reported in the last issue of Langley Researcher as having 99 percent participation in the United Fund standings. Employees in Plant Maintenance contributed $1429.20 and had 100 percent participation.

TOUCH FOOTBALL LEAGUE

The NASA Touch Football League has completed its 1963 season with the Packers winning their third straight crown. The Stumbling Six defeated IRD for the second straight time this season and then the Packers defeated the Stumbling Six to clinch the championship.

FINAL STANDINGS

FIRST DIVISION			SECOND DIVISION		
Team	W	L	Team	W	L
Packers	8	2	Dedskins	6	4
IRD	7	3	NADS	6	4
Boozers	6	4	CONIDS	1	9
Stumbling Six	5	5	Grays	1	9

WANTED: Passenger to Miami via Atlanta December 20. Haeger, 4884.

FOR SALE: Smith-Corona portable typewriter - $60. Bob Dennis, PA 2-8850.

ORBITS DEFINED FOR SATELLITES

NASA has computed the orbits of two satellites--Explorer XVIII (IMP) and the Centaur--launched from Cape Kennedy, Fla., within 17 hours of each other last week.

Scientists at the Goddard Space Flight Center report that as of 2 p.m. November 29, Explorer XVIII was 110,000 miles from Earth. Explorer XVIII was launched at 9:30 p.m. EST, November 26. Goddard project officials say scientific data telemetered from the spacecraft during its first 2-1/2 days in space have been excellent.

Preliminary orbital data indicate that apogee of Explorer XVIII may be below original estimates, but still well within the parameters needed for a successful mission. These parameters are also within the expected variation of the Delta rocket's performance for the orbit.

This orbital data, based on information received by the new Goddard range and range-rate tracking system and the worldwide network of minitrack stations, show that the apogee of Explorer XVIII will be about 122,800 miles. Its perigee will be 120 miles and its orbital period will be about four days. Its angle of inclination is 33.3 degrees.

At apogee, its speed will be about 780 miles per hour and at perigee it will whip around the Earth at 24,250 miles per hour. Periodic statements on the satellite's Orbit will be issued as new data become available.

The orbit of the second stage of the Centaur launch vehicle is now relatively fixed since it has made 25 passes around the Earth. The Atlas Centaur vehicle was launched from Cape Kennedy at 2:03 p.m. EST, November 27, in a test of vehicle performance.

In all respects, performance of the vehicle was very close to that planned. Information on this orbit is currently based on the Smithsonian Astrophysical Observatory's Baker-Nunn optical tracking camera network since a tracking beacon on the second stage is no longer operating.

The perigee of the Centaur stage has been fixed at 340 miles. Its apogee is 1,050 miles. The angle of inclination is 30 degrees and the orbital period is 108 minutes. Its velocity at perigee is 17,550 miles an hour and its apogee velocity is 15,150 miles an hour.

Centaur, a project of the Lewis Research Center, did not carry an instrumented payload on this test flight.

Both Explorer XVIII and Centaur are programs of the Office of Space Science and Applications.

JOHN M. ARTIS RETIRES

John M. Artis, Furnace Tender in the Foundry Unit, Mechanical Service Division, retired November 29 after serving more than 18 years with the Center.

Artis was born January 22, 1898 in Rich Square, North Carolina. Before joining NASA he worked for the Bertie Cotton Oil Company in Aulander, N.C., the Planters Cotton Oil and Fertilizer Company in Rocky Mount, N.C., and the Newport News Shipbuilding and Dry Dock Company. He entered on duty at the Center on August 24, 1945.

FOR SALE: Stenotype machine. Githens, PA 3-5324.
FOR SALE: 1958 Ford - $675. Oertel, 229-6842 in Williamsburg.
FOR RENT: Room for gentlemen. Booker, PA 3-6413.
FOR SALE: 2-bedroom house with anchor fence. LY 68411.
FOR SALE: Lot in Dare and 1962 Mark II Austin Healy. Faison, 244-8507.

"Before this happened, he drove 43 hours nonstop."

NASA POLICY ON ACCEPTING GIFTS AND GRATUITIES CITED

As the Christmas season approaches and our minds turn to the thought of giving and receiving, it seems an appropriate time to remind staff members of the NASA policy on accepting gifts or gratuities.

It is NASA policy that no NASA employee may solicit or accept from any person, corporation, or group, directly or indirectly, for himself or any member of his family, anything of economic value as a gift, gratuity, favor, service, loan, or entertainment which might reasonably be interpreted by others as being of such a nature that it could affect his impartiality.

Gifts or gratuities should not be accepted if the employee has reason to believe that the person, corporation, or group has or is seeking to obtain contractual or other business or financial relationships with the employee's agency; has interests which may be substantially affected by the employee's performance or nonperformance of his official duty, or is in any way attempting to affect the employee's official action.

As a general rule, any gift or gratuity that would be prohibited should be returned. When it is impossible to return the gift, it should be turned over to a public or charitable institution.

Advantageous rates or discounts offered to Government employees as a class are not considered as gifts or gratuities and may be accepted and utilized.

Employees should consult with their supervisors or the Personnel Office with regard to any questions concerning the acceptance of a gift or gratuity.

ROCKET LAUNCHED AT THUMBA

NASA and the India Department of Atomic Energy has announced the first rocket launching from a site which will be an international rocket launching facility at Thumba near the southern tip of India. India has offered to make this facility available to other nations for scientifically worthwhile space research projects.

The launching was carried out under the terms of an agreement signed in late 1962 for a joint U.S.-India program for peaceful space research projects.

The Thumba site, in addition to its unique character as an international rocket range, offers many advantages. Located at the Earth's magnetic equator, it makes possible the investigation of important phenomena which can be studied only, or to greater advantage, in this region.

In this successful launching, sodium vapor released from the rocket payload formed a cloud enabling ground observers to plot the direction and speed of the upper atmosphere winds. Four launchings of such sodium vapor payloads are planned in this series.

The Indian Department of Atomic Energy is supplying the four sodium vapor release payloads, the launching site and necessary facilities, personnel, and supporting meteorological data. NASA is providing four Nike-Apache rocket vehicles and the loan of a launcher and photographic equipment. NASA trained the Indian personnel who are conducting the experiments.

NASA agreements for joint space research projects, such as these experiments at Thumba, provide that there will be no exchange of funds between the cooperating agencies and that the scientific information developed will be made available to the world scientific community.

NASA trained the Indian personnel who are conducting the experiments. Their training in launch and tracking operations was received at Wallops Station. Two Wallops Station employees, Reginald R. Hindle and James F. Andrews, were on hand at the Thumba site to assist the Indians with their first launch.

NEW YEAR'S EVE DANCE

(Continued from page 1)

Mechanics and Technology; Virginia LaPrade, Photographic Division; Ray Goodman, Heavy Machine Shop; Herbert Boulter, IRD; Margaret Vick, Aero-Physics; Betty Joyner, Aero-Physics; and William C. Walton, Dynamic Loads.

Reservations may be made by calling the Activities Building, telephone 4583; however, reservations will not be held after 11 o'clock.

Fireworks will not be permitted in the building and monitors will be stationed at various points. Employees have been complimented for their cooperation and behavior in the past and it is hoped they will continue to show consideration for the safety of others.

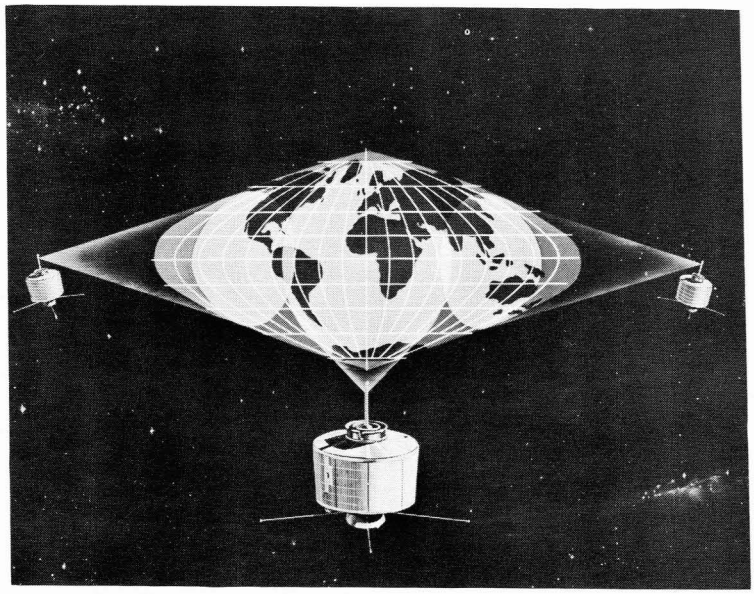
FOR SALE: 1956 Ford station wagon and pool table. Simpson, UN 8-9887.

FOR SALE: 2-bedroom 50 x 10-foot Saber trailer. Peterson, 244-5697.

FOR SALE: German Shepherd puppies. Simons, 826-2600.

FOR SALE: 3 Lionel electric trains with transformer and track. White, 877-3459.

FOR SALE: Brick 2-story house in Poquoson. Lawless, 868-9835.



ROUND-THE-CLOCK SPACE SWITCHBOARD. This drawing illustrates how three satellites of the Syncom type can provide worldwide, 24-hour-a-day communications system, including television and telephone service. Each satellite, at 22,230 miles altitude and with orbital speed synchronized so that it appears to remain stationary in relation to a point on earth, could receive and transmit signals to about one-third of the globe.

CHRISTMAS SAFETY REMINDERS

Christmas decorations will soon start going up in sec- throughout the Center. When putting up decorations at work or at home, staff members are reminded to keep the following safety tips in mind.

Since the Christmas tree is a potential fire hazard, caution should be taken in its selection, placement in the office or home, and maintenance.

Play safe by choosing a small one. Keep the tree outdoors until ready to set it up and do not put it up until a few days before Christmas.

Only flameproof trees and decorations will be permitted in Center facilities. Trimmings and fabrics may be made flameproof by using a solution of 9 ounces borax and 4 ounces boric acid mixed with 1 gallon of hot water. This solution may be used to spray, dip, or brush on the articles to make them flameproof. One simple method of spraying is the use of an insect spray gun or vacuum cleaner spray gun.

In placing the tree, it is best to avoid spots near the fireplace, stove, television set, radiator, or electric bulbs. The tree should not be located near any stairway or elevator which would provide an upward draft. It should not be near entrance doors or otherwise block exits.

Never use candles. Use electric lighting sets only. Inspect every socket and wire to make sure the set is in good condition. Discard sets with frayed wiring. Provide a switch some distance from the tree for turning tree lights on and off.

Do not leave lights burning when no one is in the house. From time to time inspect the tree to see if any of the needles near the lights have started to turn brown. If so, change the position of the lights.

When needles start falling, take the tree down and discard it outdoors.

U.S.-SWEDEN EXPERIMENT MEASURES TEMPERATURES

Scientists at the University of Stockholm, Sweden announced recording by sounding rocket of temperatures which are possibly the lowest ever measured in the Earth's atmosphere.

Temperatures as low as -143 degrees Centigrade were computed in Swedish Lapland in scientific experiments jointly conducted by the Swedish Space Committee and the NASA. The experiments were made to study the behavior and nature of noctilucent clouds at altitudes up to 60 miles.

Four Nike-Cajun rockets, carrying scientific instruments, were launched from Kronogard between July 27 and August 7. Two were fired to measure temperatures and winds while noctilucent clouds were present, while two were fired in the absence of such clouds.

Explosive sound grenades were fired at varying intervals from the rockets, and the resulting sound waves were picked up by ground-based microphones. The recorded information was used to measure the direction and magnitude of the sound velocities in the altitude layer between two explosions. These sound velocities are a measure of the temperature and winds in the layer.

The wind was also measured by tracing smoke puffs generated by the grenades. Because of long summer twilights in Sweden, scientists were able to follow the smoke trails for more than one hour.

Measurements made by oscillograph, magnetic tape and photographic plates were processed at the University of Stockholm. University scientists summarized the results as follows:

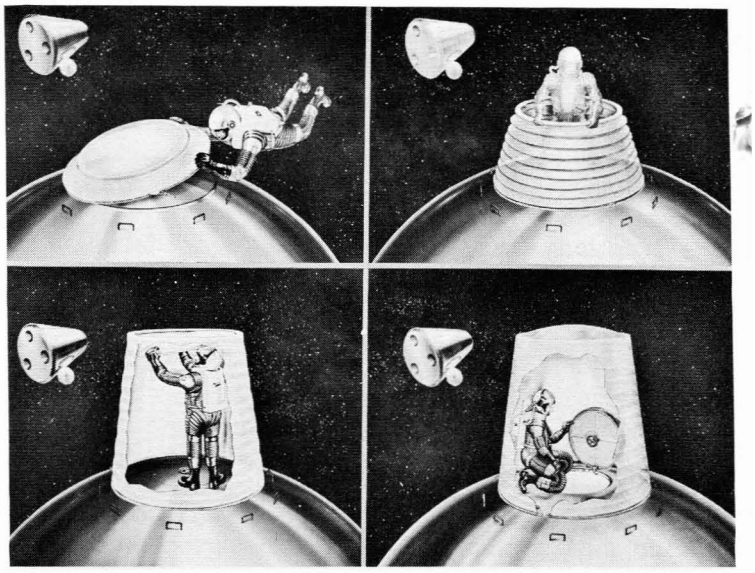
Up to a height of 35 miles, temperature distribution closely follows results previously obtained in the United States and other countries. The temperature increases from about -50 degrees Centigrade at 10 miles to slightly more than zero degrees at 32 miles, a warming caused by absorption of the Sun's ultra-violet radiation by the plentiful ozone molecules at this height.

Higher up, temperature decreases again to reach a minimum at about 50 miles where it was measured at about -120 degrees when noctilucent clouds were not present. However, when the clouds were present the temperature was computed at -143 degrees.

This appears to be the lowest temperature ever measured in nature, supporting earlier conclusions from 1962 experiments--noctilucent cloud particles are apparently coated with a layer of ice.

In the study of wind direction, results show that between 25 and 55 miles altitude winds are generally easterly or northeasterly, changing to westerly above the higher figure. These measurements show tremendous variations in winds. On one occasion a wind speed of 200 meters per second was measured at 52 miles, while only one-half mile higher the wind was nearly calm.

Final results from the Kronogard experiment are still being reviewed. However, Swedish experimenters are reasonably convinced that the finding of extremely low temperatures at altitudes when noctilucent clouds are present will have an important bearing on explaining the origin of these clouds and their geographical distribution.



An astronaut of the future will need a "pal" in space, not only for occasional assistance in performing assigned tasks but especially during emergencies which can arise during the coupling and assembly of orbiting spacecraft. According to scientists, the PAL -- portable air lock -- would enable a crewman to enter or leave a spacecraft through an emergency hatch without decompressing the vehicle. An artist's concept of the collapsible, 35-pound air lock depicts its use. It could have direct application for the next series of manned vehicles.

THRUST AUGMENTED THOR

The Air Force-developed Thrust Augmented Thor will be added to the National Launch Vehicle Program as the booster for both the Agena and Delta vehicles in accordance with an agreement between the Department of Defense and NASA.

In the new Thor configuration, three solid propellant rockets are strapped around the base of the Thor booster. They ignite at launch along with the Thor stage engine to produce a total lift-off thrust of more than 330,000 pounds.

The solid strap-ons are Thiokol Chemical Company XM-33 rockets, each 31 inches in diameter and producing 54,000 pounds of thrust. This rocket is the second stage of the all-solid propellant Scout vehicle.

After burning about 40 seconds, the solid strap-ons are dropped off the Thor stage some 40 to 65 seconds after lift-off depending on range safety requirements, while the Thor engine continues powered flight.

The Air Force developed the Thrust Augmented Thor system and has flight tested it in boosting Thor-Agena vehicles.

Thrust Augmented Thor-Delta (TAD) will achieve a 20 to 30 per cent increase in capability over the Delta which is NASA's most reliable launch vehicle with 19 straight successes out of 20 missions. For instance, TAD will be able to put about 1,000 pounds into Earth orbit compared with 800 pounds for Delta depending on specific trajectory and other mission requirements.

TAD is expected to make its first NASA flight in 1964. NASA will continue to use the Delta vehicle without thrust augmentation.

WANTED: Ride from Southampton to W.A. on 8 shift. Call Smith, 4726.

WANTED: Passengers to St. Petersburg, Fla. area December 20. Nolan, 4851.

SOHIER NAMED GENERAL COUNSEL

The appointment of Walter D. Sohier as general counsel of NASA has been announced by James E. Webb, NASA Administrator. Sohier has served as deputy general counsel since April 1961. He is 39 years old and a federal career employee.

Sohier succeeds John A. Johnson who resigned to accept an executive-legal position with the Communications Satellite Corporation (ComSat), Washington, D.C. Johnson has been general counsel since NASA was established in October 1958 and prior to that was general counsel of the U.S. Air Force.

Replacing Sohier as deputy general counsel is Paul G. Dembling. The appointments became effective December 1.

Dembling served as director of NASA's Office of Legislative Affairs from November 1961 until November 1963 and has served as vice chairman of the NASA Inventions and Contribution Board since December 1958, a position he will retain.

Sohier will have responsibility for all legal matters and will participate as a senior official of the space agency in overall policy planning. He has specialized in procurement law during his NASA career. In a period of previous service with the Air Force, he was active in international negotiations relating to foreign base rights and in civil aviation matters. He joined NASA in November 1958 as assistant general counsel.

After graduating from the Columbia University Law School, New York City, in 1951, he was employed for a year by the Central Intelligence Agency in Washington before joining the staff of the Air Force general counsel. He spent two of his six years with the Air Force as assistant to the deputy for procurement and production in the office of the assistant secretary of the Air Force (Materiel).

At Columbia, Sohier was a Stone Scholar and served as staff assistant for the Legislative Drafting Research Fund of the university. He graduated with honors in American Government from Harvard College in 1948.

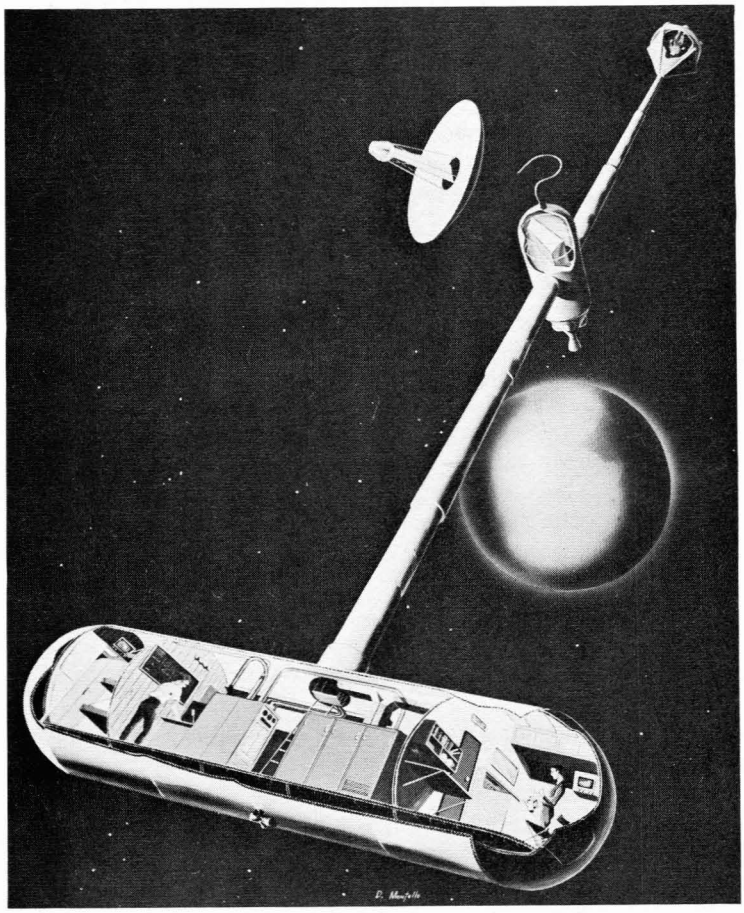
A native of Boston, he served in the Army field artillery in World War II, attaining the rank of first lieutenant. He received the Purple Heart.

Dembling, a native of Rahway, N.J., began federal service in 1942 with the Army's Office of Chief of Transportation. After serving in industrial relations capacities he joined NASA's predecessor agency, the National Advisory Committee for Aeronautics, in 1945 serving successively as special counsel, legal advisor and general counsel. When NASA was organized in 1958 Dembling was named assistant general counsel. He was chairman of the NASA Board of Contract Appeals from 1958 to 1961.

Dembling received his A.B. cum laude and with special honors in economics in 1940 and his M.A. degree in 1942 from Rutgers University where he was a graduate assistant and teaching fellow. He received his Juris Doctor from the George Washington University Law School where he was an editor of the Law Review. Currently, he is editor-in-chief of the Federal Bar Journal.

Sohier is a member of the New York State bar and Dembling is a member of the District of Columbia bar.

FOR SALE: Hi-Fi equipment, Teischman, 596-0966.
FOR SALE: Girl's 26-inch bicycle. Gillis, LY 6-5938.
FOR SALE: 1959 Ford Fairlane, 2-door. PA 2-4970.



Concept of a three-man interplanetary spacecraft for flyby missions to Mars and Venus. It is one of several concepts revealing the feasibility of multi-manned flyby of Mars and Venus by the 1970's. The spacecraft could be available for 365 to 600-day missions within a decade.

APPRENTICE HONOR ROLL

Training officials announced that twenty-two apprentices completed the mid-term semester with an average of 97 or better.

Members of the honor roll are:

Ira H. A. Abbott, Electrical Systems Analysis; Carl A. Bond, 8-foot Tunnel; Jerry T. Bright and Mercer D. Burt, Polymer Research Laboratory; Robert M. Ely, Unitary Wind Tunnel; Mark C. Harvey, Thomas K. Lusby, Wayne W. Rohrbach, Frederick J. Rosensteel, James G. Smith, and Frank H. Supplee, Electronic Shop; Billy G. Hughes, Ronald C. Mills, Allen N. Milton, and Charles M. Southall, General Electrical Service; William H. Irby, Fabrication Shop; Edward H. Ostwald, Instrument Construction Shop; Manfred P. Pross, Structures Mechanical Instrumentation Section; Dallas G. Summerfield, Model and Pliant Structures; Larry W. Swartz, Electrical Flight Systems, and Kenneth F. Test, Hypersonic Continuous Flow Tunnel.

FOR SALE: 1959 Ford and group of machinist's tools. Gardner, 722-4970.
FOR SALE: Altec 606 corner enclosure for 15-inch speakker - African mahogany. Newcomb, 596-8241.
FOR SALE: Dinette table and four chairs - chrome and red - $15. Carmines, 826-2894.
WANTED: Ride from Newmarket to W.A. on 8 shift. Martha Davidson, 4478.

ULTRAVIOLET DAYGLOW EXPERIMENT

An Aerobee 150A rocket streaked into the sky over Wallops Island Station on November 17 carrying instrumentation to measure ultraviolet radiation.

The 200-pound payload carried two instruments designed to measure the amount and distribution of ultraviolet radiation in the earth's upper atmosphere. Peak altitude was 115 statute miles.

The experiment is part of a continuing program to develop techniques for measuring ultraviolet dayglow and determing from it the physical processes occurring in the upper atmosphere. This flight is linked to future studies of the atmosphere of the earth and other planets in the solar system by use of satellites and spacecraft.

Dr. Charles A. Barth, leader of the Upper Atmosphere Physics Group of the Physics Section at the Jet Propulsion Laboratory, Pasadena, California, is responsible for the experiment. The Jet Propulsion Laboratory is operated by the California Institute of Technology for NASA.

During the 8-minute flight, a scanning spectrometer measured the ultraviolet spectrum at several altitudes looking both out into space and back at the earth, while a filter photometer measured continuously the amount of light at certain wavelengths.

The experiment was designed to measure the distribution of various atoms and molecules in the earth;s upper atmosphere that produce ultraviolet radiation or dayglow; and to ascertain the accuracy of such measurements in determining the composition of a planetary atmosphere by looking down from above.

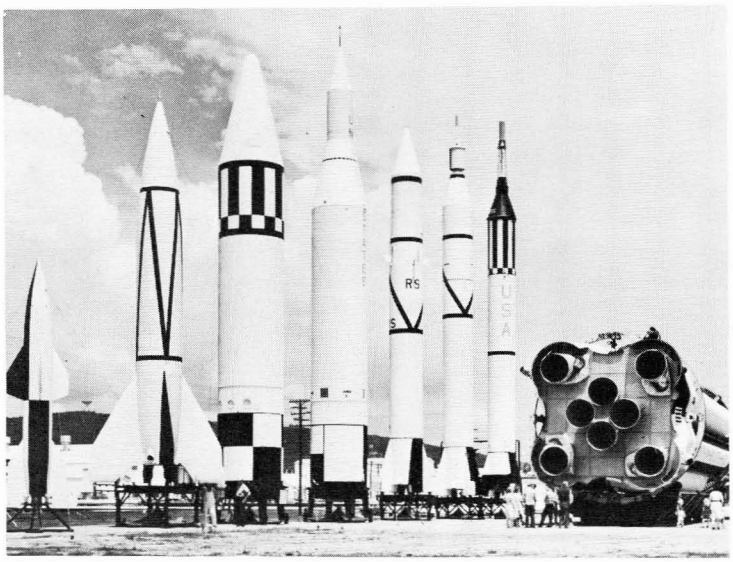
George E. Kraft of the Goddard Space Flight Center was Vehicle Manager for the project, and Ray H. Pless was Wallop Station's Project Engineer.

FOR SALE: Fireplace screen, andirons, and tools - $15. Miller, LY 6-9001.

FOR SALE: Complete set of golf clubs. Tannery, 877-1208.

FOR RENT: 2-bedroom house in South Yorktown. Stewart, 838-1917.

FOR SALE: 14-pound bowling ball - $7. Jewel, TR 7-3317.



Visitors to the Marshall Space Flight Center can see this display of rockets that NASA personnel have helped develop. Shown (from left) are: Hermes, V-2, Jupiter, Juno II, Redstone, Jupiter-C, Mercury-Redstone, and the 1.5 million pound thrust Saturn I booster.

DUFEK TO ADDRESS AIAA

Admiral George Dufek

Admiral George Dufek, U.S. Navy (retired), will speak at a meeting of the Hampton Roads Chapter of the American Institute of Aeronautics and Astronautics on Thursday, December 12 at the Warwick Yacht and Country Club located on Maxwell Lane in Newport News.

The meeting will be preceded by a social hour at 6 p.m., followed by dinner at 7 and the address at 8.

Admiral Dufek will speak on "Assault on Antarctica." He will discuss how the United States built Antarctic bases in support of the International Geophysical Year (July 1957 through December 1958). Included will be a first hand sound movie of this work.

Admiral Dufek retired from the Navy after 38 years of continuous service. A graduate of the Naval Academy, he first served on battleships and then became one of the few Navy men to qualify in both submarines and aircraft. He ultimately achieved distinction as the Navy's top "cold weather" expert. He made two expeditions to the Arctic and six to the Antarctic from 1954 to 1959. His task force constructed seven scientific stations on the Antarctic Continent for the IGY. During this work, Admiral Dufek, with seven other Navy men, made a historic first landing at the South Pole in ski equipped R4D on October 31, 1956. He has been retained by the Boeing Company as a consultant on lunar bases.

A roast beef dinner will be served for three dollars per person. Reservations may be made by calling Carl Sandahl, LY 6-2392; John Ward, LY 5-0869, or Emanuel Boxer, CH 5-6212, before Monday evening, December 9. Wives and guests are invited to attend.

RESA MEETS DECEMBER 17

The Hampton Roads Chapter of the Research Society of America (RESA) will meet on Tuesday, December 17 at 8 p.m. in the East Projection Room, Building 587.

Professor R. T. Seigel, College of William and Mary, will speak on "The Present Knowledge of Elementary Particles." He will review the elementary particles of atomic physics and discuss how some of their properties can be studied by using synchrocyclotrons.

CHRISTMAS CARDS: The Activities Association has a number of NASA Christmas cards on hand for $1.40 per dozen. Persons interested in purchasing these cards are requested to call the Activities Building, telephone 4583.

FOR SALE: Girl's 20-inch bicycle - $10. Wiley, LY 6-4427.

WANTED: Ride or driving combination from Shoe Lane to W.A. on 8 shift. Bright, 4652.

WANTED: Passengers to South Texas area December 20. Hector, 4766.

WANTED: Ride from Morrison Ave. to E.A. on 8 shift. Young, 2201.

Langley Researcher

VOLUME 2, NUMBER 26 LANGLEY RESEARCH CENTER DECEMBER 20, 1963

WEBB CALLS LANGLEY'S APPRENTICESHIP AWARD A 'DISTINCTIVE ACCLAIM' FOR CENTER AND NASA

Charles J. Donlan, Associate Director, holds the silver trophy which is symbolic of the recent winning by the Langley Research Center of the U.S. Department of Labor's second annual William F. Patterson Memorial Award "in recognition of apprenticeship program excellence." Donlan presented letters of congratulations from James E. Webb, NASA Administrator, to S. Walter Hixon Jr. (right), Supervisory Employee Development Officer, and Frank Penland, Apprentice Administrator. In his letters, Webb described the winning of the honor as "a distinctive acclaim for the Langley Research Center and for NASA as a whole."

Dr. Floyd L. Thompson has received letters from James E. Webb, NASA Administrator, congratulating the Director and two staff members on the recent selection of the Langley Research Center to receive the U.S. Department of Labor's second annual William F. Patterson Memorial Award "in recognition of apprenticeship program excellence."

The two staff members who received letters were S. Walter Hixon Jr., Supervisory Employee Development Officer who has been head of Langley's Training Office since February 1946, and Frank Penland, who has served as Apprentice Administrator for about 20 of the 23 years the training school has been in operation.

Twenty-five class and shop instructors, experts in their fields of work, play an important part in the Langley apprentice program-- the objective of which is to prepare, by organized on-the-job and classroom training, qualified young men to become journeymen and to be potential leaders in those skilled trades which have particular application to the aeronautical and space research needs of the NASA. Including the first graduating class in February 1943, the school has produced 564 journeymen and currently has 237 apprentices studying in 15 trades.

In a letter to Dr. Thompson, Webb noted "with considerable interest and pleasure that Langley Research Center's Apprentice School was singled out as the outstanding apprentice school in the Middle Atlantic States," and he extended his personal congratulations to all those responsible for the achievement.

"Considering the fact that the Middle Atlantic States Region encompasses six states and the District of Columbia and covers 2,800 registered apprentice programs throughout industry and government," Webb wrote in his letter to Hixon, "the receipt of this award is truly significant and merits the highest commendation for those who made it possible." He described the honor as a "distinctive acclaim for the Langley Research Center and for NASA as a whole."

In further expressing his pleasure, Webb said in his letter to Penland that, "As coordinator of this particular project, you can be justly proud to know that your group was selected as the most outstanding of the 2,800 registered apprentice programs in the Middle Atlantic States...I trust you will continue the type of activity which again will merit this symbol of excellence."

Langley was chosen by a national labor-management committee to receive the award, which was established two years ago in memory of the late William F. Patterson, a nationally recognized leader of apprenticeship for nearly 30 years. He became Director of the Labor Department's Bureau of Apprenticeship and Training upon its organization in 1934 and was its Chief for more than 20 years. He visited Langley frequently in his capacity as an apprentice administrator.

NEW YEAR'S EVE DANCE

The Activities Association will close the 1963 social season with the New Year's Dance on Tuesday, December 31 at the Activities Building.

The event will be semi-formal and music will be furnished by Janice and the Moonlighters. Dancing will be from 10 p.m. until 2 a.m.

Only a limited number of tickets will be available and the admission will be $6 per couple. Free setups and seasonal favors will be furnished. No tickets will be available at the door.

Tickets may be purchased from the following members of the Executive Board:

Herbert J. Pelton, Procurement Division; Bob Mitchell, Flight Mechanics and Technology; A. J. Voitlein, Flight Mechanics and Technology; Virginia LaPrade, Photographic Division; Ray Goodman, Heavy Machine Shop; Herbert Boulter, IRD: Margaret Vick, Aero-Physics; Betty Joyner Aero-Physics; and William C. Walton, Dynamic Loads.

Reservations may be made by calling the Activities Building, telephone 4583; however, reservations will not be held after 11 o'clock.

Fireworks will not be permitted in the building and monitors will be stationed at various points.

As the Langley Research Center approaches this traditional holiday season, our flag flies at half mast in solemn tribute to our loss of a great leader. We can be thankful that we live in a country that has the leadership capacity, and the inherent stability to withstand such a great shock.

Langley is now well into its sixth year of service as an important research center of the National Aeronautics and Space Administration and has contributed much to our national strength in the areas of our competence. These contributions have been achieved by the wholehearted cooperation and resourcefulness of the Langley staff during this pioneering period.

As we pause briefly at the end of another year to reflect on past accomplishments, it is appropriate that we also look to the future-- rededicating ourselves to the task of successfully meeting the challenges that loom ahead, not only in advancing the science of aerospace flight in the United States, but in maintaining the Center's record of generous and extensive participation in worthwhile community endeavors.

With appreciation for past support and with confidence in the future, I extend to members of the Langley staff and their families this sincere wish: Merry Christmas and a Happy New Year!

Floyd L. Thompson

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, Room 217, Building 587, telephone 2375.

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

Langley Researcher is printed and distributed by the Publications Branch.

ANNOUNCEMENTS

NEW HEIR. . .Celebrating the birth of a son, Kevin Antony, on November 11 is Bill Davis, Instrument Research Division.

ENGAGEMENT. . .Martha Panter, Analysis and Computation Division, and Charles Miller, Aero-Physics Division, have announced their engagement. No date has been announced for the wedding.

RETIREMENT PARTY. . .Persons planning to attend the retirement party for Joseph A. Shortal, Chief of Applied Materials and Physics Division, are requested to turn in their reservation applications today to Ann Wilson, AMPD, Building 1232. The party will be held on January 8 at the Activities Building. A social hour will be held at 6:30 p.m. followed by dinner at 7:30. Admission will be five dollars per person or nine dollars per couple.

CORRECTION. . .Thomas H. Hall Jr., Continuous Flow Hypersonic Tunnel, was inadvertently omitted in the Apprentice Honor Roll in the last issue of Langley Researcher.

ORANGE BLOSSOMS. . .Wedding bells rang on December 14 when Myrna Huffman, Procurement Division, took her final vows with Johnny Slayton, Hampton, at the Hampton Roads Baptist Church.

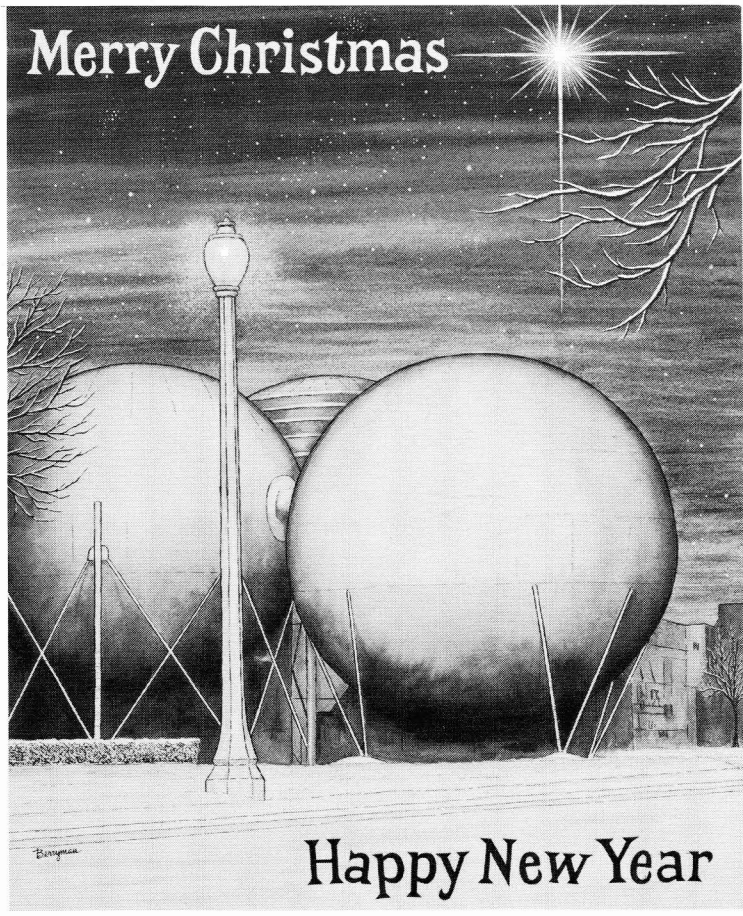
CHRISTMAS PRAYER

I am a traveller on a one-way journey through life and never expect to retrace my steps or come this way again. My yesterdays are poignant recollections of tasks neglected or undone, mixed with pleasant memories of the few things done well. My tomorrows hold a promise of opportunity to do bigger and better things. My present is being lived in the valley of struggle and pain, and sharing the load of others.

Since I pass this way but once, my hope is that men, women, and children may be glad that I came, and regret that I am leaving. As I journey with my fellow men, may I be privileged to bring joy where once sorrow ruled; smiles to replace tears; to plant a flower of kindness in those hearts where once weeks of despair grew.

May I never falter as I pass toward the mark for the prize of the high calling; but, should I stumble and fall, may the grace of God lift me and start me forward, going my way.

--Yogakshema



Our cover artist, Wesley Berryman of Technical Illustrating Section, has given us another Center Christmas scene. This time it's a night snow scene of the Hypersonic Aero-Thermal Dynamics Facility in West Area.

CAFETERIA MENU

The following menu will be served in the cafeterias during the week of December 23:

Monday - Cream of tomato soup, sliced turkey with dressing and cranberry sauce .50, grilled pork steak .40, fried fish .35, cheese ravioli .25.

Tuesday - Clam chowder, roast beef .50, deep-fried fantail shrimp .45, Polish sausage with corn fritters .40, franks and beans .25.

Thursday - Cream of mushroom soup, pot roast of beef .45, spaghetti with meat sauce .40, fried chicken .35, Austrian ravioli .25.

Friday - Clam chowder, grilled steak .60, broiled fish .35, fried fish .35, western omelette .25.

The menu for the week of December 30 is as follows:

Monday - Bean soup, roast ribs of beef .50, chuckwagon steak .45, beef stew .40, grilled cheese and bacon .25.

Tuesday - Split green pea soup, Spanish pot roast .50, baked ham .40, creamed dried beef on toast .35, hot dog .20.

Thursday - Vegetable-beef soup, Swiss steak .50, grilled pork chops .45, stuffed flounder .40, baked hash .25.

Friday - Clam chowder, roast beef .50, broiled fish .35, fried fish .35. hamburger .25.

FOR SALE: New portable typewriter in leather carrying case - $50. Hudgins, 826-2155.

WANTED: Two alternate drivers from Stuart Gardens to W.A. on 7 shift. Decker, 4535.

TRACKING FACILITIES MOVED

The moving of manned spaceflight tracking and data acquisition facilities in Australia from Muchea to a new site being constructed near Carnarvon at the westermost point of the country was jointly announced by the U.S. National Aeronautics and Space Administration and the Australian Department of Supply.

The move will consolidate at one site NASA's ground support facilities in Australia for the manned Gemini and Apollo projects.

In announcing the transfer NASA Administrator James E. Webb and the Australian Minister for Supply the Honorable Allen Fairhall spoke of the valuable contributions of the Muchea station to the Mercury program. From a performance standpoint the Muchea station was regarded as one of the best in the Mercury Network.

The new site will also include tracking and data acquisition facilities for the unmanned Orbiting Observatory series of scientific satellites.

The move to Carnarvon is being made for technical efficiency as well as for operational economy. On all NASA launches from Cape Kennedy--regardless of the azimuth angle--the spacecraft passes near Carnarvon on its first orbit, and of the succeeding orbits more are in view from this farthest west point of Australia than from any other point on land in the southern Pacific.

In Project Gemini, the prime job at Carnarvon will be to follow the Agena rocket and later the astronauts' spacecraft as each in turn swings up from the Indian Ocean toward Australia, and to obtain data indicating line of flight, thereby determining the orbits. Tracking and communications with the spacecraft by radio telemetry will continue during rendezvous.

For the unmanned Orbiting Observatories--huge satellites containing up to 20 or more experiments--Carnarvon must track their rockets, give command to ignite second burning, and obtain data to determine orbit. These satellites are the Orbiting Astronomical Observatory (OAO), the Orbiting Geophysical Observatory (OGO) and the new versions of the current Orbiting Solar Observatory (OSO).

The new facilities at Carnarvon to meet the more sophisticated requirements of Projects Gemini and Apollo will be built around the recently developed FPQ-6 radar which is the most accurate known instrument for space tracking. Telemetry equipment considerably advanced beyond that needed for Project Mercury and the early scientific satellites, will be installed at the station for the technical complexity of command to the spacecraft and the reception of a far greater flow of information to the ground.

The tracking and data acquisition stations in Australia have been established and are operated by the Department of Supply in accordance with NASA specifications and schedules. The facilities are the implementation of an agreement between the Australian and the United States Governments for international cooperation in peaceful, scientific projects of research in space. The stations are operated entirely by Australian personnel.

FOR SALE. 3-bedroom house. Vanasse, 851-2046.

FOR SALE: Hot Point electric oven and counter top range. Smith, 596-7709.

FOR SALE: 2-1/4 x 3-1/4 Century Graphic camera and accessories - $125. Collins, PA 3-2795.

Singing star Teresa Brewer gives Santa an important Christmas assignment-- the delivery of a United States Savings Bond to each of her four children. The lovely recording artist, whose inimitable style has thrilled millions on radio and television, thinks that the now better-than-ever Savings Bonds make ideal Christmas gifts for children and adults alike. "They are the present with a future," Teresa says, "the one that keeps on giving." She recommends Savings Bonds to all Americans as the ideal Christmas gift.

LUNAR ECLIPSE DEC. 30

On December 30, the Earth will pass between the moon and the sun, shutting off sunlight to the moon and causing a lunar eclipse. At the moon the Earth's shadow is made up of two parts -- a central core of total darkness called the umbra which is surrounded by a partial darkness region called the penumbra.

The moon will be in the penumbra and start to enter the umbra at 4:24 a.m. EST. It will move completely into the umbra at 5:27 a.m. EST, it will start to emerge from the umbra at 6:46 a.m. EST, and will completely emerge from the umbra and be in the penumbra at 7:49 a.m. EST.

As seen from Hampton, the moon will be in the west near the horizon and will set at 7:32 a.m. EST. Twilight will begin at 5:50 a.m. EST, and the sun will rise at 7:25 a.m. EST. Thus, only the first half of the eclipse will be visible from Hampton, weather permitting, due to the moon setting and the sun rising.

FOR SALE: 1957 Cadillac sedan. Brothers, LY 6-1032.

FOR SALE: 20-inch Capehart TV, maple step table, unfinished window shutters, aluminum Christmas tree, Westinghouse deep fat fryer, ice crusher. Maiers, 723-1392.

FOR SALE: H-O trains with 2 engines, cars, accessories. Locke, LY 6-7532.

FOR SALE: Set heavy duty tire chains size 7.60-15 (8.50-14) or will exchange for set size 6.50-14. Wilson, 596-7981.

WANTED: Child's doll carriage. Wilson, 877-3014.

FOR RENT: 3-bedroom brick home in Tabb. Cain, 595-0044.

NASA BOWLING LEAGUES

In the NASA Tenpin League Tom Cats and Crusaders are tied for first place in League A with 35 wins and 17 losses each. Top scores were rolled by Jack Paulson with a 222 game and H. Lee and B. Wood with 580 sets. Misfits lead League B with 35 wins and 17 losses. Top scores were rolled by C. Gerrity with a 603 set and Mary Jim Joslin with a 208 game and 530 set.

STANDINGS

LEAGUE A			LEAGUE B		
Team	W	L	Team	W	L
Tom Cats	35	17	Misfits	35	17
Crusaders	35	17	Spare Parts	31.5	20.5
Hornets	33	19	Dynamos	31	21
Phantoms	31.5	20.5	Ten-Benders	31	21
Unitary	31	21	Cee Pees	30	22
Pinwigglers	29	23	Latecomers	29.5	22.5
Alley Cats	27	25	Ranch House	29.5	22.5
Short Circuits	25.5	26.5	Hucksters	29	23
Devious	25	27	Sudz	28	24
Flight Eng.	25	27	Bowling Belles	28	24
Johnnie's	25	27	Analogs	25	27
Spare Oops	25	27	Barristers	25	27
Payloads	24.5	27.5	Greenhorns	23.5	28.5
Electronic Shop	24	28	Tarey Drive In	23	29
Frame Ups	23	29	Question Marks	23	29
Flyers	22.5	29.5	Alley Oops	22	30
Galaxies	22	30	Gliders	20.5	31.5
Malfunctions	20	32	Dillys	19	33
A-OK's	20	32	CCCP	18.5	33.5
Oddballs	17	35	Sandbaggers	18	34

Ten Spots lead the NASA Duckpin League with 34 wins and 18 losses. High scores this week were rolled by John Moore with a 143 game, Bill Suit with a 372 set and Helen Dupere with a 132 game and 366 set.

STANDINGS

Ten Spots	34	18	AMC	26	26
Doodle Bugs	30	22	Lt. Mach. II	26	26
Strike Outs	30	22	ACD	25	27
Pin Poppers	27	25	Rebel Bombers	21	31
Lt. Mach. I	27	25	Reentry	14	38

CLERK EXAMINATION OPEN

The Board of U.S. Civil Service Examiners at Fort Eustis has announced the opening of an examination for Clerks, GS-2 and GS-3. The register will be used to fill vacancies at Fort Eustis and other Government agencies in this area.

Applications must be submitted by December 30 to the Board of U.S. Civil Service Examiners, Fort Eustis, Va.

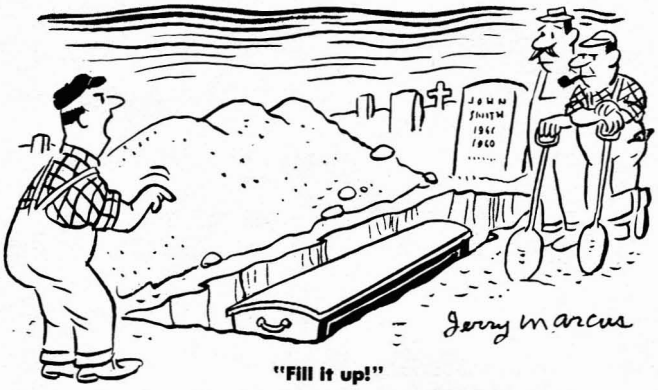
CREDIT UNION NOTICE

The Langley Federal Credit Union will elect members to the Board of Directors and Credit Committee at its annual meeting next month. Members who wish to suggest candidates for either of these offices may contact one of the following members of the Nominating Committee before December 27: Melvin Anderson, 3421, or Peter Korycinski, 4700.

NOTICE: The Activities Association's bi-weekly Pay Day game night will be held at 8 p.m. on Thursday, January 2 at the Activities Building.

"Fill it up!"

"Fill it up!"



"Fill it up!"

197 EMPLOYEES GIVE BLOOD

The Bloodmobile made its final visit of the year to the Center last week and 197 pints of blood were donated by staff members and contractor employees. Eight of the donors were employed by Electro International Incorporated.

This fifth visit for 1963 brought the Center's total donation to 862 pints for the year. The original quota was 800.

Moody J. Firman, Willard L. Sullivan and Robert L. Blagg completed their quota for a three-gallon pin. E. T. Maher and John W. Whitmore reached the two gallon mark.

Receiving one-gallon pins were William L. Grose, Charles Barr, Donald Hilt, Harold Ayers, Kenrick Hughes, Etha Deem, William VanWald, and Tom Palmer.

Assisting during the visit were Dr. William H. Parker, Dr. W. M. Patterson, and Dr. Sul Uy.

The next visit to the Center will be February 19. Employees desiring to register for the blood program may call East Dispensary, telephone 2243.

GRADUATE STUDY COURSES

The announcement of classes to be offered at Langley during the 1964 spring semester under the University of Virginia and Virginia Polytechnic Institute graduate extension program is being distributed to divisions and branches today.

Attention is called to the deadline of January 13 for submitting applications. If additional copies of the announcement are needed, call the Training Office, telephone 2326.

CATHERINE WHEELER RETIRES AFTER 45 YEARS OF SERVICE

Miss Catherine Wheeler, who moved to Washington from her native Pennsylvania to take a temporary job with a small new government agency pioneering in the problems of research for the dawning age of flight, retired from NASA Headquarters staff on November 30 after 45 years of continuous service. She has reached the mandatory retirement age of 70.

As a young school teacher in Pennsylvania and Southern New Jersey, Miss Wheeler went to Washington in the summer of 1918 with aspirations toward a career in music. She completed a civil service examination and thereby became the eighth employee hired by the then three-year-old National Advisory Committee for Aeronautics, predecessor of NASA. She was listed on official records September 9, 1918, as a stenographer and typist. But intense interest in her work and steady progression caused her to follow a secretarial career which led to high responsibilities for the NACA senior committee itself.

Miss Wheeler's career spans most of the years of significant progress in the age of flight which saw the flimsy, low-powered airplane of World War I make grest progress through the research efforts conducted and coordinated by NACA, and become the backbone of the powerful commercial and military aviation forces of modern times. She remained to see an even greater event, the emergence of the age of flight into the age of space exploration.

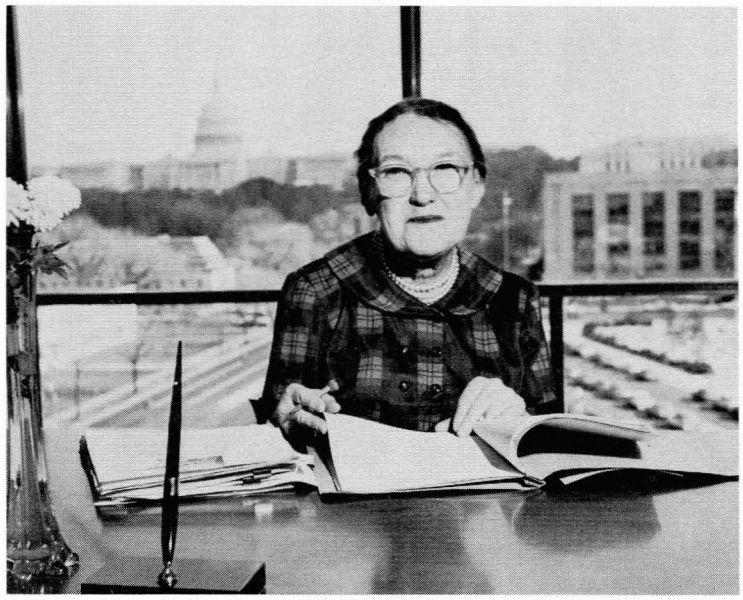
During all but her first few months out of 45 years of Government service, her career was devoted to secretarial duties for committees of responsible officials, first for the NACA senior committee, who were appointed by the President from prominent positions in industry and Government, and later for the Research Advisory Committees which are now serving NASA's Office of Advanced Research and Technology.

She was the only woman permitted at NACA's formal committee meetings. In her official capacity of recording secretary she witnessed the making of a number of important decisions such as the decision that led to accelerated development of supersonic flight and the go-ahead for development of the X-15 research airplane flight program.

In addition to her work for the committees, she headed the correspondence division of NACA and was assistant to its Director for many years. For a long period she was secretary to the Director of Aeronautical Research, the late Dr. George W. Lewis. She has always been noted for exceptional attention to duty and for her habit of working long hours.

Miss Wheeler's associations in NACA included such prominent figures as James H. Doolittle, Jerome C. Hunsaker, and Vannevar Bush, the last three Chairmen of the Committee, and Orville Wright, Leonard Carmichael, William Littlewood, Charles A. Lindbergh, William F. Durand, General Nathan Twining, General Henry Arnold, Edward V. Rickenbacker, Admiral David Taylor and Admiral Ernest King, who were menbers.

When NACA was abolished upon establishment of NASA on October 1, 1958, she became executive assistant to the Administrator for the formation of the new research advisory committees which are concerned with various research now under the programs of Dr. Raymond L. Bisplingoff, NASA's Associate Administrator for Advanced Research and Technology.



Miss Catherine Wheeler has retired from the NASA Headquarters staff after 45 years of continuous service.

Born November 12, 1893, in Carbondale, Pennsylvania, she was educated in the public schools there and was graduated in 1913 from the State Normal School in West Chester, with a teacher's certificate. She taught elementary grades in Goshen, New Jersey, and in small communities in Lackawanna and Susquehanna counties, Pennsylvania, as well as in her home town.

She says she developed a dislike for teaching after four years and took a secretarial course as a means of going to Washington. Music never became more than an avocation, but she has been a member of the choir of the Church of the Epiphany in downtown Washington for nearly 45 years.

ANNUAL LEAVE NOTICE

As the 1963 leave year comes to a close, staff members are reminded that they have until midnight January 5, 1964, 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 1963 must be used by January 4 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 on January 4 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.

WANTED: Driving combination from Green Oaks or Ivy to W.A. on 8 shift. Schoonover, 4701.

WANTED: Alternate driver from Brentwood to W.A. on 8 shift. Feldhousen, 4562.

WANTED: Ride or driving combination from Glendale to W.A. on 7:30 shift. Germain, 4616.

FOUND: Set of keys in taxi. Holloway, 3441.

LIFE AT LANGLEY CENTER DURING 1963

As another eventful year comes to a close, we take time out to look back over the news that made headlines during 1963.

January - John Becker Named IAS Fellow. . .NASA Awards VARC Contract. . .T-33 Given to Hampton. . .88 Institutions Receive NASA Grants. . .Mariner Sets New Records During Flight. . .Meteorite Network Planned In Seven Midwestern States.

February - NASA Requests Nearly $64 Million and 271 New Employees For Langley. . .Forty Apprentices Graduate. . .Langley Selects Boeing Company To Study Supersonic Commercial Air Transport Concepts. . .Space Studies Reported By Langley Scientists. . .NASA Awards Contract For Two Manned Lunar Landing Research Vehicles.

March - Satellite Reports Punctures By Micrometeoroid Particles. . .William E. Hutcheson Heads Joint Campaign. . . Wallops Team Participates In West Coast Launching. . . Dr. Raymond Bisplinghoff Visits Center. . .NASA Simplifies Names Of Saturn. . .Herbert Rochen Appointed To SNAP-50 Post. . .Employees Receive Safety Awards. . .Langley Team Compiles And Computes New U.S. Standard Atmosphere, 1962. . .NASA Presents Awards In Area Science Fair.

April - SA-4 Launched Successfully. . .Activities Association Holds Annual Easter Egg Hunt. . .Wallops Tests EOGO Equipment. . .Microfilm Program Standardized. . .Studies Planned On Six Bio-Satellites. . .Andrew Swanson Awarded Sloan Fellowship. . .Axel Mattson Judges National Science Fair-International. . .NASA Names New Advisory Group. . . Apollo Spacecraft Delivered To Marshall Center. . .Longest Powered Flight Reported By X-15 Rocket.

May - Industry Asked To Propose Manned Orbiting Research Laboratory Plans. . .Langley Gives Contract To University Of Virginia. . .Director Accepts Land As Site For Space Radiation Effects Laboratory. . .Frederic Gustafson Receives Dr. Alexander Klemin Award. . .Italian Instruments Tested. . .Langley Launches Inflatable Paraglider. . .Floyd Thompson Receives NASA Medal For Outstanding Leadership. . .L. Gordon Cooper Orbits Earth 22 Times.

June - Floyd L. Thompson Receives Honorary Doctor Of Science Degrees From The University Of Michigan And The College Of William And Mary. . .NASA Employees Benefit Association Declares Record Dividend. . .Twenty-three Scout Launch Vehicles Ordered By NASA. . .Herbert Pelton Elected President Of Activities Association. . . Record Setting TIROS V Stops. . .Biotechnology Committee Named. . .NASA Publishes "Welding Tips". . .Langley Awards Life Support System Contract. . .Contractors Report Progress On Supersonic Transport Studies. . .Manuel Queijo And Robert Fralich Earn Ph.D. Degrees. . .Edward R. Sharp Medical Library Dedicated.

July - Robert Gilruth Thanks Langley Staff For Support Of Project Mercury. . .Bids Invited For Building To House NASA Cyclotron. . .Apollo Lunar Mission Conference Held At Langley. . .Dean Crowder Heads NASA Langley Office. . . Center Has Two Dispensaries To Serve Employees. . . Sixteen Employees Receive Masters Degrees.

August - NASA Presents Large Cash Award To Francis M. Rogallo And His Wife, Gertrude S. Rogallo. . .Dr. Thompson Receives 1963 Distinguished Service Award Of The Virginia American Legion. . .X-Ray Survey Held At Center. . .348-acre Tract For VARC Transferred To State. . .Major John Samos Replaces Major Cecil Bailey At Langley. . .Langley Awards Contract For Satellite Experiment. . .Echo I Completes Third Year In Orbit. . .Shotput Test Launched At Wallops. . .Langley Awards Contract For Radiation Laboratory. . .Eleven Student Trainees Receive Bachelor Degrees. . .Rufus House Heads Center's United Fund Drive. . .Dr. Adolf Buseman Represents NASA At International Scientific Symposium in Tbilisi, USSR. . . Contract Awarded To Build Three Echo II Balloons.

September - Langley Apprentice School Receives William F. Patterson Memorial Award. . .Special Ceremonies Planned For NASA's Fifth Anniversary. . .Travel Accident Group Insurance Plan Offered Staff. . .Flu Shots Scheduled. . .Harvey Hubbard Elected ASA Fellow.

October - NASA Honors Individuals On Fifth Anniversary. . .New Emergency Broadcast System Replaces CONELRAD. . .Charles Donlan Receives NASA Medal For Outstanding Leadership. . .Dr. Thompson Presented 40-year NASA Service Emblem. . .Dr. Samuel Katzoff Honored With NASA's Special Service Award.

November - NASA Names Committee To Study Electronics Center Location. . .Key NASA Tracking Site Dedicated At Rosman, N.C. . .Dr. Joseph Shea Heads Apollo Spacecraft Development. . .Dr. H. J. E. Reid Named "Elder Statesman Of Aviation". . .Damaged X-15 To Be Modified. . . Saturn Mission Changed. . .First Satellite Telephone Call Reported From West Germany.

December - Douglas Aircraft Selected For Space Station Study. . .Staff Donates $60,984 To United Fund. . .Activities Association Holds Annual Children's Christmas Party. . . Rocket Launched At Thumba. . .Walter Sohier Named General Counsel.