

SPACEPORT



NEWS

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NASA Launch Operations Center, Cape Canaveral, Florida

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ALL SMILES are Cindy Von Waldner, left, and Karen Jones right, at the North Brevard Rehabilitation Center for physically handicapped. Teacher is Louise McAlister. The center is one of 21 agencies supported by the United Fund. For photos on other activities aided by UF, turn to Page 4.

Three Firms To Negotiate MILA Pact

NASA has announced the selection of three companies for negotiations leading to the selection of a contractor for the operation of a technical communications system at MILA.

The three firms are: Bendix Field Engineering Corporation, Owings Mills, Maryland; IT & T Federal Electric Corporation, Paramus, New Jersey; and the RCA Service Company, Camden, New Jersey.

The contract will be on a cost plus incentive fee basis for three years with provision for annual review. Cost over the three year period is expected to exceed \$4 million dollars. Under the terms of the contract, the selected firm will install, operate and maintain technical operational circuits within MILA.

Hazardous Areas

In addition, the contractor will be responsible for the operation of telephone equipment in hazardous or inaccessible areas determined to be operationally critical and under the immediate discipline and control of launching teams.

The contractor also will be asked to support master planning for further expansion of the MILA communications system.

A further responsibility will be the operation of a complete cable distribution system and all other communication equipment with the exception of conventional business telephone service and a dial telephone exchange. The latter will be installed, operated and maintained by Southern Bell Telephone Company.

The three firms were selected from a total of 14 companies which submitted proposals.

Educational Survey Reveals Study Needs

Results of a county-wide survey to determine higher education needs and desires of military, civil service and contractor personnel have been published in a report by LOC's Community Development Office and the Air Force Staff Secretariat Office.

The survey, which covered about 10 per cent of Base and Cape employees, was conducted at the request of County Commissioner George King,

Jr. He is chairman of the Brevard committee to assemble and present such data to be used in determining the location of a state space university in East Central Florida by the Board of Control.

Of 10,000 questionnaires sent out, 3,897 were returned. Of this total, 937 were engineers, and there were 695 hourly workers, 646 technicians, 458 supervisors, 434 administrators, 61 scientists and 564 in other job categories.

Of those surveyed, 1,844 had a high school or trade school diploma, 480 had an associate or technical (two years) degree, 1,300 had a bachelor's degree, 189 a master's degree and 29 a doctorate.

Some 2,113 expressed interest in future studies in Engineering and related fields. Business Administration was next with 805 expressing interest; then came Liberal

(See SURVEY, Page 6)



ABILITY, NOT DISABILITY

Federal employers in the Cape area have been urged to give serious consideration to hiring handicapped citizens who possess needed skills when vacancies occur.

The plea was made by Hammond B. Smith, Director of the Atlanta Region of the U. S. Civil Service Commission.

Smith also urged Federal managers and employees in this area to cooperate in the observance of National Employ the Physically Handicapped Week during the period of October 6-12.

"The success which Federal employers have met in hiring some 200,000 handicapped citizens during the past two decades gives us a compelling reason to support this program," Smith said.

He reported that 19 of every 1,000 persons hired by the Federal Government last year either were physically handicapped or had been restored to health after suffering mental illness.

"These employees are demonstrating ability — not disability," he said. "They are contributing to such national programs as space science, agricultural research, law enforcement, and numerous citizen services. Their jobs include all known professions and occupations."

Smith linked the Government's policy with regard to hiring the handicapped to its general policy of extending equal employment opportunity to all citizens.

"Today, under positive leadership and direction from President Kennedy, we are taking strong and specific measures to wipe out the last trace of discrimination."

To hire the person best qualified to fill every vacancy, Smith said, all citizens must be given a fair chance to compete for Federal jobs.

History has proved, he said, that "Handicapped citizens who possess needed skills are in fact not handicapped when they are properly placed."

WHAT WOULD YOU DO?

If a fire broke out in your work area what would you do? Do you know where the nearest extinguisher is? Are you sure what number you're supposed to call? Do you know which exit to take?

Since this is National Fire Prevention Week, as proclaimed by President Kennedy, it'd be a good time to brush up.

Cape Fire Chief Norris C. Gray suggests listing a few resolutions, to wit: (1) to look for, report and help eliminate all potential fire hazards at work and at home; (2) to familiarize yourself with all fire prevention regulations, evacuation plans and the first aid fire fighting equipment in your area, and (3) to discuss with your family how to call the local fire department, how to evacuate your home in case of an emergency, and how to use first aid fire fighting equipment in your home.



ARTHUR PORCHER, Chief of LOC's Construction Branch, left, explains NASA's project to members of a special board which held a hearing on the railroad strike last week. Left to right are **James J. Reynolds**, Assistant Secretary of Labor; **Stephen Shulman**, Assistant Secretary of Defense; **Earl Hilburn**, Deputy Associate Administrator, NASA; and **Jack Gentry**, assistant to Reynolds.

FLORA'S MOVEMENTS WATCHED CLOSELY

NASA officials are keeping a continuing close watch on the unpredictable movements of Hurricane Flora today, while operations proceed as normal at Canaveral.

At Launch Complexes 34 and 37, some equipment was secured under provision of hurricane condition IV, which corresponds to the Weather Bureau's small craft and gale warning. This condition was declared last Friday.

Hoisting equipment was tied down and a few trailers on the complexes were moved into fields and tied down with hurricane anchors.

Survey Schedule

A full-scale Area Wage Survey is being conducted locally as a joint effort by NASA and the Army-Air Force Wage Board, to establish prevailing rates for the crafts and trades in the Canaveral area.

New pay schedules for local Federal Wage Board personnel, including those assigned to LOC, will be effected within 45 working days of the survey's announcement, September 24.

Congratulations

LOC's Public Information Office is the first NASA organization to report 100 per cent participation in the '63 United Fund Drive.

At 34, trucks hauled fill dirt into the sea wall area where high tides and rough seas caused erosion.

Sand bags were used in some Complex areas, particularly around cable tunnel entrances.

Sweetnothin's Lead Mixed Bowling League

After the third week of the NASA Mixed Bowling League, the Sweetnothin's, by defeating the Swingers 3-1, moved into first place. Judy Dills had a 476 for the leaders.

The Baba's remain a half-game behind after nosing out the Ten Pins 3-1. Jerry Smith had a 189 for the winners and Bill Shada a 182 for the Ten Pins.

The Whingdingers, only a game out of first place, winged by the Peapickers for three points.

Other action saw the Poor Four take three from the Gutter Dusters. Leading the winners were Joyce Newgent with 166 and 151 and Dave Hecker with a 545 set.

The Longshots dropped four points to the Dare Devils in three hard fought games.

Rounding out the action the Hot Shops defeated the Jankanoos three out of four. Al Sheffield fired a 193-518 for the Shots while Tim Bass stayed right with him with a 508.



Spacecraft Contaminants Present Flight Problems

Any astronaut making an extended space flight takes one of Los Angeles' major problem with him—smog, or at least a form of the infamous southern California phenomenon.

Not only does a space ship take the problem along, but it is intensified in several ways. The culprits in the space ship environment are the aerosols and trace particles which are created by the equipment used or are developed as the equipment is used. This is in addition to the gaseous contaminants such as carbon dioxide or carbon monoxide which usually get the blame for the tears shed on Cape causeways and the Los Angeles freeways.

Where do these contaminants come from?

There are no automobiles spewing exhaust fumes in the submarines, nor are there industrial plants clouding the atmosphere.

But everything from the paint used inside the submarine to the mass of electronic equipment gives off particles which contaminate the air. And the hazard has to be, and is, reduced to a safe and comfortable level.

Major Contributors

Humans themselves produce carbon dioxide. Cooking and smoking are major contributors. Other contributors were fuels, lubricating oils, solvents, and byproducts from equipment engineers installed to control known contaminants.

Even the shining of shoes is prohibited during extended submergence because of the highly volatile ingredients of polish.

While a small electrical fire in a submarine would not be critical, the resulting contaminants could prove catastrophic in a space capsule.

The experience gained in submarine studies is being put to good use in solving the anticipated problems of extended space flights. This is only a part of the human engineering job which must be done before man goes to the moon, Mars or other planets.

Four methods have been determined as the most effective. These are: (a) elimination of suspect materials; (b) identification of materials necessary for space vehicle design; (c) determination of the actual hazard based on the anticipated operating conditions; and (d) provision for detection and control equipment on board the space vehicle as has been done in the highly successful Polaris submarines.

Then might come the bigger job and a really practical "fallout" benefit — adapting all this to solving the smog problem in Los Angeles and other urban areas.



JO ANN HARDIN, a summer employee at LOC for the past five years, was given a bon voyage party last week by Instrumentation employees prior to her departure to London for graduate study. With her is Jim White, Chief of the Planning and Resources Office.



PHOTO shows the Straight Wall on the moon. According to a NASA scientist, this geological surface fault extends 60 miles and is about 800 feet high.

Moon Wall Fascinates Scientists

One of the most fascinating surface features on the Moon is the Straight Wall, described as a geological fault. It is the largest and best known of several Moon faults. Faults are linear fractures of the surface.

As with faults on the Earth, bedrock sometimes will rise more on one side of the crack than on the other, producing cliffs, or walls.

Dr. John A. O'Keefe, assistant chief of the Theoretical Division at the NASA Goddard Space Flight Center in Greenbelt, reports the height of the Moon's Straight Wall is "approximately 800 feet" and the wall is about 60 miles in length.

Studies of shadows of the slope, he said, show that the wall is not vertical but has a slope of not over 40 degrees. He attributed this to the formation of a "rubble slope" on what had been the lower side.

"Here and there along the Straight Wall modern observers have noticed evidence of landslides," Dr. O'Keefe explained.

"We notice that the Straight Wall is almost completely a vertical feature. There is no evidence of sidewise movement along this fault such as often exists along terrestrial faults."

PAYLOAD CAPACITY OF ATLAS VEHICLE MAY BE INCREASED

Two study contracts awarded by NASA's Lewis Research Center may someday result in significant increases in the payload capacity of the Atlas launch vehicle.

Under contracts totaling \$576,000, Rocketdyne Division of North American Aviation and General Dynamics/Astronautics will investigate the effects of a liquid fluorine, liquid oxygen mixture on various Atlas components.

If feasible, engineers would like to use this mixture as the oxidizer in the Atlas propellant. RP-1, a type of kerosene, would still be used as the fuel.

Previous studies have indicated that use of the liquid fluorine, liquid oxygen mixture, called "flox," could achieve an 88 per cent increase in the payload for 100 mile high orbits and a 65 per cent increase for earth escape missions.

Some of these performance gains may be sufficient to achieve orbital missions with an Atlas vehicle that would otherwise require additional rocket stages.

Under a \$209,625 contract, General Dynamics will conduct laboratory tests to determine the compatibility of flox with Atlas propellant loading equipment, Atlas components and the Atlas oxidizer tank.

Rocketdyne, which produces the Atlas engines, will study the possibility of using the flox mixture in the present MA-5 propulsion system under a \$366,593 contract.

Studies will revolve mainly around a mixture of 30 per cent fluorine and 70 per cent liquid oxygen by weight.

Fluorine, a gas in its natural state, is an extremely active element that releases more energy when burned than liquid oxygen. This increased energy allows the same amount of propellant to deliver more payload or complete the same mission with less propellant. Use of fluorine in rocket engines has been studied for more than 15 years.

Youngest Astronaut

John Y. Young, 32, of San Francisco, is NASA's youngest astronaut trainee.

UNITED FUND CONTRIBUTIONS GO TO



FIRST AID CLASSES, teaching the latest survival techniques, are part of the Red Cross' overall training program. Here, a Brevard group practices bandaging methods on a "victim."



BOY SCOUT Jerry Allen applies knowledge learned from craft lessons to fashion a fishing lure.



COLONEL W. H. Boshoff of the Titusville Cooperative Charities, shows crutches which will be used by a crippled youngster.



COLLECTING AND DISTRIBUTING food and clothing to the needy is one of the South Brevard Charities' many functions.



SWIMMING LESSONS, taught by qualified instructors, are a part of the diversified Red Cross program in Brevard.

FULFILL NEEDS OF BREVARD COUNTY



LITTLE Harold Moss is helped by Martha Cox at the Crippled Children's Clinic.



A FAST GAME of basketball, supervised by trained personnel, is only one of many activities presented annually by the YMCA.



GIRL SCOUT Marsha Work flips through yearbook.



A YOUNGSTER demonstrates her prowess at blowing bubbles for classmates at the Brevard Training Center in Rockledge.



SALVATION ARMY Captain Vernon Hall interviews an applicant seeking aid at his office headquarters. Hall's organization is one of 21 agencies supported by the United Fund.

5,000 Rockets Fired From Wallops Island

One of the busiest launching sites in the nation is located on the eastern shore of Virginia, 40 miles southeast of Salisbury, Md. It is NASA's Wallops Island Station.

This operational base for launching scientific experiments is the only launch facility completely owned and operated by NASA and under civilian control.

TECH WRITERS MEET. GRIFFITH TO SPEAK

Normand Griffith of the Boeing Company will be guest speaker next Wednesday night at the monthly meeting of the Society of Technical Writers and Publishers.



Griffith is Organization and Compensation Administrator for the Boeing Atlantic Test Center.

The meeting will be held at the River's Edge restaurant in Cocoa Beach. Social hour begins at 5:30 p.m., and dinner is a 6:30.

His talk is entitled "An Experiment With Fog" and deals with Boeings' attempt to raise the caliber of written communications of all types within the company by holding inter-company classes or workshops on clear writing.

Griffith is Organization and Compensation Administrator for the Boeing Atlantic Test Center.

SMALL PACKAGE

Size isn't everything, even in Texas.

A new radio telescope at the University of Texas can zero in on the Moon's details with greater precision than most of the larger "dishes" in the world.

The gigantic radio telescopes view an area on the Moon of 1,000 miles diameter. The Texas telescope, with a concentrated view of only 150 miles of the Moon, is able to study details the giants can't see.

Also, because it operates at higher frequencies—between optical and microwave—it is making observations in an area virtually unexplored before.

Since 1945, the Wallops facility has launched more than 5,000 research vehicles of from one to seven rocket stages in quest of scientific information. Nearly 300 experiments are sent aloft each year from Wallops.

The experiments are conceived, designed and built by scientists and engineers in laboratories and research centers all over the country and in many foreign nations. They are requested by other NASA centers, other federal agencies, universities and from scientists overseas.

The Wallops' mission is to prepare, assemble and launch the experiment, get it to the necessary velocity and position in space or atmosphere, track it, acquire and record the desired data, process the information, and supply the results to the appropriate scientists for analysis.

At any one time there are certain to be some foreign nationals in residence at the Wallops' Station. Some 40 countries have sent representatives here in connection with experiments or to seek assistance in establishing their own rocket launching facilities.

Much of Wallops' research effort is devoted to sounding rockets with trajectories extending to hundreds or even thousands of miles in altitude.

However, three scientific satellites have been launched from Wallops on the four-stage, solid fuel Scout vehicle. They are Explorer IX, Explorer XIII and Explorer XVI.

Wallops also operates one of the three Tiros Weather Satellite Command and Data Acquisition Stations. The Wallops Tiros facility is used to transmit operational commands to the Tiros satellites and to receive photographs from them.

Another lesser known activity at the Wallops Station is the operation of a full-scale tracking station for manned space flights.



EX-TEAMMATES Rocco Petrone, left, Assistant Director of Plans and Projects Management at LOC, and Air Force Major Arnold Tucker got together last week at the Cape. Tucker quarterbacked the famous Doc Blanchard-Glenn Davis football teams at Army in the mid-'40's. Petrone played tackle.



STUDYING RESULTS of their education survey are, left to right, Paul Siebeneichen, Chief of LOC's Community Development Office, Major Clem, AFMTC Staff Secretariat, Joe Caruso, Administrative Assistant to County Commissioner George King, who requested the survey, and U. Wright Kerns of the Community Development Office.

SURVEY REVEALS NEEDS

(Continued from Page 1)
Arts, 144, and Education, 106.

Of those choosing engineering, 755 picked electrical engineering, 274 chose mechanical, 231 selected mathematics, 145 were interested in physics, 86 in aeronautical engineering and 59 in space technology.

Nineteen per cent of the respondents are presently enrolled in one of Brevard's colleges, or taking extension work from private, federal or state institutions.

A marked preference for an

educational program leading to a degree was indicated, and night classes were preferred almost eight to one.

The amount of time each respondent was willing to travel one way to classes averaged 30 minutes.

X-15 Like Capsule

NASA's X-15 flies like a plane in the Earth's atmosphere and like a Mercury capsule in space thanks to reaction-control rocket jets in its nose and wing tips.

NASA'S PLANETARY CAPSULES TO BE STERILIZED

NASA has announced procedures for the sterilization of planetary spacecraft and revised the procedures for the decontamination of unmanned lunar landers.

NASA's policy continues to be that under no circumstances will an unmanned spacecraft destined for landing on the planets be launched until sterility has been assured.

The following procedures will insure the prevention of

the biological contamination of the planets by NASA spacecraft until sufficient information has been obtained from unmanned missions to assure that biological studies will not be jeopardized:

It is the NASA goal to achieve terminal sterilization of a complete capsule by heat. Present techniques require that components to be landed on or enter into the atmosphere of the planets be as-

sembled under clean room conditions and the complete spacecraft subjected to dry heat using a temperature-time cycle that has been proven to render it sterile. The assembly will then be encased in a gas tight enclosure to maintain sterility. Following these procedures the enclosure will not be opened.

Recognizing that many of the state of the art components used in today's spacecraft would be degraded by heat requirements, a program is underway to develop components that will be able to withstand the high temperatures required. If, after exhaustive development to obtain heat resistant components, some critical subassemblies still cannot tolerate the heat sterilization, it may be necessary to sterilize them by other methods and then incorporate them into the already sterilized spacecraft by sterile assembly techniques.

Risks Reduced

Several assemblies will be procured and sterilized so that in the case of malfunction during final checkout a spare can be substituted. Thus, pre-launch procedures will be simplified and risks of missing infrequent launch windows for the planets will be reduced.

Precautions in launches of unsterile planetary fly by spacecraft will be taken to prevent accidental impacting and contamination of a planet.

Decontamination procedures for Ranger and Surveyor lunar spacecraft call for clean room assembly, use of sporicidal agents to reduce the number of microbes on exposed surfaces and handling methods to minimize contami-

nation prior to launch.

These procedures are less rigorous than those for the planetary landers and reflect the thesis generally agreed to by the scientific community that the Moon possesses an environment hostile to Earth organisms so they could not propagate on the lunar surface.

Within NASA's Office of Space Sciences, charged with the administration of these procedures, responsibility has been divided between the Bioscience and Lunar and Planetary Programs.

Methods Improved

Methods of testing for sterility are being improved and a microbiological monitoring system is being established by the Bioscience Programs Office. To assist in the development of these programs and to insure the validity of the microbiological safeguards imposed on the planetary landers, the U.S. Public Health Service has detailed one of its officers, Lawrence B. Hall, to duty with NASA as a Special Assistant for Planetary Quarantine.

The Lunar Planetary Programs Office is ensuring engineering, fabrication and launch techniques will meet the sterilization requirements. While the immediate objective of this office is to have "sterilizable" components for the capsules to be launched to Mars during the 1966 opportunity, efforts are being initiated to develop a full complement of sterilizable parts — parts to withstand the high temperature requirements — needed for later missions when entire spacecraft may be landed. Studies are also being initiated to discover less destructive methods of sterilization.

Lunar Spacecraft To Be Surgically Clean

NASA's report to the Senate Committee on Aeronautical and Space Sciences, during the budget hearings, contained a paragraph on the contamination problem in space exploration:

"Present plans for lunar spacecraft are to use assembly techniques in clean rooms and under environmental conditions similar to surgical operating facilities. These procedures will not make the

spacecraft sterile but are expected to reduce the total population of viable organisms by orders of magnitude below otherwise expected quantities. As stated earlier, the natural environment of the Moon is believed suitably hostile to the propagation of Earth-like organisms to such an extent that any contamination will be contained in very local areas."



TECHNICIANS POSITION Gemini spacecraft into its stand in Hangar AF following its Cape arrival Friday. The capsule will undergo thorough checkouts prior to flight.



MARTY OFFENBERG, of the Management System Corporation, instructs LOC Facilities personnel on the objectives, operation and benefits of network planning techniques during a NASA-PERT seminar. The course highlighted the application of NASA-PERT to facility construction projects during their total life cycle.

TIROS VI ATTAINS SPACE MILESTONE: YEAR OF OPERATION

A milestone in the United States space program has been reached — a full year of successful operation by the TIROS VI weather satellite.

Original life expectancy of TIROS satellites was expected to be about three to four months. However, all but the first TIROS have exceeded this life span.

In its year of successful space operation TIROS VI has a long record 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 southern and northern hemispheres; 12 hurricanes, typhoons and tropical storms; and about 300 weather advisories to countries all over the world were issued based on some of the 63,000 cloud-cover pictures sent back to earth from the satellite.

TIROS VII, launched June 19, 1963, also continues to provide cloud-cover photos in a different part of the world from VI.



Dear Sir:

"Perhaps this may serve you in some capacity in space. A long vertical bar with very short horizontal ends pointing in opposite directions. In these fast changing times I like to think every little idea will find a niche in space."

Peter R.
New York City

NASA NEWCOMERS

Eleven new employees have joined LOC in the past week. They are:

Mary L. Parr, Thomas C. Ewouds, Clarence W. Morgan, Linda G. Norris, Vincent T. Parr, Richard H. Roughen, Carole K. Harris, Thurston B. McLeran, William T. Cooper, Edward E. Taylor, and Albert J. Ordenez.

Wrap and address classified mail properly.

MILA GROVE OWNERS TO GET NEW LEASES

The U.S. Army Corps of Engineers has announced a new lease plan for Merritt Island citrus groves, giving former property owners in NASA's MILA a longer tenure than was originally planned.

Original grove owners will be offered a lease until June 30, 1968, with option to renew for an additional five years, in lieu of the straight five-year lease plan.

At the end of the first five years, which will be on June 30, 1968 in all cases, only the lease price will be renegotiated and all other conditions of the lease will remain unchanged.

Grove owners said a lease of longer than five years is essential because young trees would not be fully producing within five years.

They also stated that high investment in grove machinery and equipment would result in a financial loss to them if they could lease the groves for only five years.

Merritt Island groves escaped last year's severe December freeze, and as a result the grove values for the next few years will be higher.



How good a detective are you?

We got a tip a few weeks back on a NASA engineer at the Cape who rebuilds old cars and drives them to work. Somewhere along the line his name got lost and since we'd like to run a story on him, we'd like to find out who he is. If you know the man, give us a call at UL 3-6575.

* * *

Security Police guard Fred Schacht had a rather hair-raising experience recently at gate 26, the site of the old Redstone Complex.

He was on duty one afternoon when a diamondback rattler crawled out from under the water cooler inside the guard house and slithered off into the brush. How long it had been in the tiny building with him, Schacht didn't know.

* * *

The Biosciences Division of NASA's Office of Space Science has a biosatellite program closely coordinated with the Biotechnology and Human Research Division of another space agency office.

Starting in 1965, these orbiting spacecraft will conduct a number of biological experiments.

Quite "bio-coincidence," the biosatellite project manager is Carlton Bioletti.

* * *

The Public Information Offices of LOC and the Air Force Missile Test Center took turns ribbing each other last week. A singing telegram messenger phoned the LOC office and chortled "happy birthday to you," on the occasion of NASA's fifth anniversary.

The LOC information people reciprocated by having him call back the Air Force to sing to them "happy pay raise to you."

* * *

The long-awaited dedication of the Cape Canaveral causeway is to take place this morning. Leading the ceremonies will be Governor Bryant.