SPACEPORT NEWS

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NEWLY ELECTED OFFICERS of NASA's Federal Credit Union are, left to right, Leon DuGoff, Annie Taylor, Conrad Hopton, Harry Shoaf, Don Davidson, Jared Westberry, representative of the Central Florida Credit Union League; Marvin Smoot, Manager of the McCoy AFB Credit Union; Sam Mayo, Herb Myers and Hyman Rosenstein. Leo Cote, Grogan Sewell, William Darwin and Arthur Moore were not present for the photo. News Photo by Russ Hopkins

CREDIT UNION ELECTS OFFICERS, AIMS FOR JUNE 3rd OPENING

A Federal Credit Union for NASA employees is scheduled to go into operation Monday.

Interim officers of the organization were elected last week.

All NASA Civil Service employees working in Florida and immediate members of their families are eligible to join the NASA/MILA Federal Credit Union. Membership is 25 cents, and the minimum deposit is $5. All members have one vote in C. U. operations regardless of the amount of money they have on deposit.

12 Elected

Board of Director members elected were Annie Taylor, facilities; Leo Cote, P & C; Donald Davidson, Support Services; Leon DuGoff and Harry Shoaf, MSC; Sam Mayo, Security; Herbert Myers, Instrumentation Planning; Hyman Rosenstein, Personnel; and Grogan Sewell, Financial Management.

Elected to the Credit Committee — the body which will approve loans — were William Darwin, Facilities; Conrad Hopton, Support Services; and Arthur Moore, Scientific Staff.

Prior to elections Jared Westberry, field representative for the Central Florida Credit Union League, briefed

(See CREDIT, Page 6)

HE SMOKED LESS, ENJOYED IT LESS

Want to cut down on your cigarette smoking?

Experiments tried on Whilden P. Breen, the researcher who was isolated for five months during a NASA study, worked quite effectively in lowering his tobacco consumption.

A report from NASA's Manned Spacecraft Center says:

"As one of his tasks, Breen had to depress a push-button a certain number of times to obtain cigarettes. Initially, he would receive one cigarette for every 80 presses. At that time, he smoked about 40 cigarettes during a 24 hour period.

"The experimenters then raised the work requirements for each cigarette to a high point of 500 presses and the consumption of cigarettes dropped off to 10.

"However, although Breen continued to perform satisfactorily, he became so irritable that it was necessary to change again to a flexible scale.

"He then received 20 cigarettes with minimal effort (about 25 presses) but he had to press the button 1,000 times for 10 more. He soon settled down to an average of 20 cigarettes every 24 hours — about half the amount he had smoked at the start of the experiment."

MILA Pacts To Be Split By Category

NASA has announced procurement plans to award contracts in four broad categories for support services at the LOC's Merritt Island Launch Area (MILA).

The plans set up a basic pattern to seek competition from prime contractors for some 25 support functions in the areas of (1) Base Services (2) Launch Support Services (3) Administrative and Management Services and (4) Communications.

An extensive study concluded that such a system would assure the quality and timeliness of response required from service elements in support of the manned lunar landing program at the MILA.

The four prime contractors will be required to subcontract a substantial part of their operations to small business firms which have demonstrated a high capability in special fields.

Varied Functions

The Base Services contract will include the functions of security police and guard service, transportation support, janitorial, employee medical service, fire protection and plant maintenance and operations and certain phases of supply support.

In the area of Launch Support Services the functions will include launch complex equipment operation support; propellant services; precision shops, high pressure gas converter and compressor operations; cryogenic equipment cleaning and spacecraft servicing facilities support.

The Administration and Management Services contract will provide for certain photographic support operations, field printing plant operations,

(See MILA, Page 6)

SPOTLIGHT

THE TRUE MEANING

The 95th observance of Memorial Day takes place tomorrow. To far too many Americans it means only a day off work, or the day of the Indianapolis 500 race.

It is, of course, much more than that. The freedom fought for by so many we will honor tomorrow has been expressed in many ways by many writers. Mere words often fall short in describing this great American heritage, but Airman First Class Carl E. Carr of the 408th Fighter Group, Kingsley Field, Oregon, came pretty close to capturing the true meaning of Memorial Day in an award winning letter to the Freedoms Foundation. It read:

"Freedom is a feeling; an intangible emotion. It is the internal voice of contentment within us, whispering from the depths of our souls. Freedom is that comfortable chair we relax in at evening time. It is a cooling drive in the country; a Thanksgiving turkey, a peaceful sunset, and a White Christmas.

"Freedom is a pretty bonnet on Easter, our favorite fishing spot, a field of golden wheat bowing low to its Maker; it is a picnic in the park, birthday cake and ice cream, and a child's laughter.

"Freedom is hot rods and drive-ins; ball games and hamburgers; the noise of a city and soft music in the evening. And freedom is expressed by folded, thankful hands, a humbly bowed head, and a prayer-filled heart. Freedom is all this . . . and more.

"It is the pride (seasoned with humility) of identity with God. It is the joy of love, the satisfaction of fulfillment, and the warmth of security.

"Freedom is the gift, paid for with the sweat and blood of our fathers, conceived in the truth that every individual is important and the soul of every man is indispensable. It recognizes the Godliness of man, and preserves the individual ability for thought, action, and speech. Freedom is all this, yet we simply accept it — without any more thought than we give to accepting that comfortable chair in the evening time.

"We must realize that freedom will always be contested and the price of freedom will always be paid. Not paid grudgingly or with uncertainty or fear. Rather paid for happily, with deep feeling and dignity. Yes — paid for happily; our forefathers for us, we for our children. For freedom is that invaluable drive within man which causes him to accept life — or death — with pride in his heart and hope for the future."

Florida Businesses Awarded $3 Million

Florida businesses were awarded $3,106,200 in contracts by NASA's Marshall Space Flight Center last month. The breakdown:

Cape Canaveral — NASA-Launch Operations Center, $326,000, Saturn I development program.

Patrick Air Force Base — Air Force Missile Test Center, $55,200, transponders and filters.

St. Petersburg — Electronic Communications, Inc., $225,000, control computers.

West Palm Beach — United Aircraft Corp., $2,500,000, liquid hydrogen engine development.

SPACEPORT NEWS

Published each week by the National Aeronautics and Space Administration's Launch Operations Center, Cape Canaveral, Florida.

ASTRONAUT TOM STAFFORD, right, explains a phase of manned space flight to Senator J. Howard Edmondson, (D.-Okla.). The Senator, at the Cape to view the MA-9 launch, is a member of the Senate Space Committee.

MILA RR TRAGK BIDS TO BE OPENED SOON

Bids are to be opened in Jacksonville June 20th for construction of a $2.5 million railroad system on Merritt Island to serve moon launch facilities.

Two siding tracks will be constructed — one from the community of Wilson past the Saturn Vertical Asembly Building to the NASA Industrial Area, and the second from Wilson eastward toward the ocean to serve the multiple launch pads of Complex 39.

The tracks will extend about 18 miles over the two routes, and will join at Wilson with a special railroad track to be provided by the Florida East Coast Railway.

Chief purpose of the railroad system is to provide railroad car delivery of construction supplies to the MILA area.

The rail system will also be used later for delivery of operations and maintenance supplies and equipment in connection with launches.

Completion of the rail system will be required within 180 calendar days after the contract is awarded so it will be available for delivery of large quantities of steel in connection with VAB construction.

SPACE ALMANAC

A CHRONOLOGY OF EVENTS IN SPACE EXPLORATION AND RESEARCH.

Five Years Ago

June 3, 1958 — For the first time, the Air Force launched a Thor from a tactical type launcher at Cape Canaveral.

Two Years Ago

June 5, 1961 — Saturn Complex 34 was dedicated in a brief ceremony held by NASA at Cape Canaveral.

One Year Ago

June 5, 1962 — Astronaut M. Scott Carpenter and his family were received by President Kennedy at the White House. In further celebration of Carpenter's multi-orbital flight, the City of New York treated him to its traditional ticker-tape parade and a round of congratulatory speeches at City Hall.

We're A Day Early

We're a day early with this week's SPACEPORT NEWS so you might have your copy in time for the Memorial Day Holiday.

NASA Prints Welding Tips For Business

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 NASA Marshall Space Flight 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, Maintaining Alignment of Large Aluminum Cylinders by Track Welding, Guide Tip and Feeding Filler Wire and Improved Method for Sigma Spot Welds.

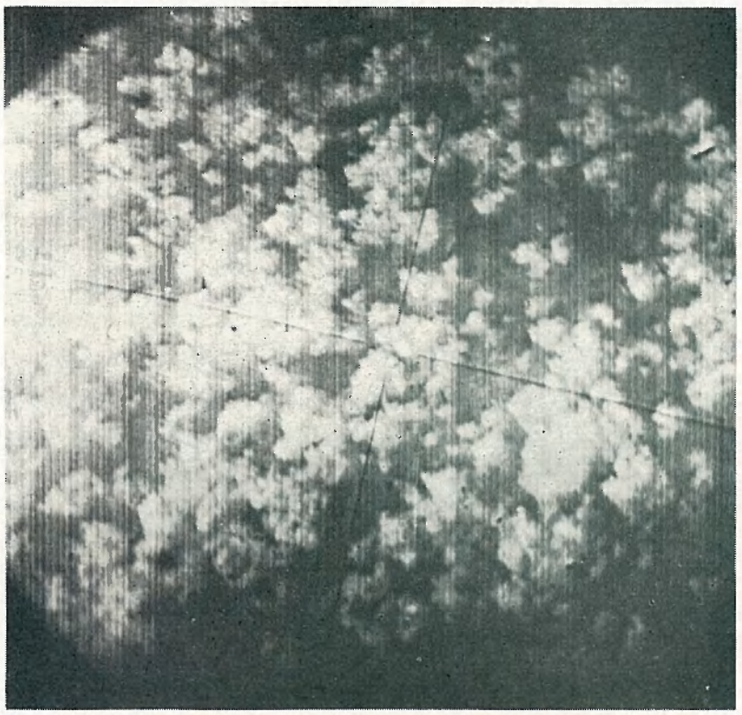
Some of the welding techniques were developed at the Marshall Center because existing methods were not adequate in meeting some of the stringent specifications necessary in the building of large booster rockets. It is expected that these new techniques will have wide application in the welding industry.

Mail Landslide

Fan mail for astronaut Gordon Cooper is pouring into Canaveral, according to Millie Guice, astronauts' secretary.

"We've received over 3,000 letters already, she said, "and more are coming in."

One package contained a complete diesel filter in apparent reference to the diesel problem which was partially responsible for a one-day delay in Cooper's flight.



THAT'S FLORIDA under those cotton-puff clouds. This "Cooper's-eye-view" photo was taken by the astronaut during the 18th orbit of Faith 7.

23 Scout Rockets Purchased

NASA has awarded a $10,687,500 contract to the Chance Vought Corporation, a division of Ling - Temco - Vought, Inc., Dallas, Texas for 23 Scout launch vehicles.

Scout is the country's only all-solid propellant satellite launch vehicle. It is a four-stage vehicle, 72 feet long, 40 inches in diameter, and generates 95,000 pounds of thrust in the first stage.

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 earth 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 to a total payload capability approaching 300 pounds.

Social Club Members Hold First Meeting

The NASA Women's Social Club held a meeting at the Crossway Inn, Cocoa Beach, recently. Twenty-one members and seven visitors participated.

During the business meeting following dinner, the club voted to continue the purchase of special equipment for the Brevard Training Center in Rockledge as its project for this year.

Mary Coleman and Peggy Middleton were appointed to revise the constitution and by-laws of the club, and Mary Driver and Virginia Speckman were named to head the Membership Committee.

Membership in the club is limited to NASA personnel and employees of NASA contractors.

New officers installed are: Libba Johnson, President; Pauline Rudolph, Vice President; Bobbi Miller, Secretary; and Mary Cash, Treasurer.

Recoverable Boosters Considered

The idea of recoverable Saturn boosters is being considered by a pair of scientists at the Marshall Space Flight Center.

Co-authors of a recent rereport on the subject, L. T. Spears and C. H. Rutland of MSFC's Future Projects Office, say that use of such a recoverable vehicle now seems the best and cheapest approach to handling the high volume of passenger and cargo traffic between earth and earth orbit, expected in the 1970s and 80s.

One of the considerations under study is the possibility of putting wings on the Saturn V and even larger boosters so they may be flown back to earth and used again and again.

Frequent Trips

Frequent earth - to - orbit trips will be made in the next 20 years, the two engineers state, and in order to haul equipment, supplies and fresh crews to space outposts, staggering costs would be required if the big booster rockets are used just once.

There are two basic types of reusable vehicles under consideration for ferrying passengers between earth and orbit, Spears and Rutland say.

One is a rocket-boosted vehicle designed for vertical takeoff, winged fly-back and landing.

The second type, which is the presently preferred concept, is a horizontal takeoff craft designed to operate from runways and fly like an airplane during the early boost phase. It would be equipped with advanced, air-breathing propulsion systems for use in returning to earth.

Casey's Comments

Casey Stengel the beloved ageless-wonder manager of the New York Mets, expressed real concern recently during Astronaut Gordon Cooper's orbital flight. Case wondered aloud, "Does that fella get meal money while he's traveling up there?"

A TON OF LUNAR DUST FALLS ON EARTH DAILY

If a theory proposed by Dr. Donald Gault, of NASA's Ames Research Center, is accurate, a ton or more of lunar dust is falling on the earth every day.

The dust, according to Gault, is stirred up by meteoroids impacting on the moon.

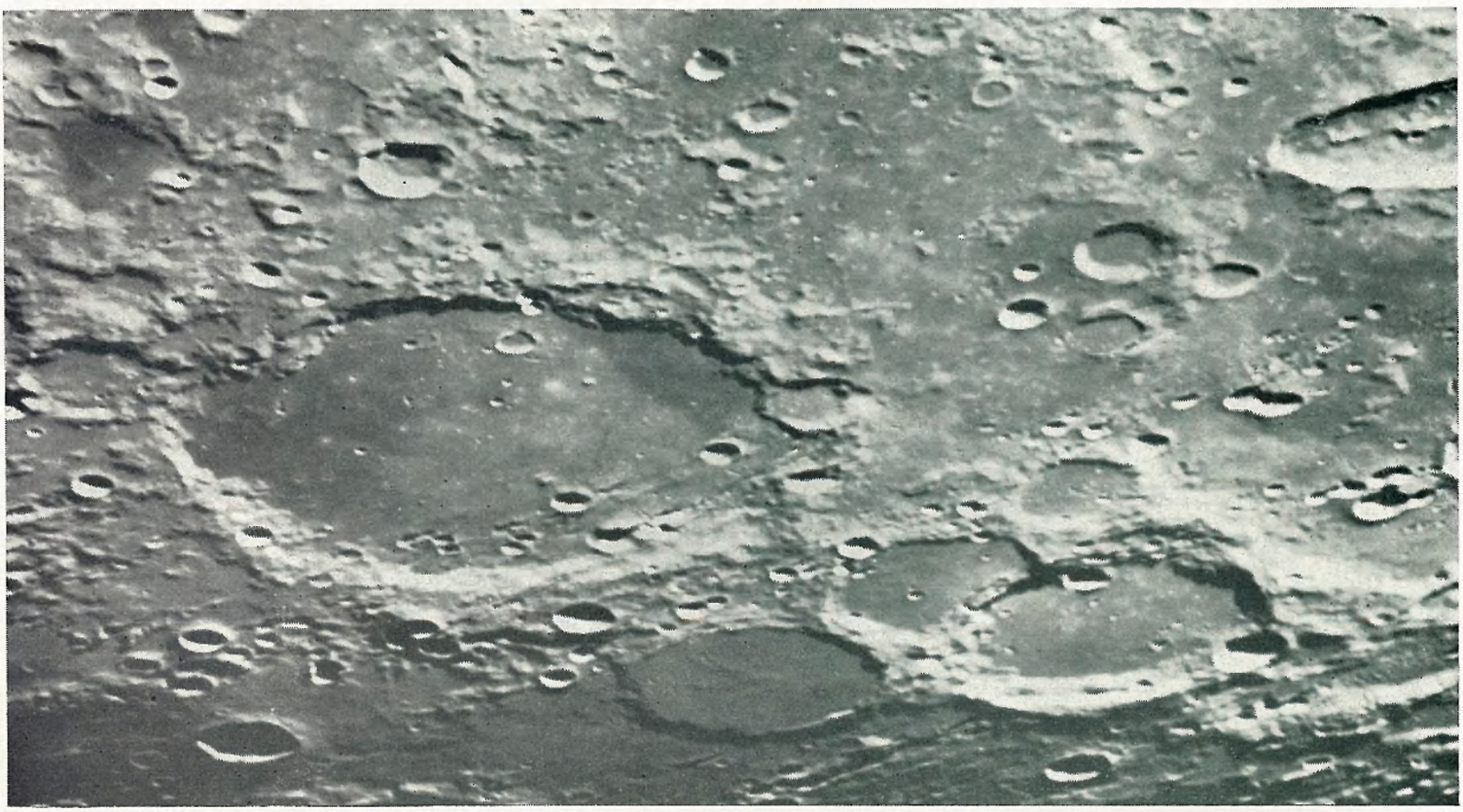
Assuming the theory is correct, it offers a practicable way to capture lunar material for examination.

One way suggested by Dr. Gault is to launch rockets with a fly-trap mechanism that would capture particles in the same way that flowers entrap insects. Or, he said, some of the lunar material might be found by digging into the polar snows.

The lunar dust theory began with laboratory studies of a high - velocity projectile striking rock and sand. These showed a jet-like reaction in which some of the rock and sand sprayed out at a much higher speed than the projectile's. The same reaction, Dr. Gault speculated, may occur when meteroids — fragments of materials coursing through space at velocities of ten miles a second or more — strike the moon.

Some of the lunar material would spray up with a velocity sufficient to escape the gravational field of the moon. Much of the material probably goes into orbit around the sun. But a small portion would go into a trajectory that permitted it to be swept up by the earth.

Using what he described as conservative assumptions, Dr. Gault calculated that one to 10 tons of lunar dust are descending daily upon the earth.



A NEW, SHARPER VIEW of the moon's lifeless landscape is provided in photo taken with the 120-inch telescope at the University of California's Lick Observatory. Shown here is an area about 700 miles northeast of the moon's "south pole," near the eastern edge of the side of the moon that faces the earth. The largest crater here is Schickard, diameter 134 miles; the smaller crater toward the upper right is Phocylides; and the raised plateau-like formation to the right of Schickard is Wargentin. Most of the craters are believed the result of meteor impart, although some smaller features may be of volcanic origin. Reason for the color differences on the pocked floor of Schickard is still unknown. Highest peak on rim of Schickard stands 9,500 feet above the crater floor.

NASA Awards Study Pact To Learn Lunar Conditions

NASA has placed a $27,500 study contract with the Bendix Systems Division to compare the behavior of soils in Earth environment with that in "hard" vacuum chambers in an attempt to stimulate certain lunar conditions.

Although the composition of soil existing on the moon is not known, current scientific theories suggest the surface is a mixture of rock, soils, and dust. Bendix will compare different soils under Earth pressure and temperature conditions, with behavior in vacuum chambers simulating lunar temperature extremes and pressures approaching the lunar atmosphere.

Results of this 10-week study, one of a number on the lunar surface, will assist in determining the scope of additional soil behavior research which may be needed to support overall planning of possible future lunar roving vehicles.

Latest Moon Theory Fuzzy

A new theory has been added to the never-ending "controversy" over what the lunar surface consists of.

Charles R. Warren of the U.S. Geological Survey believes the moon is covered with - fuzz.

He said it is the most plausible explanation for observed lunar shadow effects attributed to backscattering of light.

According to Warren, moon fuzz is about an inch deep and pretty queer stuff, quite different from peach fuzz.

"The fuzz," he said, "consists mostly of empty space, and may resemble a miniature tinker-toy structure or may be more like a loose aggregate of snowflakes or jackstones."

Warren said he believes that the moon's surface, under the thin fuzz, would provide a "reasonably firm" foundation for the landing of spacecraft.

He said it probably consists of loose pumice-like material. A spaceship might "bog down in it as in sand." But it wouldn't sink out of sight, as some scientists fear.

EXPERT PROVIDES PROVOGATIVE ANSWERS TO AGE-OLD QUESTION OF LIFE IN SPACE

In a presentation on "Exobiology" to Goddard Space Flight Center scientists, Gilbert Levin, Vice President of Resources Research, Inc., provided some provocative answers to questions on life in space. Here are some of his comments:

What kind of life forms would you expect on Venus?

"Recent temperature information on Venus offers little hope for life as we know it. Anaerobic organisms might live beneath the surface of Venus at depths where the temperature is in an acceptable range."

What distinctive characteristics do you expect to find in Martian life?

"I would guess that Martian life would require little or no oxygen, would be quite efficient at collecting and retaining water, and would consist of organisms requiring organic compounds from the environment."

If life is found on Mars, is it an ancient or fading out version caused by the loss of water vapor?

Press reports of recent spectroscopic observations of Mars attribute some, but little, water vapor to it. Whether this amount was, or has become, limiting to the evolution of increasingly complex forms of life is anyone's guess. However, if life exists on Mars, it is unlikely to be further advanced than we are, or it would have made itself known through our telescope observation at large artifacts, or through reception of radio signals intended for use on the planet."

Could man be infected by Martian germs, perhaps exposed to a "Martian flu" or unknown diseases?

"If Martian micro-organisms exist, it is possible that man could be susceptible to them. This might be especially true if life on Mars and earth share a common ancestry."

Is it possible for humans to live on Mars?

"It would be very difficult for earth humans to live on Mars. However, if they brought with them a completely closed environment, such as is now being developed for spacecraft, it might be possible to sustain men."

Do you think life exists on other planets in the solar system and the universe?

"I think that some lower forms of life exist on Mars. This is a thought, not a statement. With regard to the universe, primarily on the basis of the statistical concept, I think it probable that life comparable or superior to our own exists in other solar systems."

Would you reply to signals from outside our solar system, if we received them, or remain quiet for fear of exposing ourselves to domination of more intelligent beings?

"I have frequently been put to considerable trouble as a result of answering the telephone. However, even the benefits of such experience does not permit me to let the phone ring unanswered. If the inter-galactic telephone should ring, I am afraid that I would succumb to the highly improbable possibility that, during the infinitesimal period of my existence, I might gain some momentous insight into the nature of the universe."

TWO BILLION TONS OF WATER ON MARS?

If the calculations of two Russian scientists are correct, Mars has about two billion tons of water.

Drs. A. I. Lebedinski and G. I. Salova of Moscow State University recently made estimates of the water vapor on the Red Planet.

Their observation was based on the degree of cloudiness of the Martian atmosphere and the rate of evaporation of the polar caps.

Yet, when the two billion tons is compared to the earth's approximate ten thousand billion tons, Mars is comparatively dry.

CREATURES IN SPACE MAY BE ODD HYBRIDS

A Harvard College astronomer says if Mars is inhabited, its life must look something like a cross between a unicorn, an elephant and a bear.

But, Dr. Donald H. Menzel believes, the possibility of such life is very remote.

Because of the physical nature of the plant, Dr. Menzel says, a typical Martian would have an elongated head with elephant-like ears and nose so he could hear and smell in the rarefied atmosphere.

The Martian would need a chest as big as a bear's to breathe, Dr. Menzel said, and he would need an antenna to communicate. The creature, he added would move on spindly legs and webbed feet.

But What Hue?

According to reports recently received from Soviet Astronomer G. A. Tikhav, vegetation on Mars is blue in color rather than green as on earth.

"There are substantial differences between Martian and earth vegetation," he stated. He bases his reasoning on the belief that Mars vegetation exists by a quite different system of light absorbtion.

He noted that the spectrum of earth plants clearly shows chlorophyll absorbtion bands lacking in the spectrum of the Martian seas.

MARS EXPLORATION TO BE DISCUSSED BY NASA AT MEET

Exploration of Mars will be discussed next week in Denver at an American Astronautical Society symposium co-sponsored 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 time-table 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 reentry, 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.

GATHERED in Hangar AE for a briefing of Telstar operations is this Group of more than 150 Italians who visited NASA-Cape facilities Friday. All are members of the Marzotto Textile Manufacturing Corporation of Northern Italy.

ITALIANS TOUR CAPE FACILITIES

Approximately 150 representatives of the Marzotto Corporation's Incontro Travel Club were given a tour of NASA-Cape facilities Friday.

The group, which included counts, countesses, the Mayor of Valdagno, Italy, and factory workers, spent two weeks touring the United States.

They were greeted by President Kennedy in Washington, and also visited Miami Beach, the Roosevelt Memorial in Poughkeepsie, New York; the United Nations Building, and several colleges and industrial plants.

The Incontro Travel Club is made up of management and employees of the Marzotto Corporation, one of Italy's leading textile manufacturers.

Travel Annually

Each year they organize a trip to foreign nations, and in the past have visited Russia, Spain and the Scandinavian countries.

This is one of the first such trips organized under the "Visit USA Program," in which a large group from one company traveled to America.

The Italians were briefed on NASA facilities at Complex 37, and in Hangar AE on Telstar operations.

CREDIT UNION

(Continued from Page 1)

members on Credit Union history and operations.

He said there were now 40 such organizations in Central Florida, 570 in the state, and more than 25,000 Credit Unions in the United States.

The definition of such a Union, Westberry told a gathering of about 35 NASA employees, is where a group of people with a common bond (in this case employment with NASA) band together and organize a non-profit corporation for service to members.

Westberry said the NASA chapter here was unique in that 113 names were submitted as charter members.

"This indicates a strong interest," he said. "We usually have only eight or 10 names when we charter a chapter."

A president, vice president, secretary and treasurer are to be appointed by the board of directors. Also to be selected are three members of a supervisory committee, who will audit the C.U. books quarterly.

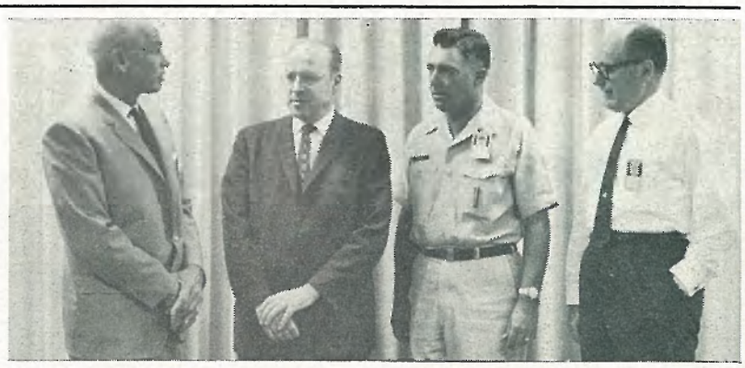
Westberry cited one of the prime advantages of Credit Unions was the low interest rates they charged on loans—approximately 12 per cent a year simple interest.

He compared this to the 36 per cent annual interest charge of most loan companies.

He said the average annual Credit Union dividend paid in Florida was 4.78 per cent, and that some organizations paid as high as 6 per cent. But he warned that it may take a year or two for the new Credit Union to build up enough resources for such dividends.

In the next few weeks Spaceport News will run a series of articles dealing with all facets of Credit Union operations.

The Credit Union office is located in Trailer 85, near Hangar D, telephone number UL 3-3161.



DISCUSSING the safety film "Dividing Walls Construction," are, left to right, Paul King, Chief of LOC's Safety Office, Russ Perkins of the Armed Services Explosives Safety Board, and Lt. Col H. Stonall and Freeman Jones of the AFMTC safety office. Perkins spoke before a group of about 75 operations and safety people about the safety effectiveness of various types of dividing wall structures.

Mathematicians Meet For 5-Day Conference

Educators from 50 states will study changing mathematics needs at a five-day conference June 3-7 at the NASA-Marshall Space Flight Center.

Some 120 mathematics and science teachers, state supervisors of mathematics and "spacemobile" lecturers are expected to attend.

The meeting will be sponsored by the U. S. Office of Education in the Department of Health, Education, and Welfare, and NASA.

MILA PACTS

(Continued from Page 1)

technical information services and administrative automatic data processing operations.

The Base Communications contract will provide an extensive MILA service to include planning, provision, maintenance and modification of both administrative and technical communications.

A pre-proposal conference on the Communications contract was conducted by LOC at Cape Canaveral, Monday. Thirty-four contractors were invited to attend. The contract will be awarded by July 15.

LOC will seek competitive proposals for the other three prime contracts shortly after the start of the 1964 fiscal year.

PRETTY Jean Myers, right, secretary in LVO's Mechanical Structural and Propulsion Office placed as second runnerup in the "Miss 217th Communication Squadron" beauty contest held at PAFB last week. At left are first runnerup Brenda Simmons and winner Pat Baric.

SPACE NUCLEAR PACT BEING NEGOTIATED

The AEC-NASA Space Nuclear Propulsion Office will enter into negotiations with Pan American World Airways leading toward a contract to furnish support services at the Nuclear Rocket Development Station, (NRDS), Nevada.

The annual level of effort for the work is estimated to be in the range of five to seven million dollars. The contractor will be expected to provide support services to NRDS Space Operations and limited support to the Los Alamos Scientific Laboratory, Aerojet-General Corp., Westinghouse Electric Corp., Lockheed Missiles and Space Co., and other contractors involved in the nuclear rocket research and development program in Nevada.

In addition to plant engineering and housekeeping support, the contractor will provide such services as temporary storage of radioactive wastes, computer operations, and the operation of shops and special equipment such as mobile, shielded vehicles.

The NRDS is located approximately 90 miles northwest of Las Vegas, Nevada. The major research and development effort now in progress at NRDS is the work of Los Alamos scientific laboratory on the KIWI reactors.

Gemini Tests To Qualify Parachute Recovery System

The first in a series of drop tests to qualify the parachute recovery system which will lower the two-man Gemini spacecraft to a water landing has ended successfully at El Centro, California.

The drop was made over Tatu Range. Future drop tests will be made over the U.S. Navy's Pacific Missile Range off Pt. Mugu, California.

The parachute recovery system, designed by Northrop's Ventura Division, will be Gemini's prime water landing system. The parachute system is designed for wet landings and will be used for unmanned and early manned Gemini flights. The first manned flight is scheduled for 1964. It will be preceded by two or three unmanned flights.

The parachute recovery system consists of an 18-foot diameter ring-sail drogue and an 84 foot diameter ring-sail recovery parachute packed in a rendezvous-and-recovery section mounted on the small end of the spacecraft.

The canister also houses the Gemini rendezvous radar equipment. Mercury experience has been used extensively in the design of the parachutes and necessary system components.

Just completed were a series of 20 development drops of the main and drogue parachutes at El Centro, California. These tests checked out the development characteristics and the structural integrity of the individual chutes.

The qualification tests, scheduled for completion in early 1964, will check out the operation of the recovery system.

Twenty tests are scheduled using a Gemini boilerplate, a dynamic duplication of the Gemini spacecraft in configuration, weight, weight distribution (center of gravity) and "response" through its size and weight.

Tests over the Pacific Missile Range, will be made from a C-310 cargo-type aircraft.

The boilerplate, mounted on a sled within the aircraft, will be extracted from the rear of the cargo compartment by an extraction chute. After extraction, the boilerplate will separate from the sled and will "free fall" to around 12,000 feet where the stabilization parachute is separated and the Gemini recovery system is "armed."

The parachute recovery system will be replaced later by a land landing system for which the paraglider is now under development. Throughout manned Gemini flights, ejection seats — which can be triggered by each astronaut individually for a rapid escape from the spacecraft — will serve as the emergency backup recovery system.

Garbarini Appointed

Robert F. Garbarini, 44, of Port Washington, N.Y., is NASA's new director of the Office of Applications. The appointment is effective July 1.

Typographical Errors Prove Terrors To Editors

Typographical errors are the inevitable bane of editors, and appear in all publications from the smallest mimeographed sheet to the Reader's Digest, which once spelled Charles Lindbergh without the final "h" on its cover.

Spaceport News, certainly no exception to the rule, came up with two beauts last week.

We unintentionally demoted Major General L. I. Davis, Commander of the Air Force Missile Test Center, to Major.

Then we "sold" NASA three F-104 jet fighters for $2,256 — admittedly quite a bargain. The figure, of course, should have been $2,256,000.

And, just a few weeks back we said the first launch of the Atlas Centaur was unsuccessful, that the vehicle exploded 55 minutes after launch from Canaveral. Had it in fact flown 55 minutes rather than seconds, it would have been quite a remarkable flight.

The history of typos is hilarious and many people collect them as a hobby. A couple of the more noteworthy boo-boos in national publications are worthy of recalling:

"Mrs. Alice Sommes, the club president, then rapped her navel and the meeting came to order."

"Slipping and falling in bathtubs is often due to curved bottoms, it is said."

And so the list goes. As long as human eyes proof read galleys of type, typos will persist.

What's embarrassing is when a person's name is mangled. Take technical writer Milorad Konjevich, for example. We listed him in the NASA newcomers column as Mildred.

CS Proposal Submitted For Back Pay

The U.S. Civil Service Commission has again sent to Congress a legislative proposal, almost identical to one submitted in 1961, that would establish a single general and equitable principle of back pay to be followed by all Federal agencies in restoring to any employee pay and other benefits lost because of an unjustified or unwarranted personnel action which later is corrected by appropriate authority.

The proposal would also control the retroactive restoration of benefits such as annual and sick leave, seniority, retirement credit, etc., in back-pay cases.

A House version of the previous bill, with minor language changes, passed the House in June 1962 but was not acted upon by the Senate.

The newly proposed bill, the result of extensive consultation with employee organizations and Federal agencies, contains the best elements from present back-pay authorities, molds them into a single principle, and proposes its use in every back-pay case.

The principle holds that an employee is entitled to redress whenever an erroneous personnel action that has stopped or reduced his compensation is corrected by proper authority — the agency, the CSC, or the courts.

Existing legislation, while adequate in many respects, has led to a piecemeal approach to the back-pay problem in that the legislation may not be applied uniformly to all situations and employees. It also leaves gaps in coverage.

The proposed new system would leave appeal rights unchanged. But it would give agencies broad new authority, now lacking in most cases, to extend back pay on their own motion — without prior direction from CSC or the courts.

The new system would give non-veterans the same back-pay rights as veterans. Non-veteran rights currently are narrower.

It would give all employees full back-pay rights after correction of erroneous firings, reduction in force, and suspensions for cause. Employees who lack some or all these rights now include employees serving probationary or trial periods, non-veterans outside the civil-service system, and many non-veterans under civil service.

The proposal does not extend to any employee any new rights of tenure, review, or appeal. It requires only that the erroneous action be corrected before the employee is entitled to back pay.

VISITED the Manned Spacecraft Center's E & O Building lately? If so, you have been greeted by MSC's new and smiling receptionist, Bonita Kay Morlan - Bonnie, for short. Blonde, 5 foot 5 inch Bonnie joined NASA after graduation earlier this month from the University of Florida. She has distinction of receiving her B.A. Degree in Education at the same time NASA Director James E. Webb received an Honorary Doctorate of Laws from the U. of Florida. However, Bonnie is not a complete newcomer to aerospace activities. She's worked as secretary, receptionist, and desk-typist at the Cape and PAFB the past four summers.

Dear Major Cooper:

My brother thinks you are neat, and he would like to be like you (except he looks more like John Glenn, because he has freckles.)

Lynda I.
Oklahoma City, Okla.

NASA Wives To Meet

The NASA wives club will meet on Wednesday, June 5 at the Officers' Club, Patrick Air Force Base, at 9:30 a.m.

NASA NEWCOMERS

Twenty-three new employees have joined NASA in the past two weeks.

Support Services Office: Howard Crocker, Linda L. Williams, Timothy D. Kerns, and Dorothy D. Maslow.

Procurement and Contracts Office: Henry Illian, Lina A. Nusbaum.

NASA Daytona Operations: Paul F. Cahalan and Jack J. Dunaieff.

Launch Operations Center: Edgar M. Manton.

Facilities Office: John W. Conway and Charles J. Wright.

Management Analysis Office: David B. Osterholt.

Technical Information Office: Alfred H. Lavender, and Robert G. Howe.

Personnel Office: Jackie L. Collins, Douglas W. Kielkopf, and Alyce D. Brown.

LVO, Electronic Engineering and Instrumentation Systems: Don W. Barrett, Jr., Robert E. Moore, Herbert A. Wertheim, and Robert J. Backoff, H.

LVO Electronic Engineering Guidance and Control Systems: Richard Buckmaster.

LVO, Mechanical and Propulsion Systems: Thomas C. LaMontague.

Facilities: Billy S. Kelly, Donald Burr, Frederick Scherer, Truett Smith and Roger Kallet.

Lunar Base Feasibility Under Study

Proposals have been requested by NASA for a lunar base concept study.

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 of the base — the life support system, the nuclear power plant, and the regenerative fuel system for surface vehicles.

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.

Windows to Space

Rigid astronomical timetables, based on the motion of the planets around the Sun, dictate the opportunities during which launches can be made to the planets. Space scientists call these opportunities "windows"

The next window for Venus will open in the Spring of 1964, and the window for Mars in the Winter of the same year.

Lot of Acreage

With a total of 820,480 acres, Brevard ranks seventh among Florida's 67 counties in size.