Skylab Medical Tests
Scheduled here in '72

Three men will spend up to 56 days in an altitude test chamber early next year at MSC to obtain medical data and evaluate medical experiment equipment for the Skylab Program, scheduled for 1973. The test will closely simulate Skylab mission conditions so that differences observed later during actual flight may be attributed to causes such as weightlessness, which cannot be simulated in the chamber. An altitude chamber is required to provide a low-pressure breathing atmosphere such as the astronauts will experience in space.

The primary goal of the test is to obtain and evaluate baseline medical data from those medical experiments which reflect the effects of the Skylab environment.

There are 16 medical experiments scheduled for Skylab involving, among others, studies of the cardiovascular system and the expenditure of energy to do measured work, and food and nutritional investigations. Secondary objectives of the test include the evaluation of selected items of equipment, experiment operating procedures, and means of handling experiment data. In addition, the test will aid in training the ground-based medical operations team for their participation during actual space flight.

Although test crew members have not yet been chosen, members of the astronaut group are being considered. While the primary emphasis of this study is directed at obtaining medical data and evaluating medical checkers days in an altitude test chamber led onboard recreational facilities experiments which reflect the environmental conditions (70% oxygen, 30% nitrogen at a total pressure of 3 psi). The temperature will remain within 67 to 78 degrees Fahrenheit. Humidity will range from 45 to 60 percent.

The crew will consume Skylab type food and water. Communication between the crew and the ground control will be similar to Skylab mission communications which will be augmented by closed circuit TV during the medical experiments.

AFGE Announces Election Results

The May 13 American Federation of Government Employees (AFGE) Local 2554 election saw over 65 percent of the membership voting.

Leslie A. Gobet was elected president of the local, defeating candidates David N. Holman, the former president, and Robert E. Thrower.

Other officers elected were Jacqueline Gregan, 1st Vice-President; Albert Jackson, 2nd Vice-President; Curtis Vietter, 3rd Vice-President; and William Wilson, 4th Vice-President. (See UNION page 2)

First extensive mapping mission of Jamaica is labeled as successful

The recently conducted United Nations-sponsored resources survey of the island of Jamaica was a cooperative effort in which scores of engineers and scientists from Jamaica, the United States, and the United Nations worked together on the ground and in the air to acquire photographic and thermal imagery of the Caribbean island.

The mission, in which personnel from various elements of MSC participated, has been described as one of the most complete and efficient jobs ever accomplished in air and ground data gathering. Individuals from the Engineering and Development, Science and Applications, Center Operations, and Flight Crew Operations Directorates took part in the two-week mission, May 18 through 30.

The purpose of the program is to provide the Government of Jamaica and the United Nations Food and Agriculture Organization with aircraft gathered imagery for assessing the island's natural resources (forestry and timber, mineralogy, etc.). Particular emphasis was placed on water resources management.

Governments officials of Jamaica and members taking part in the U.N. Water Resources Project want to learn more about the island's water supply. Although the tropical island has an average rainfall of 200 inches, much of the water in the mountain rivers never reaches the reservoirs of Jamaica's cities. It is believed that subma- riine springs carry a portion of the water offshore into the Caribbean.

John Williams, Jamaica Geological Survey, said, "This particular problem is what led to the initiation of the request for the NASA earth resources aircraft."

Williams expressed hope that the aircraft's gathered data might contribute toward locating the sub- marine springs and identifying structures and lines that control the subsurface movement of ground water.

The NASA aircraft, a modified C-130B, flew ten flights out of the Palisades Airport in Kingston, Jamaica.

Ninety-five percent of the data acquisition missions were achieved, according to Allen Watkins, manager of the Earth Observations Aircraft Program (EOAP) in the Science and Applications Directorate.

Glen Ballinger of EOAP was manager of the mission, and Wayne Eaton, also of EOAP, coordinated the ground activities in support of the mission.

An old Army radio shack at the Jamaica Defense Force's Up- park Camp in Kingston served as the mission control center, which maintained contact with the MSC aircraft and the more than 15 separate field teams spread across the island.

The field teams, in gathering the ground-truth, moved about the island on an hourly basis in order to be in position when the MSC aircraft flew over. Some of the ground teams were located along the island's rivers (Rio Grande, Black, Rio Minho, Roaring, and Montego), as well as in dense jungle areas and along the coast.

Several scuba divers, students from one of the island's diving schools, worked in the waters of historic Discovery Bay, where Christopher Columbus landed in 1492. They gathered water temperatures to compare with the data recorded by the aircraft's Precision Radiation Thermometer (PRT-3) and RS-14 thermal imagery scanner.

Allen Watkins described the ground-truth operation as "the most complete ground truthing that the aircraft program has ever experienced." He went on to say that the operation "should substantially increase the value of the remote sensing data."

The data gathered during the

(See JAMAICA page 4)
Help an old lady.

Buy U.S. Savings Bonds

Just $3.75 per pay period can start
you on the road to wise investment

The 1971 NASA Savings Bond Campaign, which began on May 10, is now in full swing at MSC. The goal this year is to enroll all employees in the Savings Bond payroll savings plan.

Note on Calendar:
May 26, June 2

MSC's "Zero In on Safety in '71" campaign will feature two special programs within the next two weeks.

On Wednesday, May 26, Charles Nurse of the Union Wire Rope Company will demonstrate and discuss safety in handling wire rope slings and cables. The program will begin at 2:30 p.m. in Building 32, room 130.

On Wednesday, June 2, the Building One Auditorium will be the site of a presentation by Tom Logan, a reptile expert from the Houston Zoo. The program scheduled to begin at 2:00 p.m. will include both a lecture on the poisonous snakes native to Texas and a display of live specimens.

 trout has been
skylab Tests include
be Set for Center

(Continued from page 1) Joseph R. Trombley has been assigned as Test Manager for the Engineering and Development Directorate's part in the simulation. William H. Bush is Test Manager for the Medical Research and Operations Directorate, and Dr. William H. Shimata will be Medical Experiments Coordinator.

Union election

(Continued from page 1) President; Herman Fisher, Chief Steward; R. L. Clay, Sergeant-at-arms; John T. Weber, Secretary-Treasurer; and Alice Robinson, Secretary.

Local 2284 represents approximately 3,000 employees at MSC.

Apollo 15 Crew to perform 5 EVA's

Apollo 15 astronauts David R. Scott, James B. Irwin, and Alfred M. Worden are scheduled to don space suits for work in the vacuum of space five times during the next lunar exploration mission.

The five extravehicular activities (EVA) will total more than 21 hours, exceeding the combined EVA time of all previous Apollo flights.

Apollo 15 is scheduled for launch from the Kennedy Space Center on July 26.

MSA Contractor effort produces a
New solar protective garment

The Zero-In on Safety '71 program calls attention to some of the safety precautions utilized in operations in the Space Environment Test Division, and achieved through Government Contractor teamwork.

The Space Environment Simulation Laboratory's thermal vacuum chambers have solar simulation capability. The simulators presently used are carbon rod burning devices that simulate the sun's collimated rays and their intensities on a test object without the 100 miles of atmospheric diffusion experienced on earth. The conditions simulated approximate the solar energy contacting a spacecraft and astronauts in space.

There is a need to take spectral measurements to determine light uniformities and intensities; therefore, some means had to be devised which would safely allow Brown & Root-Northrup technicians to work directly in these solar beams.

The conditions faced in working in these collimated beams are comparable to working next to an electric arc welder with all of the heat and light energies focused on the worker. Chamber floor temperatures frequently surpass 100 degrees Fahrenheit. The solar beam is loaded with ultraviolet radiation which can cause eye damage and possibly degrees of blindness. There was an urgent requirement to protect the worker by providing cooling from the excessive temperatures and protection from possible eye and skin burns.

PROTECTIVE GEAR — John D. Piwnoka (center), Brown & Root-Northrup, and Paul H. Anderson (right), Space Environment Test Division, were presented the solar protective garment worn (left) by W. J. Fitzpatrick of B & R.

A hooded emergency garment, nicknamed the "solar smock," is constructed of a layer of aluminum mylar sandwiched between two layers of white nylon fabric. It was fabricated under the direction of Dr. Matthew J. Radzelsky, Crew Systems Division.

For reduced effects of the high temperature under simulated solar conditions, a vortex tube-cooling garment assembly is worn under the smock to distribute cooling air over the wearer's body. A hooded emergency garment integrates an eye and face tinted bubble mask to guard against heat and ultraviolet burns. Cooling is also afforded the head and face from the vortex tube via a cooling tube from a T-connection at the waist.

Filtered building instrument air is fed into the vortex tube, and the hot air is exhausted at the bottom of the tube. The cool air is distributed through the tubes and relieved through holes in the tubes onto the worker's body.

Completing the protective gear are gloves. Looped plastic rubber sleeve covers also afford wrist protection when the arms are extended.

MSC Contractor effort produces a New solar protective garment

Discussions among representatives from the Space Environment Test Division, Crew Systems Division, and Brown & Root-Northrup revealed that powdered mylar would afford good ultraviolet protection because its transmittance factor is quite low. It was, therefore, decided to fabricate a garment out of the mylar, with nemes, a highly fire resistant nylon product, used as the inner and outer covering.

The solar protective garment, nicknamed the "solar smock," is constructed of a layer of aluminum mylar sandwiched between two layers of white noms fabric. It was fabricated under the direction of Dr. Matthew J. Radzelsky, Crew Systems Division.

To reduce the effects of the high temperature under simulated solar conditions, a vortex tube-cooling garment assembly is worn under the smock to distribute cooling air over the wearer's body. A hooded emergency garment integrates an eye and face tinted bubble mask to guard against heat and ultraviolet burns. Cooling is also afforded the head and face from the vortex tube via a cooling tube from a T-connection at the waist.

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LaMere elected

At the General Assembly meeting of the Employees Activities Association on May 11, Robert F. LaMere of the Institutional Resources and Procurement Division was elected as president of the EAA. He will serve in that office for the remainder of this year.

Bob is married and has two children. His wife Sally is a former editor of the ROUNDUP.

$5 Plumbers reminded

Employees who have signed up to attend the free financial planning seminars conducted by Robert Bye Associates of Houston are reminded that the dates and times are Tuesday, May 25 and Thursday, May 27 from 7:00 p.m. to 9:15 p.m. at the Webster Intermediate School.

Phew! Made it!

A last minute push has made it possible to get all the paperwork ready for tomorrow’s scheduled retirement of two employees.

Retirement Plans Beckon Eleven MSC “Old Timers”

Between April 30 and May 31 of this year, eleven MSC employees will have brought to a successful close their years of Government service.

In some cases, golf clubs awaiting polishing, beaches await exploration, and in others, a brand new career lies ahead.

Annie S. Hanson, for example, is looking forward to selling antiques for fun and profit. A clerk typist in the Structures and Materials Division, she has been with the Government for ten years, nine years of which were at MSC.

Harold E. Johnson of the Crew Training and Simulation Division, retiring after 30 years of service, came to work for the National Advisory Committee for Aeronautics (NACA) in July 1941. He is an aerospace engineer.

Neil S. Shaw, a secretary in the Program Procurement Division at MSC Downey, will leave Government service after 13 years. She has been with NASA for the past nine years.

G. W. Winningham “Whitey” Bell, also at MSC Downey, is a space system control specialist. He has 30 years of service to his credit. Prior to joining NASA in 1962, he had been with the Air Force.

Robert D. Kriehn, an electrical engineering technician with the Technical Services Division, will retire with 28 years of service. He came to MSC from the Air Force in 1964.

Myra W. Sherman is a secretary in the Telecommunications Systems Division. She has been with NASA for the past eight years and will retire after over 25 years of Government employment.

Sanford M. “Sandy” Ullman has left the Federal Government after 25 years of service. A protocol specialist on the Public Affairs staff at MSC, he joined NASA in 1966 after lengthy service with the Army. He and his family plan a move to Washington, D.C., where a new job awaits his arrival.

Robert L. Plummer, a quality assurance specialist in the Reliability and Quality Assurance Office, has been with the Government for 21 years. He has been at MSC for the past seven years and prior to joining NASA, worked for both the Army and Air Force.

Marvale Y. Stark began her career with the Government over 25 years ago. An accounts maintenance clerk in the Financial Management Division, she came to MSC in 1963 after a number of years working for the Department of the Navy.

Marston C. Owens, a contract specialist in the Institutional Resources and Procurement Division, began his Government service in 1951. He joined NASA in 1959 after having served in the military for 8 years.

David C. Spain came to MSC in 1963. His Federal service career began in 1936 when he joined the Army. He continued to work for the Department of the Army until 1963.

A supervisory printing specialist in the Management Services Division before his retirement, he is now residing in Ft. Lauderdale, Florida.

Good luck and good wishes to all the retirees.

CONGRATULATIONS ARE IN ORDER

Donald K. Slavoy (right), Director of Flight Crew Operations, presents service awards to (l to r): Antonino M. Patrono, Aircraft Operations (15 years); John B. Blight, Flight Crew Integration Division (20 years); and Dave Brown, Aircraft Operations (15 years).

Anyone have the correct time?—With a rubidium-87 atomic space clock, which would be the size of a tennis racket, anyone should commit itself to achieving s30.

Misellaneous
1. "Rubidium atomic time should be the official time in the United States," said Secretary of Transportation Ted C. Olson. "The clock will be accurate to within one second in 100 years." The clock will be installed at the National Bureau of Standards in Washington, D.C.

2. "Our new clock is the most accurate we've ever made," said Dr. John W. Swett, director of the National Bureau of Standards. "It will be used in experiments on the Earth's rotation and in time-transfer experiments.

3. "The clock is a marvel of modern technology," said Dr. Robert W. Schilling, director of the National Institute of Standards and Technology. "It will be used in experiments on the Earth's rotation and in time-transfer experiments.

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Center develops new Space Clock

For the technically inclined, the process works as follows: rubidium-87 gas in a glass cell is illuminated by a lamp filled with rubidium-87, and the light in turn passes through a filter cell containing a cooling system, which extracts the light energy from the beam. Microwave energy from a quartz crystal oscillator-multiplier drives the outer electron of the rubidium atom to a lower energy level. Variations in microwave frequency affect the net amount of light reaching a photocell, and the rubidium atoms are "pumped" to a corresponding energy level. The detected modulated microwave signal from the photocell, drives a synchronous motor which keeps the crystal oscillator at the atomic frequency temperature. The crystal oscillator in turn drives a frequency stabilizer and time code generators for feeding timing pulses to spacecraft systems and timekeeping displays.

The prototype space clock's accuracy has been measured against two laboratory hydrogen frequency standards in a test that ran for 240 days. The clock was also tested in simulated space conditions of temperature and vibration.

Kegler results told

The Jimmy Warren Memorial Bowling League crown has clinched for this year, the teams will resume play on Thursday, September 2.

The Pounders were first this season with a win-loss record of 79-75. The Bit Pickers were second with 73-61, and the Achievers were third with 72-64.

The remaining nine teams placed as follows: Alley Oops, 72-64; Cokers, 70-66; Mixers, 66-70; Hexes, 66-70; Roadrunners, 64-72; Real Timers, 64-72; Fabricators, 67-62; Strikers, 62-72; and Blitzers, 58-78.

Individual honors went to Al Bombard, 195.0; Bob Heavens, 192.0; Jim Black, 190.0; Al Anderson, 190.0; and Al Buell, 189.0.

Bread winner: Al Black, 195.0. "Al was the best all-around bowler in the league this year," said Jim Black.

Ring bearer: Bob Heavens, 192.0. "Bob was the most consistent bowler in the league," said Al Anderson.

Wallace: Al Buell, 190.0. "Al was the most versatile bowler in the league," said Jim Black.

Gardiner Honored

Robert A. Gardiner, Engineering and Development's Assistant Director for Electronic Systems, has been elected a fellow in the Institute of Electrical and Electronic Engineers (IEEE).

In the announcement by IEEE of the honor, Gardiner was cited particularly for "contributions and leadership in the development of manned spacecraft guidance, navigation and control systems."

Gardiner is one 24 Paris To Visit Paris

Apollo 14 Astronaut Alan B. Shepard, Jr., Edgar D. Mitchell, and Stuart Roosa will visit Paris Air Show from May 30 to June 6. In addition to a number of activities related to the Air Show, the three astronauts will also be in France to attend invited invitations for appearances at several cities in France.

Shepard, Mitchell, and Roosa will also visit the International Salon of Aeronautics and Space, visit space-facilities in Bretagne, Toulouse and Salon-de- Provence, and attend a reception to be given by the Mayor of Dijon.