

45 Employees Receive RIF Notices

JSC last Thursday notified 45 Civil Service employees that they will be released as a result of manpower reductions of NASA.

An additional 38 employees were informed they will be re-assigned or placed in jobs at a lower grade.

The move is to be concluded by June 1, and it will reduce the JSC work force to 3727 Civil Service personnel, the maximum ceiling authorized.

The number of employees being separated now is smaller than previously projected because of resignations and retirements, the Personnel Office said.

Among the 45 employees scheduled to leave are 10 engineers and 23 technicians. Most of them are stationed at the Center, although 19 have jobs

in field operations of the Center in Downey, California, and Kennedy Space Center, Florida.

The engineers and technicians have backgrounds in electronics, data systems, quality assurance, electrical and mechanical equipment.

JSC has set up an Outplacement Center for the affected workers and has invited other Government agencies and businesses concerns to interview them.

Organizations wishing to review employee resumes or desiring to interview JSC employees for job openings are urged to contact John (Jack) P. Kochner, NASA Johnson Space Center, Houston, Texas 77058; telephone a c 713, 483-5823.

ROUNDUP

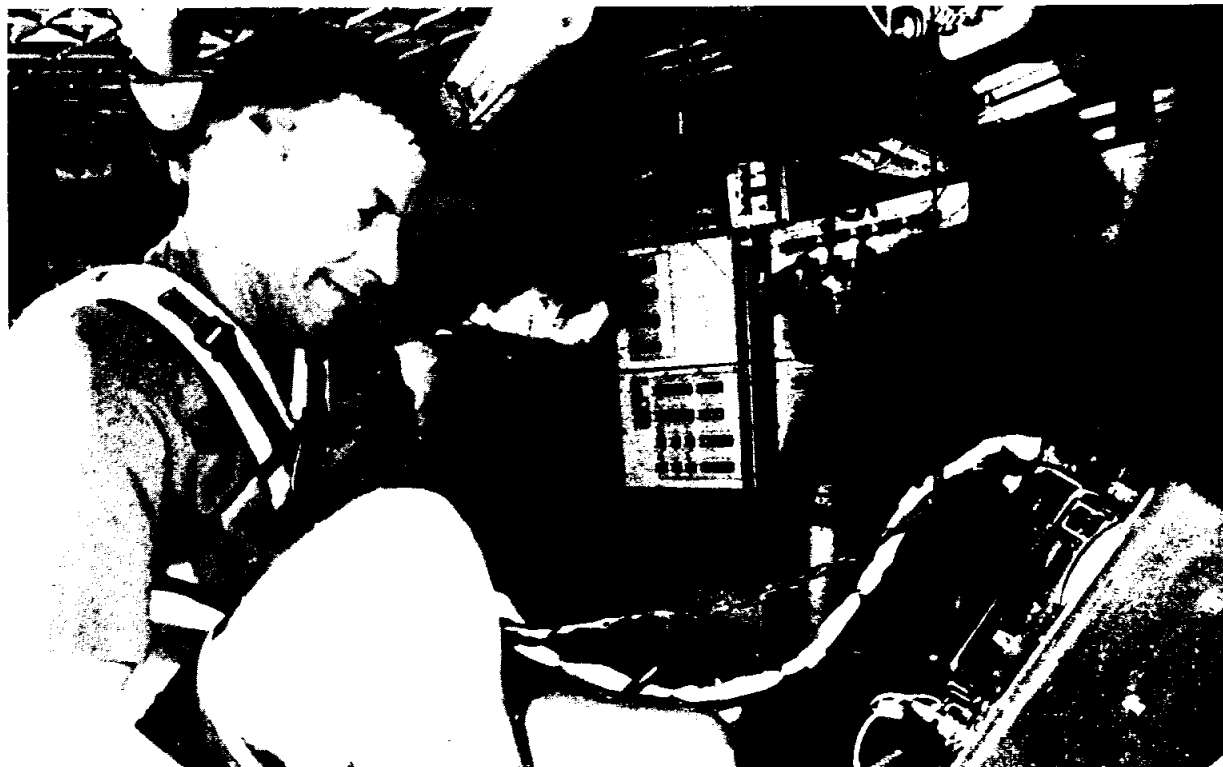
NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS



Vol. 12 No. 12

April 27, 1973



PREPARING FOR SKYLAB—Astronaut Paul J. Weitz, pilot of the first manned Skylab mission, prepares to check out the bicycle ergometer in the work and experiments area of the crew quarters of the Skylab Orbital Workshop (OWS) trainer during Skylab training at the Johnson Space Center. Scientist-Astronaut Joseph P. Kerwin, science pilot of the mission, is in the background. The ergometer produces measured work loads for use in determining man's metabolic effectiveness. The ergometer is used in the vectorcardiogram test and the metabolic activity experiment. Also, the bicycle ergometer will be used as the prime exerciser by the crew.

Astronauts Get New Appointments



FRED W. HAISE

Their departure from the Astronaut Office reduces the number of active astronauts to 37.

Haise was backup lunar module pilot for Apollo 13 in April 1970, and backup commander for Apollo 16.

His extensive background as a military and research pilot and astronaut also includes assignments as a research pilot at the NASA Lewis Research Center and the NASA Flight Research Center. (Continued on page 4)



JOHN L. SWIGERT

Astronaut Fred W. Haise and his Apollo 13 fellow crewman, Astronaut John L. Swigert were recently named to new positions.

Haise is now Technical Assistant to the Manager, Orbiter Project at JSC; Swigert was appointed Executive Director of the staff for the House Science and Astronautics Committee.

Haise and Swigert were both among the 19 astronauts selected by NASA in April, 1966.

Mexican Space Personnel Receive Training at JSC

Nicolas Flores of Mexico's National Commission for Outer Space (Comision Nacional del Espacio Exterior) is completing more than a month of training in remote sensing with an extended flight aboard NASA's earth resources NP-3A research aircraft as it surveys several areas in the eastern United States from New York to Florida and west to Iowa and Texas.

Flores, a physicist specializing in data acquisition, is one of four employees of the space commission's Remote Sensing (Perception Remota) Branch receiving (Continued On Page 4)

Griffin Named to New Position



GERALD D. GRIFFIN

Gerald D. Griffin was recently named NASA's Assistant Administrator for Legislative Affairs. His new position became effective April 23, 1973.

He succeeds H. Dale Grubb who held the post since 1970.

Griffin goes to NASA Headquarters from JSC where he was a flight director on all eleven Apollo missions. He was lead flight director on Apollos 12, 15 and 17.

A flight director exercises detailed control over all elements of a mission including the control center, tracking stations, spacecraft and crew to most effectively and safely carry out the objectives of the mission.

He was awarded NASA's Exceptional Service Medal for his work on Apollos 12 and 15 and the Presidential Medal of Freedom Group Achievement Award for Apollo 13.

Griffin joined JSC (then the Manned Spacecraft Center) in 1964 and was named a flight

director in 1968.

He graduated from Texas A & M University in 1956 with a bachelor of science degree in engineering and spent four years as a flying officer in the U. S. Air Force. He served as an aerospace engineer with Lockheed Missile and Space Company and General Dynamics before joining NASA.

He was born in Athens, Texas in 1934, is married to the former Sandra Jo Huber of Brownwood, Texas, and they have two children.

Skylab Crew Isolation Begins

The isolation period of the first Skylab prime and backup crews began at 7:30 CST, Tuesday, April 24, twenty-one days prior to beginning the 28-day Earth orbiting mission.

Prime crewmen, Charles Conrad, Jr., (Commander), Dr. Joseph P. Kerwin (Scientist Pilot), and Paul J. Weitz (Pilot), along with backup crewmen Russel L. Schweickart, Dr. Story Musgrave and Bruce McCandless, II began the Skylab Flight Crew Health Stabilization Program when they started their workday Tuesday.

The crewmen will be restricted to specific areas during this period and the crew health will be stabilized by limitation of the number of personal contacts during the immediate preflight (Continued on page 4)



RECEIVING TRAINING—Personnel of Mexico's National Commission for Outer Space (Comision Nacional del Espacio Exterior) are receiving training in remote sensing at JSC. In the above picture are Nicholas Flores (left), and Dr. Jorge Valerdi (right). They are working with electronic data processing equipment in Bldg. 17—the equipment is used to analyze data from ERTS and aircraft sensing devices.

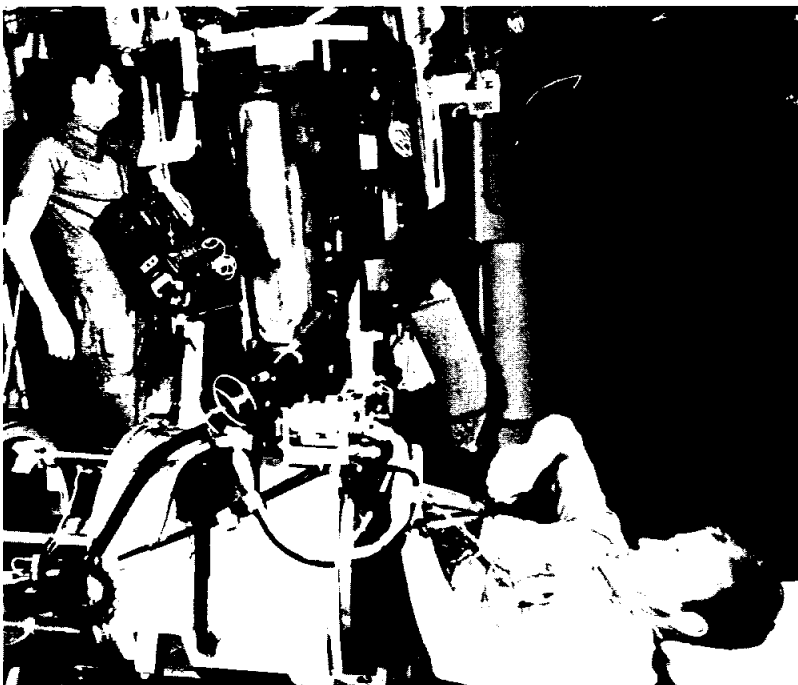
Astronauts Prepare for Skylab Mission



SKYLAB TRAINING—Scientist-Astronaut Joseph P. Kerwin, science pilot of the first manned Skylab mission, demonstrates the Body Mass Measurement Experiment during Skylab training at JSC. Dr. Kerwin is in the work and experiments area of the crew quarters of the Skylab Orbital Workshop trainer at JSC. The M172 experiment will demonstrate body mass measurement in a null gravity environment, validate theoretical behavior of this method, and support those medical experiments for which body measurements are required.



EXPERIMENT SO19—Astronaut Paul J. Weitz, pilot of the first manned Skylab mission, works with the UV Stellar Astronomy Experiment SO19 in the forward compartment of the Skylab Orbital Workshop (OWS) trainer during Skylab training at the Johnson Space Center. The equipment consists of a reflecting telescope, a 35mm camera and an additional mirror. It is mounted in an anti-solar scientific airlock in the side of the OWS. The objectives of this experiment are to obtain ultraviolet line spectra of a large number of stars, ultraviolet photographs of the clouds and stars in the Milky Way and to gain experience in the techniques for doing astronomy from manned spacecraft. SO19 is one of the Skylab astrophysics experiments.



ASTRONAUT IN PRESSURE DEVICE—Astronaut Weitz lies in the lower body negative pressure device during Skylab training. Going over a checklist in the background is Scientist-Astronaut Joseph P. Kerwin, science pilot of the mission. They are in the work and experiments area of the crew quarters of the Skylab Orbital workshop trainer at JSC. Weitz serves as subject in this medical experiment which measures the loss of cardiovascular reflex in weightlessness.

Preliminary Time Line

One day after the Skylab launch, May 15, at 12 noon CDT, astronauts Charles "Pete" Conrad, Jr., Joseph P. Kerwin, and Paul J. Weitz will be launched from KSC into Earth orbit aboard an Apollo spacecraft where some seven and one-half hours later they will dock with Skylab to begin their 28-day mission.

On June 10, Skylab crew will don space suits and at 12 noon CDT, Conrad will maneuver outside the space station to retrieve the film from the Apollo Telescope Mount.

The morning of June 12, the astronauts will enter their Apollo spacecraft, undock from Skylab, and prepare for return to Earth. Splashdown is planned for 1:44 p.m. on the 12th at 25° 201 N, 127° 04' W, about 800 miles southwest of San Diego.

Following is the preliminary timeline of Skylab 1 and 2 events:

SKYLAB 1

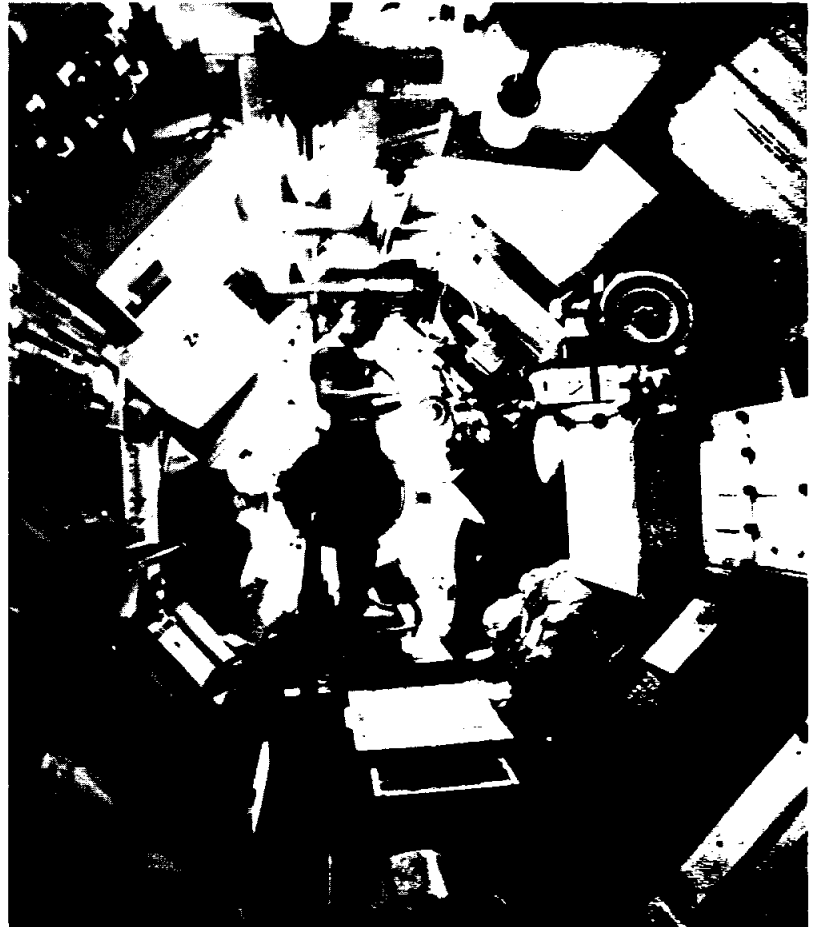
Skylab space station- Unmanned Launch; May 14, 12:30 p.m. CDT (launch windows closes at 4:00 p.m.)
 S-IC/S-II Separation 12:32:40
 S-II Ignition 12:32:42
 Payload Separation 12:39
 Orbit insertion 12:39:47
 Jettison payload shroud 12:45
 Rotate ATM 90° 12:46
 Deploy ATM solar array system 12:55
 Deploy OWS solar array system 1:11
 Deploy meteoroid shield 2:06

SKYLAB II

First Manned Launch
 Launch: May 15, 11:59:36 a.m. CDT
 S-IB S-IVB Separation 12:02:22 p.m.
 S-IVB Ignition 12:02:23
 S-IVB Engine Cutoff 12:09
 Orbit Insertion 12:09:25
 CSM/S-IVB Separation 12:15:36
 NC1 (phasing) 12:19:47
 NC2 (phasing) 4:35:39
 NCC (corrective combination) 5:21:48
 NSR (coelliptic) 5:58:48
 TPI (term phase) 6:48:37
 TPF (term phase finalize) 7:22:14
 Docking 7:39:36
 Pressurize tunnel May 16 7:30 a.m.
 MDA hatch open 8:00 a.m.
 EVA Egress (EVA) (2 hrs. 25 min) June 10 12:00 noon.
 Undock June 12 7:46 a.m.
 Separation 8:35 p.m.
 Deorbit 12:03 p.m.
 Entry interface 12:27 p.m.
 Splashdown 12:44 p.m.



HUMAN VESTIBULAR FUNCTION—Astronaut Charles Conrad Jr., commander of the first manned Skylab mission, checks out the Human Vestibular Function, Experiment M131, during Skylab training at JSC. Scientist-Astronaut Joseph P. Kerwin, science pilot of the mission goes over a checklist. The objectives of the Skylab Experiment M131 are to obtain data pertinent to establishing the validity of measurements of specific behavioral physiological responses influenced by vestibular activity under one "g" and zero "g" conditions; to determine man's adaptability to unusual vestibular conditions and predict habitability of future spacecraft conditions involving reduced gravity and Coriolis forces; and to measure the accuracy and variability of man's judgement of spatial coordinates based upon atypical gravity receptor cues and inadequate visual ones.



CHECKING LIST—Astronaut Conrad goes over a checklist during Skylab training at JSC. Conrad is standing in the Multiple Docking Adapter training in the Mission Simulation and Training Facility at JSC. The MDA is one of the five main components of the Skylab space station cluster.

ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER HOUSTON, TEXAS

The **Roundup** is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for JSC employees.

Editor: Janet Wrather Photographer: A. "Pat" Patnesky

Hospital Dedication Ceremonies Held

High winds and heavy showers failed to dampen formal dedication ceremonies Sunday afternoon for Space Center Memorial Hospital in Nassau Bay, Texas where an estimated crowd of 2,000 toured the unique NASA program-inspired facility.

Representative Bob Casey, ex-prisoner of war Capt. Tim Ayers and Colonel Buzz Aldrin, second American to walk on the moon, were among the many distinguished guests present.

Casey described the 119,000 sq. ft. facility as one of the best designed community hospitals in the nation and predicted that many innovations and discoveries from the space program would be eventually transferred into its operation.

Chairman of the Board of Trustees, Mr. Stewart Morris, told the audience, "Civilization advances by the great forward thrusts of pioneers. Then comes the slack periods, when society slowly, often all too slowly, catches up."

He said the Trustees pledged their efforts to tightening the slack between discovery and application of space-developed medical knowledge. The hospital is situated across the street from JSC and will soon appoint a Special Advisory Committee to accelerate the transfer of aerospace developed medical knowledge into the mainstream of public thought and hospital operation.

NASA and Rockwell Sign Contract

A definitive contract has been signed between NASA and the Space Division of Rockwell International Corporation, Downey, California, calling for the Space Shuttle system development.

Rockwell will be responsible for design, development and production of the orbiter vehicle and for the integration of all elements of the Space Shuttle system.

The contract has been awarded

on a cost reimbursement basis plus fixed and award fees. It will be funded incrementally and the initial increment has an estimated cost including fees of \$477,400,000.

The contract supercedes the letter contract issued August 9, 1972. It will continue through August 3, 1974, which will include the Space Shuttle Preliminary Design Review (PDR).

JSC Area Golfers Receive Invitation

An invitation was recently issued to all JSC area golfers to enter the first annual Deer Park Rams Benefit Golf Tournament, scheduled for Saturday, May 5th. The eighteen hole tournament will be played at San Jacinto Junior College Golf Course with a shotgun start at 8:00 a.m. and 2:00 p.m.

Prizes are ten trophies, first through tenth place plus a trophy and prize for the longest drive,

trophy and prize for closest to the hole on par three hole and trophy and prize for low gross score. Scoring will be by the Calloway System.

The entry fee for this tournament is \$6.00 and the deadline for entering is April 28, 1973. Tournament will be limited to the first eighty paid entries.

For further information concerning the tournament, call 479-5816.

Kentron to Negotiate for Contract

NASA recently selected Kentron Hawaii, Ltd., Continental Operations, of Dallas for negotiations of a contract to provide engineering support services at JSC.

The contract will be awarded on a cost-plus-fixed-fee basis with provisions for an award fee.

Categories of services include design of equipment and systems engineering, and test program and facility support. Technical expertise in the field of cryogenics, electronics, thermodynamics, high vacuum and instrumentation is required.

NASA calls for a three year contract with the initial award to run for one year starting May 1, 1973. There are provisions for two additional negotiated one-

year extensions. Approximately 60 Houston area personnel are to be employed under the contract.

Kentron won the competitive right to negotiate from among ten companies who submitted proposals for the work.

CLUB HOLDS AUCTION

Radio and other electronic equipment will be auctioned by the JSC Amateur Radio Club April 28, at the Harris County Park Community Bldg. on NASA Road 1. Doors open at 8:00 a.m.

Anyone wanting to sell or buy equipment should submit or inspect it at the Community Center anytime after 8:00 a.m.

Any further details may be obtained by auction chairman Ed Hamblett, extension 4031.

Roundup Swap-Shop

Swap Shop advertising is available to JSC and on-site contractor personnel. Articles or services must be offered as advertised, without regard to race, religion, sex or national origin. Ads should be 20 words or less, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday of the week before publication.

MISCELLANEOUS

Conn professional model tenor saxophone, prfct., used less than 2 yrs, \$350, McMurrey, 534-3625.

Baby swing, car seat and stroller, \$5 each, Ventura guitar \$65, Ward 488-4442.

Boys size 12-14, perma press slacks and shorts, li new sport coat, Siler, 333-2787.

Recently overhauled 2-cycle MacColoch, racing engine, 6.1 cubic inches, 333-2787. Join Piper Cub (J-3) Flying Club 1/6 interest available, Patterson, 554-2792.

8' x 11' multicolor square patterned area rug, bound edeg, waffle pad included, \$35, 333-3897.

Brass chandeliers, 1 wi nine bulbs, one wi 5 bulbs, both nd refinishing, 944-8717.

Aquarium, all glass, saltwater, 50 gal, full equip, coral, fish, must sell, \$100, Jack, 333-4655.

Antique Queen Anne dressing table wi stool, \$60, baby safety service hi chair, \$20, dbl matres and box springs, \$20, 946-4094. Target Bow, 1970 Groves Pro Line, 69", 36 lbs, plush bowcase incl, tapped for stabilizer, \$40, Keeton, 488-2613.

Free, 65 feet if 6 foot redwood fence, must dig it up yourself, Law, 944-7596.

New 4 1/2 hp Sears Outboard motor, purchased April, 73, used once, prfct cndn, pd \$145, will sacrifice for \$110, Teasdale or Batson, 5566.

Pocket-size electronic calculator, rechargeable batteries, 10 digits wi memory, Chuck Grab, 492-2777 or 524-2901.

Boy's perm-a-press shorts, size 12, 25" waist, new, still have tags, \$2.25, Peck, 488-1321.

Remington model 99 printing calculator, NASA surplus, dual column, accumulative operations, constant storage multiplications, original cost \$550, \$45 now, Kilbourn, 482-7879.

BOATS

LIDO 14 Sailboats, information on prices and cndn of used LIDOs for sale by owners, Hoover, 334-2392.

PETS

Purebred miniature poodles, 8 weeks, \$15 each, 488-2316 aft 2 p.m.

Free kittens, Sandy, 482-2873 aft 5 p.m.

HOUSEHOLD ARTICLES

Fisher 210 receiver, AM/FM stereo, 140 watts, 3 years old, \$125, 554-6788.

Scott Model 350 FM stereo tuner, Allied stereo amplifier \$75, 481-3551.

3-ton Bard Central Air Conditioner, inlet and return pipes for mobile home, used 3 weeks, \$525, Benjamin, 333-2644.

Panasonic stereo cassette, tape deck, \$65, Bell & Howell FM stereo, stereo cassette car radio, \$85, Walker, 334-3204.

VEHICLES

71 Honda 450, 7,000 mi, xlnt cndn, owner must sell, \$800, M. C. Perry, ext 7733, aft 5, 538 1039.

71 Kawasaki 500, xlnt cndn, \$750, McMurrey, 534-3625.

67 Ford Cty, Sq, 1 owner, am/fm, pwr, air gd cndn, \$750, 481-2224, Lindsay.

71 Dodge Demon 225 "6" auto, fact air, ps, \$2000 firm, 944-8647.

For rent, Tri-Pacer, \$12/hr wet based LaPorte, Netzbard, 946-1750, 483-5931.

66 Buick Riviera, gd cndn, \$800, Long, 481-1557.

71 Honda SL-175, xlnt trail bike, \$475, Bean, 333-3814, also, Hanson surfboard, Mike Doyle design, \$100, 333-3814.

BMW motorcycle, R60 or R75 in xlnt cndn wi windshield, leg farinas, helmet carrier, Hooper, 488-4120.

72 Pontiac Grandville, 4 dr ht, air, tilt steer wh, AM/FM stereo, pwr st/braks, 3300 mi, nw tires, xlnt, Munford x 5814.

71 Suzuki 100 mx, gd cndn, runs great, \$350, cash 488-3801.

Honda 72 SL-125 1600M licensed for street, gd cndn, 471-3405.

67 100 cc Kawasaki and helmet, \$120, aft 5 p.m., 488-2276.

500 lb capacity 1 wh trailer wi metal covr and car hitches ideal for camping equipment, \$100, Wasson, 488-2722.

Ford Econoline window van, new paint, av-hauled 66 Mustang, nw battery king pins, gd tires, \$500, Wasson, 488-2722.

69 Pontiac Firebird, ps, ac, cnsl hydramatic, Michelin steel radial tire \$1,500, 481-3434.

68 Chevy Impala 9 pass, wgn, at pb, ps, pt, air, \$1395, Cowan, 944-1551.

Yamaha 125, MX, 1970, gd cndn, xlnt running, lw mi, nw piston, bearing, pin, expansion chamber, filteron, Keeton, 488-2613.

Chevy pickup, 1969, step-side bed, 307 CI V-8, standard trans, new tires, 53,000 mi, \$1525, retail, \$1175, selling price, Robert Vaughn, 331-4513.

Camper for LWB truck, must sell stove, ice-box, table, bed, sink AC/DC, used once, original \$699, best offer, Betty, 944-5648.

63 Chrysler New Yorker, fully equipped, gd reliable work car, has 168,000 mi, should go to 200,000, \$150, 482-3989 aft 6 p.m.

72 Jayco ht, fold-down camper, kitchen, iche box, sleeps 8, \$10 per day, \$57 per wk, \$25 min, Kilbourn, 482-7879.

71 BSA Victor motorcycle, 250cc Enduro model, li nw, 1800 m., \$550, Zinn, 488-5266.

71 Dodge Van, air, V-8, radio, stick, 1 ton, LWB, \$2200, Walker, 334-3204.

WANTED

Exercycle gd cndn, reasonable Rubenstein, 334-2354.

Passengers to Cape in private aircraft for Skylab launch, 488-3265.

PROPERTIES & RENTALS

Sub-Lease apt, the Bay House, 1 bdrm, furn or unfurn patio, pool, cov'd parking, etc, 333-2705 aft 6 pm.

Jamaica Beach, 80 x 130 corner lot, on largest canal, Bulkheaded, \$6000 or highest bid, 332-2982.

Nassau Bay, Spanish, 4-2 1/2-2, 2500 sq ft, wooded lot, screened back patio, large kitchen and breakfast area, 7 yrs old, call 488-3353 days, 333-2880 evenings and wkends.

Freeway Manor, 3-1-2, central heat, air, fnced yd, equity, \$133 mo, Dianne, 944-3243.

4-2-2 Alvin, lease or sale, close to grade school and shopping center, 331-4205.

Dickinson, custom built home in Pines, 3-3-2, Bayou access, shop area, fnced, easy access to freeway, 534-3665.

Golf Course lot and/or wooded lot in Bluebonnet country Development, xlnt recreational facilities, 482-3989 aft 6 p.m.

League City, Bayou Brae (near high school) 3-2-2 ovr 1500 sq ft, gd cndn, under \$23,000, 554-2645 aft 6 p.m.

Between Friendswood and Alvin, 3-2-2 central air/heat on 1/2 acre lot, Friendswood school district, by owner, Chambliss, 483-5973 or 482-1532 aft 7 p.m.

CLC Townhouse, by owner, 2x2 1/2x2 large, assume 6 percent loan or refinance, brick firewall between units, well insulated party floored attic drapes, extras 488-2665.

Alameda Mall: Sell or lease, brick 3-2-2, den, dining room, living room or fourth bedroom, drapes, fenced, just painted, 946-4462.

JSC Golfers Hold Tournament

The JSC Golf Association Tournament was held on March 31, 1973 at Executive Golf Club.

Ted Breezy led the championship flight in the second round of the tournament by carding an 81. He took first place with Bill Chase at second with an 82.

There was a four way tie for third with Mike Conway, Dana Botaman, Jim Smith and Dick Everett each netting 73.

Second flight winner was Harold Epps who finished with a 96 for a net 71. Dwayne Forsythe finished with a 93 for a net of 72. Four golfers tied for third with nets of 76 each: Tom Jennings, Ben Hood, Bob Sampson and Bob Lacy.

John Hawk had a net 60 after

carding an 87 to take first place in the "B" Flight of the new member division. Jim Wood finished with a 91 for a net 69 and Earl Patterson, Jim Robertson and Ronald Wood tied for third with net 74's.

Championship, second and "A" groups of the new member division will play at Glenbrook on May 5 and first flight and "B" groups of the new members are scheduled to play Glenbrook on May 12.

A new date for the Sharpstown tournament which was rained out on April 14 has been scheduled as follows: June 9 — first second and "A" group new members; August 18 — championship and "B" group new members.



PATENT COUNSEL WORKSHOP—The NASA-wide Patent Counsel's workshop was hosted by the JSC Office of Patent Counsel April 2-4. In attendance were NASA patent attorneys from Headquarters and major field centers, plus top patent representatives of AEC, Air Force Army, Navy, Department of the Interior, Department of Transportation, National Bureau of Standards, and Department of Commerce. Among those attendees pictured in the above photo are JSC Patent Counsel, Marvin F. Matthews (front row, second from left), JSC Director, Christopher C. Kraft (front row, third from left), and NASA Headquarters Assistant General Counsel for Patent Matters, Leonard Rawicz (front row, fourth from left).

Data From Spacecraft May Aid In Understanding Weather

Interplanetary spacecraft are giving us a better understanding of the solar system, and they may soon contribute strongly to solving some of our atmospheric problems on earth.

NASA's first Mariner mission to Mars in 1964 greatly changed the meteorologist's concepts of heat transfer processes in a thin planetary atmosphere and this will add to our understanding of processes in Earth's upper atmosphere.

Problems that complicate earth meteorology, such as the mixture of ocean and continent masses, broken cloud layers, and rapid planet rotation, are isolated and exaggerated on Venus and Mars and are therefore much easier to study.

For example, Venus rotates very slowly, has no ocean and has a continuous thick cloud cover. Mars matches Earth's 24-hour day and seasons, but does not have the complication of ocean-land masses.

BETTER FORECASTS

Meteorologists state with certainty that by studying the three planets, Venus, Earth, and Mars, they will be able to make better short-term weather predictions and to foresee different trends in the Earth's climate.

Scientists already know that it would take only a seven-degree Fahrenheit drop in the average atmospheric temperature on Earth to trigger another disastrous ice age.

They also know that on a local scale, like in the Los Angeles basin, the smog and smike par-

ticles we dump into the atmosphere are major factors influencing atmospheric temperature. However, they cannot agree on how much smoke and dust it would take to create the seven-degree temperature drop over the globe.

NEW DATA FROM MARS

There hasn't been enough data to resolve the issue, not since the great volcanic eruptions of Tambora in 1815 and Krakatoa in 1889, which poured enough dust and smike into the atmosphere to drop temperatures worldwide over a period of many months.

But they didn't have many monitoring instruments in those days. Now a wealth of pertinent new data has been returned from Mars by Mariner 9. A giant dust storm completely shrouded Mars when the Mariner spacecraft arrived in November 1971.

As the dust settled and the atmosphere gradually cleared over a period of several months, instruments on the spacecraft continued to report changes in the temperature profile down to the surface.

The dust absorbs much of the Sun's heat and blocks it from the surface, so that atmospheric temperatures at the surface are reduced by 15 degrees Kelvin (27 degrees Fahrenheit). These data are now being analyzed in computers and should largely resolve the question of what increase in particulate pollution of the whole Earth would drop temperatures enough to start another great ice age.

NASA And Military Work Together

Many people, confused by the countless acronyms identifying agencies of government have mistakenly assumed that NASA is engaged in highly secretive work. Far from the truth—almost all of NASA's work is unclassified wide open and well publicized.

Some military work is going on. NASA has unique research equipment and wind tunnels at four field centers, and last year the agency received 60 requests from the military services for help in aeronautical research alone.

NASA responded by scheduling 15,000 hours for research on military aircraft in the wind tunnels. This included work on the F-15, B-1, F-14 and prototype aircraft.

The Army and NASA are working together to purchase two research type aircraft capable of flight testing any advanced rotor concept conceived for future use on military or civil helicopters. This will save the cost of building a new helicopter or modifying an old one each time a new rotor design seems promising.

In another joint program, the two agencies plan to begin flight tests in 1976 of a research air-

craft with two wing-tip rotors that can be tilted upward for takeoff and landing and tilted forward to operate as propellers for normal cruising.

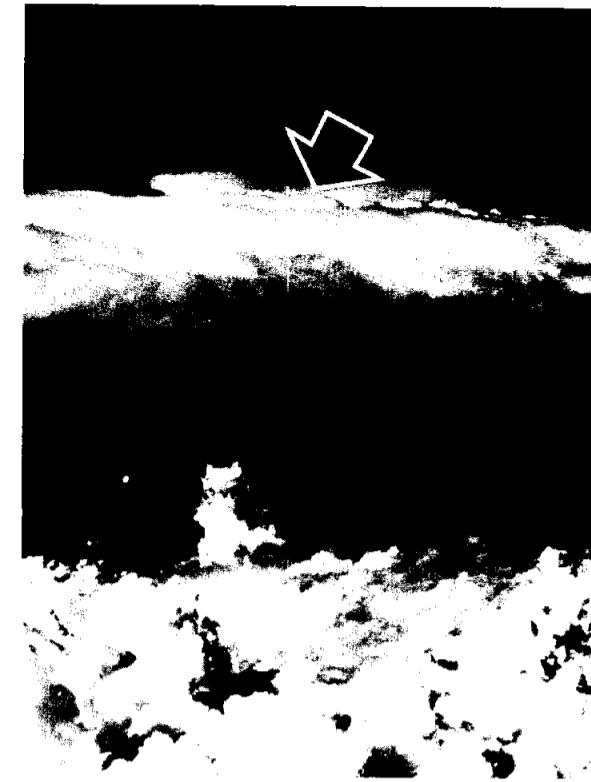
The combination of helicopter hovering and cruise performance of a turbo-prop transport could have advantages to both civil fleet and the military air services.

For civil aviation, the tilt rotor concept could operate from limited space at major airports or from VTOL vertical takeoff and landing parts to relieve airway and airport congestion.

Skylab Crew Isolation (Continued From Page 1)

and postflight periods.

Access to primary areas during crew occupancy will be limited to properly badged contacts. These areas at JSC will include the crew quarters, Mission Simulation and Training Facility, Skylab Mobile Laboratories, Astronaut Gym and the Ellington AFB line crew is in Houston. Primary areas at the Kennedy Center in Florida will include the Crew Quarters and Suit Rooms in the Manned Spacecraft Operations



SEOS—NASA is considering a new type of weather satellite called SEOS (Synchronous Earth Observatory Satellite) as an early warning system for the general public. While making a "feasibility study" of the future observer these photographs were taken from an aircraft at 45,000 feet. The photograph on the right was taken 30 seconds after the one on the left. In less than two minutes the cloud cell in the thunderstorm spread out one mile vertically and two and one half miles horizontally. After several minutes the cell collapsed. The entire event lasted seven minutes and several thunderstorms were reported. Research of this type indicates that such clouds can grow very rapidly in areas where clouds did not exist a few minutes before. NASA believes that SEOS, while making weather observations more frequently and in greater detail, could provide timely warning to the public.

Mexican Space Personnel

(Continued From Page 1)

on-the-job training at JSC. The Space Center in Houston. The team is headed by Dr. Jorge Valerdi, who handles electronic data processing for the branch.

The training program began March 19 to prepare the Mexican team to make effective use of a remote-sensing aircraft purchased by Mexico last December. In addition to Flores and Valerdi, two members of the photographic laboratory staff—Luis Corona and Manuel Alvarez—have also received detailed training at JSC. Valerdi, Corona and Alvarez returned to Mexico Saturday to begin work.

Dr. Valerdi said the training received from NASA was even more useful than he had expected. After he became familiar with the essential facets of the computer operation, Dr. Valerdi spent more than a week reviewing other elements of the earth resources program conducted by NASA.

"We covered all that we planned and, due to the flexibility of the program, we have been able to go into other areas that are of interest to our commission," Dr. Valerdi said.

Increased familiarity with NASA methods and programs will allow the Mexican space commission to offer greater assistance to nearly a dozen scientists working as principal investigators on data returned by the Earth Resources Technology Satellite (ERTS), Dr. Valerdi said.

The remote-sensing team will make immediate use of their training in aircraft scheduling and operations, photographic laboratory management, and electronic data processing as they begin flying missions with the sensor-equipped Aero Commander 500-B.

The flights may also provide additional information to six principal investigators conducting research using the Earth Resources Experiment Package (EREP) aboard Skylab. Mexico's EREP projects include surveys of land and water use, geological studies, and a search for new areas suitable.

Because much of Mexico is relatively inaccessible from the ground, the aircraft remote sen-

ing program is expected to play an essential part in reducing the cost of acquiring information about the environment for several major national programs.

Dr. Valerdi said that the remote sensing would be used to seek locations for geothermal energy plants. Mexico already has one such installation at Sonora, using heat from deep within the earth to supply electricity to the surrounding area.

Remote sensing may also provide information necessary for a cooperative program with the United States to eradicate the screwworm, a larva that attacks both livestock and wild animals. Dr. Valerdi says Mexico's ranchers, who lose several hundred million dollars worth of cattle to screwworms each year, are very enthusiastic about the program.

Dr. Valerdi hopes to make several return visits to the Johnson Space Center to keep up to date with methods and programs in earth resources and remote sensing.

Astronauts Get New Positions

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ter, where he was the author of numerous papers on aircraft flying and handling qualities.

Swigert held a position as engineering test pilot for North American Aviation, Inc., before joining NASA. He was also an engineering test pilot for Pratt and Whitney from 1957 to 1964.

Swigert served as a member of the Astronaut support crew for Apollo 7. He was next assigned to the Apollo 13 backup crew and subsequently called upon to replace prime crewman Thomas K. Mattingly as command module pilot.

Both Swigert and Haise have received numerous honors including the NASA Distinguished Service Medal and the Presidential Medal of Freedom. They have logged a total of 142 hours 54 minutes each in space.

