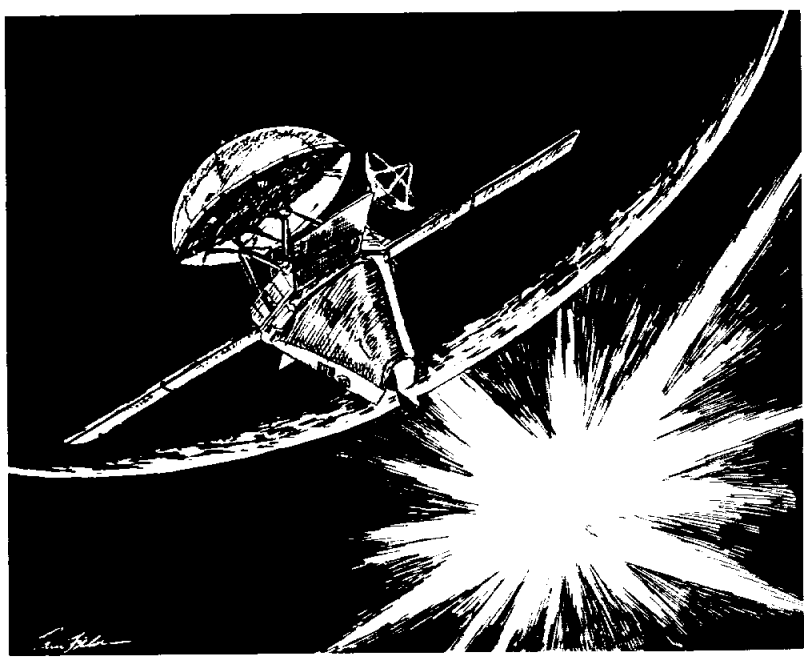
ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER — HOUSTON, TEXAS

VOL. 14 No. 17 — Friday, August 15, 1975



— BY PAUL FJELD

Mars - The Search For Life Begins

If all went well, America's most ambitious unmanned spacecraft should be on its way to the Red Planet. Viking I, scheduled to be launched from the Kennedy Space Center yesterday, will be followed in about two weeks by Viking II.

The year-long, 815-million-kilometer (505-million-mile) journey will culminate with the landing of an automated laboratory on Mars' surface in the summer of 1976.

Viking's mission includes photographic reconnaissance of the Martian surface and detailed scientific experiments of Mars' atmosphere and geology. A primary objective of the Viking missions is the search for life on Mars.

The surface exploration of Mars – the planet most like Earth – should yield new knowledge on the origin and evolution of our solar system, and provide insights into processes that have shaped our Earth.

The scientific venture began August 14, when Viking 1 was to be launched from Cape Canaveral, Fla., aboard a Titan 3/Centaur rocket. Viking 2 is set to follow 10 days later.

After a long, looping chase through space to overtake Mars, Viking 1 will arrive in Martian orbit about June 18, 1976, and may remain in orbit for as little as two weeks or as much as 50 days.

The most critical part of the mission begins when the four-ton Viking divides into an Orbiter and a Lander. The Orbiter, circling the planet at distances ranging from 1500 km (930 mi.) to 32,600 km (20,200 mi.), will map the surface and take Mars' atmospheric pulse, looking for signs of life.

The Lander will survive the flashing heat of entry through the planet's atmosphere, land gently on the surface, and conduct an intricate scientific examination.

If all goes as planned, Lander 1 may touch down on Mars July 4, 1976, the 200th anniversary of the United States.

Viking 2 will arrive at Mars seven weeks after Viking 1, about August 7. Lander 2 will touch down sometime around September 9.

Each Viking is packed with instruments that will be used to conduct 13 separate but related scientific investigations.

Three investigations will be conducted from each Orbiter, eight from each Lander, and two more will use equipment aboard both spacecraft.

The Orbiter's three investigations will photograph the planet and map its atmospheric water vapor and thermal properties.

The instruments will seek suitable landing sites and provide information on Mars' atmospheric water concentration, its surface temperature, any clouds or dust storms, and terrain topography and color.

The Orbiter instruments will continue to operate after the Lander is on the Martian soil.

During the Lander entry to Mars, several instruments and sensors will measure the atmos-

(Continued on page 2)

A ROUND TUIT

At long last there is a sufficient quantity for each of you to have one. Guard it with your life. These tuits have been hard to come by. This is an indispensable item. It will help you to become a more efficient worker. For years people have been saying, "I'll do it as soon as I can get a round tuit." Now that you have a round tuit of your very own, many things that you've needed to do will be accomplished.

Apollo Crew Returns After Being Away 29 Days

After last month's historic flight and two weeks of hospitalization and rest in Hawaii, the three Apollo astronauts have come home to Houston and to JSC.

The crew's expected arrival of July 26 was delayed because of a pulmonary irritation resulting from inhalation of a toxic gas minutes before splashdown. Their reported chest discomfort led to admittance to Tripler Army Medical Center in Honolulu, Hawaii where they remained in isolation for six days. Nine days of semi-isolation followed – in company of their wives and families – during which they were still monitored for any further irritation or discomfort.

The three families arrived in Washington, D.C. last Friday afternoon in order to hold the Saturday post-mission crew press conference at NASA Headquarters. The news conference was opened with select movie views of the ASTP flight. Questions later showed that the crew had been issued a "clean bill of health" and that they were all feeling "in great shape." Accounting for the unknowns of the gas exposure and the hard splash, Tom Stafford said that each action during descent was the "responsibility of all the crew." They said they will be seeing cosmonauts Alexey Leonov and Valeriy Kubasov within three weeks when a two-week tour of major US cities is scheduled. After one week off, they will resume their tour by visiting major cities of the Soviet Union.

After the press conference, a pre-luncheon ceremony was held in the White House Rose Garden. President Ford then presented the crew with NASA Distinguished Service Medals and informed Tom Stafford that he had just been promoted to the rank of Air Force Major General. A private luncheon followed at the White House with the President, after which the crew met with Congressman Olin "Tiger" Teague. Saturday's busy schedule was concluded with an evening reception hosted by NASA Administrator, Dr. James Fletcher, and Deputy Administrator, Dr. George Low. The reception was attended by the crew members and wives, Justice and Mrs. Blackmun, former astronauts Mike Collins and William Anders, and other guests.

The crew and their families arrived at Ellington Air Force Base last Sunday at 2:00 p.m. Welcoming ceremonies were preceded with a fly-over of Confederate Air Force planes. Congratulatory statements were made by Center Director, Dr. Chris Kraft.

A warm, "welcome-home" feeling prevailed amongst the crowd of about 200. "It's good to be home, and I DO mean home," said Vance Brand. With a proud smile of accomplishment, Deke Slayton admitted that it was "much better to be a 'greetee' that a 'greetor'."

In closing, Dr. Glynn Lunney stated what we all feel – that even though it was the crew's flight, "these flights belong to all of us ... we enjoy them just as much as the crew does."

Years of planning and preparation, nine days of mission support, and two weeks of anxiety have come to an end along with the

(Continued on page 2)

MBEP at JSC Moves Ahead

Since its establishment in 1970, the JSC Minority Business Enterprise Program (MBEP) – through the 8(a) section – has awarded over $4.5 million in contracts to minority businesses. One million of that was awarded in June of this year alone.

The Office of Minority Business Enterprise (OMBE) was established in 1969 by President Nixon to assist the disadvantaged and struggling small businesses in reaching a level of competence allowing their participation in the economic mainstream of the private enterprise system.

In a 1974 memorandum, President Ford stated the importance of Government assistance to these businesses: "They need every help the Government can reasonably provide. It is especially important ... that your agency look for every appropriate opportunity for minority businesses to participate in Government programs as contractors, subcontractors, bankers, etc., and that management, technical, and financial assistance be provided whenever feasible." Thus, an MBEP Council was set up at each of the NASA field Centers.

José R. Perez, MBEP Specialist

(Continued on page 4)

Pictured above are Dr. Kraft, Harold Stall and Fran Gentry, July's Secretary of the Month.

Fran Gentry: A True Professional

Take a big smile, a willingness to help, a lot of enthusiasm, much professionalism, reliability, a pound of poise and shake it up. What happens? Nothing – there is no shaking up! Just as calm, collected and cheerful as ever, there's Fran Gentry!

Fran serves as private secretary to the Public Affairs Officer, Mr. Harold Stall. She assists him directly in dealing with the national and international news media, the general public, NASA and other government agencies. Often, she is the first contact with these people of whom some, particularly of the news media, are forceful, persistant and clever individuals. Obviously, they must be dealt with in a highly professional manner. Fran's ability to do so has won her high acclaim.

Due to the extremely active and complex daily schedule Mr. Stall has, he must rely on Fran's ability to organize his schedule with priorities. In addition to the complexity of her work, the volume of action items handled each day probably exceed that of any other office in the Center. After an electronic counter was attached to the phone, it was found that during the month of February 1975, an unbelievable 7,606 calls were recorded. That's an average of 380 calls each working day! But Fran handled each caller as if he/she was the only one she had had to deal with all day.

Mrs. Gentry also assists in many high level operational missions such as pre-launch astronaut activities at Cape Kennedy, News Center operations in Building 2, and the ASTP planning conferences that were held in Moscow and Houston. During the last of these held in Houston, Fran was selected to attend the sessions, take notes, prepare drafts, and type the final public information plan. Again, her accomplishments on these special assignments won her high acclaim from the news media and the NASA-Soviet participants.

As senior secretary in the Public Affairs Office, she is responsible for coordinating, instructing and evaluating all secretarial activities within PAO. A shortage of three secretaries during the past year made this a most difficult and challenging assignment, but her willingness to work, her cooperation and her great enthusiasm pulled her through and in turn, served as an inspiration to the secretarial staff.

One can get an idea of what Fran works like by stepping into her office – the pleasant atmosphere of organization, the congeniality of the little candy dish, and the plants that add a certain hominess to a place that without her would not be the same.

Mars *(Continued from page 1)*

phere's structure and chemical composition.

The Lander's cameras will take pictures of Mars from the surface, and Lander instruments will study the planet's biology, molecular structure, inorganic chemistry, meteorology and seismology, and physical and magnetic properties.

The Lander's surface sampler, attached to a movable boom, will be extended to dig up soil samples for incubation and analysis inside the biology instrument's three metabolism and growth experiment chambers (see related story).

These three investigations are particularly important for understanding the biological makeup of Mars.

The meteorology instrument, located on a folding boom attached to the Lander, will periodically measure temperature, pressure, wind speed and direction during the mission.

A three-axis seismometer will measure any seismic activity that takes place during the mission.

The radio science investigations will make use of Orbiter and Lander communications equipment to measure Mars' gravitational field, determine its axis of rotation, measure surface properties, and conduct certain relativity experiments.

Four landing sites have been selected for the Landers, two primary and two secondary spots.

Prime target for Lander 1 is a region known as Chryse, located at the Northeast end of a 4,800 km (3,000 mi.)-long rift canyon discovered by Mariner 9.

Lander 2's primary landing site is Cydonia, in the Mare Acidalium region at the edge of the southernmost reaches of the north polar hood.

If any of these selected sites proves unpromising after Orbiter investigations, scientists on Earth will select other sites.

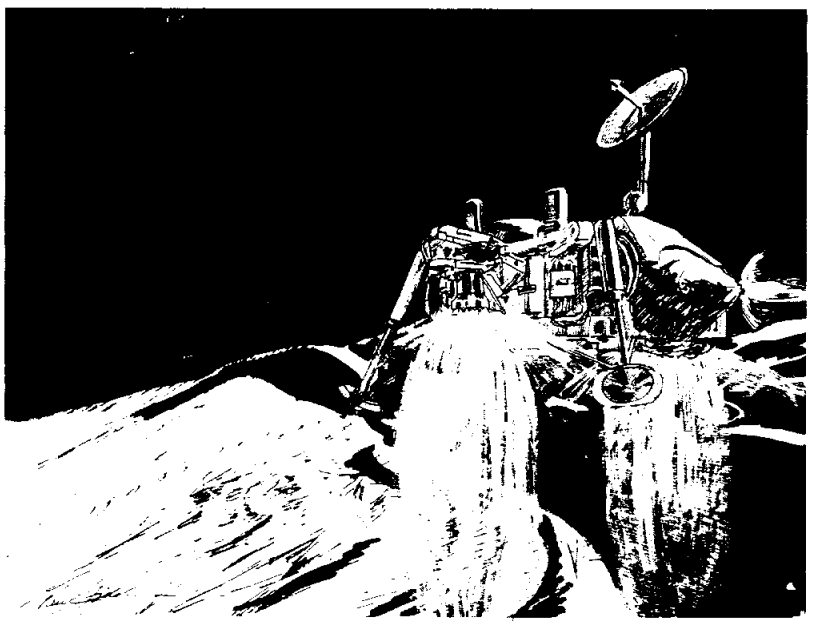
The Viking Project is managed by NASA's Langley Research Center, Hampton, Va.

Viking will be controlled from NASA's Kennedy Space Center, Fla., until completion of the launch phase, when control then shifts to the JPL Viking Mission Control and Computing Center. A 700-member Viking Flight Team of engineers, scientists and technicians will maintain constant control of the four Viking spacecraft.

APOLLO CREW

(Continued from page 1)

Apollo program; but as Vance Brand said of mission events: "Every event that came up we savored ... rolled it on our tongues." We at JSC will do the same with memories of Apollo and of ASTP.



– BY PAUL FJELD

How To Tell If It's Life

While the Lander cameras may spot some unmistakable form of life, it now seems much more probable that Martian life, it it exists, will be in the form of micro-organisms. During the past two decades, many ingenious schemes have been devised for remotely detecting the presence of micro-organisms on other planets. Most techniques involve detecting the processes of metabolism and growth common to Earth life (and which are expected to be common to Martian life, too). Viking scientists have selected three approaches:

PYROLYTIC RELEASE EXPERIMENT: A sample of soil is dumped into a chamber where the Martian environment is simulated in all aspects, except that some of the normal carbon dioxide atmosphere is replaced by one of carbon monoxide and carbon dioxide "tagged" with radioactive carbon-14. Water vapor can be added upon command. Any life in the sample should assimilate some of this artificial atmosphere and incorporate the radioactive atoms into the organic compounds it manufactures – assuming its behavior is like that of Earth organisms. After several days' incubation, the sample will be pyrolyzed at about 600° C to drive off organic vapors. The vapors will be separated. The presence of radioactive organic molecules in the vapors would strongly imply terrestrial-type metabolism in the sample.

LABELED RELEASE EXPERIMENT: Similar in principle to the foregoing experiment, this one substitutes carbon-14-tagged nutrients for the tagged atmosphere. A soil sample will be moistened by a small sample of tagged nutrients and then incubated; that is, given time to assimilate the nutrients. Any tagged carbon dioxide or tagged volatiles released during incubation would imply the existence of metabolism. This type of life detector has been successfully tested in several desolate but life-sustaining terrestrial environments.

GAS EXCHANGE EXPERIMENT: This experiment is based on the fact that the atmosphere over a sample containing metabolizing micro-organisms changes in composition with time. A soil sample will first be moistened with a rich nutrient. Periodically, after suitable incubation, samples of the atmosphere will be conveyed to a gas chromatograph to discover whether any chemical changes have occurred. Methane and carbon dioxide are likely products of micro-organisms growing in a dark, oxygenless environment; and if the concentrations of gases such as these change during incubation, it will be evidence for the presence of living material in the sample.

Life detection is a new branch of biology. Its practitioners know what to look for on Earth, but they will be at a serious disadvantage on Mars. Mars life may be radically different from what scientists anticipate. The Viking experiments may not ask the right questions, so a "no" from each of the three experiments would not rule out Martian life completely.

Throughout NASA

ANTI-CORROSION PAINT

An improved inorganic paint developed by NASA as an anti-corrosion coating for space program use is being tested on the Golden Gate Bridge in San Francisco. The paint has been applied to a six-foot steel panel on the underside of the bridge and is estimated to last about two years. It provides corrosion protection from salt spray, fog, heat and the thermal shock of rapid temperature changes.

ECHO-FREE TEST CHAMBER COMPLETED

One of the largest echo-free chambers in the country, recently completed at NASA's Lewis Research Center in Cleveland, is expected to increase the Center's capability in researching ways of reducing the noise of jet airplanes. The new Engine Fan and Jet Noise Facility is the first installation able to test noise characteristics of quiet fans for advanced aircraft engines and test ways of reducing the rumble of jet nozzles.

AIRCRAFT STUDIES

NASA is involved in a number of technology studies aimed at achieving an improved engine for general aviation airplanes that is practical and can also meet the price and production requirements of the commercial market. Reduced fuel consumption and significant reduction in pollution emissions are primary goals of the program. Some of the studies will be performed jointly with industry and with the Federal Aviation Administration (FAA).

GROUND STATION

A ground station designed to receive data directly from NASA experimental earth resources satellites will be built at Fucino, Italy, under an agreement announced recently. The new installation will complement existing U.S. ground stations at Fairbanks, Alaska; Goldstone, California and at the Goddard Space Flight Center in Greenbelt, Maryland.

$5.5 MILLION CONTRACT FOR TELESCOPE FACILITY

NASA has awarded a $5.5 million contract to the University of Hawaii for the construction of an infrared telescope facility on the summit of Mauna Kea. The facility will be used primarily to provide supporting data to NASA's planetary exploration programs, particularly the 1977 Mariner mission to Jupiter and Saturn. The facility will also provide a national capability for ground-based observations of astronomical objects in the middle and far infrared portion of the electromagnetic spectrum. First observations are planned for 1977.

Shuttle Related Activities

KSC VAB Mods

NASA's John F. Kennedy Space Center, Fla., has awarded a $5,137,000 contract to the Mayfair Construction Co., Chicago, to modify the Vehicle Assembly Building (VAB) for Space Shuttle operations.

The contract provides for modifications to High Bay 3's extensible work platforms, installation of new checkout cells in High Bay 4, modification to the north door of the VAB transfer aisle, relocation of jib cranes and modifications to related support facilities.

Completion of the contract is scheduled for 570 days after the contractor receives notice to proceed.

KSC has been designated the prime launch and recovery site for the reusable Space Shuttle, with the first manned orbital launch from here scheduled for early 1979.

The reshaping of KSC's Complex 39 for its role in the Space Shuttle era is well underway. Construction of the 4,500-meter-long (15,000-foot), 90-meter-wide (300-foot) landing facility to the northwest of the VAB began in April 1974, and paving should be completed by the end of 1975.

Ames Shuttle Simulator

An aeronautical facility to simulate the critical maneuvers of aircraft during take-off and landing, is being built at NASA's Ames Research Center, Mountain View, Calif.

The facility, the Vertical Motion Simulator (VMS), will reproduce up-and-down motions similar to movements by such aircraft as the new short take-off and landing (STOL) and vertical take-off and landing (VTOL) planes of the future.

Operation of the facility by research pilots will help engineers arrive at workable designs before expensive and sometimes dangerous flight tests are needed.

The VMS, costing about $3½ million, will use an existing simulator cab and computer system at Ames, but will have new hardware to provide large-scale vertical motions.

The VMS will accurately simulate flare and touchdown of aircraft. It will also better enable pilots to cope with the complexities of flying the sophisticated aircraft designs of tomorrow.

Booster Motors

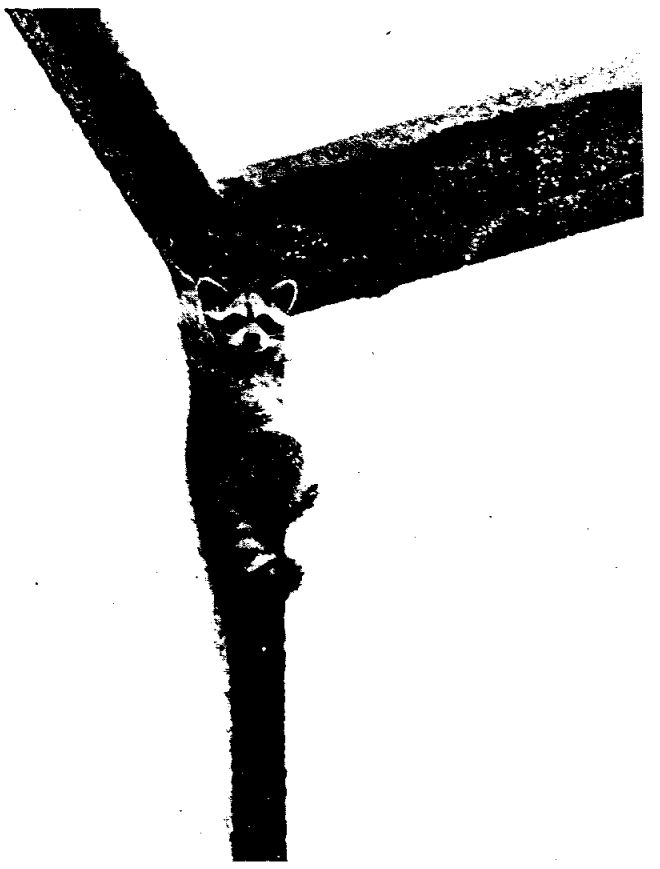
NASA has selected United Technologies Corp., Chemical Systems Div., Sunnyvale, Calif., for negotiation of a fixed-price contract for solid propellant Booster Separation Motors (BSM).

The motors covered by the contract are those to be used on the first six development flights in the Space Shuttle program beginning in 1979. The estimated contract price is about $1.775 million.

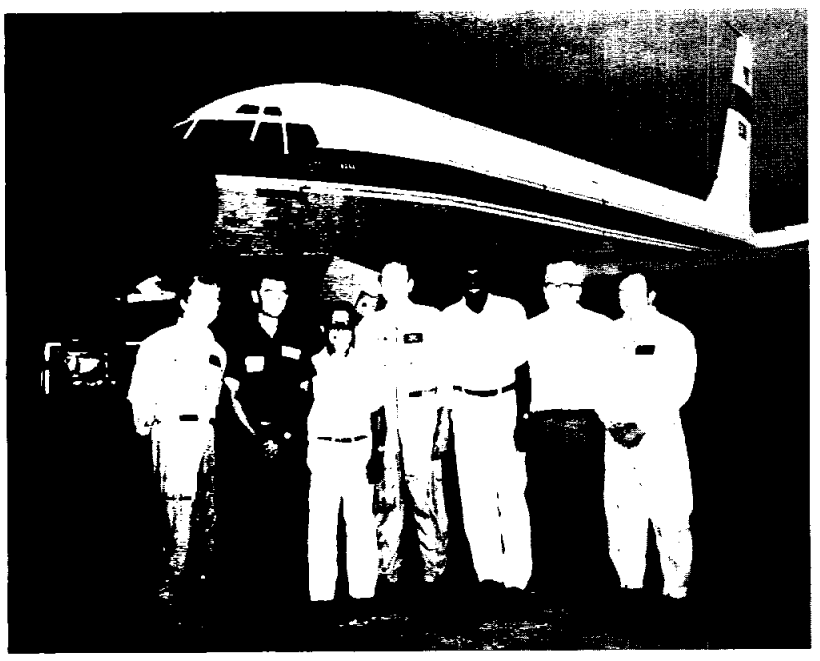
The contract will be managed by the Marshall Space Flight Center at Huntsville, Ala.

The Space Shuttle, to be fully operational in 1980, will be in a reusable low-cost space transportation system that will replace virtually all of the current U.S. launch vehicles.

The contract calls for design, development, fabrication, test, evaluation, qualification and delivery of flight hardware.



HANG IN THERE, BABY! – When the going gets rough, this little raccoon knows where he can "hang around" for a little attitude adjustment. Photographed by Jack Jacob, this masked character was found at building 10.



Shown are members of the NASA zero-gravity KC-135A ground maintenance team who recently were presented a Silver Snoopy Award in recognition of outstanding maintenance support. From left to right: Glenn Pingry, Jack Brazell, Mike Pena, Lt. Col. Gordon Fullerton, Leroy Floyd, Jack Brandon, and Jere Cobb. Not shown are Vince Alvarez, Skip Guidry, and Milo Kohl.

EAA Attractions

WANTED: PEOPLE TO ATTEND THE JSC/EAA ANNUAL PICNIC

September 27, 1975

ADVANCE TICKETS:

Adults, $3; Children, $2

See your EAA Representative or go to Bldg. 11 Ticket Center.

JSC DANCE CLUB

Want to get more out of life? Join the JSC Dance Club and be prepared for the upcoming holiday season. A new class in ballroom dancing (waltz, swing, cha-cha, rhumba, samba, polka, rock, etc.) will begin August 27, 6:45 p.m. at the Gilruth Recreation Center, room 204. The course includes 10 lessons of ballroom dancing every Wednesday night. The cost is $37 per couple (quite a bargain in entertainment), plus $1 initiation fee per couple. Advanced and intermediate classes will continue at 8:15 p.m. There will also be one intermediate class at 6:45 p.m. Bob and Rae Calvert are the witty and talented instructors for these courses. Interested persons should contact Edi Quinn/EW5, X3431, for additional information.

VOLLEYBALL

Don't forget the registration for the 1975 EAA Mixed Volleyball League. League play will begin in early September, and rosters and fees must be turned in at the Gilruth Rec Center between August 25 and 29. Entry fees will be approximately $25 for NASA teams and $40 for off-site contractor teams. Get your entry forms and other information from Doug Burns, X3594.

ANOTHER EAA ATTRACTION

The EAA announces to JSC personnel the availability of numerous appliances and home entertainment products at near dealer costs through courtesy of B & H Electronics. Prices will range from 6 to 8 percent over dealer cost. B & H is an authorized warranty service station for Admiral, RCA, and Quasar and provides service for Magnavox, Panasonic and Zenith. All products – ranging from turntables to air conditioners – can be found in their showroom.

TENNIS, ANYONE ?

Beginner and intermediate tennis lessons will start at the JSC Courts September 22. Adult lessons will consist of one hour sessions twice per week for 4 weeks; children's lessons will consist of one hour sessions once a week. Adult lessons, $30; children's lessons, $15. Morning and evening hours are available. A playground is located next to the courts for those who have children. Deadline for entry is September 17. Call X3594 for more information.

TICKET CORNER

Available in Building 11 Exchange Store, X4814 10:00 a.m. to 2:00 p.m. NO REFUNDS.

SPORTS – Houston Astros Baseball, $3.15 Reserve and $4.00 Box (regular $3.50 and $4.50). Remember September is the last month for baseball ... SPECIAL PLACES OF INTEREST – Sea Arama, Adults $3.25, Children $2.25 (regular $4.25 and $3.25); Disney Magic Kingdom Cards, FREE Good at Disneyland and Disneyworld for special price ticket books and a 10% discount at most Howard Johnson's; Lion Country Safari Cards – FREE; Six Flags Funseekers Club cards, FREE entitles card holder and family to $1.00 savings on each ticket purchased at Astroworld, Six Flags Over Texas plus a 10% discount at 80 major hotels in the area, and more ... ABC Interstate Theatre, $1.50. DINNER THEATRES – Windmill Dinner Theatre – $14.00 Couple (Regular $20.00). Starting August 18 James Drury in "Catch Me If You Can". Tickets will be on sale soon. Dean Goss Dinner Theatre – $16.00 Couple (Regular $20.00). Comedy by Carl Reiner, "Something Different" thru September 7. JSC/EAA Annual Picnic – Tickets Now on Sale ... See your EAA Rep or go by Building 11 and buy your tickets. Adults $3.00 and Children $2.00 thru September 12, 1975. After September 12, Adults $3.25 and Children $2.25.

Bratton Receives Award

Dean Bratton began working with Eastman Kodak in 1969 to encourage and assist in the development of a technique that would provide for microfilm duplication of color imagery. At that time, the use of microfilm processing of black and white photography was widely accepted and had been used in the duplication of photography from the Apollo Program.

The volume of duplicate film of Earth Resources Aircraft Photography maintained in the Earth Observations Division's Research Data Facility (RDF) had prompted an awareness of the need; within three years of Bratton's initial efforts with Kodak, an acceptable microfilm duplication technique for color imagery was developed. Microfilm was substituted for the duplicate film, thereby reducing fixed costs to JSC by 85 percent.

The Suggestion Committee determined that Bratton was solely responsible for the initiation and development of this technique and that he should receive appropriate recognition.

Dean Bratton's initiative and hard work paid off for him and for JSC. His work on the development of a new microfilm duplication technique saved JSC $196,000. Dr. Kraft (left) and Jack Kinzler (right) are pictured here after Bratton was presented his Suggestion Award.

MURPHY TO SPEAK AT BANQUET

Calvin Murphy, star backcourt man of the Houston Rockets will be the featured speaker for the annual JSC Summer Employee Banquet to be held at 11:30 a.m. on August 18 at the Gilruth Recreation Center.

Summer employees (Summer Aids, VOE's, ICT's, and Junior Co-ops) and their supervisors are invited to attend the banquet, which will also be highlighted by presentations of Outstanding Awards to summer employees.

One of college basketball's all-time scoring greats, Murphy was born in Norwalk, Conn., and was graduated from Niagra College in 1970. He acquired his interest in basketball from his mother, who was a semi-pro basketball player with the Wilmington, N.C. Bomberettes.

The only N.B.A. player officially listed as under six feet in height, Murphy was selected by the Rockets in the 1970 draft. No

N.B.A. guard last season placed as high in as many statistical categories as did the 26-year-old Murphy.

Murphy and his wife Vernetta live in Southwest Houston. They have two daughters, Tiffani, 4, and Traci, 3.

MBEP *(Continued from page 1)*

at JSC, says the program now is "at a point where it can really go forward." That seems obvious from the record already established. Included in these programs are the Small Business Administration (SBA) Section 8(a) contracting and MBE Subcontracting by NASA prime contractors and subcontractors. Section 8(a) refers to the authorization the SBA has to enter into prime contracts with Federal procuring agencies and to subcontract the work to disadvantaged firms.

These firms are defined as those which are owned and controlled by minorities or others disadvantaged by economic or social background and environment.

"Up to this point the contracts have been mainly with construction and service firms, but we're trying more and more to move into technical and professional areas," said Perez. Not only NASA JSC, but also JSC's prime contractors make efforts to subcontract with minority businesses.

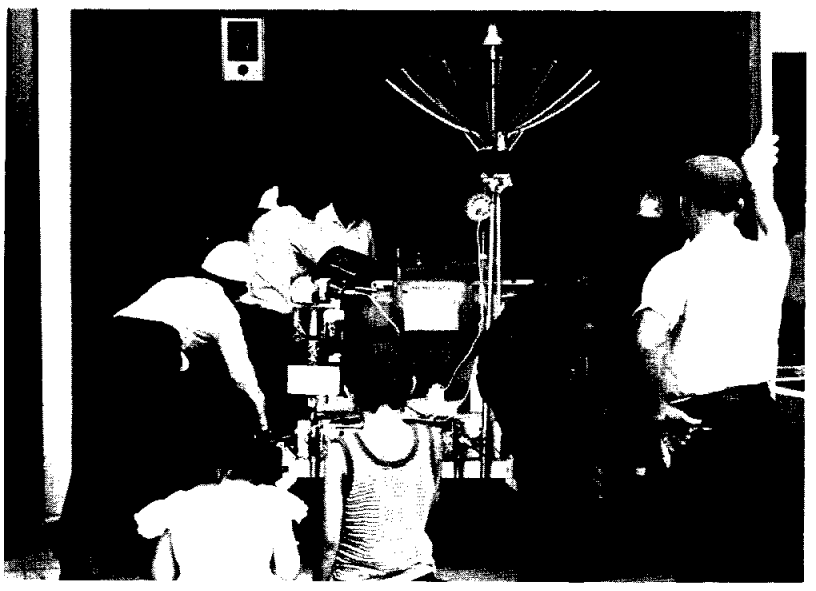
"What we try to do is assist in the growth of the small minority business so that after a certain period, usually 3-5 years, it can become a self-sustaining, competitive entity," said Perez. "It's not a give-away program."

"There is more involved than just awarding contracts. If a firm has the technical basics and we need work that branches from its skills, then we can provide the necessary management and technical assistance."

But the success of the program here at JSC can best be proven by that which is visible onsite – those repair, construction, and technical services that are taken care of by these contractors.

Proudly, Mr. Perez said that of the almost 100 contracts completed at JSC, the success factor has been about 99 percent.

Mr. James L. Neal, Director of Procurement, stated that JSC has exceeded its 8(a) goal each year "through the hard work of Mr. Perez, the Council, and the Representatives from each Directorate." The FY75's goal of $1,600,000 was exceeded by $120,651. He further stated that "while the goal for FY76 has not been set, it will be higher than last year's and it will be a greater challenge to all of us at JSC."



GETTING THINGS BACK TO NORMAL – Visitors watch as the Lunar Rover is moved back to its original spot in the Building 2 Auditorium. It had been temporarily taken out while the ASTP mission was in progress, and the auditorium was being used as the Press Area.

ROUNDUP
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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: Martha McWilliams Photographer: A. "Pat" Patnesky

LULAC COUNCIL MEETING

The NASA Area LULAC Council will have its bi-weekly meeting at 5:15 p.m. August 21 at the Gilruth Rec Center, Room 206. For more information call John Rosales, X4027.

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.

VEHICLES

16' travel trailer for rent, self cont, slps 6, xlnt cond; Hammond, 488-2387/488-2816; new Coleman camper for rent, cmplete kitchen, dlx cond, slps 6, water tank, dinette, lights; Hammond, 488-2387.

1974 Kawasaki 500, xlnt cond, 3500 miles; Nutt, 472-5737.

'74 Olds Omega, low mileage, a/c, nw stl radials, 15-20 mpg, $200 below retail, xclnt cond; Stanley, x4097 or 488-5881.

Yamaha 100 Enduro, xlnt engine, for street or trails, $275 cash; Shapiro, 488-4276.

For rent: Jayco hdtop folddn camper, kitchen, ice bx, slps 8, pulls easy, $10-day, $57-wk, $25-wkend & $25 deposit reserves; Kilbourn, X4801 or 482-7879.

'73 Dodge Chalnger, V-8, 318 cu in, 2-dr. hdtop, bucket st, radial tires, lifetm shocks, 5 yrs alignment warnty, 39,500 miles, xclnt cond; Nick, x7409, aft 6, 495-2599.

'72 Starcraft ten trailer, slps 6, many xtras, xclnt cond; $1485, 488-2329.

Big 17'3" MFG "Gypsy" 73, 115 Johnson, 18 gal, built-in big wheel sportsman galv trailer, 40 mph, $2500, Plauche, 474-2660 or 5361.

Williamscraft travel trailer, 15 ft, "Lo-traveller", xlnt cndn, $1500, Schulze, 422-5636 or x2901.

72 Honda CB350 KZ nw tires, pipes, battery crash bar, air cleaners, xtra tire, clean, $650, aft 6, 333-3426.

71 Honda 50 mini trail, less than 200 mils, li nw, $225, after 6, 333-3426.

PROPERTY AND RENTALS

Lot near golf course & Lk Houston; ¼ acre wooded, Haines x5371 or Graham 944-9030.

Dickinson — Custom brk on lg wooded lot; 2145 sq ft, 4-2-2, firepl, panld den, formal living & dining rms, owner 534-2191.

Tnhouse — Glenbrk Valley, xclnt cond, quiet, pool, low 30's; Ted 643-3012, 644-9763.

BOATS

Lone Star 16, galvanized trler, kicker mtr, gd sails; aft 6, Windham 471-3033.

18 ft Seabreeze, 105 HP Chrys. OB, depth finder, air hrns, top & curtains, galv. tilt trler, xclnt cond, Brizzolara, 333-2509.

Fishing bt & mtr, 12 ft, fberglass w/baitwell; Johnson 6 HP mtr, xclnt cond, Cree X4476 or 481-1158.

'74 Regatta, 17 ft, low profile, 85 HP Johnson, sportsman trailer, $2995; aft 5, 944-5823.

PETS

Baby Boa, 6 ft long, xclnt pet, loving & quiet, $100; Rubenstein, 334-2354.

AKC reg Lhasa Apso pups, 1 ml & 1 feml, shots, wormed, 8 wks, $95 ea; Rohrer, 479-6766.

AKC Irish Setter, male, 2 yrs old; Ruth Elder, 472-8825.

HOUSEHOLD ARTICLES

25" Sylvania clr TV cnsle $65; table saw $40; Burt 333-2117.

Dearborn gas space heater, 20,000 BTU, 6 mo used, $35; Brownlee 944-2390.

1973 Worldbk encyclopedia w/74 & 75 yearbks, $150; Kilbourn, x4801 or 482-7879.

Conn cornet, perf cond, school aprvd, $150; Maxey, 487-2142.

42" rd formica top Early Am dining table w/4 mate chrs, gd cond, $75; lg steamer trunk, very gd cond, $20; T Nelson, 482-7101.

12x15 green nylon carpet, used, $30, whirlpool washer, runs but nds some repair, $20, Gallagher, 487-0149.

MISCELLANEOUS

New Mobiliner tire, 5:30 x 12, 4 ply, $10; 488-2329.

Wilson golf clbs, irons, 2-PW; woods, 1, 3, 4 & 5, xlnt cond, $150; Jay, x6357 or 481-2335.

Surfers: 9' Tanaka, xlnt cond, $75; 991-4699.

General Motors A/C compressor, 68 unit, wks well, $35; Gardiner, 482-3104.

24" Schwinn single sp, heavy duty saddle; 472-7478.

4X Bushnell Rifle scope, post reticle, $20; Schulze, 422-5636.

Deep Sea fishing charter, 1-5 people, bait & tackle frnshed, $120; 534-2390.

8mm Keystone movie camera, elec eye, Fl.8 lens, zoom, $40; B & H 8mm auto load projctr, 500 W, $50; two G78 x 15 WSW Firestone tires, $20; Sayers, 333-2395.

Two wheel chairs, $40 ea; assorted eng prts for 110 or 120 HP Mercruiser; Reeves, x7272 or 482-7233.

Pr white golf shoes, sz 10½B, worn very little, $9; Vince, x5183 or 482-0520.

Aux motor bracelet for daysailer, small powerboat, etc, xlnt, $15, 488-3966.

Elec organ, Farfisa compact, fast 4, has bass pedals and swell control, $275, Nelson, 3007 or 554-6668.

JSC musicians interested in forming brass quartet or ensemble for lunchtime recreation are invited to call Tim, 3532.

Casco stroller, $9, auto bottle warmer, $2, GE heat and serve elec baby dish, $6, Jamy car seat, $7, Hoala Coupe walker, $4, various boys clothes, infant to 3, all in xlnt cndn, Schulze, 422-5636 or 3958.

WANTED

VW Tow bar; Burton, x4351 or 471-0778.

Extension ladder; Vance Carlin, 645-3722.

Want to join or form car pool to Baytown, K-Mart area; Murray, x3481 or 427-1380.

Additnal members in 2-person car pool from Meyerland area to JSC; hrs flexible; Jan Kelley x5844, aft 6, 668-5481.

Small utility trailer; Haines, x5161.

MORE SWAP SHOP

3-2-2 house, formal living & dining rms, fncd bkyd, patio cover, $32,000, or equity & assume 5-3/4 FHA, $168/mo, League City; Gary Johnson, x3254 or 554-3937.

Rent Lk Livingston resort/retirement home, 3-2-1, attractively frnshd, Cape Royale area, wk, mo, yr rates; John, 488-4487.

Lot for sale, Lk Rayburn, wded lk access, all utilities, $5,000; Colton, 488-2692.

Rent motorhome, fl queen & dbl beds, 10 mpg, $125/wk. + 6cents/m + gas, Dep. Reqd; aft 11 am, 471-5161.

4-2-2 Oakbrook/CLC, lg fncd lot on cul-de-sac, covrd patio, family rm w/ cathedral ceiling, nicely landscpd, xclnt cond, $44,600; 488-5506.

Wanted: radial armsaw in gd cond; 482-7643.

Wanted: duet earthenware pottery by Franciscan, all pces considered; McCreary, x4202 or 946-5285.

Wanted: child's car seat not requiring permanent mounting, gd cond; and cool mist vaporizer; aft 5, 944-3149.

Wanted: metal lathe, drill press, welding machine, power supplies; Joe, x5126 or 944-6513.

15' travel trailer, 71, elec brks, stove w/oven, wall heater, gas/12vdc/110VAC, xclnt cond; Munford, x3254, $1295.

1974 Kawasaki 500, 3500 miles, xclnt cond, $1000 or bst offer, Nutt, 472-5736.

'73 Dodge pickup, air, nw tires, less than cred union in value; x5931 or 332-3067.

1973 Cheerolet C10 ½ ton pickup, Fleetside w/air, nw tires, auxlry fuel tnk, Ranger fibergls camper top, $2750; Koenig StorMaster tool box for pickup, Deep model, fits Fleetside, gd cond, $75; Perry, x6134.

18 ft Seabreeze boat, '72 bowrider, 105 HP Chrys OB, depth finder, air horns, top & curtns, galv tilt trailer, xclnt cond; 333-2509.

'67 Camaro, air, auto, buckets, 327 V8, Michelin's, 66,000 m, xclnt cond, $975; 488-3409.

Crd Union Repos: 1974 Capri, AM/FM, 4 spd; 1973 VW AM/FM, air; 1972 Datsun; shown by apointment only, 10 am Aug 18-20, bidding closes 5:30 Aug 20; call Georgia Bennett, 488-7070.

Thompson/Contender 38 special barrel, nw, $40; Win 88 Cal 308 w/B&L 2½ — 8 scope, pre-64. Xclnt cond, $220; Handley, x4776 or 482-7041.

Antique clocks: 2 GB wall clocks, 3 Westminister chime mantle, 2 weight Vienna Regulator; 474-4041.

2 sets mattress & bunkett, xclnt cond, $25 ea; Gary Johnson, x3254.

Fairchild belt driven turntable, Fchild cartridge, gray $40; Schulze, x2901 or 422-5636.

Yamaha tenor sax, xclnt cond, $350; 481-0278.

Gibson ES-175 guitar, $325. Odell steel guitar; Donohoe, 488-1432.

Used adding machines, listing, cred balance, $30; dry copier, 3M, "Dual Spectrum" Mod 107, copies sheets, bks up to legal sz, $65; Suzuki TC90 motorcycle, clean, licensed, $165; Speier, 333-2263.

Gd begners clarinet, $60; Warden, 944-2026.

3-spd AMF men's bike, rd w/gen light & chrome rack, $35; Erickson, x4717 or 488-1901.

Redlscover outdoors w/your own good hunting dog, adorable Brittany Spaniel male puppy, AKC, wormed, shots, $85; Farley, x4604 or 471-2629.

WANTED: PEOPLE TO ATTEND THE JSC/EAA ANNUAL PICNIC

September 27, 1975

ADVANCE TICKETS:

Adults, $3; Children, $2

See your EAA Representative or go to Bldg. 11 Ticket Center.

Join the Payroll Savings Plan.

With this emblem painted on the Lander 1, the Viking spacecraft was launched from Cape Canaveral yesterday afternoon. Its year-long, 815-million-kilometer (505-million-mile) journey will culminate with the landing of the automated laboratory on the surface of Mars in the summer of 1976.