

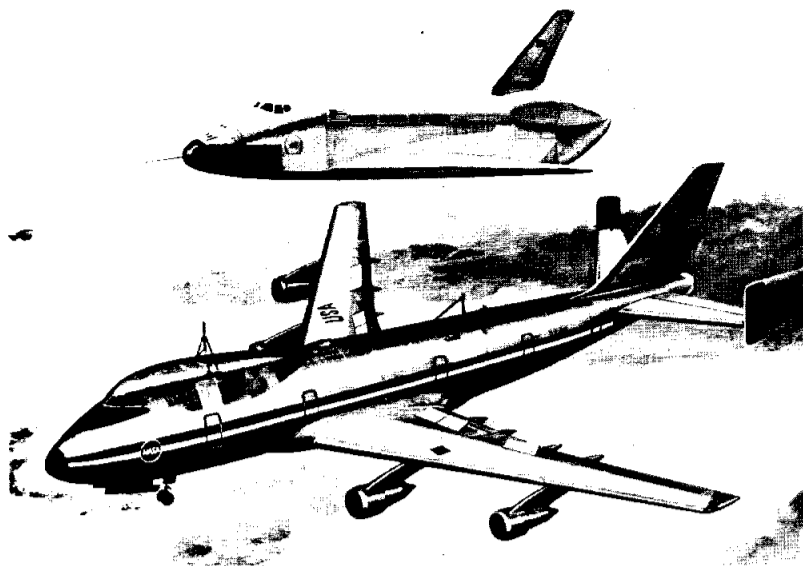
Model to Aid Orbiter Test Pilots

Before NASA Space Shuttle pilots make their first flight in the Orbiter, they will make their first landing attempts on a 17.07 by 7.32 meter (56 by 24 ft) visual model of the Edwards Air Force Base runways and surrounding terrain.

The Orbiter is NASA's new low-cost transportation system designed to carry into earth orbit a crew including scientific and technical personnel and payloads, then return to earth and land much like a conventional jet airliner on an airport runway.

The visual model which will be used for these practice landings was constructed in a model-maker's shop in Kinston/Surrey, England. The model arrived recently at the Johnson Space Center in 42 sections.

Assembly of the model is scheduled for next month in the JSC



ARTIST'S CONCEPT of Space Shuttle Orbiter shortly after separating from the Boeing 747 carrier aircraft at the beginning of an approach and landing test (ALT). On the right the Orbiter, escorted by an F-104 chase aircraft, makes its final

approach to the runway following release from the 747. English model will depict the entire Edwards Air Force Base area for use in the Shuttle training simulator in Building 5.

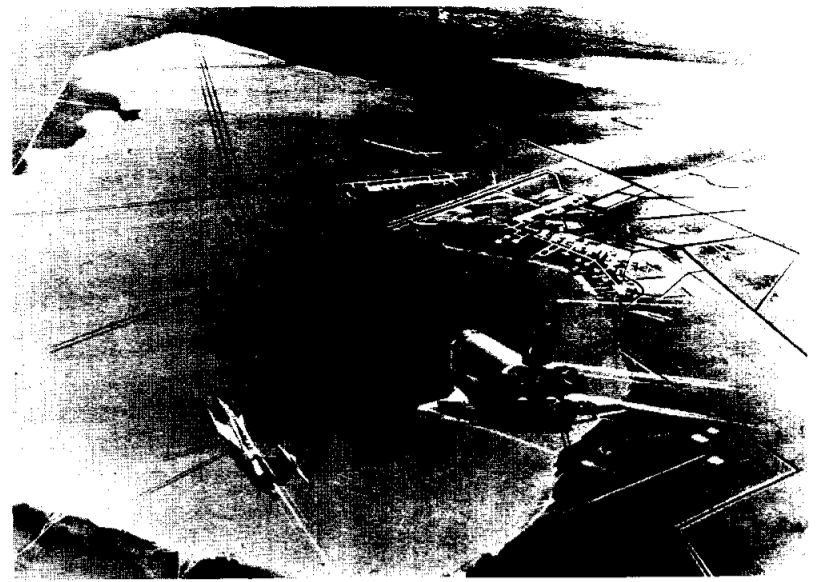
Building 5 Mission Training and Simulation simulator facility. The sections will be assembled vertically on a structure near a wall and become an integral part of the Orbiter Aeroflight Simulator being constructed for NASA by the Singer Company, Simulator Products Division.

Opposite the model will be a battery of 264 1000-watt metal-halide arc lamps to light the Edwards AFB model, simulating daylight conditions.

The model sections are constructed of reinforced fiberglass and aluminum. Each section is 1.2 by 2.4 meters (4 x 8 ft) and weighs about 67.5 kg (150 pounds).

John Piper Ltd., a specialized model making firm located southwest of London, constructed the model based upon aerial and ground photographs, contour maps and first-hand impressions of the area by Piper while on a tour of Edwards AFB last year.

To transmit a pilot's eye-view of the landing site to the windows of



approach to the runway following release from the 747. English model will depict the entire Edwards Air Force Base area for use in the Shuttle training simulator in Building 5.

the Space Shuttle Orbiter simulator, a special 126 degree optical probe built by Farrand Optical will be utilized. The optical system consists of the optical probe, mirrors, beam splitters and three color television cameras especially designed by Singer. The optical system is mounted on a twin tower gantry permitting the unit to move in all directions. The movements of the optical probe are correlated to the pilot's hand controller in the Orbiter cockpit.

The model provides the Orbiter

pilot with a true representation of the colors and the terrain around Edwards AFB. To the eye, the model colors may seem slightly exaggerated, but when the image passes through the TV optical system, the colors match what a pilot will see from the Orbiter cockpit when making a landing approach over the actual site. The horizon and sky viewed by the pilot in the Orbiter simulator is provided by a visual effects generator. The horizon movement accurately tracks the terrain movements.

JSC Builds Water Quality Monitor System

Techniques developed by NASA to detect micro-organisms in water systems on manned spacecraft are now prepared to spot harmful bacteria in the treated water of American cities.

The new processes are to be incorporated in a system NASA is developing to electronically monitor water quality. It is one of several space-related technological advances that will help maintain a constant watch on water pollutants.

JSC, with its contractor, the Boeing Company, is building a trailer-mounted Automated Water Monitoring System to be evaluated beginning in June. The year long experiment will be conducted initially in cooperation with the Gulf Coast Waste Disposal Authority, which is responsible for sewage treatment in three Southeast Texas counties - Harris, Galveston and Chambers.

During its first application, the electronic system will be used to monitor the quality of treated water for such ingredients as dissolved oxygen, total oxygen demand, total organic carbon, bacteria, chlorides, residual chlorine, ammonia, nitrate, total nitrogen, sodium, water temperature, turbidity, conductivity, hardness and acidity or alkalinity. The Automated Monitoring System can be adopted to process data from as many as 40 individual water sensors. In the initial evaluation, 20 commercially available sensors and four NASA developed sensors will be used.

At present, cities monitor a small number of elements representing water quality by taking samples at regular intervals and sending them to a laboratory for

analysis. In some cases, such as the measurement of biological activity, results are not obtained until days later.

Biological sensing now is considered to be the weakest element in water quality monitoring. NASA field centers also are developing sensors designed to rapidly detect and identify living organisms in water.

By adding chemicals which cause bacteria to radiate light, researchers at the NASA Goddard Space Flight Center, Greenbelt, Md., and JSC have developed a sensor to give total bacteria count directly. The purpose of this bio-sensor is to detect and quantify bacteria cells, both living and dead, in a continuous flow water sample streams.

Total automated water monitoring also includes a method to detect fecal coliform bacteria, currently the accepted indicator of bacterial contamination in water. Scientists at NASA's Langley Research Center, Hampton, Va., developed a device able to detect human and non-human fecal coliform bacteria in a few hours rather than days. The electronic sensor, developed as a byproduct of early Skylab environmental control systems technology, when operated as part of the computerized monitoring system would permit health authorities to act promptly in the event large quantities of disease-producing bacteria are introduced into the water supply.

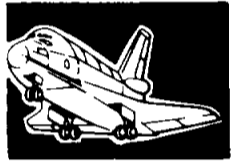
The new water monitoring system eventually will include an instrument designed to rapidly and automatically detect organic chemicals known to produce cancer in

(Continued on page 2)

ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS



VOL. 15 NO. 8

Friday, April 23, 1976



NURSE RAMONA WHITE checks Charles P. Bergholdt's blood pressure for Blood Pressure Month.

How is your Blood Pressure?

Everyone has blood pressure. In some people, however, the blood pressure is higher than it should be. This condition is called hypertension. An estimated 21 million Americans have hypertension, approximately half of whom are aware the condition exists. Hypertension can be serious, but, so much has been learned about the disease that those patients who need treatment and get it, can look forward to many years of comfortable and productive living.

Hypertension puts an additional workload on the heart and arteries. If this condition continues for a long period of time, these overworked parts may cease to function properly. There is increased risk of stroke, heart failure, kidney failure, and heart attack.

Most people have no symptoms at all, but persistent headaches, dizziness, fatigue, tension, shortness

(Continued on page 3)

MSFC Tests Second Shuttle Main Engine

The first test of the second Space Shuttle Main Engine (SSME) was conducted March 31 at the National Space Technology Laboratories (NSTL) in Hancock County, Miss.

The test was the first firing on Stand A-2 since it was modified and reactivated for the Space Shuttle program. The stand was used in testing second (S-II) stages of the Saturn V during the 1960's.

The SSME is being developed by the Rocketdyne Division of Rockwell International Corp. under contract with the NASA-Marshall Space Flight Center.

Engine 0002, the first SSME with a flight-type engine-mounted controller, reached the programmed 1.5 seconds in the ignition test. It fired through a facility installed diffuser into the flame bucket.

The diffuser is used for altitude simulation when production engines are tested and throttled. The diffuser permits the engine with a flight-type nozzle to be throttled down to the minimum power level.

The current NASA plan is to fire each engine on the A-2 stand before it is used on a Shuttle flight. The A-2 stand is known as the Throttling Test Position.

Stand A-1, the Sea-Level Test Position, has been used for about a year in tests of the first SSME, a test version known as the Integrated Subsystem Test Bed (ISTB). Stand A-1, also used in the Saturn program, was modified for the Shuttle program.

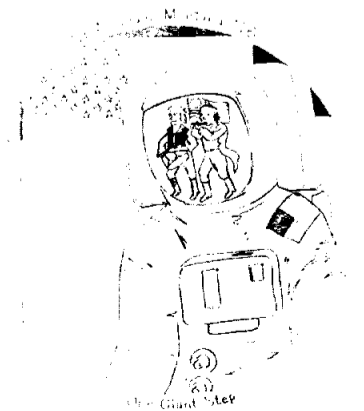
Engine 0002 is of a flight configuration, essentially, but will not be flown. It is a developmental engine with additional instrumentation for test purposes. Also, it has a nozzle shorter than flight-type.

Clear Lake Area Town Meeting Held Tomorrow

Remember the accounts of communities governing themselves? Everyone had a chance to participate in the decisions to be made, to air complaints, and to propose solutions. As time passed, we moved away from direct citizen participation.

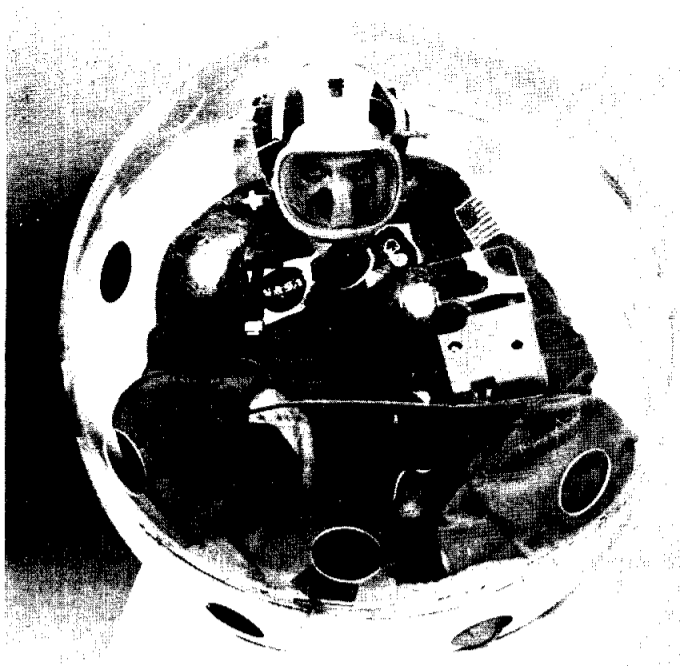
Many people today feel that they essentially have no role in deciding the destiny of their community. People have lost the realization that often they can take

(Continued on page 4)





SPACE SHUTTLE rescue system is shown in front of the new style Shuttle space suit. Rescue ball is easy to store and will serve to transport persons, one at a time, from one Shuttle Orbiter to another in case of emergency. Rescue device zips together and is then inflated. Person inside won't find the accommodations very roomy as the plastic model on the right depicts. Model was built to give engineers an inside view of rescue ball's configuration since flight model has small window only.



Viking Lander Will Sniff Atmosphere On Way Down to Martian Surface

After an 11-month journey through 736 million kilometers (460 million miles) of space, NASA's Viking Lander will have just five minutes to profile and analyze the Martian lower atmosphere.

Developed at NASA's Ames Research Center, Mountain View, Calif., the Lower Atmosphere Structure Experiment will produce a profile of the temperature, pressure and density of the last 100 km (60 mi.) of the atmosphere as the Lander rapidly decelerates from about 4,500 meters per second (10,000 miles per hour) to a gentle three m/s (6 mph) touchdown on Mars July 4 at 8:41 p.m. CDT.

The experiment is one of three separate investigations prepared by members of the Viking Entry Science Team. The other investigations will analyze the composition of the gases of the upper atmosphere and measure ion and electron energy during Mars entry to determine ion type and concentration.

Alvin Seiff, lead investigator of the Lower Atmosphere Structure Experiment, Ames Space Science Division, expects the study to solve some puzzles about Martian winds and atmospheric temperature and pressure.

Ninety m/s (200 mph) winds appear to cause periodic planet-wide dust storms on Mars, but present knowledge, based on numerical models rather than direct measurements, doesn't predict winds of that intensity. Horizontal wind velocity measurements and atmospheric temperature readings at different altitudes will help explain wind dynamics.

Seiff feels that besides answering basic questions about the Martian atmosphere, the investigation will broaden our view of our own atmosphere. After the Viking mission, scientists may better understand the circulation of the Earth's atmosphere, which determines our weather and the behavior of our polar caps, which mark the coming and going of the ice ages with their growth and recession.

Mars' polar caps grow and recede seasonally as they condense and evaporate carbon dioxide.

An accelerometer on the Lander will measure the craft's rate of deceleration through the Martian atmosphere. Scientists can determine the density of the atmosphere from the Lander's size, shape and weight and its deceleration rate.

The Lander's aeroshell continually sample the air as the Lander races down through the Martian atmosphere.

The pressure instrument contains a thin diaphragm that bends with increasing pressure. The move-



Data from tests of Lander models fired through carbon dioxide atmospheres in Ames ballistic ranges are used to calibrate this measurement.

Atmospheric pressure and temperature can be derived mathematically from the density. During the descent from 100 km (60 mi.) to 25 km (15 mi.) the density, pressure and temperature profiles will all be derived from the accelerometer measurements.

As the Lander falls to within 25 km (15 mi.) of Mars, direct sensing of temperature and pressure will begin. The aeroshell stagnation pressure instrument and the recovery temperature instrument on

ment converts the pressure into an electrical signal much like the function of a microphone diaphragm.

During the final 6 km (20,000 feet) of the Lander's descent, the aeroshell is cast off and the Lander's parachute opens. A new set of temperature and pressure sensors begin working. The second temperature sensor is on one of the Lander foot pads while the pressure sensor, inside the Lander, makes contact with the atmosphere through a tube extending out of the Lander.

Pressure studies will help scientists determine what gases besides carbon dioxide the Martian atmosphere holds.

Pioneer Again in Jupiter's Influence

Pioneer 10 has discovered that Jupiter has an enormous magnetic tail, almost half a billion miles long, completely spanning the distance between the orbits of Jupiter and Saturn.

Pioneer 10 is on its way out of the solar system and crossed the orbit of Saturn early in February. Spacecraft sampling data shows that Pioneer was solidly in Jupiter's tail for at least 24 hours at the weekend, with five-hour time periods of no tracking before and after when it may have been in the tail, and periods of being partially in the tail before and after this, says Dr. John Wolfe of NASA's Ames Research Center, Mountain View, California. Ames manages the Pioneers. Dr. Wolfe is Pioneer project scientist.

During the 24 hours in the tail the spacecraft solar wind instrument registered zero because the tail's magnetic envelope structure shut out the solar wind completely. Calculations show that Pioneer was in the proper position to intercept the tail, about one degree to the right of the Sun-Jupiter line. This bias is due to Jupiter's orbital velocity.

"It is just barely conceivable that the solar wind could have died completely for a whole day without our being in the tail, and we'll know more when we have complete tracking data," said Dr. Wolfe, "but we believe we've found that Jupiter has a very stretched out magnetic envelope or tail".

Scientists had speculated that Pioneer might be in a "magnetic bubble" broken off from the tail, but Wolfe now believes that because of the long time of zero solar wind, Jupiter has an intact tail stretching all the way from Jupiter to Saturn.

"The cylindrical tail may expand as it goes out," Wolfe says. "It may be even larger than the nine-million-mile diameter of Jupiter's magnetic envelope at the planet because the solar wind density is down four times by the time you're out to Saturn's orbit," he says.

The discovery means that Saturn itself should enter Jupiter's tail once every 20 years, next in April 1981.

This should produce some interesting magnetic phenomena, Wolfe comments.

The discovery means that almost two and a half years after its swing around Jupiter, Pioneer 10 is again within the influence of the giant planet. The find also means Jupiter's tail stretches out 690 million km (430 million miles) from the planet.

The finding of a second magnetic tail created by a planet's magnetic field is another similarity between Jupiter and the Earth and adds to man's knowledge of planets. It also helps with understanding of basic plasma physics, the interaction between magnetic fields and ionized gasses, which has various applications including energy production.

Waste Water Monitor Built

(Continued from page 1)

laboratory animals. The Environmental Protection Agency (EPA) found one such chemical, chloroform, in the drinking water of all 80 cities included in a recent survey. Ten of the cities also had carbon tetrachloride, a strong solvent used in cleaning, in their drinking water.

Chloroform and a number of other potential cancer producers found in water supplies are believed to be byproducts of chlorine, which is added to city water to prevent typhoid, cholera, dysentery and other water-borne diseases. EPA now is seeking to determine the health risk produced by these small quantities of chemicals in city water.

Meanwhile, NASA's Ames Research Center, Mountain View, Calif., is assembling a new gas chromatograph technique - originally

developed to extract minute quantities of organic materials from the atmospheres of other planets - to concentrate these chemicals for analysis. Although this can be done by the other means in a laboratory, the NASA technique will permit rapid on-the-spot chemical analysis as part of the automated water monitoring system.

Ames Center also is conducting research on another technique, designed as a method of detecting life in space, which might be applied to the detection of viruses in water. In this process, fluorescent dyes are attached to bacteria so that electronic sensors can automatically detect and record their presence. Work is now underway to determine whether dyes may also be attached to the much smaller viruses so they may be rapidly and inexpensively detected in water.

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 this issue:
Charles Redmond

Photographer:
A. "Pat" Patnesky

EAA ATTRACTIONS

HEAR YE, HEAR YE . . .

We the people of the picnic committee, in order to form a more perfect picnic have gotten on the move early this year in the hopes that the JSC Bicentennial Picnic will be a great success.

The EAA survey has been evaluated concerning the picnic and will provide guidelines for this year's picnic.

After consulting schools, universities, religious organizations, etc., it was decided the picnic should be either next Tuesday or Oct. 16. We cannot meet the next Tuesday deadline, so the date for the JSC picnic will be Oct. 16.

This is really the only definite information for right now, but we have promised that in order to form a more perfect picnic we will expose all activities of the committee as soon as possible. So keep a watch in the tower for each issue of the ROUNDUP.

TICKETS

On sale in Bldg 11 Exchange Store 10 am to 2 pm, no refunds: Windmill Dinner Theater - more tickets will be available April 19. Dean Goss Dinner Theater tickets, \$16/couple. ABC Interstate Theaters, \$1.50. Cabaret Theater at Shamrock Hilton, six tickets only for each performance April 28, 29: \$4 EAA price, regularly \$6.50. Unsold tickets will be returned three days prior to each performance.

Tickets are on sale now for Sea-Arama \$3.25 adults and \$2.25 children. Free Disney Magic Kingdom cards. Houston Astros gift coupons, \$4 boxseats and \$3.15 reserve seats.

Six Flags Fun Seekers Club cards, good for \$1 off each Astroworld and Six Flags Over Texas ticket, are now available. The FSC cards are also good for a 10-percent discount at hotels listed in the club guide and for family vacation packages. See your EAA rep for free Fun Seekers cards.

Lion Country Safari in Grand Prairie is closed but will soon reopen under new management. The hitch is that the new management will not recognize the Free EAA Safari discount cards, so give them the deep six.

MORE TICKETS

Tickets for Houston Aeros play-offs will be sold by EAA provided at least 20 are ordered. The \$5.35 tickets will be \$4, and the \$7.35 tickets \$6. Leave name and extension with recorder at 4592 if you want to be counted.

The Carriage Trade Diners' Club applications for the period May 1 thru October 31, 1976 are now available from the Bldg 11 Exchange Store or from EAA reps at \$10 each regularly \$15.

Las Vegas Night May 8, 1976 at the REC CENTER \$10.00 per person covers 10,000 dollars in play money - cold buffet and beverages. Only 700 tickets available - Tickets will go OFF sale April 30.

CHEAP PLANT SALE:

April 30, 1976 4:30-6:00
Plant sale in parking lot behind rec center. There will be hanging

baskets and starter plants. Very large full hanging baskets will be on display for you to order. Ones ordered will be delivered on Friday May 7 in time for Mothers' Day.

LEAGUE SPORTS

Basketball - Klate Holt, coach, Morris Williams, has again finished in 1st place in the "A" League. They clinched the title with a come from behind victory over the Lakers, coach, L. J. Corcoran, on Wednesday night, April 7th.

The "B" League championship was clinched by the Blues on Thursday, April 8th. With one game left on the season, the Blues are undefeated and two games ahead of the second place teams, F-Troop & Marx Brothers.

Volleyball - The Harvey Ball-bangers finished one game ahead of Lockheed to become the Mixed Competitive League Champions of 1976.

EXERCISE EQUIPMENT

Room No. 122 is now fully equipped and ready for use. Please bring membership cards and present them at Room 123 before using the equipment. The room schedule is as follows:

Monday & Wednesday - 9:00 am - 4:45 pm & 5:45 - 9:45 pm
Tuesday & Thursday - 9:00 am - 9:45 pm
Friday - 9:00 am - 5:45 pm
Saturday - 8:00 am - 12:30 pm

JSC DANCE CLUB

New beginners' classes in ballroom dancing will start May 5, 1976, 7:00 p.m., at the Gilruth Recreation Center, room 204. The cost is \$37 per couple for 10 lessons. Advanced and intermediate classes will continue each Wednesday. For additional information (or matching partners), contact Edi Quinn at 3431.

Roundup Swap-Shop

Swap Shop advertising is open to JSC federal and on-site contractor employees. Goods or services must be offered as advertised, without regard to race, religion, sex or national origin. Non-commercial personal ads should be 20 words or less, and include home telephone number. Typed or scribbled ad copy must be received by AP3/Roundup by Thursday of the week prior to publication.

BOATS

1972 Venture 22, working sails, head, dinette, sleeps 5, anchor, 6 hp SeaGull, trailer, many extras, \$3500. Bullock, 488-6095.

16 ft. Thunderbird Tri-hull Ski rig. 85 hp Evinrude eng, new upholstery, top and trim. Trailer included. Make an offer. 482-7775 after 6:00 p.m.

VEHICLES

73 Honda CL350. 3000 miles. Like new. Luggage rack and backrest \$625. 474-4353.

76 Chevette, with air, radio, full wheel covers and nw tires, low mileage, plenty warranty left, no equity, take up CU notes. 734-2565 after 5 p.m.

74 VW Sedan, air and AM/FM radio. Better than xint cond. \$2700. Rubenstein. 334-2354.

73 Honda SL350K2, Dirt/Street bike, \$550. Bullock, 488-6095.

74 Honda Trall 90 and 74 Yamaha Enduro 125, both less than 800 miles, like new. \$450 each. Lindsey, 488-0512.

Have your MPG savings and comfort too. 73 Austin Marina 4-dr sedan, a/c, auto trans, FM-AM radio, reclining front bucket seats. \$2650. Satterfield 2872, 474-3127.

73 Yamaha TX 500. Super clean, low mileage. Extras. \$900. 479-1465 after 5.

72 VW Superbug, 48,000 miles, \$1200. 938-7019 after 5.

74 Roadrunner, like new, 14,000 miles, 318 V8 gas saver. Power steering and brakes, a/c, wide oval tires, AM/FM radio, auto trans. Small equity wanted. 734-2565 or 659-5397 after 5.

70 Dodge Challenger Conv, red/white top, xint cond, new paint, 71K, power steering, a/c, auto, am & tape deck. Shirley Cortright, work 483-4491-home 333-4591.

71 Fiat 124, 4-dr, 4-spd, a/c, heater, new paint, xint cond, 25-33 mpg. \$1085. Bill Maas x 5026 or 488-2965.

65 VW, milage in 50's, fair cond. 333-2964.

Blood

(Continued from page 1)

of breath may be present. The only way to find out if you have high blood pressure is to have your blood pressure checked periodically.

The JSC Clinic will provide blood pressure screening clinics at various locations on-site during the month of May. The date, time, and location will be published by JSC Announcement (pink sheet). These clinics will be available to both Civil Service and Contractor personnel.

UH/CLC Petroleum Seminar

Administrative officials from three major petroleum industries will discuss "The Petrochemical Industry and the Opportunities It May Offer to Graduates of the University of Houston at Clear Lake City." The discussion will take place in room 2-532 of the Bayou Building at 8 p.m., April 21.

Guest speakers will be John Hartman, Marketing Manager of Exxon, in the Chemical Raw Mate-

JSC Team Places Second In Tourney

Playing steady defense in the early going while waiting for the hitting to catch up, the METS battled their way to the runner-up spot in their first tournament outing of the 1976 season, the Alvin Softball Association Invitational. After close wins over the South Coast Stars (10-8) and Alvin's Baroids (7-6), the METS dropped a 16-5 game to the hometown favorites, the Alvin Stars. Forced to climb back through the loser's bracket, the METS were almost eliminated in their next game by the highly ranked Houston Wheels. Trailing 8-5 in the bottom of the last inning, the MET offense came to life and the winning run was knocked in by Richard Kruse before the Wheels could record an out. The MET bats stayed hot in the next two games as they crushed the Alvin Streakers 16-5 and then used aggressive base-running to rout

the Tournament's top-seeded team, the Brazos Sports. This put the Miracle METS in the championship game, again facing the Alvin Stars. The dutch hitting of all-tournament selections Al Morrey, Rich Kruse and John Kaderka set up the dramatic ending to the METS comeback in the bottom of the last inning when the hometown advantages and some good defense by the Stars stranded the tying run on third base as the Alvin team took the championship 10-9.

The METS are a Johnson Space Center employees team, sponsored by Clear Lake City's Miller-Freeman Ford. In 1975 the METS finished with a 64-14 record, including JSC league and tournament championships, 1st Place finishes in the Moonwalk, the Bay Area Trophy and the Alvin Optimist Club tournaments. Team members are Rich Holtje, John Kaderka, Al Morrey, Jack Boykin, Mickey Brunjes, Nat Hardee, Keith Hopkins, Tom Gardner, John Morriss Jr., Jim Smith, Skip Robbins, Rich Kruse, Dick Peterson and Phil Shannahan.

13 ft. Shasta Travel Trailer, ice box, range, oven, toilet, air, sleeps 4, 2 on King sized bed, \$900. 481-2535.

RENT - New Coleman campers, Valley Forge Model, hard top, slps 6, cranks up and down, sink, stove, table, ice box, water tank, a-c to d-c converter. Available for week-ends thru May 23. Reserve for summer vacations, 488-2387.

RENT - Motorhome \$125/wk plus 6 cents /mile (ins. incl). Daily rate avall. 471-5161 after 6 p.m.

Schwinn "Cottonpicker" boy's bicycle, xint cond, \$50. 333-3665.

20" girls bike - green with light and speedometer, xint cond. 333-2964.

One new J78-15 Goodyear WW poly-glas belted, \$25; one new Shell 5.60-15 4-ply nylon \$12.50. Payne 485,3821.

WANTED

Cessna 150 or 172. Mid-time engine, 360-channel NAVCOMM. Under \$5000. Schmidt, 472-8908 after 5:30.

Lab Circuit breadboard from Bell & Howell Electronics Course. Glen 483-3791.

PROPERTY & RENTALS

For sale: 1/4 acre, wooded, on Lake Houston. Golf, clubhouse, launch ramp. Indian Shores. \$2100 equity + \$2333 @ \$50/mo. Graham 944-9030.

Beach house, Jamaica Beach, on canal, modern, well furn. Central air, paddle boat ets., immaculate, \$225/wk. summer. Harvy 621-5311.

4 bdr brick home on large wooded lot. Dickinson 534-6365.

Choice wooded lot at Waterwood on Lake Livingston. Access to marina, golf, tennis, stables, etc. Must sell!! Boone 488-6380.

4-2-2 exec home in Middlebrook, contemporary, atriums, skylites, fenced, less than 6 mos old, \$485/mo. 474-2081.

Liveable - 2 bdr cedar cabin on 2 acres, deep well, 15 mi. Liberty. Godeke 644-7870.

House for rent - El Lago. 4 bdr, 2-1/2 baths, living, dining, den, fireplace, trees, large fenced yard, patio. Approx 2400 sq ft. \$500/mo. Alford 334-1417. Friendswood 2 acre lot in El dorado subdivision \$8000. Zupp 482-7156.

HOUSEHOLD ARTICLES

For sale; Used Kenmore Dryer - cheap. Haines 941-2495. King size firm mattress - \$50. Haines 941-2495.

Zenith 14" color, portable TV. Needs new flyback transformer. Bunny 488-6094.

Guilbransen Organ, Spinet model, two keyboards, 13 pedal, \$350. Richeson 488-8761.

Kitchen table, 4 chairs, white formica. \$45. Richeson 488-8761.

MISCELLANEOUS

4 unfired Colt 45 ACP's - Govt mark IV blue - \$195, nickle \$215, Gold cup \$250, WWI engraved commemorative \$295. Other guns for sale. 488-1846 eve.

Medium size dog carrier - new cond. \$15. 946-5849 after 5

Ladies ice skates, size 8. \$5. 946-5849 after 5.

New Hy-Gain I CB radio, \$110. Hayes 488-1446.

Sears 3/4 hp air compressor, paint gun, regulator and hose. \$100. 488-1966.

Clothesline poles (galvanized pipe), \$10. 482-0855 after 5.

Instrument flying course, Black x 5595 or 482-1635.

Heathkit 10-4560 DC-5MHz Oscilloscope Kit, Brand-new, still in carton \$100. Will assemble for additional \$15. Speier 333-2263.

LATE ADS

For sale: Mower-self propelled. Air-cap 22-in Model 7122 Briggs-Stratton engine. \$20. 488-6828 after 6 p.m.

For sale: 72 impala custom HT coupe. 61,000 miles, good tires, nearly new battery, 76 license and inspection sticker. Clean. \$1850. 488-6828 after 6 p.m.



BH4 - COST REDUCTION OFFICE

New Deputy Counsel Named

Gerald J. Mossinghoff has been appointed NASA Deputy General Counsel effective March 31.

Mossinghoff has been NASA's Assistant General Counsel for General Law since January 1974. He joined NASA in 1963 as a patent attorney in the Office of General Counsel. In 1966 he was appointed Director of the Office of Legislative Planning, U.S. Patent Office; and in December 1967, he returned to NASA as Director of Legislative Liaison in the NASA Office of Legislative Affairs. From 1971 through 1973, Mossinghoff served as Deputy Assistant Administrator in that office. In 1971, he was awarded NASA's Exceptional Service Medal.

For the present, Mossinghoff will continue to serve as Acting Assistant General Counsel for General Law until a successor is named.

Mossinghoff is married to the former Jeanne Carole Jack of Washington, D.C. They reside with their three children at Fairfax Station, Va.

New Look for Tech Briefs

NASA's well known, one-page Tech Briefs took on a new look this month with the publication of the first issue of the *NASA Tech Briefs*, a journal format, two-color publication designed for non-aerospace users of NASA technology.

Tech Briefs were first published in 1963 by the NASA Technology

Utilization Office. Their purpose is to bring to the attention of the nation's non-aerospace industry information on new innovations and techniques stemming from the advanced research and technology programs conducted by NASA. To date, more than 6,000 one-page Tech Briefs have been issued.

The new *NASA Tech Briefs* journal will be published quarterly. It will contain information previously published as one-page Tech Briefs, as well as information concerning new innovations that appeared periodically in the form of Technology Compilation booklets. Project officials expect the new journal will contain information on more than 600 innovations, concepts, publications and computer programs annually. Subscription to the journal will be free to U.S. citizens.

Each issue of the new journal will also have a separate section entitled "New Product Ideas," which will focus attention on innovations believed to have potential for commercialization. Other sections will list books, reports and computer programs available to domestic users. Finally, each issue of *NASA Tech Briefs* will contain a comprehensive subject index. A cumulative index will be published once a year.

In announcing this major change in the Technology Utilization Program's publications effort, Louis Mogavero, Director of the Office of Technology Utilization, said, "Our purpose is to make NASA technology more readily accessible and useful to non-aerospace commercial users. In the new format, we will organize the material into nine major technical categories to make it more useful as a current awareness medium."

"Also, the subject index in each issue will enhance the journal as a potential problem solving tool."

"We are convinced that these changes will go a long way in fulfilling our goal of assuring the American taxpayer the maximum return on his investment in space research in the form of new, better and more economical products and processes."

Persons wishing to receive the *NASA Tech Briefs* on a regular basis should contact the JSC Technology Utilization Office, Code AT3, Extension 3809.

Landsat Data Aids in Claims Settlement

Pictures from a NASA spacecraft have been used to help Alaskan Indians select thousands of acres of potential commercial timber land and promising areas for mineral exploration from vast tracts of wilderness offered by the federal government to settle native claims going back to the U.S. purchase of Alaska from Russia in 1867.

Under the Alaska Native Claims Settlement Act of 1971, 99 million acres were set aside from the federal public domain for selections of 40 million acres of surface title and mineral rights by more than 200 native village corporations and 12 native regional corporations representing some 100,000 Indians, Eskimos and Aleuts.

One of Alaska's native regional corporations, Doyon, Ltd., in the central part of the state, asked the University of Alaska, at Fairbanks, to recommend the best land from relatively inaccessible, irregularly shaped blocks scattered over more than a third of the huge state.

Much of the region had few settlements, roads or airfields. Though it was known to be rich in minerals and forested with stands of birch, aspen and white pine of commercial quality, there were no detailed land-use maps.

Scientists at the university's Geophysical Institute used images from NASA's Landsat-1 Earth resources survey satellite, combined with the limited ground and aerial data available, to make maps of seven million acres showing areas of

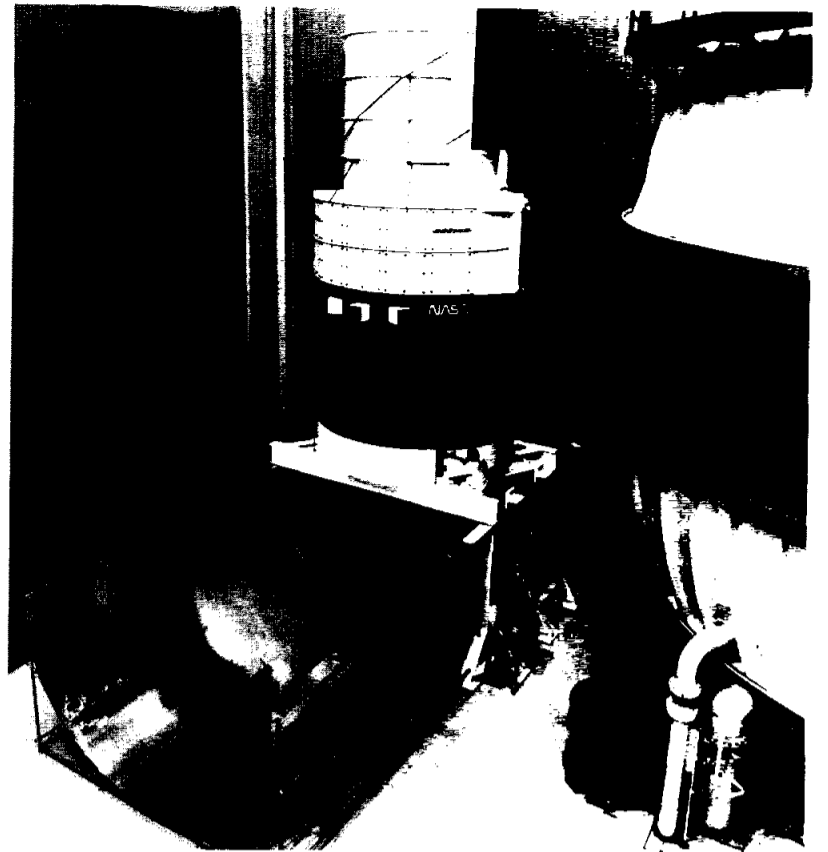
caribou and moose pasture, potential agricultural land and potentially marketable softwood and hardwood forests and areas where geological features indicated possible deposits of hard-rock minerals.

The work was supported financially by the U.S. Department of the Interior's Bureau of Indian Affairs and NASA's Office of University Affairs.

According to a University of Alaska report: "Some two million acres have been selected at part of the land entitlement of Doyon, Ltd., and these selections were based heavily upon the thematic maps produced from analysis and interpretation of Landsat data. A conservative assumption is that the application of Landsat data at least doubled the value of the land selected in comparison with the land not selected."

In addition, a report by Doyon, Ltd., the native corporation, notes that the mineralization analysis has been used to interest the mining industry in further exploration that can assist in additional land selections with the information developed by the mineral companies.

Landsat, circling the globe 14 times a day 912 kilometers (560 miles) overhead, surveys Earth natural resources with an electronic multispectral scanner that returns data for visual images and computer tapes from which experts can distinguish different types of terrain, vegetation, soils, rock outcrops, and other surface features.



A FULL-SCALE ENGINEERING mockup of NASA's Space Telescope, a multi-purpose optical telescope planned for launch into Earth orbit in the early 1980s, undergoes finishing touches at the Boeing Aerospace Company's Space Center near Seattle. Presently in the definition study phase, the Space Telescope project is managed by the NASA-Marshall Space Flight Center. Boeing is one of three firms conducting preliminary design and program definition of the telescope's Support Systems Module under contract to Marshall. The curved plate in foreground of photo is a simulation of a portion of the bay of the Space Shuttle, which would be used to carry the telescope into orbit.

Town Meeting Tomorrow

(Continued from page 1)

action on their own to change their community.

In this Bicentennial year, several Clear Lake area organizations and individuals are promoting a return to the community-wide meeting — a Town Meeting. The CLA Town Meeting '76 captures the spirit of the Bicentennial program Horizons '76, which is a nation-wide challenge to each American to undertake at least one project to improve the quality of life for the next 100 years.

The CLA Town Meeting '76 tomorrow will be held at the UofH Clear Lake campus from 9:30 am to 5 pm, with registration at 8:30 am.

After an opening meeting of all participants, the meeting will break into smaller working groups to identify challenges currently before the Clear Lake area community. The lunch break will be combined with entertainment by the Clear Creek Country Theater and the Bay Area Chorus.

Working groups will meet again in the afternoon to plan steps to meet the challenges spelled out in the morning session and in such projects and documenting local history, designing a community symbol and writing a song.

Workshop results will be reported in a plenary session at the end of the day, and each participant will receive a booklet describing the Town Meeting's achievements.

UofH Chancellor Dr. Alfred Neumann will make the Town Meeting welcoming address, and JSC Space Shuttle Program Manager Robert F. Thompson will keynote with a speech, "The Space Program Outlook at the Bicentennial." Recently-selected ALT crewman Richard Truly will emcee the meeting.

A Children's Town Meeting for grades 1 through 6 will be held con-

currently in a different location, except for the lunch break and plenary session, at which the youngsters will also present their day's results.

Local groups organizing CLA Town Meeting '76 include the Clear Lake Area Jaycees and Jayceettes, Timber Cove Civic Club, Webster Chapter of AARP, CLC Community Association, CLC Civic League, Clear Creek Country Theater, Webster Bicentennial Committee, Bay Area Committee on Drug Abuse, Taylor Lake Village Bicentennial Committee, Bay Area Y, CLHS Future Teachers of America, and the JSC Employee Activities Association.

CLA Town Meeting '76 cannot succeed without participation, and all people who live or work in the Clear Lake Area are urged to spend Saturday at the Town Meeting helping to plan the community's future.

Adult registration fee is \$2 and \$1 for children 12 and under. The fee covers lunch, materials and the meeting achievements document.

Lamar Exes Plan Fete

The Lamar Cardinal Association has planned a Monte Carlo party at the University Club of Houston, 455 Post Oak Towers (4th floor the Galleria). The date is May 22. Hors d'oeuvres will be served from 8 p.m. to 12 midnight. Donation is \$6.00 per person.

A raffle will be held for a vacation trip to Puerto Vallarta, Mexico and a play money auction will be held for approx. 40 gifts which include season tickets to 1976 Houston Astro's 1976-77 Houston Rockets.

Ex students of Lamar Univ should contact Jo Bruce 488-2442 for more information.



SCHOLARSHIP RECIPIENTS — JSC Exchange Scholarships went to Dickinson high school senior Karen Marie McCullough, left, and Hitchcock high senior Kimberly Ann Dotson. Shown with JSC Director Christopher C. Kraft, Jr., the two seniors were winners of the 1976 competition. Karen is the daughter of Rose McCullough of the Systems Analysis and Integration Office and plans to follow a medical career. She is a member of the band, Paramedical Club, Junior Engineering and Technological Society, Honorary Band Club and was senior Student Council Representative. Kim is the daughter of Marilyn Dotson of the Personnel Office and plans to major in elementary education. She is a cheerleader, class officer, annual editor and member of the Student Council, Biology Club, Future Teachers of America and National Honor Society. Kim is listed in "Who's Who in American High Schools" and received the World History Award and the Elks Club Award.