

Space News Roundup

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National Aeronautics and Space Administration

The patch



Shown above is the recently unveiled crew patch for STS-3. Designed by space artist Robert McCall with the suggestions of STS-3 prime crew Commander Jack Lousma and Pilot Gordon Fullerton, the patch illustrates two of the most important goals of the upcoming flight. The star burst behind Columbia represents the tail to sun attitude which will be maintained during the mission in one of three primary thermal conditioning tests. Columbia's remote manipulator arm is shown grappled a payload, another of the chief goals of the flight. Final graphic preparation was done by Noah Sheridan of Kentron International.

Long-duration STS simulation ends today

A 57-hour simulation of the third flight of the Space Shuttle *Columbia* is concluding today at JSC after a major dry run for the next flight.

The simulation picked up at one day, 21 hours, 45 minutes after launch, and gave flight controllers and astronauts realistic experience in working through the STS-3 flight plan.

The timeline simulation during the exercise included many of the critical tests of the remote manipulator system and payload deployment activities scheduled for *Columbia's* third flight.

Simulation systems in Bldg. 30 and Bldg. 5 were running around the clock during the sim, with hundreds of personnel involved.

STS-3 prime crew Commander Jack Lousma and Pilot Gordon Fullerton were on station in the Bldg. 5 mission simulator practicing the activities they will engage in while in space. The simulator provides realistic sensory feedback to the crew, including visuals, similar to that they will experience in space.

The simulation hardware introduces imaginary problems to the participants at times, and gives both crew and controllers experience and training in dealing with unexpected events which might occur during an actual mission.

"Our simulation people are tasked to develop failure scenarios that do a good job of training us," said Flight Director Tom Holloway, whose flight team

will handle *Columbia's* launch and first hours in space. "We don't know what is coming, so it gives us good practice in dealing with developments which crop up."

The long-duration simulations are among the most detailed exercises of the flight teams, flight crew and computer facility personnel. In addition to these, shorter simulations are held three times a week at JSC, during which the participants train on various launch and landing situations, as well as certain critical on-orbit operations. These are considered to be as important to training as the long-duration sims.

A second 57-hour simulation is planned during the first week in March, in which other segments of the STS-3 flight plan will be exercised.

One of the primary tasks during the next mission will be to put *Columbia* through a series of thermal attitudes to see how the spacecraft responds to extreme ranges of heat and cold. The typical orbit period during the next mission will be 1.5 hours, with approximately 55 minutes in the sun and 35 minutes in occlusion behind the Earth. Expected temperature extremes are quite pronounced. When *Columbia's* payload bay insulation surfaces are facing the sun, for instance, the temperature is expected to be around 250 degrees Fahrenheit, while those same surfaces in shadow are expected to drop to temperatures around minus 215 degrees Fahrenheit.

Bush unveils Spacelab today at KSC

Vice President George Bush unveiled the flight version of Spacelab, the Shuttle's reusable scientific research facility, in ceremonies today at the Kennedy Space Center.

Bush's participation in the unveiling of the European-built Spacelab illustrates the Reagan Administration's commitment and support of joint U.S.—European ventures in space, administration officials said.

Spacelab, developed and built under the aegis of the European Space Agency (ESA), is Europe's contribution to NASA's Space Transportation System. The first flight version arrived in the U.S. in

December, with a second flight unit scheduled for delivery later this year.

Spacelab consists of a cylindrical module in which both astronaut and civilian scientists — called payload specialists — will work and a series of unpressurized pallets which will support experiments requiring direct exposure to space. Carried in the cargo of the Shuttle orbiter, Spacelab will serve as a center for conducting scientific investigations not possible on Earth.

ESA's prime contractor in the development of Spacelab is the West German firm ERNO Raumfahrttechnik GmbH. Some 50 firms

in ESA's 10 participating nations funnel parts to ERNO in Bremen, West Germany, for assembly and integration.

Spacelab is a joint ESA/NASA venture. ESA manages its development with technical support from NASA, while NASA's Marshall Space Flight Center, Huntsville, Ala., has prime NASA responsibility for the development in the United States of various flight hardware items such as the transfer tunnel and other ground equipment and facilities to operate the system. Marshall, together with ESA's Spacelab Payload Integration and Coordination in Europe, will manage the first Spacelab mission. Marshall will

manage the second and third scientific missions, which are NASA only. The laboratory will be prepared for flight and installed in the Shuttle at Kennedy.

Delivery of the first Spacelab to the United States marked a significant step in this program of European-American cooperation in the exploration of space. Under the program, which is costing ESA nearly \$1 billion, NASA is receiving at no charge an engineering model and one complete flight version of the laboratory, associated ground support equipment and some computer software. NASA is purchasing a second Spacelab flight unit for approximately \$300 million.

The first mission of Spacelab will be a joint ESA/NASA mission during which some 70 investigations in five different scientific disciplines will be conducted.

The seven-day flight is scheduled for September 1983. Both NASA and ESA are providing experiments for the missions, and two American and two European payload specialists are training for the flight. One American and one European will actually fly on the mission, along with the commander and pilot and two astronaut mission specialists. The other two payload specialists will support the mission from the ground.

Venus conference reports discoveries

Dramatic new findings about Venus — including evidence for the existence of oceans in the early days of the solar system — were reported at the NASA/University of Arizona-sponsored first International Conference on the Venus Environment in November.

The several hundred scientists gathered at the conference were presented evidence that seems to indicate that Venus once had an ocean system and lost it to space. Strong evidence for this lost water remains today in the definitive measurement of the ratio of deuterium to hydrogen. Data from Pioneer spacecraft found there is 100 times as much deuterium rela-

tive to hydrogen on Venus as on Earth. Scientists believe the Venusian atmosphere could have been Earth-like during the solar system's early history when the sun is thought to have been 30 percent less hot.

Much of the new information presented at the conference comes from data returned by the six Pioneer spacecraft sent to Venus and their 30 experiments.

The planet was also reported to have two major volcanic regions, with evidence for continuous and current volcanic activity in both places. Beta Regio and the Scorpion Tail of Aphrodite Terra, the largest continent-like upland region on the planet, were the two

areas where concentration of Venusian lightning was most apparent, suggesting fairly frequent volcanic activity.

Beta Regio, a region larger than the Hawaii-Midway chain, appears to be a huge double-shield volcanic construct and is apparently the most active region on the planet. Beta is believed to sit over a powerful, upflowing convective plume, deep in Venus' interior magma. This is evidenced by variations in crustal density, apparent old lava flows, and the region's high terrain and size.

Convective plumes flowing to the surface of Venus from interior magma are also thought to be the origin of two other volcanic points,

Aphrodite Terra and Isthara Terra. Vertical motion of the Venusian crust is also thought to be underway in these areas, as seen by several deep rift valleys in Aphrodite.

Other findings at the conference included:

- Venusian clouds are "upside down" compared to those on Earth. An eight-mile-deep smog layer floats on top of the cloud system, with patchy Earth-like condensation clouds beneath, composed mostly of sulfuric acid droplets. These condensation clouds vary in density, and are thought to produce drizzle but seldom hard rain, and in general are only 10 percent as thick as

comparable Earth clouds.

- Venus seems to absorb the most solar energy in its clouds, whereas Earth absorbs solar energy on the surface. A single convective circulation cell carries heat from equator to pole on Venus, scientists were told. Earth has three linked major circulation cells transporting the heat between equator and poles.

- The Venusian cloud system is also a shell of high-speed winds which envelop the planet. Above this wind layer, the atmosphere is almost becalmed. There are two explanations for these high winds on Venus, and theoreticians are working with models to compare

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Space News Briefs

Columbia now in VAB for stacking

The payload bay on *Columbia* was closed out for flight last weekend, and the orbiter was moved from the Orbiter Processing Facility to the Vehicle Assembly Building during the week. As of press time, there were three tile cavities on the vehicle, after removal of over 450. On Tuesday, technicians worked to weigh *Columbia* with all payloads aboard and determine the craft's exact center of gravity. The payload bay was closed out and the orbiter powered down after successful completion of the Cargo Interface Verification Test Jan. 26 and 27. The test was conducted to make sure of the interface between experiments carried for STS-3 and the orbiter systems and control facilities at JSC. That test and the verification of flight controller capability to remotely update *Columbia's* onboard computers were the last tests scheduled before rollout to the VAB. The external tank and solid rocket boosters for the next flight have already been mated, and now await *Columbia* for the final stacking process. Target date for the mission is the week of March 22.

Fourth external tank arrives at Kennedy

The external propellant tank for STS-4, now scheduled for July of this year, arrived at the Kennedy Space Center Jan. 22 after a five-day trip from the Michoud Assembly Facility aboard the NASA barge *Orion*. The tank, designated ET-4, was moved into the Vehicle Assembly Building the next day, and is now undergoing preparations for flight. The external tanks are built at Michoud by Martin Marietta Aerospace under contract to the Marshall Space Flight Center.

STS among top achievements of 1981

The National Society of Professional Engineers has named the Space Transportation System as one of the ten top engineering achievements of 1981 in the 16th Annual Outstanding Engineering Achievements Awards program. The award also singles out JSC for crucial contributions to the system. An NSPE report on the award said, "Let's be realistic. What new can be said about an achievement that realizes beautifully one of mankind's oldest dreams? What will not sound like a world-class cliché about an achievement which even a short 30 years ago would have been right out of Buck Rogers and Flash Gordon? Leaving aside reams of new and startling data, it would be appropriate to cite just a few of the firsts which make NASA's STS so spectacular: It is the most complex configuration ever flown into space; it left the atmosphere four times faster than any winged craft has ever traveled; it can outmaneuver and outperform any spacecraft ever built; it pioneered a thermal protection system which withstood the intense heat of re-entry; and on and on and on." The STS and its initial missions were separately nominated for outstanding achievement by the San Jacinto and Bayou Chapters of the Texas Society of Professional Engineers. The San Jacinto Chapter specifically cited Rockwell International's participation in the project. Other winners of the award included the McDonnell Douglas Automation Co. computer complex in Hazelwood, Mo., the largest concentration of computer power under one roof anywhere in the world, and the nation's first "superport," the Louisiana Offshore Oil Port near Lafourche Parish, La.

Spacelab specialists training at Marshall

European Space Agency Spacelab payload specialists Dr. Wubbo Ockels of the Netherlands and Dr. Ulf Merbold of West Germany have arrived at Marshall Space Flight Center where they will be based while completing training for the first Spacelab mission. Spacelab, the reusable laboratory which fits in the payload bay of the Space Shuttle, is slated for first flight in Sept. 1983. Ockels, Merbold and two U.S. payload specialists, Dr. Michael Lampton and Dr. Byron Lichtenberg, have been in training for the mission since August 1978. Payload specialists are scientists selected to operate experiments on Spacelab. Of the four training for the mission, one American and one European will actually go into space. Mission specialists for the flight will be astronauts Owen Garriott and Robert Parker. Spacelab 1 is to be a seven-day joint NASA/ESA venture, during which some 70 investigations in five different disciplines will be conducted.

Solar-powered refrigerators to be tested

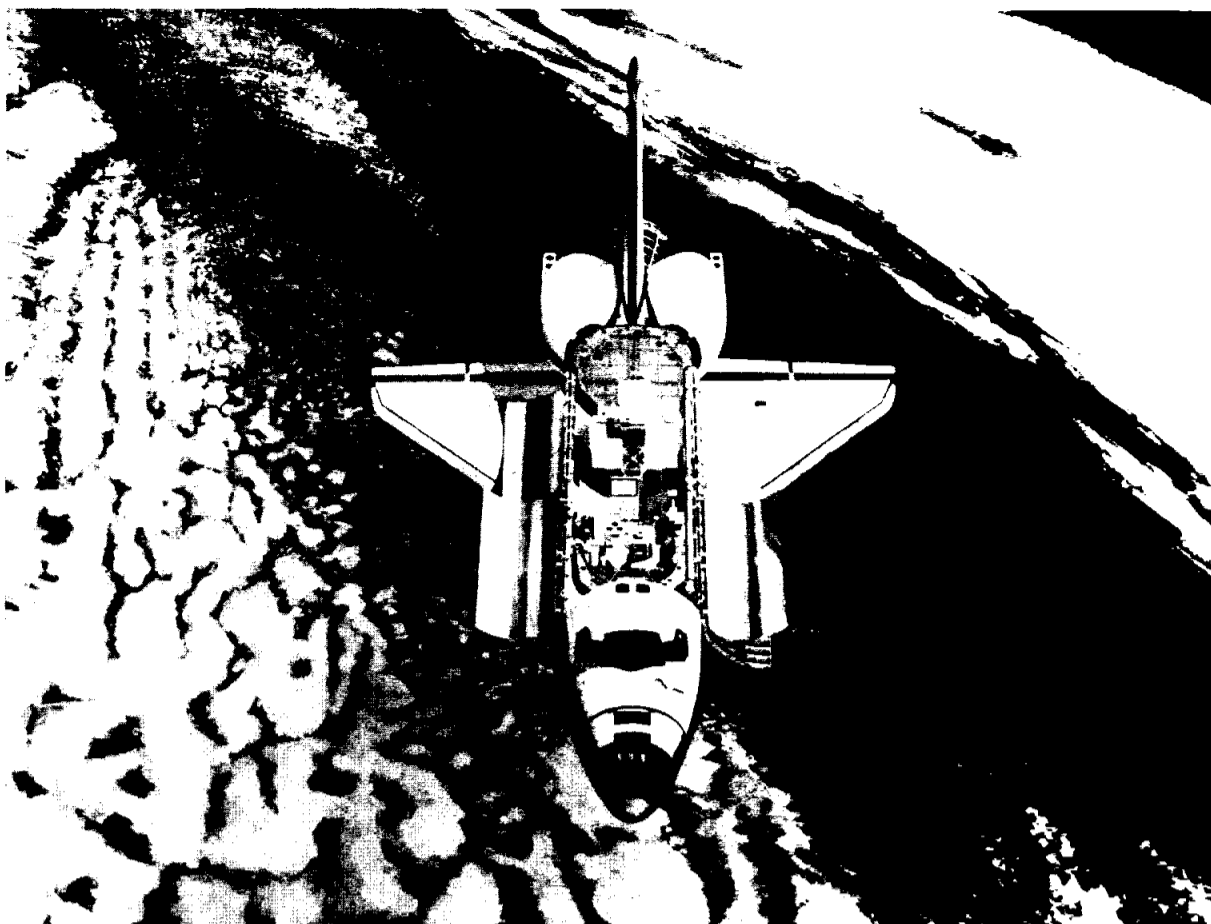
A solar-powered refrigerator/freezer for storing vaccines has been installed at a clinic in Bhoorbaral, near New Delhi, India, by the Lewis Research Center as part of a six-month program to demonstrate the uses of solar power for storing vaccines in remote areas of developing nations. The unit is the first of 20 which will be placed in Peru, Morocco, the Ivory Coast and other countries. The program is being sponsored jointly by NASA, the Department of Energy, the Department of Health and Human Services and the Agency for International Development. Vaccines have been used extensively in the world to control such diseases as polio, diphtheria and measles, but the lack of reliable refrigeration in some corners of the globe has seriously hampered these efforts in Third World countries. The relatively conventional refrigerator/freezers will be powered by 4-foot by 12-foot solar cell panels and lead-acid batteries, with an output of 325 watts.

Materials processing agreement signed

NASA and the GTI Corp. of San Diego have signed a Joint Endeavor Agreement to pursue the manufacture of metal alloys in space. The agreement is expected to lead to the flight of GTI-developed materials processing devices on four future shuttle missions. The agreement, signed Jan. 20, consists of three phases. The first and second phases will consist of the design, development and testing of a low-cost multichambered alloy solidification furnace to be operated in zero g. The third phase will consist of shuttle flight of the system. Manufacturing of alloys in space is expected to result in stronger, higher purity materials not able to be produced on Earth.

Definition studies begin for OPEN mission

Science definition studies have begun for the planned Origins of Plasma in Earth's Neighborhood (OPEN) mission which may be conducted with four spacecraft later in this decade. The mission, which is not currently authorized, could provide detailed information concerning the Sun's energy and its transfer from the solar wind through the Earth's magnetosphere and down through the ionosphere. The mission would involve four spacecraft, one to sample the incoming solar wind and three others to measure key areas of the Earth's magnetosphere. The NASA Office of Space Science and Applications has named 36 scientists to the study team, which will seek to identify necessary instrumentation and mission plans for the flight.



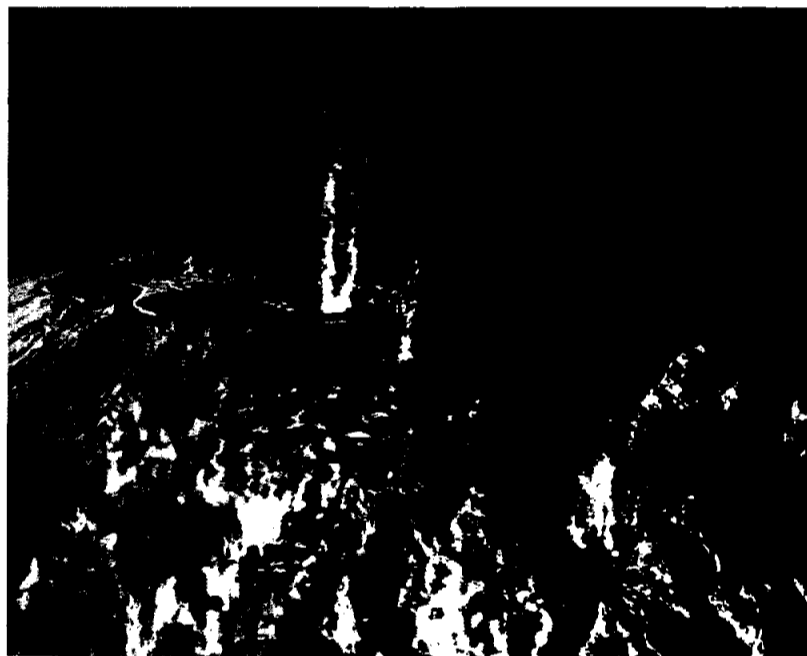
The artist's conception of *Columbia* in orbit illustrates how the spacecraft will look in its payload bay-to-space attitude on the next flight, now scheduled for late March. Among other important payloads, *Columbia* will be carrying the Office of Space Science space observation package.

Venus

(Continued from page 1)

those explanations to Earth. Both propose wave-pumping mechanisms, with large horizontal eddies or tidal effects from the movement of the atmosphere. Such mechanisms are thought critical to fully understanding Earth's weather, but they are not well understood yet on any planet, and have been brought into prominence by the Venus studies.

• Because of the evidence for past oceans, scientists are not ruling out the possibility that some forms of life once existed on Venus. But they also believe that when the runaway greenhouse effect of the Venusian atmosphere began, it wiped out most existing phenomena on the planet, including the oceans, and replaced them with today's furnace-like environment.



Venus: did it once have oceans?

People

Dr. Burton I. Edelson, Senior Vice President of COMSAT General Corp., will assume the duties of Associate Administrator for Space Science and Applications effective Feb. 14. Edelson will succeed **Andrew J. Stofan**, who will remain in an advisory capacity until he moves into another senior management position with NASA. Edelson will be responsible for all of NASA's space science and applications programs, as well as the activities of the Jet Propulsion Laboratory and the Goddard Space Flight Center.

Although he has never before been assigned to JSC, some people may recognize a familiar face in **Col. Larry Griffin**, USAF, who has been detailed to the Center as Special Assistant to the Space Shuttle Program Manager. Col. Griffin's twin brother, **Gerald**, was formerly a flight director at JSC and later deputy director at the Kennedy Space Center before leaving NASA. Col. Griffin will be responsible for supporting JSC in those Shuttle development and operational activities involving the Department of Defense. He was formerly the DOD representative to the Office of Space Transportation Systems at Headquarters.

NASA

Space News Roundup

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Editor Brian Welch

When 75 instructors and personnel from the **Canadian Forces Staff College** showed up at JSC in January for a tour of the site and a briefing in Bldg. 1, they were dressed more for Canadian weather than for that of Texas, and something had to be done with their overcoats. That's when **Fay Carlton's** office in Bldg. 2 became a cloakroom

for a day as the Canadians attended to business around the site. Fay said it took about a half hour for the officers to retrieve their belongings, and miraculously, everyone ended up with the same items they started out with. Fay is Public Affairs Manager for Omniplan, which among other things helps coordinate tours and exhibits at JSC.



Opinion

The Shuttle, Yes

By Ben Bova

The attack on the space shuttle has begun.

After the shuttle's second, abbreviated test flight in November, a headline proclaimed: SHUTTLE'S CRITICS CALL FOR A BROAD REASSESSMENT, and a news story said that "space agency officials . . . doubt that the shuttle will ever be able to be serviced and return to space as rapidly as originally hoped."

The critics and doubters are like dockyard loafers in 1492, shaking their heads at Columbus's little flotilla because someone found a rip in the Santa Maria's main sail or because the Pinta sprung a minor leak. The power of negative thinking has always been with us.

Ten years ago, the same kind of negative thinking led to the abandonment of the Apollo lunar landing program and follow-up projects such as construction of space stations in earth's orbit, and very nearly the end of all our efforts in space. And for the last 10 years, the United States' economy has slid steadily downhill, American power and prestige has similarly declined, and the social and political unrest in this country has increased enormously.

This is no coincidence. What we do in space has a profound and immediate effect on the health of our economy, our national security, and our political stability.

Dr. Charles Sheffield, former president of the American Astronautical Society and head of the Earth Satellite Corporation, put it this way, in testimony before Congress: "In 1962, soon after the United States committed itself to the Apollo project, Newsweek cited a score of issues such as

hunger, disease, and pollution that they gave more priority to than the 'Buck Rogers stunt' of landing a man on the Moon. Now, nearly two decades later, the same publication notes that the post-Apollo decline in U.S. space funding has coincided with a drop in this nation's technological productivity. That drop has been matched by an increasing emotional and psychological malaise throughout the nation." He added: "We hold that there is a real relationship between a strong space program, the state of U.S. science and technology, and the economic and psychological health of the nation."

These relationships are not difficult to prove.

Item: After the Apollo program was killed, 400,000 jobs were eliminated across the country. Since each direct engineering or technical job produces from three to six service jobs—truck drivers, real estate agents, grocery clerks—this means that Apollo's demise put 1.2 million to 2.4 million people out of work.

Item: The technology developed for Apollo and other space efforts has built an American electronics industry that is one of the few bright spots in the

The above article originally appeared in the Jan. 4, 1982 edition of the New York Times, and is reprinted here with the permission of the author and the New York Times Syndicate. Ben Bova, who is editorial director of Omni magazine, is author of "The High Road," a study of the political, economic and environmental aspects of the U.S. space program.—Ed.

otherwise gloomy United States industrial picture. Of the 10 top industrial exporting firms in the United States in 1981, six were either electronics or aerospace companies—the beneficiaries of the high technology developed for aerospace programs.

Item: Private companies have been in the communications satellite business since the mid-1960s, and today reap more than a billion dollars per year in sales. This means hundreds of thousands of jobs, in companies as large as the Communications Satellite Corporation, American Telephone & Telegraph Company, the RCA Corporation, Western Union, and as small as one-man consulting firms.

Item: The Chase Econometrics Group reported in 1976 that for every billion dollars invested in space technology on a sustained basis, 800,000 new jobs are created, the inflation rate is reduced 2 percent, and the gross national product is increased by \$23 billion.

These are not the wild claims of starry-eyed space enthusiasts; they are the sober conclusions of businessmen and financiers.

The evidence is quite clear: The space program is not merely another Government "sinkhole" for tax dollars; it is a productive, useful program that builds new technology, new industries, new jobs for workers, and profits for investors.

Columbia is the first spacecraft ever to be used more than once. That is the whole point of the shuttle, and a point worth remembering as *Columbia* and her sister ships open a new era of commerce in space.

Bulletin Board

Second NACA reunion planned for November

The second reunion of personnel who worked with the old National Advisory Committee for Aeronautics (NACA), the predecessor agency of NASA, is now being planned for November 11 of this year in Williamsburg, Virginia. Williamsburg is only a few miles from the Langley Research Center, which was the original NACA laboratory. For complete details, send a self-addressed, stamped envelope to Abe Leiss, 20 Lakeshore Drive, Newport News, VA, 23602.

"Evening of Mozart" coming to UH/CLC

The University of Houston, Clear Lake City campus Community Orchestra will present "An Evening of Mozart" beginning at 8 p.m. Feb. 19 in the Bayou Bldg. auditorium. Guest artist for the program will be Richard Pickar, who is first chair clarinet with the Houston Symphony Orchestra. Works by Mozart on the program are his Concerto in A Major, the "Jupiter" Symphony and his Overture to Magic Flute. General admission tickets are \$3, and student and senior citizen tickets are \$1. For more information, call Bill Meek at x4851.

And now, the best little picnic in Texas

The Employees Activities Association picnic committee has been working on plans for the 1982 JSC picnic. So far, they have a theme — "The Best Little Picnic in Texas"; a place — Camp Manison; a date — May 1; a chairman — Chuck Pace; two co-chairmen — Sandy Richardson and Susan Black; and heads for most of the sub-committees. Anyone interested in attending the planning sessions or working on events during the picnic should contact one of the above officers.

EAA country western dance scheduled

The first EAA country western dance of 1982 will be held at 7 p.m. March 6 at the Gilruth Recreation Center. Doors will open for happy hour at 7 p.m., with barbecue dinner following at 8 p.m., and the band — Mike Wentz and the Nighttime Friends — playing from 9 p.m. to 1 a.m. Tickets include everything and will go on sale at the Bldg. 11 Exchange Store beginning Feb. 16 at \$10 per person. Sales will be limited to 375 participants.

Some Rockets tickets still available

Tickets for the Houston Rockets Feb. 11 game at the Summit are still available at the Bldg. 11 Exchange Store for \$3 each, according to the EAA.

Exchange Store offering tickets, coupons

The JSC Exchange Store, open from 10 a.m. to 2 p.m. is still offering tickets and coupon books in the new year. The offerings, and their prices, are: Plitt Theatre tickets, \$2.25 each; General Cinema Tickets, \$2.40 each; Entertainment '82 coupon books, \$17.50 each; Gold C Values coupon books, \$5 each; and 20 cent postage stamp books, \$4 each.

Two blood drives scheduled in February

The next two drives for the JSC blood bank will be held Feb. 11 and Feb. 25 at the Gilruth Recreation Center. The Feb. 11 drive is being sponsored by General Electric. For more information, call Ima Lee at 332-4511, x400. The Feb. 25 drive is being sponsored by Lockheed. For more information, call Bob Bose or Janell Bennett at 333-5411.

TSPE Engineering Week program set

The Bayou Chapter of the Texas Society of Professional Engineers will hold a special meeting Feb. 18 during Engineering Week to focus on the licensing of professional engineers in Texas and on the Texas Engineering Practice Act. The meeting will be held beginning at noon in the Bldg. 2 auditorium. Speakers will address the benefits of professional licensing, and will provide information on the activities of the TSPE.

Black history program is Feb. 11 and 12

JSC's annual Black history program Feb. 11 and 12 will highlight the theme "Afro-American History: Blueprint for Survival." The Feb. 11 program, which begins with a luncheon at 11:30 a.m. in the Gilruth Recreation Center, will feature George Smith, president of Smith Pipe and Supply Co. The cost of the luncheon is \$6, but those who wish to attend only the program may come at noon and sit in, according to Doris Roberts, program coordinator. Smith, who began his company in 1976 with the savings of he and his wife, has seen the business grow to the point where now there are sales offices in six major cities and one subsidiary. Smith will discuss economic growth prospects for businesses owned or run by blacks. On the second day, Feb. 12, two workshops will be held in the Bldg. 30 auditorium. Representative Ron Wilson and Dr. Claudette Ligons will conduct the morning workshop on the survival of black colleges. That workshop begins at 9:30 a.m. The afternoon session, which begins at 1 p.m., will focus on affirmative action in the 1980s and will feature speakers Dr. Bennie Callies and Judge Alexander Green. All JSC and contractor employees are invited to participate in the events. For more information, call Izella Dornell, x4551, Vanessa Jamison, x5121 or Don Pipkins, x4593.

Lunarfins to offer SCUBA course in March

The JSC Lunarfins SCUBA club will offer a NAUI-certified basic SCUBA (self-contained underwater breathing apparatus) course beginning March 2. Lecture sessions will be held Tuesday nights at 6:30 p.m. during the six-week course. Pool sessions will begin Wednesday nights at 8 p.m. in an indoor, heated pool. Cost for the course is \$90. For more information, call Larry Robinson at 940-4944 or 486-5817, or Fred Toole at 538-1179.

AIAA plans mini-symposium in April

The Houston Section of the American Institute of Aeronautics and Astronautics (AIAA) plans to conduct its seventh annual Technical Mini-Symposium at the Gilruth Recreation Center on April 20. Because of the special nature of this local program, there will be no need for formal publication of papers and only a written abstract will be required. Presentations should be planned to be of about 10 to 15 minutes duration. There is no restriction on topics, although the general theme of the symposium is "Shuttle Development." Proposed papers will be screened by a technical committee to be appointed by the General Chairman, Dr. Maxime A. Faget. The object of the symposium is to give young and professional members the opportunity to present their work to peers without the expense of travel and other arrangement costs. Abstracts of proposed papers should be submitted to Charles V. Wolfers, McDonnell Douglas Technical Services Company, by the close of business, March 1. For more information, call Wolfers at 488-5660, x406.

Planning of July events underway for Spaceweek '82

The event comes once a year during the anniversary of the Apollo 11 moon landing, an effort to promote grassroots support across the country for the exploration and utilization of outer space, and this year Houston will be at the heart of Spaceweek '82.

While Spaceweek National Headquarters, located in Houston, is training and coordinating activities in some 30 U.S. cities, the local Spaceweek planning group is scheduling a series of exhibits, films, and other events throughout the week of July 16 to 24.

The overriding goal of Spaceweek is to demonstrate widespread public support

for a vigorous program of space activities. One element of that goal will be the national effort to draw up petitions endorsing specific national priorities in space and send them to Congress. Two petitions are being planned for voting age adults and future voters to sign during Spaceweek events around the nation.

"This year will see great NASA budget battles, elections and the announcement of our first major U.S. space policy in over a decade," Spaceweek National President Dennis Stone said. "Spaceweek '82 can thus be highly influential in showing our na-

tion's leaders the depth of popular support for space, even in times of budgetary uncertainties. Spaceweek is a time each year to commemorate our past accomplishments in space and commit our nation to further steps toward our next frontier."

Events at JSC and in Houston, although not firmly set, are tentatively scheduled to include:

- a film series at the Bldg. 2 auditorium sponsored by the Lunar and Planetary Institute;

- an art exhibit at the Houston Public Library throughout July, featuring space art and books about space;

- a "star party" near the rocket engine display at Bldg. 2, with telescopes trained on various stars and planets;

- a model rocket launch near the Saturn V display;

- Spaceweek banquet sponsored by the Lunar Rendezvous Festival group and the local Spaceweek committee;

- a space poster contest for school-aged children sponsored

by the Houston Public Library and Spaceweek;

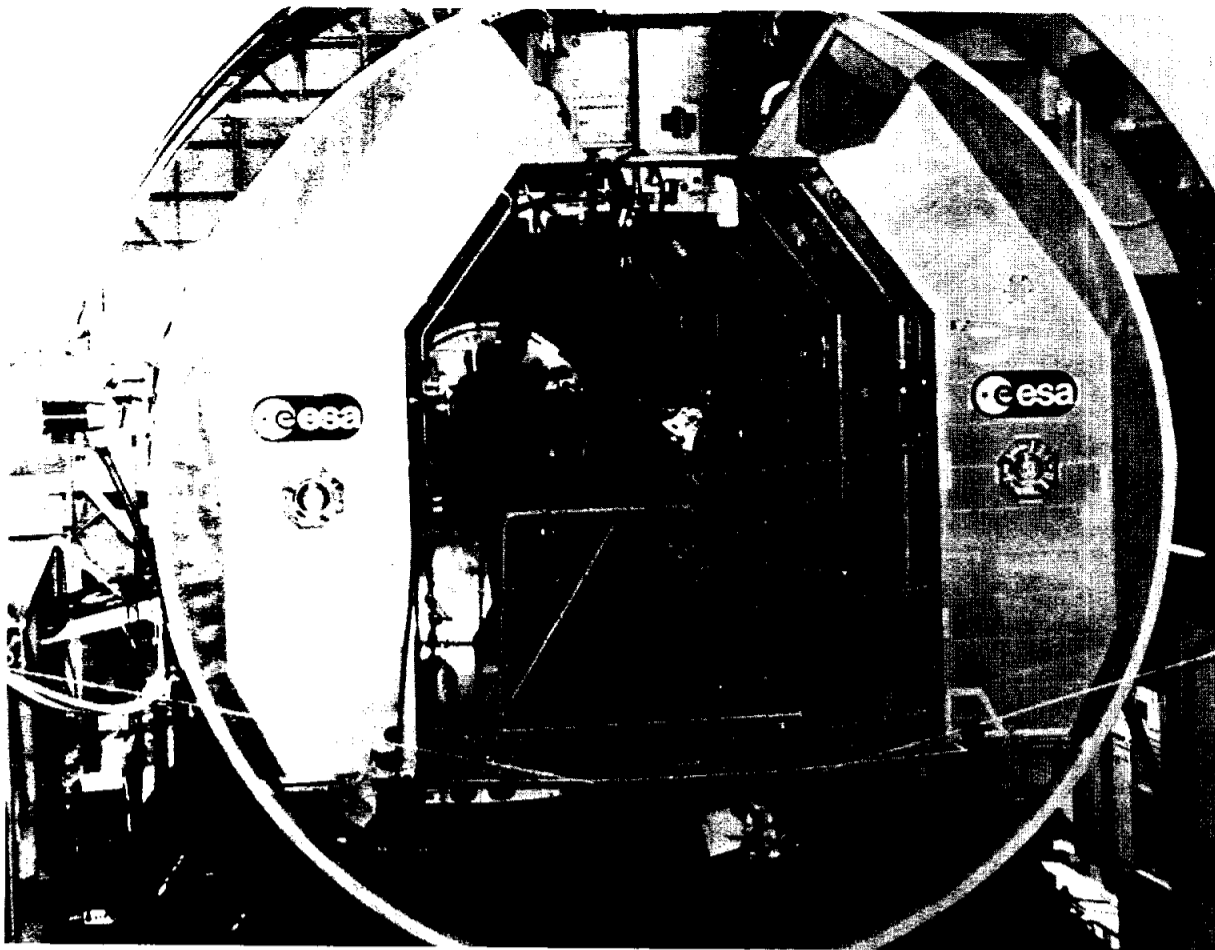
- and a Lunar Rendezvous Ball sponsored by the Lunar Rendezvous festival group.

As part of its training role for national events, the Headquarters group has revised *The Spaceweek Handbook*, part of a kit to be mailed to space supporters throughout America, showing how to hold educational events, raise funds, and gain publicity. Copies of the handbook will be available in about a month for a \$10 donation, according to Spaceweek officials.

The national group has also announced the addition of Ben Bova, Executive Editor and Vice President of *Omni Magazine*, to the Spaceweek Board of Advisors. Bova will be responsible for giving direction to Spaceweek and for helping form the Board of Advisors.

Individuals and groups wishing to become involved with Spaceweek can contact the Houston planning group by calling Joe Bufkin at x5437 or the national group by calling Fred Becker at x6459. *The Spaceweek Handbook* is available by writing Spaceweek National Headquarters, P.O. Box 58172, Houston, TX 77258.





Engineers and technicians in the Operations and Checkout Bldg. at the Kennedy Space Center work in the engineering model of Spacelab. The real thing arrived at KSC in December, and was formally accepted in ceremonies today at the spaceport.

Manned space flight archives established

A transfer ceremony Jan. 28 at Rice University in Houston marked the establishment of a Manned Space Flight Archives at the University's Library with historical material loaned by NASA.

Skylab astronaut Joseph P. Kerwin spoke at the ceremony in the Grand Hall of the Rice University Memorial Center.

The JSC history office last September began transferring portions of its archival holdings to the Woodson Research Center at Rice's Fondren Library. Documents involved in the transfer relate to the Mercury, Gemini, and Skylab programs and to the Apollo-Soyuz Test Project. The material includes non-record copies of correspondence, reports, interviews and related materials which have been collected for nearly 20 years.

The basic collection will be housed on the fifth floor of the Fondren Library in a secure part of the stacks in a humidity and temperature controlled environment. In addition to providing the space to house the collection, Rice also will provide personnel to index and arrange the collection so that

it may be useful to researchers. The collection is on indefinite loan to the University with NASA retaining title to the documentation.

The JSC history office will maintain large document collections relating to Apollo, the Space Transportation System, space stations and JSC institutional history. JSC and Rice will continue to collect documents to enhance the archives.

Cookin' in the Cafeteria

Week of February 8 - 12, 1982

Monday: Cream of Chicken Soup; Beef Burgundy over Noodles; Fried Chicken; BBQ Sausage Link; Hamburger Steak (Special); Buttered Corn; Carrots; Green Beans; Standard Daily Items; Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin; Selection of Salads, Sandwiches and Pies

Tuesday: Beef Noodle Soup; Baked Meatloaf; Liver w Onions; BBQ Spare Ribs; Turkey & Dressing (Special); Spanish Rice; Broccoli; Buttered Squash

Wednesday: Seafood Gumbo; Broiled Fish; Tamales w chili; Spanish Macaroni (Special); Ranch Beans; Beets; Parsley Potatoes

Thursday: Navy Bean Soup; Beef Pot Roast; Shrimp Chop Suey; Pork Chops; Chicken Fried Steak (Special); Carrots; Cabbage; Green Beans

Friday: Seafood Gumbo; Broiled Halibut; Fried Shrimp; Baked Ham; Tuna & Noodle Casserole (Special); Corn; Turnip Greens; Stewed Tomatoes

Week of February 15 - 19, 1982

Monday: HOLIDAY

Tuesday: Beef & Barley Soup; Beef Stew; Shrimp Creole; Fried Chicken (Special); Stewed Tomatoes; Mixed Vegetables; Broccoli

Wednesday: Seafood Gumbo; Fried Perch; New England Dinner; Swiss Steak (Special); Italian Green Beans; Cabbage; Carrots

Thursday: Cream of Chicken Soup; Turkey & Dressing; Enchiladas w Chili; Weiners & Macaroni; Stuffed Bell Pepper (Special); Zucchini Squash; English Peas; Rice

Friday: Seafood Gumbo; Baked Flounder; 1/4 Broiled Chicken w Peach half; Salisbury Steak (Special); Cauliflower au Gratin; Mixed Vegetables; Whipped Potatoes; Buttered Cabbage

Gilruth Center News

Call X3944 for more information

Registration is being accepted in the following leisure time classes at the Gilruth Rec Center:

Defensive Driving — Learn to drive safely and qualify for a 10% reduction in your auto insurance for the next three years. Class meets Feb. 27 from 8 a.m. to 5 p.m. Cost is \$18 per person.

Adult Beginning Tennis — Designed for the person who has never had tennis lessons, this class meets on Tuesdays from 5:15-6:45 p.m. for eight weeks. Class begins Feb. 9 and the cost is \$24 per person. Space is limited.

Adult Intermediate Tennis — If you have already had tennis lessons and desire to refine a particular aspect of your game, this eight week course is just for you. Class meets on Thursdays from 5:15-6:45 p.m. beginning Feb. 11. Cost is \$24 per person and space is limited.

Country-Western Dance Lessons — Learn the latest in C & W dance steps as well as the old standbys. Next six week class begins March 1. Intermediates dance from 7:15-8:45 p.m. and beginners dance from 8:45-10:15 p.m. Cost is \$20 per couple and each class is limited to 15 couples - first come, first served.

Dancercise — Part dance, part exercise, all fun. This class will gradually get you into shape. This six week course begins Feb. 23 and meets on Tuesdays and Thursdays from 5:15-6:15 p.m. Cost is \$20 per person.

Basic Auto Mechanics — It is not too early to sign up for this class which stresses the fundamentals of automobile repair. Class features three lectures on Thursdays, from 7:30-9:30 p.m. beginning March 25 and one Saturday morning laboratory. Cost is \$17 per person.

Beginning Oil Painting — Learn the relaxing art of oil painting. This class is strictly for the beginner and meets on Tuesdays from 7-9 p.m. This six week class begins on Feb. 23 and the cost is \$25. Class is limited to 10 students.

Other Rec Center announcements are as follows:

Children's Dinner Theatre — Get your tickets beginning Feb. 8 for the March 6 edition of Children's Dinner Theatre production of "Johnny Appleseed". Cost is \$2 per ticket and includes play and lunch. Deadline for tickets is March 3.

Tennis Reservations — Please remember that use of Gilruth tennis courts is by reservation only. Cost is 75 cents per person for one and one-half hours or \$10 per quarter, \$20 semi-annually or \$30 yearly. Call x3944 for more details.

Instructors needed — If you are proficient in teaching a leisure class which you think may be of interest to JSC employees, call Carl McCollum at x3944 to discuss details.

Saturday Basketball League — Registration is now being accepted in an open Saturday morning 4 on 4 half court league. Rosters must be limited to six players and no uniforms are required. Space is limited to 16 teams and cost is \$25 per team. Number of games will be predicated by the number of teams entering. It makes no difference if you play on a team during the week. Officials will be used. Call x3944 for more details.

February Fun Run — Get in shape for the upcoming Space Shuttle Half-Marathon by competing in our February Fun Run to be held on Saturday, Feb. 27 at 9 a.m. Distances will be 10 Km and 2 miles with ribbons to top finishers in each age group. Cost is \$1 per person. Call x3944 for entry blank.

Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Property & Rentals

For rent or lease: Camino South 3-2-2 house, partially furnished, all appliances, no pets, 9 months max., \$625/mo. Call 488-5660, x407 or 480-7283.

For rent: Galveston (west) Jamaica Beach, central AC, furnished, boat mooring, by days, week or month. Call Darrell Smith, 337-3970.

For lease: Baywind II condo, 1 BR, appliances incl. microwave, fireplace, W/D connections, tennis/weight room. Call Briley, x2174 or 488-7901 after 5 p.m.

One acre ranchette, lots of trees, ivanhoe Land-Of-Lakes Estates near Woodville, make offer. Call Martin, x4981 or 534-4825.

For rent: Galveston By-The-Sea condo, 2 BR, furnished, for rent by day, week or month. Call Clements, 474-2622.

Cars & Trucks

1951 Plymouth. Call 332-8618 after 5 p.m.

1978 Toyota Celica Liftback, 5 spd., A/C, PS, stereo, very good condition, \$4,800. Call 473-6516.

1972 Chev. Kingwood station wagon, good solid transportation, \$500 or best offer. Call Jon McBride, x4513.

1979 Ford T-Bird, 13K miles, V8, auto, AC, AM/FM radio, chamois velour interior, excellent condition, \$4,750. Call C. Wells, x3278 or 485-5051.

1977 Chevy Monte Carlo, 2 dr., blue, auto, AC, PS, PB, AM radio, very

good condition, \$2,995. Call Jim Derbonne, 483-2281.

1973 Cadillac Sedan de Ville, all extras, runs well, good condition, make offer. Call Bob, x3445 or 921-1715.

1980 Buick Skylark Ltd., loaded, excellent condition, \$5,995. Call Bob Swint, x4971 or 474-2951.

1976 Volvo 244DL, auto, AC, AM/FM stereo cassette, sunroof, fog lights, one owner, low miles \$3,500 firm. Call 486-5498.

1977 MGB, new top, AC, PB, AM/FM cassette, 37K miles, excellent condition, see to appreciate, \$3,500. Call 480-3678 after 6 p.m.

1971 Datsun 510, new tires, brakes and tuneup, \$1,200. Call Ray, x2004.

1977 Chevy Impala, blue, 4 dr., AM/FM, AC, 90K miles, \$2,975 or best offer. Call Nancy, x4513 or 485-8208.

1980 Olds Omega, second car, V6, auto, AC, PB, PS, 2 dr., vinyl top, excellent condition, \$5,390. Call 998-9384.

1972 Dodge B-200 window van, 360 V8, AC, PS, PB, \$1,100. Call 488-4135.

Cycles
1980 Honda CB125, excellent condition, low mileage, \$650. Call x5827.

1971 Honda 750K, saddle bags, rack, backrest, runs great, \$800. Call Ray, x2004.

For sale or trade, the following basket cases: 1969 Honda 350 CL, \$150; 1971 Honda 175 CL, \$150; 1974 Suzuki RM 125, \$125. Call 486-9125 or 538-1737.

Video

Heathkit GR-295 color TV, 25", extra tubes, maple cabinet, \$150. Call Nering, x7204 or 481-0608.

Computers

TRS-80 mod. 1 16K level 2, expansion to 48K, floppy controller, parallel printer port, serial port, real time clock, dual cassette controller, cassette unit, full documentation, \$700. Call Jeff O'Malley, x2836.

Hewlett Packard 120 AR scope, rack mount with operating and service manual and Dumont electronic switch, type 330, \$250. Call Meek, x4851 or 334-5323 evenings.

SWTPC DC-3 double-sided disk controller for 5 1/4 inch floppy disk drives, \$100 or best offer. Call Tom Harmon, x5281 or x5283.

Household Articles

Custom designer drapes for entire wall, 16 x 8 ft., basic cream with green trim, originally \$500, will sell for \$125 or best offer. Call Wells, x3278 or 485-5051.

New ceiling fan, \$60; two lamps, \$50; Hamilton cooler, \$8; baseball batter-up, \$5; basketball hoop, \$7. Call 482-8827.

Caloric pilotless gas stove, immaculate condition, self-cleaning, \$250. Olive green vinyl recliner, good condition, \$25. Call 947-0319 after 5 p.m.

Loveseat, beige and brown, good condition, \$150. Call x6161 or 484-

0775 after 5:30 p.m.

Sears washer & dryer, electric, 9 years old, both for \$200. Call Joe, x3576 or 944-7042.

Pets

Pure bred blonde Cocker Spaniel pups, 6 weeks old, shots & wormed, real cute. \$75. Call Mullis, x3762 or 339-2056.

Free to good home: two beautiful blonde Afghan hounds, male & female, 5 years old. Call Sandy, x3729 or 534-4729.

Wanted

Want aluminum extension ladder. Call Jon McBride, x4513.

Want roommate to share 3-2 mobile home near Alvin, pay utilities only. Call Bob, 483-5278.

Want to buy cheap used lawnmower that works. Call Keith, 486-9173 after 5 p.m.

Single parent or one child family to share house w/same, NASA area. Call Linda, 333-4291 or 480-1092 after 5:30 p.m.

Want sewing scraps and Wright's trim labels. Call Mary Lou, x2891 or 488-1130.

Miscellaneous

Heavy duty engine stand, \$125. Call Jim, x3916 or 585-3144.

Waterbed, mattress, frame, heater, liner, two sets of sheets, \$175. Call Ray, x2004.

Connelly Comp II waterskis. \$80. Call Ray, x2004.

Two VW trailer hitches, \$11 each or \$20 for both, or trade. Also Porta-Potti, make offer. Call Martin, x4981 or 534-4825.

Fly International Pan Am 2-for-1 coupons until May 31, \$75 or 2 for \$100. Call Doris Wood, 333-2373.

Two Kelly Springfield tires, size 14, excellent condition, both for \$100. Call Al, x2576.

Full-size Royal electric typewriter in good condition, very reasonable. Call Ruby, x4995 or 944-5944.

Remington electric typewriter, office model, excellent condition, \$135. Call Brizzolara, x6151 or 480-8325.

Exercise bike with speedometer and odometer, \$50. Call Art, x2673 or 332-3153.

Trade Pan Am International two-for-one coupons for 19" color TV. Call 488-5564.

Pool table, 3 x 7', newly recovered, accessories, all for \$99.95. Call Bob Allgeier at 488-0397 after 6 p.m.

Four used Goodrich tires, GR70 x 15, steel belted radial whitewalls, \$50. Call Jim, x3533.

Car service manuals: 1969 Ford, Mercury, Lincoln; 1978 Chevy light truck; 1978 Pontiac; 1978 Fisher Body. Call Kay, 3491 or 331-3628 after 4:30 p.m.

Craftsman 2 HP circular saw, never used, still in original box, lists for \$70, will sell for \$50. Call Leverich, x2313.