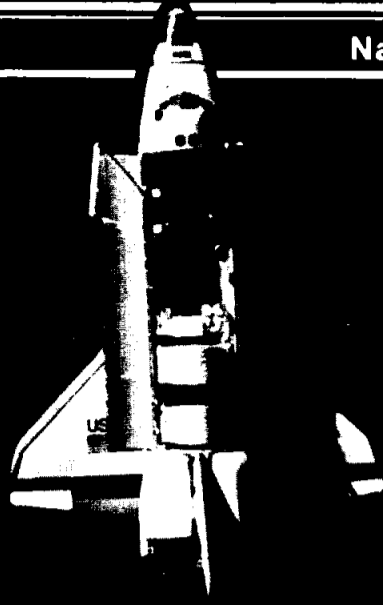


# Space News Roundup

Vol 22 No 12

July 1, 1983

National Aeronautics and Space Administration



## We pick up *and* deliver

### *Latest flight brings transitions to the program*

Three very important words were added last week to the JSC motto which first came into vogue during STS-5. The new motto: "We Pick Up and Deliver."

For the future of Shuttle Operations, the flight of Challenger during STS-7 last week was both pivotal and transitional. The world's first reusable satellite, SPAS-01, was successfully deployed and retrieved, clearing the way for complicated rendezvous, repair, deployment and retrieval missions which are planned to become the mainstay of future U.S. space missions.

Two satellite deployments on Flight Days One and Two brought to five the number of satellites

launched by the Shuttle system, and proved that the Orbiters are much more accurate deployment platforms than had been earlier predicted.

At five people, the STS-7 crew was the largest yet flown in the history of space flight, and the presence of Dr. Sally K. Ride added important historical and operational significance to the mission.

Scientifically, the mission was the most ambitious yet flown in the Shuttle program. The payloads included a variety of U.S. and European materials processing and space applications experiments, as well as two payloads — one of them commercial — with im-

portant potentials for medical use in the future.

Challenger also carried the largest complement of Get Away Special cannisters yet, including one which boosted both the spirits and scientific interest of two urban high schools in Camden, New Jersey and the altitude of a colony of ants, the first "community" of creatures ever sent into orbit.

Early risers on Flight Day Four were treated to a rare sight in Houston shortly before sunrise: a bright dot, the Challenger, passing quickly from horizon to horizon with a smaller dot, SPAS-01, keeping station as they went. Back inside, viewers of NASA Select were being treated to spectacular

downlink television showing Challenger from 1,000 feet away as she sped along at five miles per second above the clouds of Earth. The video was taken from a TV camera aboard SPAS, transmitted to the Orbiter and then beamed to ground stations. SPAS also carried a 16mm movie camera and a 70mm still photo camera, and provided a vantage point for viewing an Orbiter in space which is not likely to be repeated for some time to come.

Aside from aesthetics, the SPAS proximity operations proved the capability of rendezvous, repair and complicated proximity operations with the Shuttle. This accomplishment paved the way for more

ambitious projects in the future, including the Solar Max repair mission on Flight 13, the deployment and periodic servicing of the Long Duration Exposure Facility and the Space Telescope, and the concept of West Germany's SPAS itself: that of a reusable commercial space platform. SPAS-01 was given an international space satellite designation for United Nations registration — 1983-058F.

During the initial proximity operations, Commander Robert Crippen piloted Challenger from the aft cockpit, while Mission Specialist John Fabian piloted the remote manipulator system. Up front, Pilot Rick Hauck monitored

(Continued on page 4)

## Naugle Committee releases passenger study

*The Naugle Committee's report to NASA on the feasibility of flying private citizens aboard the Space Shuttle was released last week. The report does not represent official NASA policy. No definite decisions have been made to fly citizens on the Shuttle, and NASA is not now, nor has it ever been, taking reservations for future Shuttle flights. The following study proposals now come up for careful consideration by senior NASA officials in the coming months. — Editor*

Flight of private citizens aboard the Shuttle is both feasible and desirable so long as such flights fall

within the scope of the National Air and Space Act, according to a study report released to Administrator James M. Beggs last week.

The study calls for a small initial program to fly private citizens, with no more than four or five going aloft in this decade. The report stressed, however, that several legal, logistical and flight safety considerations would have to be addressed before any program could begin.

The Task Force, working under the auspices of the NASA Advisory Council, has been studying the question of whether private citizens should be allowed to fly aboard the Space Shuttle since early 1982. With certain caveats,

the Council approved in May the general idea of flying private citizens and recommended that NASA proceed with a small program which could have "value in itself" and then "see what light it sheds on what the next step, if any, should be."

The Task Force conclusions stressed that any flights of private citizens should be for purposes expressly defined in the National Air and Space Act of 1958, namely, for the wide dissemination of information and for preservation of U.S. space leadership.

"The Space Act authorizes NASA to provide the 'widest practicable and appropriate dissemination of information concerning

NASA's activities and the results thereof," the report says, "and to foster 'the preservation of the role of the United States as a leader in aeronautical and space sciences and technology.'"

Observers aboard the Shuttle could provide comprehensive accounts of space flight more readily accessible to the general public, the report said, and could also make real time reports from space and explain in layman's terms the historical developments which made Shuttle flights possible. "The resulting visual and written data would give NASA, potential passengers and decision makers a better understanding of the value of this experience and what the

next step should be in using these initial limited opportunities."

The report said, however "there are cautions to be kept in mind. It would be easy for people to misunderstand such a program as a self-serving public relations gimmick trivializing the space program, despite what is clear to us as NASA's well-meaning intentions."

Further, "the details of the administrative process for selection of observers need to be given thorough thought because of the workload and the possibility for misunderstanding and litigation."

Members of the committee, after fact finding meetings at JSC, the Kennedy Space Center and NASA

(Continued on page 2)

## Space News Briefs

### Ariane L6 successfully launched

The European Space Agency's Ariane L6 rocket, successfully launched from the site at Kourou, French Guiana June 16, placed two communications satellites in geosynchronous Earth orbit as planned. The rocket carried a European Communications Satellite, ECS-1, and a West German amateur radio satellite, AMSAT P3B.

### Space Telescope facility dedicated

NASA, Johns Hopkins University and European Space Agency officials gathered in Baltimore June 15 for the dedication of the Space Telescope Science Institute, scheduled to go into operation in the summer of 1986. The facility, a sandstone and dark glass structure built into the side of a ravine, was constructed by Johns Hopkins and the state of Maryland. The facility will house an interconnected computer network and will serve as the central research center for images and data returned from the Space Telescope. The Telescope is now tentatively scheduled for launch aboard STS-34 in March, 1986 on the Shuttle *Challenger*.

### FRCI-12 tiles in production

The latest generation of lightweight Space Shuttle thermal protection tiles, developed at the Ames Research Center, are now in production at Lockheed's Sunnyvale, California facility. Called FRCI-12, for Fibrous Refractory Composite Insulation (12 pounds per cubic foot) the new tiles will be used for the first time on the Orbiter *Discovery*. About 2300 FRCI-12 tiles will be used on *Discovery* in such areas as access doors, main landing gear doors and other areas which require strong insulation. Unlike the pure silica tiles now in use, FRCI is composed of 78 percent silica fibers and 22 percent Nextel fibers which contain a small amount of boron. During high temperature sintering in a furnace, the boron welds the pure silica and Nextel fibers into a rigid structure, resulting in a lighter material with strength equal to the heavier Lockheed Insulation 2200. The new tiles are expected to reduce *Discovery's* weight by some 900 pounds.

### NTF completes cryogenic tests

A unique aeronautical wind tunnel, the National Transonic Facility at the Langley Research Center, has successfully completed a series of cryogenic operational tests, a major milestone toward initial operations later this year. The NTF is designed to provide the best research capabilities yet available for the study of air flow conditions of flight in the transonic range, at speeds just below and above the relative speed of sound — Mach 0.8 to Mach 1.2. The series of tests introduced nitrogen into the wind tunnel in a gradual process in which the tunnel temperature was reduced to as low as minus 280 degrees F. Calibration of the tunnel will continue for the next year, with some research work also scheduled. Full up operations of the tunnel will begin in 1984.

### Flying Wing may fly again

A group of aviation enthusiasts in Chino, California has pulled back the tarpaulin and begun restoration on a prototype of the YB-49, the famed Flying Wing designed by Jack Northrup in the late 1920s and flown in the 1940s and 1950s. During a 10-year test flight program, the jet powered YB-49 made many flights, including a record four-hour and 20-minute cross country flight averaging 511 miles per hour. In the early 1950s, a decision was made to develop the B-36 as the Pentagon's main bomber and the Flying Wings, both the jet powered and propeller powered versions, were ordered destroyed. Two smaller prototype versions survived. One is at the Smithsonian Institution's Air and Space Museum, the other was stored at the airport in Chino. These smaller versions, designated N9M's, have 60-foot wingspans. The N9MB is being restored at the Planes of Fame Museum in Chino, which hopes to have it flying again in one or two years.

## Bulletin Board

### Spaceweek celebration nears

This summer, the Houston area and 100 cities across the country will again celebrate a week-long series of events to commemorate the American space program. Spaceweek, a local and nationwide celebration, will be held the week of July 16 to 24 with the theme, "Space: The Next 25 Years." Houston planners have slated a series of events to be held at JSC, the Burke Baker Planetarium, Houston City Hall, Rice University and several area malls. Events will include a lecture series, a model rocket launch, films and slide shows, space exhibits, a picnic with hot air balloons and ultralight aircraft and a moonwalk reenactment. Any individuals or organizations wishing to participate or sponsor events are invited to attend the weekly Spaceweek meeting in the Bldg. 3 cafeteria Mondays from 11:30 a.m. to 12:30 p.m. For a recorded message on Spaceweek activities, call 486-2133.

### Toastmasters offer communications skills

The Spaceland Toastmasters have a standing invitation to people interested in developing better communication, public speaking and leadership skills to come join them during their twice monthly meetings. The group gets together on the first and third Wednesdays of each month at 11:30 a.m. in the Bldg. 3 Cafeteria. For more information, contact Clayton Benignus at x3251 or R.L. Rodriguez at x2231.



Eagle Award winners pose with Center Director Gerald Griffin.

Twenty-seven JSC employees were honored recently with Eagle Awards recognizing significant productivity improvements. The Gold Eagle award, JSC's highest for productivity improvement and cost reduction, went to James A. Smith, Donald M. Curry, Donald J. Tillian and J. Thomas Taylor of the Research and Engineering Directorate; Eduardo Baca and Hector M. Rodriguez of the Space Shuttle Projects Office; and Billy G. Whatley, Chester M. Gross and Anne D. Modisette of the Mission Support Directorate.

Bronze Eagle awards went to B.L.

Brady, Sherry J. Berthiaume, Robert R. Regelbrugge, and John A. Frere of the Mission Support Directorate; Clayton C. Knago, Robert C. Stults, and Debra L. Johnson of the Administration Directorate; Paul P. Coan, Michael M. Thomas and Roy J. Smith of the Research and

Engineering Directorate; Richard P. Parten and Charles M. Vaughn of the National Space Transportation Systems Program Office; Lynwood C. Dunselth, Office of the Director of Space Operations; John K. Lottinville of the Legal Office; Jack E. Breiby of the White Sands Test Facility; Charles A. Matson of the Space Shuttle Projects Office; James C. Clarke of the Center Operations Directorate; and Dean W. Allen of the Program Operations Office. A total of 39 employees were recognized for their productivity improvement and cost reduction efforts.

## People

Eugene Horton, JSC's administrator for the NASA Employee Assistance Program, has been selected to serve as Chairperson for the Regional Employee Assistance Forum. Known as REAF, the organization is comprised of some 80 psychologists, psychiatrists and staff therapists representing firms throughout the Harris-Galveston County areas. REAF's purpose is to foster a better understanding of the psychological needs of men and women in the workplace. The Employee Assistance Program at JSC provides counseling and referral assistance to NASA employees and their family members, to military personnel assigned to NASA and to NASA contractors. The office is currently working with some 250 people in various areas of service. The program focuses on personal problems which include mental health, family problems, alcohol and drugs, and personal and social adjustment. The JSC Employee Assistance Office is located in Room 223 of Bldg. 8. Office hours are from 8 a.m. to 4:30 p.m. All interviews are strictly confidential.

Two recent high school graduates have been named to receive this year's NASA Exchange - JSC Scholarship. Richard Rowell, son of Fred Rowell, Technical Services Division, and Robert Kendrick, step-son of Robert Dupstadt,



At top, Robert Kendrick and his family with Center Director Gerald Griffin; at bottom, Richard Rowell and his family.

Director of Procurement's Staff, were chosen to receive the scholarships based on academic achievement and school and community activities. There were a total of 59 applicants for the two scholarships, which provide \$4,000, up to \$1,000 per year, for study at any college or

university. Rowell is a May graduate of Santa Fe High School and plans to enroll at the University of Texas majoring in aeronautical engineering. Kendrick is a May graduate of Clear Lake High and also plans to enroll at UT, majoring in liberal arts.

## Committee report

(Continued from page 1)  
Headquarters, sought the views of recognized leaders in varied fields. Given two choices, whether to fly people selected from the public at large or to fly carefully selected persons for specific purposes, the respondents seemed to favor the "purpose-oriented" approach. "The most common reasons are that such an approach (a) promises more useful results, and (b) would be widely acceptable because it is comparable to what is done on military and scientific expeditions."

The Committee also reported that "the capability to communicate the experience turned out to be quite important. The majority of those expressing a preference favored someone who could do so. This criterion also matched closely the education-related purposes noted earlier."

A peer-group selection process for choosing people under the purpose-oriented approach also seemed to be favored.

The Committee also suggested that any persons chosen to fly would have to undertake about 100 hours of training, be in reasonably good physical condition, be willing to forgo "extraordinary profits," agree to respect the pri-

vacancy of the NASA astronaut crew, undergo some sort of clearance process and perhaps become a NASA employee for the duration of the pre-flight and post-flight activities.

The Committee stressed that "NASA should avoid the appearance of being self-serving. Therefore, NASA should not appear to be using the program to build public support. NASA should avoid public relations gimmicks."

Among its conclusions, the Committee said, "NASA should take the next step in opening space flight to all people by flying observers consistent with the purposes in the Space Act. The data from this first step should also be useful to both candidates and decision makers in proposing how to make the best use of further opportunities."

The Committee was chaired by Dr. John E. Naugle, Senior Director for Advanced Space Systems at Fairchild. Members included Daniel J. Fink, President of D. J. Fink Associates; Dr. Sylvia D. Fries, University of Maine; Willis M. Hawkins, Senior Advisor to the Lockheed Corporation; author James A. Michener; Julian Scheer, Senior Vice President for Corporate Affairs, LTV; Florence R.

Skelly, President of Yankelovich, Skelly and White, Inc.; and Capt. Richard H. Truly, USN, representing the U.S. Astronaut Corps.

Copies of the full Committee report are available for inspection in the Public Information Office.

## Cookin' in the Cafeteria

Week of July 4-8, 1982

**Monday:** HOLIDAY

**Tuesday:** Beef and 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, Buttered Cabbage, Whipped Potatoes.

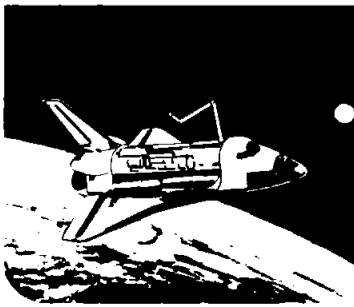
NASA  
Lyndon B. Johnson Space Center

## Space News Roundup

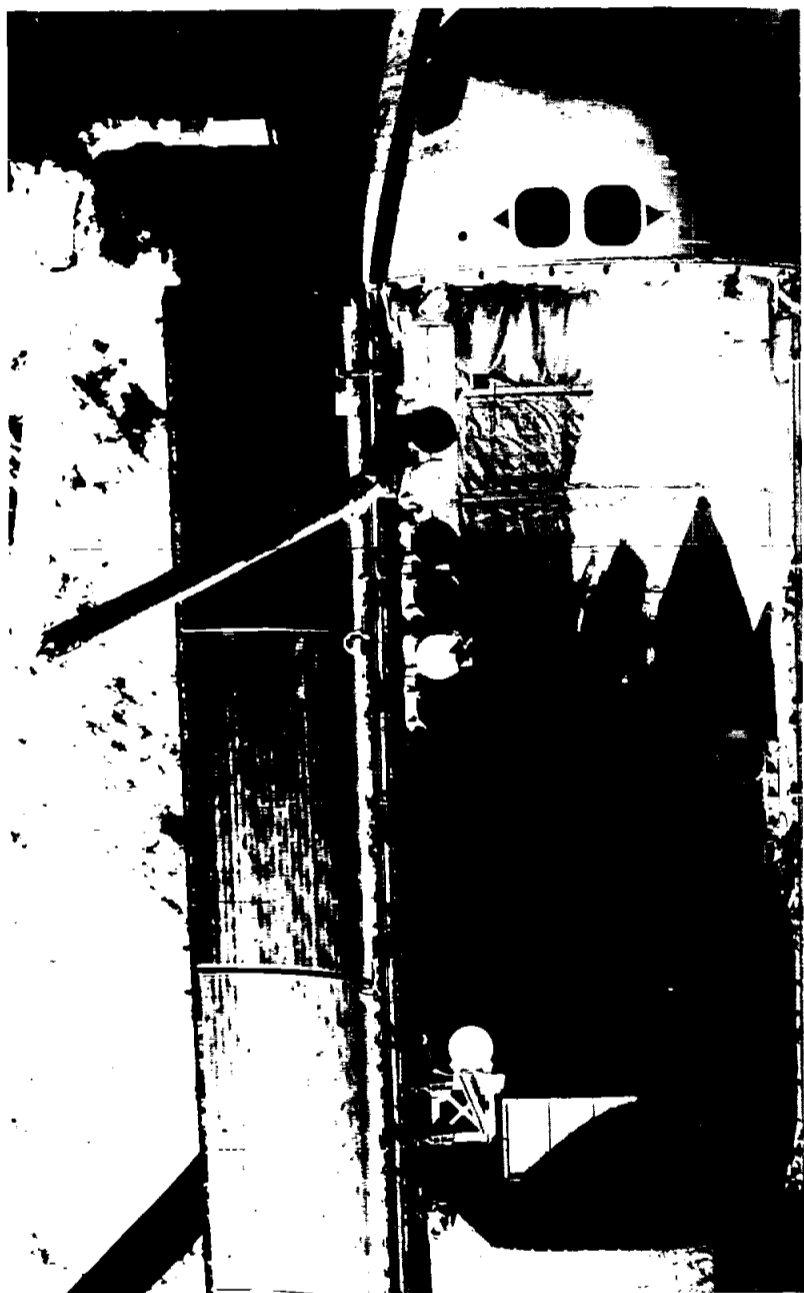
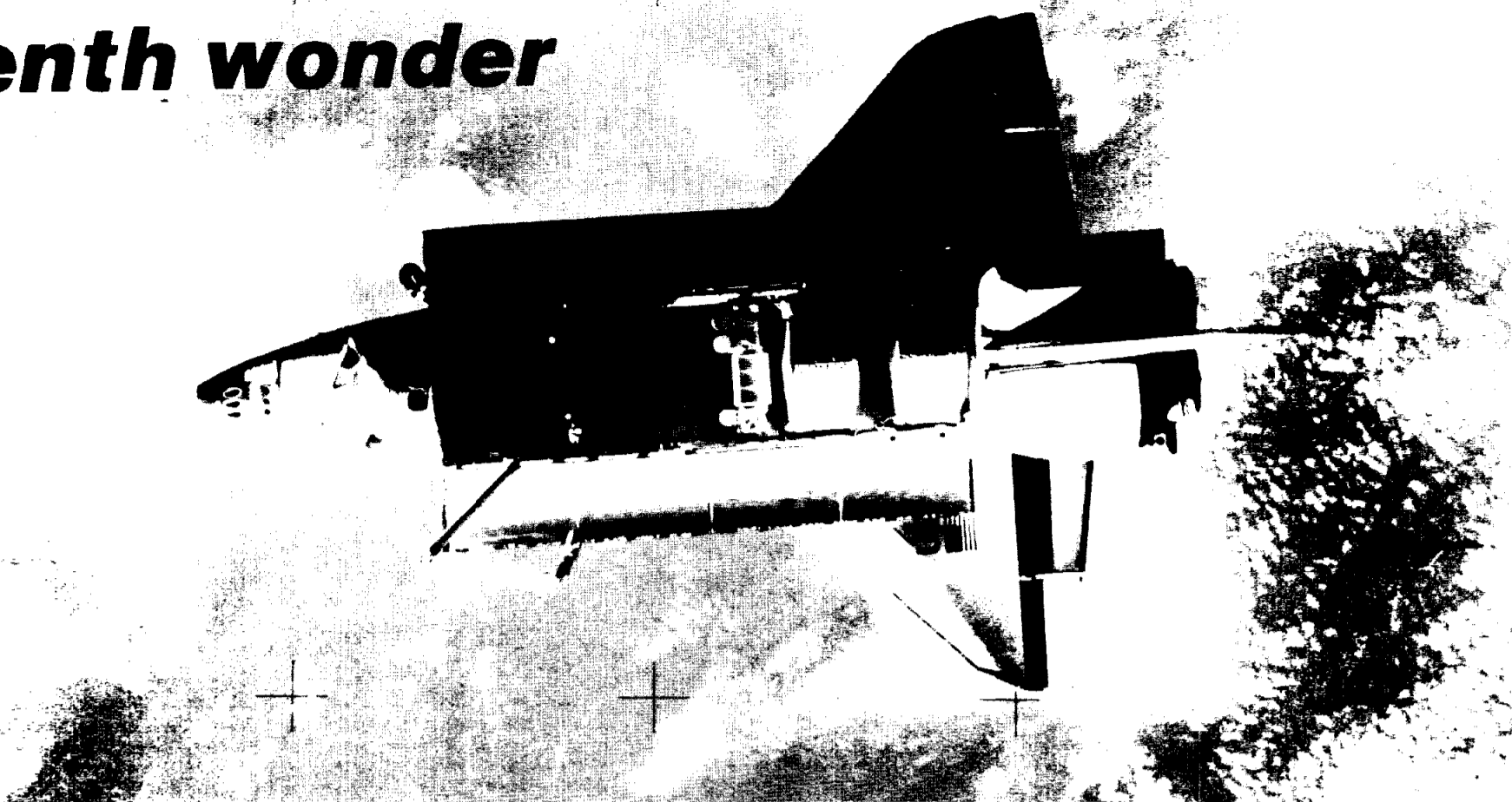
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Editor

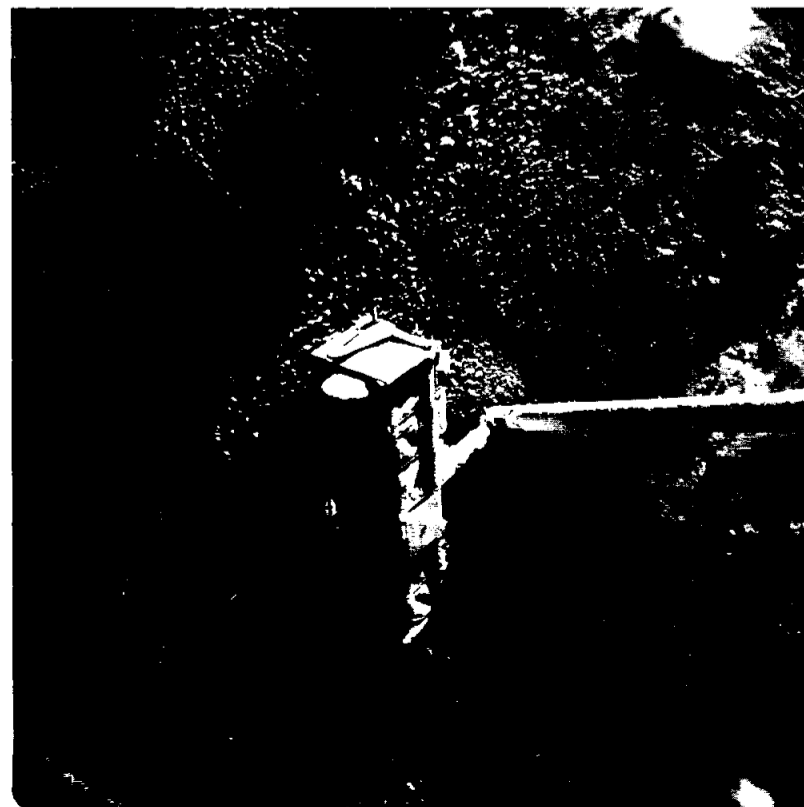
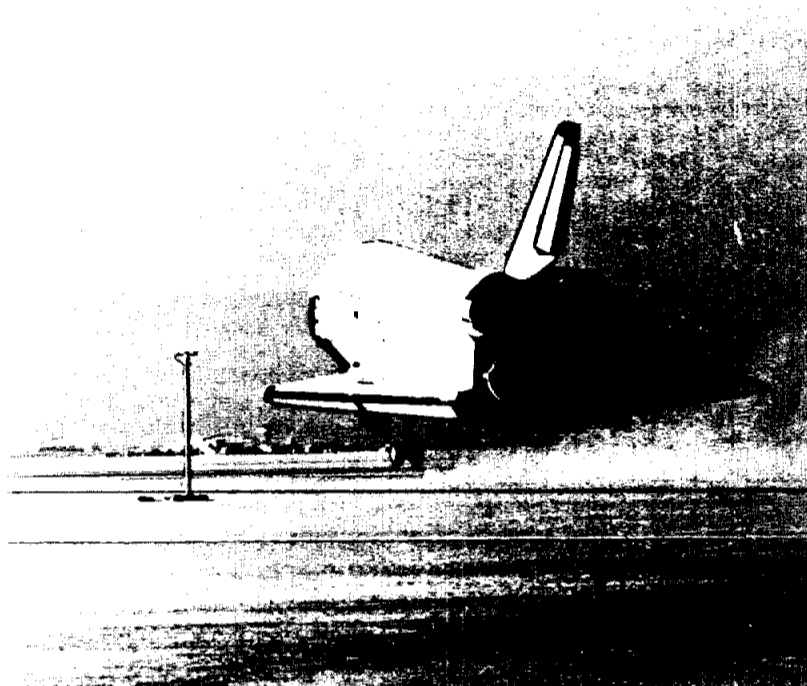
Brian Welch



# Seventh wonder



**N**ot since Apollo have we seen pictures like those from STS-7, with an entire space vehicle visible in orbit. Above, the Challenger speeds well above the clouds of Earth in this 70mm photograph taken from the first Shuttle Pallet Satellite, SPAS-01. Note the remote manipulator arm configured in the shape of a "7," not very different from the art on the mission patch. At left, a closer look at the payload bay, the seven Getaway Special cannisters and other payloads. In the television footage from this distance, flickering lights and members of the crew were visible. Below left, the star of the operations on flight days four and five, SPAS-01, during attached experiments with the robot arm. The crew's in orbit photograph, below right, shows the largest group of people yet sent into space on one flight. At right, two crewmembers in the midst of their orbital duties: Dr. Norman Thagard, wired, taped and goggled during his biomedical experiments; and Sally Ride taking pictures of an electrophoresis sample during the separation process. At right, Challenger touches down on the lakebed at Edwards Air Force Base, with a total rollout of 10,718 feet.



# Spacelab 3 payload specialist group named

Four scientists have been named by NASA to train as payload specialists for the Spacelab 3 mission, the first operational flight of the reusable scientific laboratory.

Those named were Dr. Eugene H. Trinh of the Jet Propulsion Laboratory, Dr. Taylor G. Wang also of JPL, Dr. Mary Helen Johnston of the Marshall Space Flight Center and Dr. Lodewijk van den Berg of EG & G, Inc. of Goleta, Calif.

Prior to the seven-day Spacelab 3 mission, scheduled for launch in September 1984, two of the four candidates will be selected for flight duty to conduct experiments. The other two payload specialists will serve as flight alternates and as members of the mission management and science teams.

Payload specialists are new to the space program and will fly for the first time on Spacelab 1 during

STS-9 this fall. These specialists are not career astronauts and are selected by their peers to fly along with particular experiments on certain scientific Shuttle missions. Other payload specialists in coming years will go along to assist in the deployment of satellites.

Two areas of research on the Spacelab 3 flight required the presence of crewmembers with specialized backgrounds. The Investigator Working Group selected Trinh and Wang for their expertise in liquid drop dynamics, and Johnston and van den Berg for their experience in materials science. One payload specialist from each discipline will be selected to fly.

Mission emphasis for Spacelab 3 is on materials processing, with other experiments in life sciences, Earth observations, space technology and astrophysics. Of the 13 scheduled experiments, 11 are from

the United States and the other two are from India and France.

The Spacelab 3 configuration will be a pressurized module and support trusses for experiments requiring direct exposure to space. Spacelab 3 will fly before Spacelab

2 (scheduled for STS-23 in February 1985) due to the availability of certain pieces of equipment and various experiments.

The Spacelab 3 mission, designated STS-18, will be launched from the Kennedy Space Center in

September 1984 on the Orbiter *Challenger* into a 200 nautical mile orbit inclined 57 degrees to the equator. There will be six crew members and the flight will last seven days.

## STS-7

(Continued from page 1)  
the orbiter systems while Mission Specialist Sally Ride commanded the SPAS from the Challenger's forward cockpit. Dr. Norman Thagard, the first MD sent into space specifically to conduct medical experiments, observed these operations in between his own busy timeline activities.

The deployment of two satellites — one for Indonesia and the other for Telesat Canada — added new

evidence to NASA's claim that the Shuttle is a very precise launch platform. Telesat's Anik C2, for example, was deployed within 1,500 feet of the target point and within 0.085 degrees of the planned pointing vector, according to Orbit Team Flight Director John Cox. That kind of accuracy can add months or years to a satellite's useable lifetime through the conservation of onboard attitude control fuels.

The one disappointment of the flight was the weather in Florida which forced a change in plans and brought Challenger in for a landing at Edwards Air Force Base instead of the Kennedy Space Center as originally scheduled. By landing plus four days, however, crews were ready to mate Challenger with NASA 905 and begin the cross-country flight back to Florida ahead of schedule.

## 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 AP 3 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 lease: Forest Bend 4-2-2, storm windows, extra insulation, ceiling fan, mini-blinds, drapes, trees, fenced, available July 2, \$550/mo. Call Carolyn, x3486 or 482-6176 weekends.

For sale/lease: La Porte 2-1.5-2 condo, quiet area, covered parking, fenced patio, storage, range, refrig., utility room, available Sept. 1. Call Biggs, 643-6543 or 488-4135.

For sale/rent: League City, Newport 3-1.5-2, fenced, finely finished, low utilities, 60's or rents \$575/mo., located at 2303 Kingsway. Call 554-6200.

For rent: Room with private bath and entrance, view, kitchenette, prefer older woman, \$175/mo. bills paid. Call 471-4387.

For lease: Meadowgreen 4-2-2, CLC, very clean, fireplace, den with bay window, butcher block, formals, mini blinds, fenced, area pool and tennis, \$750/mo. Call 643-8944.

For lease: Baywind II condo, 2-2-2, CLC, very clean, large outside unit, lots of windows, open view, fireplace, wet bar, W/D, tennis, etc., \$490/mo. Call 643-8944.

For lease: Egret Bay 2-2-2, covered parking, fireplace, W/D. Call John Lintott, x4164 or 488-6102 after 5 p.m.

For lease: 3-2-2 in Wilderness Trail subdiv., less than one year old, formals, excellent condition, will consider leasing with W/D and refrig. Call 482-8047.

For lease: Bacliff 3-2, large yard, trees, fenced, good references required, \$335/mo. plus deposit. Call Bill, x4364.

For rent: Furnished Meadowcreek Village 3-2-2 house, fenced, fireplace, available July to Dec., \$450/mo. including utilities. Call Bob Law, x2141 or 573-1839.

For sale: Vacant lot in Royal Forest subdiv., near Conroe, \$2,000. Call Bob Law, x2141 or 573-1839.

For lease: Baywind I condo, 2-1.5-2, clean, W/D, \$450/mo. plus security deposit. Call George, x3987 or 474-5267 after 6 p.m.

For lease: Meadowcreek Village, Pasadena, 3-1-1 w/large laundry room, large fenced yard, nice, \$400/mo. plus deposit. Call George, x3987 or 474-5267.

For rent: Room in brand new house, Piper's Meadow, with fireplace, cathedral ceiling and refrigerator. Call 333-6543 or 480-2168.

For rent: Galveston By-The-Sea condo, 2 BR, furnished apartment for rent by day (2 minimum) weeks or month. Call Clements, 474-2622.

For rent: Galveston Gulf front condo, 1 BR, completely equipped, pool and tennis, reserve now for days, week or month. Call Nussman, 721-2459.

For lease: Pasadena/Parkview Manor 3-2-2, 1.5 story house, redecorated, clean, drapes, \$525/mo. Call 944-8186.

For sale: Wedgewood Village 3-2-2, 2,805 sq.ft., 30x60 gameroom w/parket floor, six miles from NASA, \$70,900. Call Jeff, x7429 or 482-5393.

For sale or lease: Nassau Bay townhouse, 2-2.5, new carpet, pool, good location, \$59,900 or \$495/mo. Call Ophelia, x2885 (2nd shift) or 334-4184.

### Cars & Trucks

1972 VW 411, 43K miles, auto, AC needs hoses, 25 MPG, excellent condi-

tion, \$1,400. Call Wally, x2217.

1970 Ford 4 door, new timing chain, needs valve job, \$300. Call Jack, x4549 or 488-4019.

1979 Turbo Capri RS, beautiful sports car, perfect condition. Call Lambert, x2781 or 554-7079.

1966 Mustang, 289 V8, good tires and paint, no rust, AM/FM/tape, \$1,995. Call Lee, x2271.

1951 Ford Pickup with '69 Ford 390 CI and C-6 transmission, includes Holley double bumper, lsy cam, 428 heads, \$650. Call Steve, 944-6513.

1972 Pontiac 9-passenger wagon, 400 V8, new tires and battery, very good condition, \$1,800. Call 481-1441.

1974 Vega station wagon, 4 cyl., new transmission, new tires, engine needs work, \$500. Call Bill, x6369 or 488-3557 after 6 p.m.

1982 Firebird SE, T-top, full power, AM/FM/cassette, must sell, \$9,900. Call Mark, x6226 or 554-4847.

1981 Citation, V6, 4 door, AC, auto, my payment price \$13,200, your price \$5,250. Call 471-4387.

1971 Olds Cutlass station wagon, original owner, looks good, runs good, \$650. Call Bogard, x2296 or x2911.

1974 Ford F100, 4 wheel drive, rebuilt engine, new tires. Call 482-5432.

1973 Olds Cutlass Salon, 4 door, AC, steel belted radials, cruise, cassette, \$900 cash. Call 643-2544 after 6 p.m.

1977 Fiat X-1/9, convert., air, AM/FM/cassette, excellent condition, \$2,900. Call 486-8266 or 480-8325.

1977 Chevy Caprice wagon, 3 seater, needs body work, runs good, \$900. Call 862-1631 or 749-2012.

1979 Corvette, one owner, 31K miles, loaded, white, new tires, battery, compressor, \$11,000. Call 772-5129.

1973 Chevy Chevelle SS, auto, AM/FM/cassette, two new tires, good condition, \$950. Call Sandra, x2020 or 333-3245 after 6 p.m.

1973 Ford Maverick, 302 V8, cassette stereo and equalizer, perfect interior, \$600. Call 944-1666.

1973 Lincoln Mark IV, silver, leather interior, sunroof, new tires, body in good shape, sound mechanically, needs paint, \$1,400 or make offer. Call 333-5040.

1959 Chevy sedan, forming group to restore running car and share in ownership; mechanics, junkers, upholsterers needed. Call Biljo, x5471.

1971 Ford LTD, 4 door, auto, PS, PB, new brakes, good tires, AM/FM stereo, \$700. Call 944-2373.

1980 Chevy Caprice Classic station wagon, diesel, 42k miles, AC, fully equipped, \$4,800. Call Dan, x3021 or 331-3719 after 6 p.m.

1981 Chevy Chevette, 4 door, manual, excellent condition. Call Linda, x4319 or 480-8339.

1969 Dodge Dart, 4 door, new inspection, good condition, \$500. Call Mike, x6254 or 474-2770.

1978 Chevette 2 door hatchback, 4-speed, AM/FM, AC, one owner, deluxe interior, 58K miles, \$2,350. Call B. Craig, x4031 or 1-420-2936.

1973 Buick station wagon, full size, nice family car, 89K miles, \$2,000. Call 333-2583 after 5 p.m.

1969 Ford Galaxy, manual, fair condition, \$500. Call 1-585-8162.

1980 Renault Le Car, 32K miles, 4 speed, AM/FM/cassette, 41 MPG, no air, good condition. Call Robert, 332-5545 or 482-7030 nights.

### Household

French Provincial bedroom suite, Sears, complete with bed, \$280; beautiful massive pine Swedish furniture; upright piano with bench, \$350. Call Lambert, x2781 or 554-7079.

Corner unit w/table for bedroom, \$200. Call 333-3425 after 5 p.m.

Walnut dresser, 72", nine drawers, \$50; coffee table, 40" round, \$35; swimming pool leaf catcher, \$20. Call 488-1326 after 4:30 p.m.

Imperial heavy duty 21.2 cu.ft. commercial frostless freezer, white, one year old, \$750. Call Lucio, x3342 or 481-9579.

Sears Kenmore sewing machine with cabinet, excellent condition, \$150 or best offer. Call Shannon, x4831.

Custom drapes with cornices, 9' 10.5" wide, \$60 for all; antique library table, \$195; coffee table, \$50. Call 488-5564.

Gas stove/oven, four burners, electric, Montgomery Wards, used 10 mo., \$175 or best offer. Call Carolyn, x3486 or 482-6176.

Portable fold-up bed with mattress, \$35. Call Handley, x6196 or 482-7041.

Baby bed, w/mattress and mattress protector, bumper pad, \$15 for all; braided rug, oval, 9x12, \$20; Acme Juicerator, \$60; Call Leona, x3338.

Stereo console, Spanish decor, convertible to liquor/storage cabinet, components need repair, \$75. Call 333-3425.

Refrigerator, 4 cu.ft., ideal for dorm students or extra home refrigerator. Call Dan, x5231.

### Wanted

Clean, reliable used car wanted, automatic transmission, \$1,500 or less. Call Pat, x4211 or 485-1997.

Want used golf cart, gas engine, electric start, running or not, but must be all together. Call Ron, x2438 or 339-2507 anytime between 9 a.m. and 8 p.m.

Infant care, 8 to 5 weekdays in my home or yours, to begin in August. Call Bill, x2421 or 474-2948 evenings or weekends.

Wish to purchase two space art books from 1970: "Eyewitness to Space" and "The Moon: Man's Greatest Adventure." Call Gary, x2337 or 482-1290.

Want to use car for six weeks, willing to pay \$200, careful driver with excellent record. Call A. Garihan, 486-8153 or Cynthia at 505-835-0148.

Want Heathkit HR-20 receiver. Call Byron, x5431 or 538-1201 after 5 p.m.

Youthful, vivacious roommate to share 2-2.5-2 townhouse with same, near JSC, fireplace, W/D and many other amenities. Call 486-8153, x353.

Want to join or form carpool from SW Houston, Richmond/Gessner area, work hours flexible. Call Tom, x2653.

Want CB radio for auto. Call Jack, x6301.

Band needed for Spaceweek '83 celebration July 24, to play during a day of space related activities. Call Joan, x2544 to volunteer.

Want used highchair, good condition, preferably with plastic tray. Call LaVeada, x3761.

Want windsurfer in good condition. Call Chuck Nash, x6484 or 334-1404 after 5 p.m.

### Cycles

1976 Honda Centennial LTD Goldwing, needs battery and air line, \$2,000 as is. Call Ann, x5827.

1975 Honda 750, 3,800 miles, new battery, crash bars, luggage rack and box. Call 946-5829 or 928-2062.

1982 Honda Ascot, low miles, like new. Call 585-6495 after 6 p.m.

### Audiovisual & Computers

TEAC 4010SL R/R tape deck, 2/4 track stereo, rec/plybk, auto rev/plybk, auto stop, sound/sound rec, used 70 hours, plus instruction and repair manual, \$275. Call Doug, x5573 or 486-7412.

HP-34C calculator, has solve and integrate features, new batteries, \$45. Call Mike Rouen, x6193 or 481-4196 after 4 p.m.

Want to buy locally with purchasing group for discount price one IBM-PC, basic unit. Call H. Thurlow, x3188 or 333-2422.

IBM-PC: technical manual (new), \$35; protoboard (unused), \$40; S-100: motherboard w/active termination, \$50; 8K x 8 SRAM, \$60; protoboard, \$20. Call 480-0669 after 5 p.m.

### Boats & Planes

Windsurfer, pride power, hi-fly sail, new, never been used, \$800. Call 474-9290 after 5 p.m.

Three blade SST propellor for large OMC outboard motor, \$155. Call Charles, x3281.

Dinghy, 9 foot aluminum Grumman, \$150. Call Alter, x5111.

"Spook" 10 foot sailing dinghy, fiberglass, recently restored, \$450. Call Huber, x5531 or 554-2992.

FAA pilot ground school, \$10 through Gulf Coast Aero Club, only \$8/mo. dues. Call Mark, x4436 or 554-2538 after 6 p.m.

### Pets

Cocker puppy, black and white male, AKC registered champion bloodlines, \$100 or trade for 19" color TV. Call 538-1712 or 334-1212.

Doberman pups, top quality, reds and blacks, AKC champion bloodline, wormed, dewclaws and tails removed. Call 925-6063 (Alta Loma) collect after 5 p.m.

Amazon parrot, three year old red Lorid, learning to talk, makes Atari sounds, retails for \$300, make offer. Call 470-2293 after 6 p.m.

Dutch rabbits, pedigreed, 8 weeks, \$10 each. Call Handley, x6196 or 482-7041.

Rabbits, pedigreed New Zealand whites, good breeding stock. Call Julie, 334-6372.

### Miscellaneous

Dan Armstrong crystal guitar, excellent condition, \$350 firm. Call Evon Collins, 554-2943.

Radial arm saw, 10", Sears best, on stand, needs wood top, \$200. Call Wally, x2217.

Rapid Omega model 200, 2.25 x 2.75 professional format camera, with 90mm f3.5 lens. Call Chuck, x4831 or 774-3587.

DP GymPac 1000 home physical fitness system, exercise bench and wall

weight unit, leg lift/curl, six position handle bar, padded ankle cuff and more, new, \$225. Call Doug, x5573 or 486-7412.

Wilson T-2000 tennis racquet, \$15. Call Levy, x3035 or 333-1316.

Regulation slate pool table, with optional coin mechanism and accessories, \$750. Call Bill, x3278 or 333-5017 after 5 p.m.

Sears Weedwacker, 3/4 HP, electric heavy duty, good condition. Call Handley, x6196 or 482-7041.

Croft 42" trailer hitch, heavy duty, for boat towing etc. Call Ben, x2314.

Roper lawn and garden tractor, 16 HP w/42" mower and cultivating plows, 6 fwd, and 2 rev. gears, excellent condition, \$1,600 firm. Call Linda, x3212 or 488-7454 after 4:30 p.m.

Twins mattress and box springs, \$25; boy's 20" sports bike, good shape, \$35. Call Ann, x5827.

Decorator candlestick telephone, like new, plug in jack, ivory color, \$85. Call 488-4788.

Trailer hitch assembly for full size GM car, \$15. Call Joe, x3101 or 944-6513.

Mini-bike rack mount for car bumper, \$12.50. Call Joe, x3101 or 944-6513.

Duncan ceramic kiln, small size, excellent for beginning ceramist or china painting, sold new for \$387, will sell for \$200. Call Freda, x6301 or 486-0790 evenings.

1965 VW 50 HP motor, spare parts for 1959 VW Variant, \$170 or sell separate. Call Lucio, x3342 or 481-9579.

Tow bar, fits 1978 Celica, cost \$175, sell for \$75; Whirlpool heavy duty washer and dryer, need work, asking \$100 for both. Call 470-2293 after 6 p.m.

Pool chlorine, 45 pounds of HTH granules for above or below ground pools, \$60. Call Gary, x2337 or 482-1290.

Smith Corona office electric typewriter, good condition, \$150. Call 488-5564.

Mother's Day special air tickets on Continental: Miami, Tampa, Los Angeles, San Francisco, Salt Lake, all good weekends through Dec. 11. Call Doris Wood, x5265.

Sears 36" riding mower, electric start, runs well, \$300. Call Demoss, x4549 or 488-4019.

Smith Corona manual typewriter, excellent condition, used only a few times, light and portable, \$50. Call Doeni, x5907 or 331-1230 after 5 p.m.

Canvas tent, 10'x10'x6.5', sleeps four, no rain leaks, \$25. Call C. Nash, x6484 or 334-1404 after 5 p.m.

Go-cart engine, like new, \$100; go-cart frame, trade for CB radio; minibike frame, trade for marine-type CB radio antenna. Call 332-3807.

Tailgate for 1972 Chevy or GMC pickup, LWB, like new, stored inside, never used, \$75. Call Bill, x3136 or 488-3793.

Schefflera plants, full size and miniature, \$10 and up. Call 334-1212 or 538-1712.

Motorhome for rent, sleeps six, generator, AC, refrigerator, stove, shower, bath, \$380/wk. plus 14 cents/mile. Call 486-9144.

Water skis and hydrosleds, adult pairs, slaloms and tricks, children's pairs and slaloms, priced from \$10 to \$50. Call McCreary, 488-7636.