NASA
Lyndon B. Johnson Space Center

Space News Roundup

Vol. 23 No. 21 November 16, 1984 National Aeronautics and Space Administration

Ace Wrecker Co. goes 4 for 4

"We've got two satellites down and locked in the payload bay," 51-A Commander Rick Hauck told Mission Control at *Roundup* press time, as the retrieval operations for the Palapa and Westar satellites became an entry for the history books. This view above (recorded from television downlink) shows Mission Specialist Joe Allen holding onto Westar as Dale Gardner prepares to attach the berthing adapter ring. For coverage and photos of the flight, see the next issue of the *Roundup*.

Challenger tile problems cause delay in 51-C

NASA will delay the launch of the STS 51-C Space Shuttle mission, originally scheduled to lift off from the Kennedy Space Center Dec. 8, 1984, due to a problem with OV-099's thermal protection system.

The decision came in the wake of tests in late October and early November which showed that up to 2,800 thermal protection tiles on the underside of the Orbiter *Challenger* have to be replaced due to degradation of the bonding material.

NASA is in the process of determining the earliest possible new launch date. Jesse Moore, Associate Administrator for Space Flight, said fixing the tiles on Challenger would take approximately six weeks.

The degradation is thought to be related to waterproofing of tiles on the Orbiter, Moore said. Challenger had undergone six waterproofing procedures, while Columbia and Discovery have only undergone two each.

When *Challenger* returned from space after STS 41-G, a black tile from the left wing chine area, just behind and below the crew door area, was missing. As a result, troubleshooting tests were conducted, and about 100 tiles were removed from the Orbiter. During those tests, it was found that the substance used to smooth irregularities in the surface of the Orbiter had softened. This substance, known as a screed, is applied directly over the aluminum skin of the Orbiter. It is a white Room Temperature Vulcanizing (RTV) material, and is used in much the same way that body putty is used on a car. Screed hardens and can be sanded smooth after it dries.

The operative theory is that the waterproofing chemical, which is injected into each tile, has reacted chemically with the screed over time and softened it.

The screed is used on areas of the body of the vehicle, such as the underside of the fuselage, body flap, elevons and the sides. Other areas of the Orbiter are covered with a primer called red RTV-560, which is used as an adhesive for bonding the strain isolation pads (SIP) to the body.

(Continued on page 2)

Teacher flight set for early 1986

An Announcement of Opportunity (AO) was released Nov. 8 specifying the eligibility requirements for selection of the first Shuttle passenger—a teacher—to fly in space in early 1986.

The announcement was released by NASA in conjunction with the Council of Chief State School Officers, which will aid the Agency as a focal point for the thousands of applications expected.

President Reagan announced Aug. 27 that an elementary or secondary school teacher from the U.S. would be the first Shuttle passenger under NASA's new Space Flight Participant Program.

Through the program, NASA will extend Shuttle flight opportunities to a wide segment of private citizens. These space flight participants will be expected to communicate the experience of space flight to the public through educational and informational programs. NASA eventually intends to fly various categories of space flight participants—teachers, artists, writers, journalists, etc.—two to three times each year.

Teachers meeting the requirements specified in the AO may request an application packet, which will be available after Dec. 1 from the NASA Teacher in Space Project, Council of Chief State School Officers, 400 North Capitol Street, NW, Suite 379, Washington, D.C. 20001. The application period is from Dec. 1 to Feb. 1, 1985.

The opportunity is open to elementary and secondary level teachers in all public, private and parochial schools in the United States and U.S. territories and in Department of Defense overseas dependents schools, as well as in Department of State overseas schools and schools run by the Bureau of Indian Affairs. Under the Announcement of Opportunity, the teacher must:

- Be a U.S. citizen;
- Be a full-time classroom teacher;
- Have been a full-time classroom teacher for the past five years;
- Provide verification of teacher eligibility and consent to participate in post-flight educational and informational programs;
- Meet all medical requirements as defined in the AO;
- Not be a spouse of a current or former NASA employee.

In addition, the school in which the teacher works, if it is nonpublic, must advertise that it does not discriminate in admissions based on race.

Teachers applying for this flight opportunity will submit an application to illustrate their qualifications and excellence as an educator and to demonstrate how they would share the experience with the public.

All applications received will be screened to eliminate those not meeting the basic requirements. Remaining applications will be forwarded to State Review Panels which will evaluate the proposals and select two teachers per state as nominees. With the addition of nominees from U.S. territories, Departments of Defense and State dependent schools and Bureau of Indian Affairs schools, the number of nominees by next summer is expected to be 120. All of them will be invited to attend a teacher's workshop and recognition banquet next summer in Washington, D.C.

At that workshop, the nominees will be told of current developments in the Shuttle program, and they will also undergo further evaluation and screening by a National Review Panel through personal interviews.

From the 120 nominees, the National Review Panel will select 10 teachers as semifinalists for consideration by a NASA panel, the Space Flight Participant Evaluation Committee. The committee will be comprised of seven senior NASA officials.

(Continued on page 2)

Bulletin Board

Symphony to hold concert Dec. 1

"A Salute to Broadway" is the program to be presented by the Clear Lake Symphony during its Dec. 1 concert, which begins at 8 p.m. in the Atrium II section of the Bayou Bldg. at the University of Houston-Clear Lake. Dr. Charles Johnson will conduct the symphony. The guest artist will be pianist Sean Steiner, who will play "Rhaphsody in Blue." Reservations can be made for table seating, where refreshments of punch, wine and cheese will be served for $12.50. Balcony seating is also available for $4. Call the Needle Art Shop, 488-7154, for ticket information and reservations.

Christmas boat parade planned

The 22nd Annual Clear Lake Christmas Boat Lane, billed as the "World's Largest Christmas Boat Parade," will be held beginning at 7 p.m. Saturday, Dec. 1. The parade route will be on Clear Lake and through the Kemah-Seabrook Channel. Traditionally, boats are decorated with lights, and this year the parade will also feature a Goodyear Blimp. The parade is sponsored by the NASA Area Shrine Club. For more information, call Jack Campbell at 339-3272 or 334-3311.

PC Organization to meet

BAPCO, the Bay Area PC Organization, will hold its next monthly meeting at 7:30 p.m. Nov. 20 at the Holiday Inn on NASA Road One. BAPCO, the local IBM-PC user's group, meets regularly on the third Tuesday of each month. For more information, call Earl Rubenstein at x3501 or Hattie Thurlow at x2213.

Space News Briefs

China reserves Shuttle space

The Chinese Broadcasting Satellite Corp. (CBSC) has deposited $200,000 earnest money with NASA for Shuttle launch reservations in January and September, 1988. The reservations are for the launch and deploy of two domestic direct broadcast satellites. NASA Administrator James M. Beggs met Oct. 29 with senior members of a CBSC delegation which is in the United States to discuss the procurement of satellites and launch services. At press time, the delegation was also planning to observe the STS 51-A launch at the Kennedy Space Center, then come to JSC to view the first scheduled satellite retrieval. The delegation also plans to meet with U.S. firms vying for the satellite contract.

Enterprise *leaves Louisiana Exposition*

The Orbiter *Enterprise*, on display at the Louisiana World Exposition since April, left New Orleans by barge Nov. 3 for a trip to Vandenberg Air Force Base, California. The *Enterprise* was scheduled to arrive at Vandenberg Nov. 15, where it will be used for launch facilities form and fit check tests in support of the first Shuttle launch from there, now scheduled for October 1985. *Enterprise* left the exposition in much the same way as it arrived April 5. A transporter trailer moved the 150,000-pound Orbiter to a double-stacked barge. A barge trip down the Mississippi River took *Enterprise* through the Chandeleur and Mississippi Sounds into the Gulf of Mexico and on to Mobile, Alabama. In Mobile, a 90-wheel transport trailer took *Enterprise* to Brookley Field, where large cranes hoisted it atop the 747 Shuttle Carrier Aircraft. During the cross country trip, *Enterprise* went on display during a stopover at the Kansas City International Airport.

NASA retires last C-47

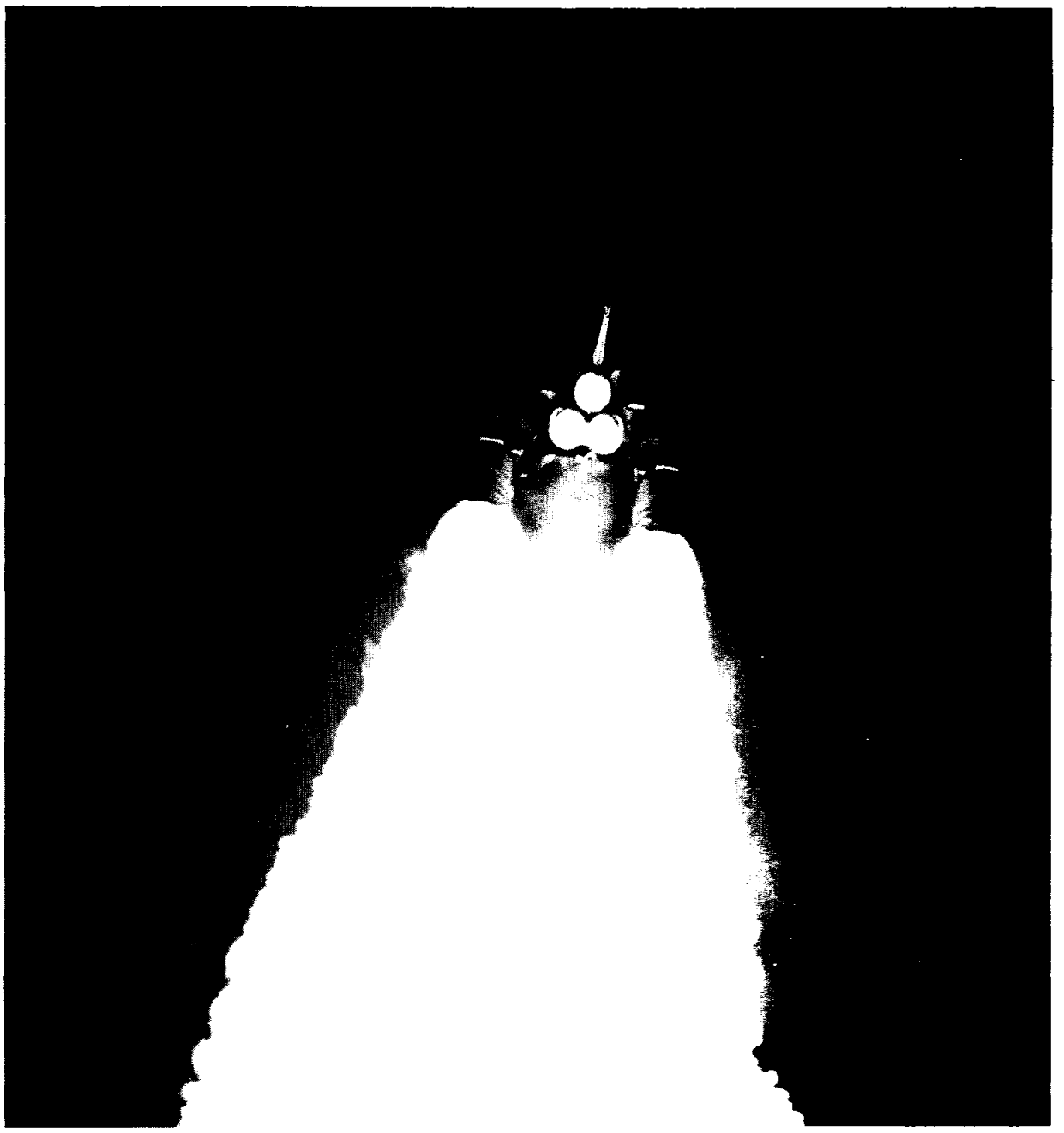
As NASA welcomes the newest aircraft—the X-29—to the Ames-Dryden Flight Research Facility, it is also retiring the oldest aircraft in the NASA fleet, a C-47. The military version of the DC-3, the C-47 was first acquired by the Langley Research Center (then the NACA's Langley Memorial Aeronautical Laboratory) in January 1946. The all-metal, twin-engine aircraft, designated a C-47D, was built in 1943 and has flown a total of 8,193 hours over the course of 635 flights. C-47s were utilized primarily as support aircraft at Ames-Dryden, supporting such programs as the X-15, lifting body flight tests and the Space Shuttle. The C-47 will be flown to Fairchild Air Force Base, Washington, where it will go on static display.

Telescope optics arrive at Lockheed

The Optical Telescope Assembly (OTA) for the Hubble Space Telescope arrived on the West Coast Nov. 1 for integration by the Lockheed Missiles and Space Co. The assembly, which is 10 feet in diameter and 30 feet long, consists of the primary and secondary telescope mirrors, associated electronics and the supporting structure for the telescope's instruments. It was shipped from the Perkin-Elmer Corp. in Danbury, Conn. and made most of the trip via the NASA Super Guppy. At Lockheed, the assembly will be integrated with other scientific instruments then checked out and prepared for a Shuttle launch aboard STS 61-J, now set for August 1986.

Commercial Space Launch Act passed

The U.S. Congress approved the Commercial Space Launch Act before the fall recess, giving the Department of Transportation lead federal agency status in licensing and monitoring commercial launch services. The act is an outgrowth of President Reagan's policy on the commercial uses of space and his order last February establishing an Office of Commercial Space Transportation within the Department of Transportation. The one commercial launch in the U.S. so far, by Space Services of Houston, required clearance by 18 federal agencies and had to pass 22 separate statutes. This act is designed to streamline that process and bypass the many regulations. Under the act, NASA and the Departments of State and Defense are consulted where appropriate.



This view from the business end of *Discovery* was recorded as the Orbiter made its second flight into space for the flight of the 51-A mission.

51-C delay

(Continued from page 1)

Tiles are then attached to the SIP.

The 51-C mission is the first completely dedicated Department of Defense flight. One previous mission, STS-4, carried a DOD payload as part of its cargo, but was flown primarily as the final development mission for the Orbiter *Columbia.*

A statement released by the Air Force said in part, "Obviously, we are disappointed with the delay in getting the first dedicated DOD STS mission off. The Air Force, like NASA, is interested in achieving routine operations of the STS. We will never risk mission success or personal safety to maintain schedule and we will not fly an Orbiter NASA feels is less than fully operational."

The screed situation with *Challenger* prompted a series of test pulls on the newer Orbiter *Discovery,* as well as tests on the *Columbia,* which is undergoing modifications at Rockwell's Palmdale, California plant. The tests on *Discovery* were performed prior to rollout to Pad 39A for Mission 51-A. The tests were satisfactory and did not result in a delay of the 51-A launch countdown.

Teacher flight

(Continued from page 1)

The semifinalists will come to JSC for thorough medical examinations, in-depth briefings and interviews by the NASA Evaluation Committee. Based on results of this phase in the selection process, five finalist candidates will be selected.

The names of the five finalists will be submitted to the NASA Administrator, who, along with the Evaluation Committee, will select the primary and back-up candidates to undergo training for space flight.

The specific flight number and date are still under review. It is NASA's intention, however, to fly the first teacher on a Shuttle mission early in 1986.

Cookin' in the Cafeteria

Week of November 19 - 23, 1984

Monday: Chicken Noodle Soup; Wieners & Beans, Round Steak w/Hash Browns, Meatballs & Spaghetti (Special); Okra & Tomatoes, Carrots, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

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: Thanksgiving-Holiday.

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

AT BUILDING #3

On Wednesday we feature The Reuben:

Corned Brisket, Swiss Cheese on a bed of Sauerkraut, Poupon Mustard on Rye and 1/4 Pickle. Delicious

Monday & Thursday check out our French Dip Sandwich

Week of November 26-30, 1984

Monday: Chicken & Rice Soup; Wieners & Sauerkraut, BBQ Ham Steak, Steak Parmesan, Beef & Macaroni (Special); Green Beans, Carrots, Au Gratin Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Tomato Soup; Potato Baked Chicken, BBQ Spare Ribs, Mexican Dinner (Special); Squash, Broccoli, Ranch Beans, Spanish Rice.

Wednesday: Seafood Gumbo; Liver & Onions, Baked Turbot, BBQ Ham Steak, Baked Meatloaf w/Creole Sauce (Special); Beets, Brussels Sprouts, Green Beans.

Thursday: Beef & Barley Soup; Chicken & Dumplings, Corned Beef w/Cabbage, Smothered Steak w/Cornbread Dressing (Special); Spinach, Cabbage, Cauliflower au Gratin, Parsley Potatoes.

Friday: Seafood Gumbo; Pork Chop w/Yam Rosette, Creole Baked Cod, Tuna & Salmon Croquette (Special); Brussels Sprouts, Green Beans, Buttered Corn, Whipped Potatoes.

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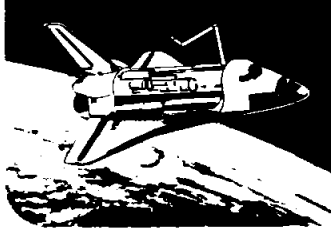


The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees. **Roundup** deadline is the first Wednesday after publication.

Editor . . . . . Brian Welch

Gallery

Bean's art stresses realism, stark beauty

Alan Bean began studying art in night school 23 years ago while still a test pilot for the Navy at Patuxent River, Maryland. Now, after walking on the Moon and logging almost 1,672 hours in space, he has become the first artist ever to explore another world and return to paint what he saw.

Bean, who retired from the Astronaut Office in June 1981 to pursue his art full time, will have his first one-man show in Houston beginning Nov. 20 at the Meredith Long Gallery, 2323 San Felipe. The show will run through the first week of December, and is open Tuesday through Saturday from 10 a.m. to 6 p.m. His only previous one-man show, held at the Opera Association in Fort Worth last year, sold 75 percent of the paintings on display in the first 30 minutes, he said.

"I want to create paintings that artistically record for future generations mankind's first exploration of another world. The art I make now is the beginning of a new category in the progression of art history, art of human experience off our home planet Earth. I have the honor and responsibility of being first."

Bean's paintings stress both visual and technical realism, and his most prevalent subject is the Apollo explorations of the Moon. As Apollo 12 Lunar Module Pilot in 1969, he was the fourth person to walk on the Moon. His work also includes images from the Space Shuttle Program.

The work, he says, is something he plans to do for the rest of his life. "I want to try to tell the beginning of man's exploration into space," he said. "When I realized that most of us who actively participated in this incredible adventure and could tell all the stories first-hand would be gone in less than thirty or forty years, I began to realize that if any credible artistic impressions were to remain for future generations, I must paint them now."

Bean works for about four hours each morning, averaging about one month per painting. He characterizes his work as being in the same tradition as that of Frederic Remington or Charles Russell, artists who documented the Old West after first experiencing it.

The tales which accompany the paintings are an important part of his work as well, part of what Bean sees as recording history (the captions to the accompanying art work were written by Bean). He said he hopes to gather more ideas for paintings as he talks with other people who have journeyed into space.

"I've always been lucky," Bean told *Southern Living Magazine,* which profiled him in the October 1984 issue. "When they picked me for the astronaut program, I was just lucky to be standing in the right place at the right time. I had the background they were looking for. It's the same with my painting; I've got a lucky feeling about it, too."

Senator Schmitt Samples Subsurface Soil

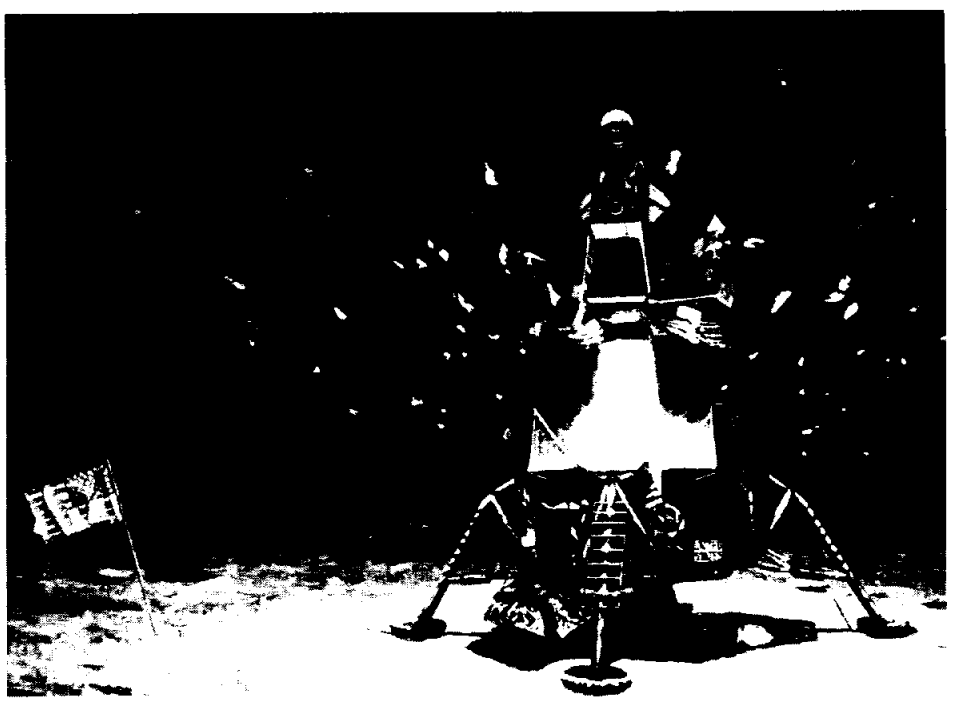
"Astronaut Harrison 'Jack' Schmitt is taking a scoop of lunar material from the lip of a small crater. Behind him, Apollo 17 Commander Gene Cernan is readying two sample bags to contain the soil for the quarter million mile journey to Earth. I phoned Jack one morning as I was working on this painting. He recalled trenching into a crater at one point during his lunar surface exploration. 'Many craters are formed when meteoroids coming in from deep space strike the Moon's surface at very high speeds, say 10,000 miles per hour or more,' Jack said. 'At the point of impact the soil and rocks are ejected up and out, resulting in the deepest and oldest material coming to rest at the surface. It's similar to the effect experienced when one turns back the bed covers—the sheet rests on top of the bedspread. By returning samples of soil from a variety of depths, we begin to understand how long ago the crater was formed, and the subsequent cosmic ray and solar wind activity.' Jack is the only practicing professional geologist in all history to make firsthand observations any place other than our good old Planet Earth."

Moon Rock—Earthbound

"Collecting a Moon rock was more than just reaching down and grabbing one we happened to like. The first problem was to know which rocks of the many that can be seen are worth the time and energy to document, collect and return. We learned a lot about rocks in the six years of geology training on Earth prior to going to the Moon. Usually, the first rock we selected was one that looked most like all the other rocks in the area. This typical rock was photographed from two positions before we disturbed the ground. Picking up the rock was not simple either, and I have painted John Young using the long tweezer-like tongs at a site near where Apollo 16 landed. Charlie Duke is inspecting the rock, making specific comments to Earth, then placing it in a numbered sample bag. This is a big day for the selected rock, as it has probably been sitting right here for at least three billion years just waiting for some human being to single it out for a quick trip to Planet Earth."

The Eagle Is Headed Home

"The Eagle has lifted off. Neil Armstrong at the left hand window and Buzz Aldrin at the other are just lifting off from Tranquility Base to rendezvous with Mike Collins in the orbiting command module. I remember the lift off from the Moon as a big bang followed by what feels like a super fast, quiet elevator ride. The big bang is the explosive bolts separating the ascent stage from the descent stage and the quiet ride occurs because in the airless environment of the Moon, the rocket makes no sound. I have accentuated the glow from the rocket engine to give a feel for one of the most exciting moments in space flight."



Gilruth Center News

Call x3594 for more information

Christmas tree sale — Come to the first annual Christmas tree sale. The trees are fresh cut Virginia pines, and the cost is $16 per tree. A limited number will be sold beginning at 9 a.m. Dec. 1, first come first served.

Children's Christmas party — Get your tickets at the Bldg. 11 Exchange Store for this year's gala at the Recreation Center. The Children's Christmas Party will be held Dec. 15 from 10 a.m. to noon. Features will include a Walt Disney film, Mystery Mansion, pictures with Santa and the Traditional Christmas stocking. The cost is $1.50 per child. Tickets are limited. First come, first served.

Defensive driving — Learn to drive safely and qualify for a 10 percent reduction in your auto insurance rates for the next three years. This class will be held from 8 a.m. to 5 p.m. Dec. 15. The cost is $20 per person.

Garage sale — Come shop at the Rec Center's annual garage sale Dec. 1. The sale will run from 9 a.m. to 3 p.m. Tables are $2 per person, and reservations must be made in advance, first come, first served.

Proud father Bill Fisher leaves the Mission Control Center during STS 51-A with daughter Kristin, who got almost as much attention in the MCC during the flight as her mom, Mission Specialist Anna Fisher.

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 sale: Barringer Knoll fourplex, off Hwy. 3, 2 BR each unit, fully rented, excellent tax shelter. Call 334-4395 after 5 p.m.

For sale: Lot on Imperial Point at Cape Royale on Lake Livingston, golf, tennis, marina, utilities on premises, asking $11,500. Call Dan Mangieri, x5381 or 488-5471.

For lease: 10 acres, Alvin area, fenced, on paved road, good for horses, cattle. Call Damewood, 482-5572.

For sale: Egret Bay 2-2-2, W/D, microwave, refrig., fans, FPL, pools, storage, boat ramp, upgraded carpet, $52,000. Call 333-9447 after 4:30 p.m.

For sale: Beautiful wooded water-view lot at Point Lookout West on Lake Livingston, 75' x 137', $3,500 (assessed tax value $5,800). Call 946-7587.

For lease: Middlebrook 3-2-2, FPL, fenced, wet bar, new carpet, $575/mo. plus deposit. Call 488-0658 after 5 p.m. weekdays.

For sale: Heritage Park 3-2-2, fenced, attached garage, $51,500; assume $27,200 FHA fixed 8½%, owner will carry 2nd at 12% for 10 years with 10% down. Call 481-0289.

For rent: Ski at Vail/Beaver Creek Christmas week, timeshare condo at Christie Lodge, 4-6 people. Call 474-3839 after 5 p.m.

For lease: The Landing, League City, 2-1-1, fan, fenced, $500/mo. plus deposit. Call 534-3406.

For lease: The Landing, League City, 3-2-1, fan, fenced, $540/mo. plus deposit. Call 534-3406.

For sale: CLC 2-1 condo, FPL, large storage locker, ground floor, located on lake at The Landing, $52,000. Call Dave, 334-4376 after 5:30 p.m.

For lease: Baywind II, 1 BR condo, FPL, kitchen appliances, W/D connections, pool, exercise room. Cal Jim Wiltz, x5437 or 944-0451 after 5 p.m.

For sale: 3/4 acre waterfront lot with access to excellent bass fishing in Brazoria County. Call Don, 280-6307 before 5 p.m., M-F.

For sale: Prime Webster location, half block off Hwy. 3 near NASA 1, 60' x 125' lot, includes 2 buildings. Call 488-5496.

For lease: Nassau Bay 3-2-2, cul-de-sac. Call 482-0755.

For rent: Completely furnished condo on Bay Area Blvd. Call 333-3925.

For sale: Dickinson 3-2-2, never flooded, corner lot, $52,900. Call 534-3554.

For lease: CLC/Oakbrook, 3-2-2, energy efficient, corner lot, wooded, cedar fenced, interior just painted, $550/mo. Call Savely, x4751 or 488-5590 evenings.

1979 Monte Carlo, V-8, 2-door landau, new battery, new brakes, AM/FM/stereo cassette, 63,000 miles, $3,500. Call Marcia, x4119 or 334-4320.

1976 Datsun 280Z, 4-speed, AC, metallic blue, runs well, $2,900. Call 524-1045.

1969 Chevy II 150 cu. in. engine, in running condition, surrounded by Jeep Dispatcher body with current inspection sticker, $350. Call Jack, x2285 or 482-2956.

1980 Monte Carlo, white, camel interior, good condition. Call 480-7590.

For lease: El Dorado Trace 2-2 condo, paid cable, ceiling fans, W/D, FPL, pool view and more. Call 486-1792 or 486-0886.

For lease: La Porte 2 BR house. Call 471-4598 after 5 p.m.

For rent: Condo for ski season week of Dec. 15-22, Christie Lodge, Avon, Colorado, fully furnished, 1 BR, sleeps 4-6, $550/wk. Call 488-0518.

For rent: Room with private bath, kitchen privileges, parking, all utilities furnished, $250/mo. Call Linda, x4910 or 480-4309.

For sale: 1.8 acres in Friendswood, all utilities, $29,500. Call Janice, x5867 or 482-6888.

For lease: Friendswood 3-2-1, near schools, fenced, trees, FPL, no pets, $470/mo. plus deposit. Call 482-7546.

For lease: University Green new 'Retreat' townhome, 3-2-2A with loft, built-in security system, all new appliances. Call 488-2392 after 6:30 p.m.

For sale: 2 BR condo in Austin on UT shuttle bus route, pool, private balcony, ceiling fan, all kitchen appliances, $48,900. Call 482-7910.

For lease: Meadow Bend 4-2-2, new, drapes, fan, landscaped, fenced, $600/mo. plus deposit. Call Bansal, 280-7238 days or 933-0429 evenings.

For lease: Friendswood custom condo, large bedroom, loft bedroom, bath, FPL, W/D, refrigerator, garage, $450/mo. Call 482-0110.

For sale: Lot on Lake Travis, Lago Vista area, $7,000, $1,600 down & take over payments of $98.29/mo. Call 451-5044.

Cars & Trucks

1978 Chevy window van, good condition, $3,400. Call Phil, x5341 or 538-1369.

1978 Olds Custom Cruiser wagon, 9 passenger, new engine, new transmission, $2,500. Call 334-4395 after 5 p.m.

1978 BMW 733ia, all options, very good condition, $12,900. Call 334-4395 after 5 p.m.

1977 Datsun 200SX, excellent condition, best offer. Call Vic Booth, x5231 or 384-4260.

1950 Chevy Fleetline, 4-dr., 51,000 miles, rebuilt engine, powerglide brakes, no rot, $2,500. Call Doyle, 480-4862 after 5 p.m.

1984 Audi 5000S, 15,000 miles, 4 dr., 5 spd., sunroof, AM/FM/cassette, dark gray with blue velour interior, $17,000. Call 488-7772.

1976 Olds Omega, 4 dr., V-8, auto, PS, PB, AC, AM/FM stereo, new brakes and master cylinder, good work/school car, asking $1,250. Call Krenek, x3803 or 479-3652.

1981 Datsun 310-GX, 34,000 miles, about 32 MPG, AC, AM/FM/cassette, good condition, $4,100. Call Marie, x3905 or 338-2336.

1977 Mercedes Benz 240D, AC, auto, sunroof, cassette, excellent condition. Call M. Paul, 280-6960 or 559-2030.

1977 Chevy Caprice, loaded, one owner, $1,800. Call Gaventa, x7474 or 481-0523.

1971 Toyota Corollas: one has engine partially rebuilt, the other is stripped, both bodies in good condition. Call Ray, x6327 or 996-1966.

1975 Ford Gran Torino station wagon, all power, AC, $995/neg. Call 482-2471.

1970 Buick Electra, one owner, in current use, complete records, 157,000 miles, $400 cash. Call Forbes, 488-4238.

1979 GMC 350, AC, auto, 48,000 miles, $3,400. Call 534-3554.

1975 Datsun B210, runs well, 52,000 miles, auto, AC, regular gas, $1,600. Call Donna, x4384 or 480-3170.

1975 Toyota Corona, 4-door, good tires, runs well. Call 476-5287 after 6 p.m.

1980 Dodge window van, driver's and passenger's seats, panelled, perfect condition, $5,500. Call Jack, x2591 or 896-8085.

1977 Buick Regal, V-8, exceptionally clean, 67,000 miles, blue with white vinyl top, $2,400/neg. Call 332-5225 after 5 p.m.

1968 Camaro, rebuilt original motor w/300 miles, rebuilt auto trans. w/200 miles, new tires, mags, interior very clean, no rust, all metal, 310 HP, 390 watts of sound, $3,300/neg. Call 559-1106.

1977 Chevy Vega, brown hatchback, standard, body o.k., clutch/engine need work, current license and inspection, $295. Call Kilbourn, x4402 or 482-7879.

Kenmore washer and dryer, 1 year old, Sears service contract included, $450 for both. Call 480-2760 after 5:30 p.m.

Hotpoint microwave, Model 965, deluxe, bought new in December '83, sold for $439, will sell for $300. Call Bob Hyde, x2066.

Sofa, 8', excellent condition, $200; 2 slate top end tables, 16" square, $40 each; 1 Ghengis area rug, all wool, $75; "Canyon View" area rug, 4' x 6', $50. Call 334-6378 after 5 p.m.

Complete apartment of furnishings for sale. Call 333-3925.

Four natural wood stained dining room chairs with arms, excellent condition, $100. Call 486-5342 after 5 p.m.

King size waterbed with heating unit, bought in Germany, good condition, best offer. Call Jeanette, x3176 or Marilyn, (409) 938-3271.

Boats & Planes

For rent: Piper Lance, six place, club seating, $85/hr. wet. Call Damewood, 482-5572.

1976 Wellcraft V20, 165 HP M.C. I/O, good condition, best offer. Call Vic Booth, x5231 or 538-4260.

Thompson 18 ft., Chrysler 140 HP outboard, trailer, $2,000/negotiable. Call 337-2009.

Glastron 15 foot ski/fish boat, 85 HP Johnson, galvanized trailer, mint condition, $1,700/OBO. Call Bud Chatterley, x3201 or 480-9363 after 5 p.m.

Cycles

BMX Mongoose bicycle, very good condition, $60; go-cart with live axle, 5 HP, good condition, $300. Call 474-2906 after 6 p.m.

Men's 26-inch 3-speed bicycle, $25. Call 488-4463.

1974 Suzuki 180cc, electric start, low miles, $350. Call Jack, x2285 or 482-2956.

Household

Sofa and chair, $140. Call Brent Fontenot, x4981.

Full bed, head, foot and side boards, mattress and box spring, very good condition, $200. Call 488-6521.

Sears twin canopy bed with mattress & box springs, $75,. Call Vicki, x2719.

GE double oven and stove, built-in, electric, excellent condition, avocado, $150. Call Smith, x3987.

Two brown and tan plaid sofas, one opens to queen bed, both form L-shape, good condition, make offer. Call 482-1228 after 5:30 p.m.

Electric garage door opener, 1/3 HP, brand new, in original carton, $100/OBO. Call Ed, x5489 or 480-0273.

Whirlpool gas dryer, heavy duty, excellent condition, $70. Call 488-2350.

Wet/dry vacuum cleaner, $35; office desk, $145; chair with casters, $55; 110V 'Grandmother' clock with shelves, $65. Call Bob Rao, x6337 or 482-3697.

Audiovisual & Computers

Timex Sinclair ZX81, 16K RAM module, programming manual, instructions and several issues of Sinclair Users periodical cost over $130, will sell all for $40. Call Dan Mangieri, x5381 or 488-5471.

Get highest cash value for your non-working Commodore 64, 1540 or 1541 disk drive. Call W.A. Prather, 486-0205.

Zenith 25" color TV, remote, Mediterranean cabinet, excellent condition, $350. Call Ginger, x2631 or 487-3238 after 5 p.m.

S-100 system, two 8" drives, ADM 3 terminal, software, loaded, cost $5,800, asking $1,800. Call Bansal, 280-7238 days or 933-0429 evenings.

Concord AM/FM stereo recvr., built-in cassette player/recorder, two 9" x 12" speakers, $25. Call Holliman, x3091.

Solid state Realistic AM/FM recvr., 100 watts, w/turntable, very good condition, $50; AM/FM car radio, $50. Call 480-7200 after 5 p.m.

Musical Instruments

Ovation guitar, six strings, built-in pickup with volume control, valued at $1,000, will sell for $500. Call Rose, x5844 or Wil, 322-1703.

Cortley guitar, hard case, both in excellent condition, $235. Call Walt, x2951 or 334-4407.

B-flat clarinet, good condition, best offer. Call Jackie, x4009 or 996-0579.

Wanted

Female to rent room, private bath, kitchen privileges, non-smoker preferred, close to NASA, $200 plus utilities. Call 280-9377 after 10 p.m.

The mother of a little girl aided by a JSC employee at the Deauville Fashion Mall Oct. 30 seeks to contact that employee to offer thanks. Call Margaret Baumgart, 484-7614.

Responsible roommate to share 3 BR house near League City, male or female, $190/mo. Call 554-7706 or leave message.

Roommate to share house 2 miles from JSC, non-smoker, $200 plus utilities. Call Ron or Linda, 474-7481.

Sport rims with or without tires for 1976 Chevy Nova. Call Sauer, x5457 or 554-6290.

Pets

Beautiful male golden retriever needs mate, no papers necessary. Serious inquiries only. Call 996-0426 after 5:30 p.m.

Miscellaneous

Wheel rims from '77 Cadillac, 5-hole, 6" x 15", four for $80. Call 482-7546.

Girl's fur coat, size 7, $100 new, will take $20; indoor skates, size 4, $15. Call 944-6457 after 5 p.m.

Cobra tennis racket, $25; AIWA stereo radio cassette recorder with SW1, SW2, $55; Kelley football helmet, boy's size XL. Call Judy, x3005.

Regulation pool table, 4' x 8' with 1" slate top, accessories, 25¢ coin mechanism optional, $700 firm. Call Bill Atwell, x5983 or 333-5017 after 5 p.m.

Atari video computer system; $100; weight bench with bar and some weights, $25. Call Walt, x2951 or 334-4407.

6.5 mm sporterized Carcano, $75; 7.7 JAR military rifle, $135, both excellent condition. Call Don, x4606 or 488-8105 after 5 p.m.

New Dunlop McEnroe tennis racket, $20 strung, $17 unstrung; Wilson Advantage, used, $17; Head Comp 3, $28; Leoina 77 tennis string, $2.50 each. Call John, x5301.

Hummingbird Super 60 depth sounder, brand new, $110. Call Don, 280-6307 before 5 p.m.

Heavy duty back bumper for pickup truck, with towing ball, no dents, $25. Call 482-3989 after 6 p.m.

Victor electronic cash register, Model 515, full feature, 5-tray and barely used. Call Dave, x5111 or 480-0202 after 6 p.m.

Men's ski boots, 2 pair, size 10½, San Marco rear entry, $25, or Nordica for $20. Call 474-3489 after 5:30 p.m.

Rent a mini motor home, fully self-contained, onboard power plant, roof air, tub and shower, daily or weekly rates. Call Dave, x5111 or 480-0202 after 5 p.m.

Camper, fits 8-ft. pickup bed, hydraulic jacks, refrigerator, stove and oven, water tank, AM/FM stereo, sleeps 4, $550. Call Jay Wright, x5916.

Army surplus tent, sidewall, 16' x 24', two stovepipe holes, two center poles, good condition, $175. Call John Miller, x2041 or 471-4390.

Service/shop manuals for 1977 Chevy pickup, $10 ea.; set of new belts, $15. Call R. Handley, x6196.

Hurricane surfboard, twin fin, designed for Gulf waves, perfect condition. Call Pat, 488-0266.

Rent a mini-motor home, fully self-contained, onboard power plant, roof air, tub and shower, daily or weekly rates. Call Dave, x5111 or 480-0202 after 5 p.m.

Fresh honey, $10/gal.; papershell pecans, $1.25/lb. Call Clarence, x5159 or 554-2911.

Girl's bike, $50; dinette w/six chairs, $150; 30" x 40" projection screen, $20; light bar, $10; decorative bark. Call Minnaert, x5916 or 538-1712.

Medium dog house, $15; mini bike, needs minor repair, $70; trailer storm door, $15; Nimrod pop-up camper, $1,000. Call Nita, x5081.

Camper top, good condition, fits short bed truck, $200. Call Sam, x2167 or 538-4206 after 4:30 p.m.

Cabbage Patch clothes, all outfits $5 or less, pants, shirts, gowns, dresses, etc. Call 388-2415 after 6 p.m.