



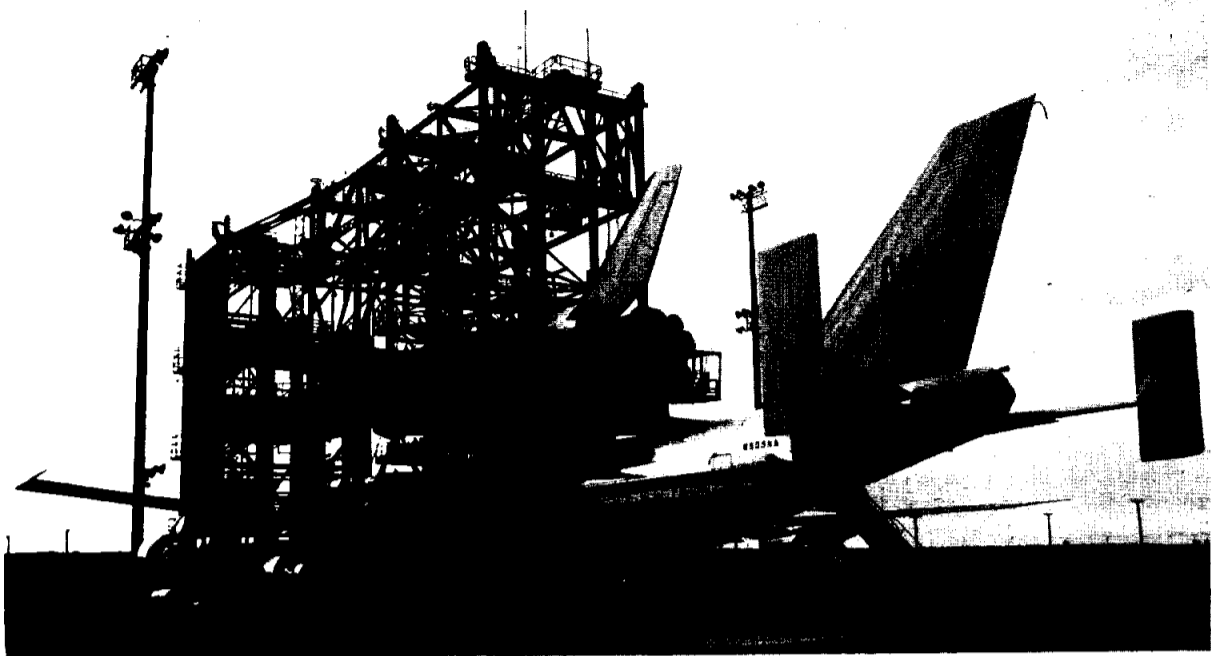
ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS

VOL. 16 NO. 21

Friday, October 14, 1977



TAILCONE OFF — The Orbiter and the 747 jumbo jet appeared in this configuration for the first time at the Dryden facility early Oct. 4 when the pair were prepared for Free Flight 4.

First tailcone-off flight is Oct. 12

The fourth Orbiter free flight was flown successfully with the tailcone off by pilots Joe Engle and Richard Truly Wednesday, Oct. 12.

Because of the increased drag when the streamlined Orbiter tailcone is removed, the maximum altitude the 747 can achieve and the distance the Orbiter can glide after release are reduced.

This means that separation of the *Enterprise* from the jumbo jet necessarily occurs at a lower altitude than for previous free flights,

and the sink rate of the Orbiter is considerably faster.

From a height of 1 mile, the Orbiter has a glide angle of 8.5 with the tailcone on and an angle of 4.5 without the tailcone, so the glide ratio is reduced in half. The *Enterprise*, then, is in the air after separation only 2 minutes and 34 seconds as opposed to the 5 minutes, 30 seconds of the first three free flights.

The tailcone weighs approximately 5750 pounds, has 8-3/4-inch bolts, and is 36 feet, 2 inches long. It is being stored in the hangar area at the Dryden Flight Research Center.

Photographs taken of the actual flight and further discussion will be presented in the next *Roundup* issue.

Three at JSC are payload specialist candidates for first Spacelab mission



MYRICK



THORNTON



GIULI

Would you ever have imagined even five years ago that you might be the one to go into space? And you're not even an astronaut?

The three payload specialist candidates from JSC admit they saw their chance coming for some time.

"Right from the very beginning, the Space Shuttle was conceived as a vehicle that would take people who did not know how to fly an aircraft into space," states payload specialist candidate R. Thomas Guili, Ph. D., of the JSC Space Physics Branch and Program Scientist on the Apollo-Soyuz Test Project (ASTP).

"The era when an astronaut has to be a test pilot with 20 years background in experimental airplanes is over," agreed James E. Myrick, M.D., of the Biomedical Research Branch and member of the National Research Council.

Guili, Myrick, and astronaut/physician William E. Thornton are prospective payload specialists for Spacelab 1 - and realists in every sense of the word.

"On Spacelab 1," says Guili, "the payload specialist will have to operate and be responsible for con-

ducting many experiments in a large number of disciplines, and he must be trained in general scientific procedures."

"What he will not be," continued Guili, "is an expert in a particular experiment field, at least not necessarily. There will be no experiments on this flight that require a high degree of specialty expertise onboard."

"In the case of materials processing, for example, the payload specialist will insert the materials to be processed into the devices that do the processing. The processing will be done by the devices, not by the payload specialist. Spacelab 1 is deliberately set up to provide as wide a variety of experiments as they can reasonably put onboard."

Although Guili is basically an astronomer, he became interested in nearly all aspects of space experimentation during ASTP and he says he couldn't possibly rate them in importance.

"Sometimes the job of assigning priorities becomes easier when there is great public demand, as in the case of the atmosphere - it becomes important as a survival ques-

tion, but scientifically you can't compare the value or worth of one kind of experimentation with another."

American priorities appear to lean largely toward the life sciences and atmospheric/magnetospheric science, whereas the Europeans, who are also selecting a team of payload specialists for the flight, are more interested in materials processing.

Myrick's personal interests are in medical research, particularly in arithrokinetics; that is, the formation, degradation, and shape differences in red blood cells, which were found to take on significant changes in human beings during weightlessness on Skylab.

"The red blood cells changed in shape and count," states Myrick. "The normal biconcave discoid shape of the cell became more spherical in space, then reverted back to normal the first day back on Earth. We want to take samples and fix the red blood cells in weightlessness."

Medical teams would also like to delve into diagnostic enzymology in space and test other diagnostic pro-

cedures relating to tissue damage and the precise effect of weightlessness on body tissues.

This is a vital issue for long-duration space missions, which Myrick hopes to become a part of when space construction and colonization begins.

But Guili feels the term "medical research" to be somewhat misleading. "We are not trying to make someone feel better but to find out HOW a person feels and why. Learning about the body is, to me, not medical but scientific."

Guili maintains that this is a useful guideline that allows one to distinguish the motives of an experiment. "Life science is a term that confuses a lot of people. It is an inquiry into life processes, whether they be human, plant, bacteria, or fungus." Life sciences, then, can be distinguished from physical sciences and other investigations to be made on Spacelab flights.

Everyone will speak English on Spacelab 1 - even the Europeans. Experiment principal investigators and two backup payload specialists will remain on the ground, always in contact with the two payload specialists on the flight. These ground personnel will interpret data and advise the payload specialist onboard how to proceed with experiments.

The payload specialist candidates will only be required to pass what is known as an FAA Class 3 flight physical examination. The emphasis is on ensuring normal good health and a probability of functioning well in space. Guili says it won't be as rigorous as his annual physical at JSC.

The mission specialist will be an expert in laboratory instrumentation and computers and a scientist

Openings are announced for White Sands

Word was just received that accelerated systems test schedules to support the Shuttle first manned orbital flight have created a need for three additional personnel at the White Sands Test Facility (WSTF).

Specifically needed are one electrical engineer to be responsible for test article and facility control and power systems; one instrument engineer to be responsible for test article and facility instrumentation systems; and one propulsion test data analyst to perform data acquisition, reduction, presentation, and analysis.

Current plans are to fill these needs through temporary assignment of JSC personnel to WSTF. Duration of these assignments is expected to be between 13 and 18 months with the employees returning to JSC at the completion of qualification testing for the Orbiter Orbital Maneuvering System (OMS) and Reaction Control System (RCS).

It is expected that selections will be made from among qualified individuals in grades GS-11 through GS-13. Relocation and other considerations will be handled individually with selected candidates.

Interested persons should contact Bob Hall in the personnel office, X-2921.

(Continued on page 4)

JSC schedules Blood Drive

The next JSC Blood Bank Drive is scheduled for October 27, at the Gilruth Center. Reservations should be made by calling Helon Crawford, X-3809 or Les Wynn, X-3428.

The JSC Blood Bank is chaired by Helon Crawford and Cochairmen, Bob Jones and Jim McBride. Welcomed back as a cochairman is Lester J. Wynn. Any of these officers may be contacted with questions concerning the blood bank program.

Over the years, our blood bank has grown in stature by the faithfulness of our JSC donors. A donor may give blood every 8 weeks, health permitting. Under the contract we have with the St. Luke's Episcopal Hospital Blood Donor Program, a pint donation covers the donor and spouse, dependents, and the mother and father of both the donor and spouse, for a period of 12 months.

St. Luke's also allows us to get replacements for our JSC people who are not covered by a donation.

Anyone who is unable to give blood may get someone else to donate for him and establish membership for his family. This kind of blood insurance coverage is very difficult to find anywhere else. Let's keep it by a good turnout at this drive.

The most exclusive club at JSC is the Gallon Donor Club. We wish to acknowledge the following new members: Mary F. Cook, James R. Crain, David D. Deatkine, Michael E. Donahoo, Harley F. Erickson, R. Thomas Giuli, Gary M. Kane, Lyn Gordon-Winkler, Richard E. Kincade, Charles W. Pace, James E. Pavlosky, Paul D. Smith, James McBride and Lester J. Wynn. Gallon pins will be presented to these new members at the October Drive at the Gilruth Center at 12:00 noon.

Anyone whose name is not listed above and who feels that they have given a gallon of blood since 1974, please contact Helon Crawford at X-3809.

Margie S. Keller is named top secretary for October

Margie S. Keller, secretary to H. A. Kuehnel, Chief of Photographic Systems Development Branch, has consistently demonstrated outstanding performance in her secretarial and clerical duties for two sections in spite of a reorganization, building modifications, and increased activity in the area.

The responsibilities of the branch include development of photographic, optics, radiation, gas analysis, and ancillary equipment systems in support of space and aircraft programs. These responsibilities require considerable documentation, correspondence, procedures, and presentation material preparation to exacting standards with short lead-time schedules. Even the normal secretarial and clerical functions associated with these tasks do not follow routine and established practice, which places the secretary in a demanding position.

Keller has been consistently flexible in handling new situations. The branch has extensive dealings with other JSC organizations, NASA centers, contractor representatives, and public interest groups.

Keller instills confidence both in her ability and in the branch efficiency by having a thorough understanding of office and Center operations, sufficient technical depth, maturity of judgment, and congenial manner. She has established an outstanding rapport with her peers and superiors, primarily through her enthusiastic willingness to assist others and reliability under all conditions.



Margie S. Keller

AIAA sponsors guest speaker

The Houston AIAA is sponsoring a special speaker at its Oct. 19 meeting at the Gilruth Center.

Frank Williams, Director of Special Programs at Headquarters will

speak on "SEASAT's Contribution to Ocean Remote Sensing and Forecasting." Plan to attend at 6 p.m.

For reservations, call Doris Folkes, X-4546.



UNITED FEDERAL CAMPAIGN RESULTS — JSC inches ahead of the Postal Service with \$70,106 to \$69,531 at the first CFC Report meeting held at the JSC Cafeteria on Wednesday, Oct. 5. Pictured left to right are Bill Kelly, JSC's representative on the Federal Executive Board; E. C. Stevenson, Houston Postmaster and the FEB's CFC 1977-78



Campaign Chairman; and Roy Aldridge, JSC CFC Campaign Coordinator and JSC representative on the Board of Directors of the FEB-sponsored Houston Area Federal Business Association. As we go to press, JSC has raised \$125,368, or 61 percent of its goal of \$204,154.

De Coste helps JSC earn favorable recognition in telemedical project

Al De Coste of the Payloads Systems Support Branch, Bioengineering Systems Division, Space and Life Sciences Directorate, has exhibited exceptional performance in conducting tests of low-cost TV communications technology between M.D. Anderson Hospital (MDA) and Tumor Institute (Texas Medical Center) and the Rio Grande Radiation Treatment Center in McAllen, Texas.

His recent assignments included familiarization with the innovative, low-cost slow-scan TV system (presently used on the STARPHAC telemedicine project on the Papago Indian Reservation), which was subsequently used in SMD III as a visual data link between JSC and the Ames Research Center. Its application to the medical and industrial communities appears almost limitless.

Recently, the MDA staff requested JSC to set up test demon-

strations for their evaluation of this slow-scan technology, to use between the hospital and other cancer centers and clinics within the state and nationwide. The intent is to enable almost immediate transmission of microscopic slides, X-rays, views of patient body areas, and other information necessary to diagnose and treat cancer patients by consulting with specialists at MDA and other cancer centers. Its additional uses, such as teaching and teleconferencing, although less important by comparison, are many and diverse.

De Coste, with a minimal amount of exposure to the many individual pieces of different manufacturers' equipment, concentrated on learning their functions, operating procedures, and maintenance. In doing so, he became proficient in the assembly, checkout, operation, and maintenance of components

and of the total synthesized system. Alone and with minimum direction, he (1) assembled the system at the Rio Grande Radiation Treatment Center, (2) conducted the thorough checkout, and (3) operated and maintained all the equipment at the McAllen location throughout the entire test evaluations.

Evaluations were conducted by key hospital physician staffs, physician administrators, and other health professionals. His personal conduct, perseverance, capability, and dependability under stressful and somewhat isolated conditions were commendable, and went a long way toward the extremely favorable recognition given JSC by the medical and technical evaluators and the news media. This is evidenced by correspondence and comments received from participants, and by the CBS, NBC, and newspaper stories which resulted.

Sixth group of Shuttle astronaut applicants includes one woman

The sixth group of Space Shuttle astronaut applicants reported to JSC Monday, Oct. 3. Applicants in this group are in the mission specialist category, and one woman is included.

As many as 20 astronaut candidates will be selected for each category: mission specialist and pilot. They will be notified in December and later report to JSC for a two-year evaluation and training period. Final selection of astronauts will be determined following satisfactory completion of this period.

The names, ages, military rank, birthplace (BP), and current employment or duty station (DS) of the individuals in this sixth group are as follows:

George R. Carruthers, 38; BP — Cincinnati, Ohio; DS — Naval Research Lab, Wash., D.C.

Douglas L. Dowd, 34, Captain U.S. Army; BP — Miami, Fla.; DS — Mission Planning and Analysis Division, NASA/JSC, Houston, Tex.

Michael J. Frankston, 26; BP — New York, N.Y.; DS — Remote Sensing Laboratory, MIT, Cambridge, Mass.

Robert B. Giffen, 35, Major USAF; BP — Princeton, N.J.; DS — U.S. Air Force Academy, Colo.

Alan M. Goldberg, 28; BP — Providence, R.I.; DS — Dept. of Earth and Planetary Science, MIT, Cambridge, Mass.

Douglas R. Hansmann, 32; BP — Olympia, Wash.; DS — Cardio-Dynamics Laboratories, Los Angeles, Calif.

Frank R. Harnden, Jr., 31; BP — Pittsfield, Mass.; DS — Smithsonian Astrophysical Observatory, Cambridge, Mass.

William D. Heacox, 35; BP — Pipestone, Minn.; DS — NRC Research Associate, NASA/GSFC, Greenbelt, Md.

Jeffrey A. Hoffman, 32; BP — New York, N.Y.; DS — Center for Space Research, MIT Cambridge, Mass.

R. Jerry Jost, 30; BP — Portland, Ore.; DS — Space Physics Dept., Rice Univ., Houston, Tex.

Donald W. McCarthy, Jr., 29; BP — Minneapolis, Minn.; DS — Lunar and

Planetary Lab., Univ. of Arizona, Tucson, Ariz.

Roger P. Neeland, 35, Major USAF; BP — Milwaukee, Wis.; DS — U.S. Air Force Academy, Colo.

George D. Nelson, 27; BP — Charles City, Iowa; DS — Astronomy Dept., Univ. of Washington, Seattle, Wash.

Arthur L. Pavel, 30, Captain USAF; BP — Downey, Calif.; USAF Test Pilot School, Edwards AFB, Calif.

Charles J. Peterson, 31; BP — Seattle, Wash.; DS — Cerro Tololo Inter-American Observatory, LaSerena, Chile.


Larry D. Petro, 29; BP — Lansing, Mich.; DS — Hale Observatories, Carnegie Institute of Washington, Pasadena, Calif.

Lawrence S. Pinsky, 31; BP — New York, N.Y.; DS — Physics Department, Univ. of Houston, Houston, Tex.

Sally K. Ride, 26; BP — Los Angeles, Calif.; DS — Physics Dept., Stanford University, Stanford, Calif.

Richard J. Terrile, 26; BP — New York, N.Y.; DS — Division of Geological and Planetary Science, California Institute of Technology, Pasadena, Calif.

Bobby L. Ulich, 30; BP — Bryan, Tex.; DS — National Radio Astronomy Observatory, Tucson, Ariz.



ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

The Roundup is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for JSC employees.

Editor: Beverly Eakman Photographer: A. "Pat" Patnesky

EAA ATTRACTIONS

TICKETS

The following tickets are available at the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday - Friday.

Astroworld - Adult & children tickets available for \$5.95 each. That's a \$2 discount.

Dean Goss Dinner Theater - Mark Oct. 30 on your calendar to attend NASA Night at Dean Goss Dinner Theatre. The play is entitled "Right Bed, Wrong Husband." Tickets will go on sale October 5 at \$6.00 per person.

Disney Magic Kingdom Club - Free membership cards.

Sea-Arama Marineworld - Tickets on sale. \$3.75 for adults, \$2.50 for children. Open until dusk, year round.

Six Flags - Adult & children tickets \$6.75 each. That's a \$1.20 discount.

STOP SMOKING COURSE

A stop-smoking course is scheduled for Nov. 7-11. The exact charge for the course has not yet been determined.

However, due to the volume of the telephone calls on the subject, interested parties are urged to dial X-2301.

A recorder will take your name and extension, and someone will call you as soon as possible. Those who have participated in the course before and have started smoking

again may retake the course at no charge.

HOUSTON AERO HOCKEY

Houston Aero Hockey tickets are on sale at the special rates of \$6.50 and \$4.00 through EAA. They are regularly priced at \$8.50 and \$5.50.

Houston Aeros gift cards will be sold in Bldg. 11 to EAA members, who in turn may exchange them at the Aero's Box Office in the Summit for regularly scheduled home games this 77-78 season.

Upcoming home games are with New England Oct. 12. Indianapolis Oct. 15, Cincinnati Oct. 21, and Edmonton Oct. 26.

CARRIAGE DINNER CLUB

In an effort to combine quality service with substantial savings, the ninth exciting program of the Carriage Trade Dinner Club will begin Nov. 1.

The special INDUSTRY RATE application will be available in the EAA offices. Regular general public price is \$15; the special industry discount price is \$12.50. See your EAA representative for a brochure or go to the Building 11 cafeteria.

Each membership contains a directory of restaurants; a plastic membership card and case; bonus coupons for Aero's tickets, theater tickets, and Sea-arama tickets.

You pay for ONE dinner; the second dinner is free. Provisions are provided for guests, and your membership is valid from November through April 30.

Gilruth Recreation Facility offers more classes, clubs, and competitive sports

FALL CLASSES: ADDITIONAL SECTIONS

Intermediate Auto Mechanics - \$33.50 per person and parts for lab sessions. Sign-up deadline Oct. 20. Class meets in four 2-hr lecture classes on Thurs. nights starting Oct. 27 and three 2-hr lab sessions on Sat., Oct. 29, Nov. 5 and 12.

Beginners Oil Painting - \$37.50 per person and materials. Sign-up deadline is Oct. 27. Classes meet on Thurs. nights, 6-8 p.m. for six weeks starting Nov. 3.

Plant Propagation - \$14.50 per person materials included. Sign-up deadline Oct. 13. Classes will meet in five 2-hr sessions on Thurs. nights, 7:30-9:30 p.m. starting Oct. 20.

All the above classes are additional sections of classes presently operating with great success at the Gilruth Center. If you were unable to take the class early because it filled, now is your opportunity to receive the same instruction.

Men's Fall Basketball:

A seven-week season will start the week of Oct. 31. EAA teams will receive a \$45 subsidy and must pay the remainder \$35 themselves. Non-EAA teams pay the full \$80 entry fee. Complete rosters and entry fees must be turned in no later than 5:30 p.m., Thurs., Oct. 20. Late entries or incomplete entries will not be accepted. Pick up roster forms at the Recreation Facility.

NASA Intercenter Running Competition: Plans are now completed for the fourth edition of the Intercenter Event. All NASA and contractor employees, spouses and dependents are invited to participate. Events will be run in the week of October 31. See the schedule below for details.

Preregistration is necessary. Fees are \$1.00 to run in only one event and \$1.00 to run in both the 2- and 4-mile races. Children 12 years and under, retired employees, and others 60 years or older are fee exempt. Call or stop by the Recreation Center to sign up.

Make checks payable to the Robert Gilruth Recreation Facility. If mailing in an entry please include: name, age, date of birth, mail code, office phone number, and what times you want to run. All events will be run at the Clear Lake High School Track. Spikes are not allowed on this track.

SCHEDULE

Monday, Oct. 31

1st Heat, 2 mi., Starting Time - 5:30 p.m.
2nd Heat, 2 mi., Starting Time - 6:00 p.m.

Tuesday, Nov. 1

1st Heat, 4 mi., Starting Time - 5:30 p.m.
2nd Heat, 2 mi., Starting Time - 6:30 p.m.

Wednesday, Nov. 2

1st Heat, 2 mi., Starting Time - 5:30 p.m.
2nd Heat, 4 mi., Starting Time - 6:00 p.m.

CLUBS

Amateur Radio: 24 hours/day, in Trailer

Computer: first Thurs., third Mon., 5-7:30 p.m., Room 209

Karate-Tae Kwon Do: Mon., Wed., 5:30-6:45 p.m., Gym or Room 206

Karate-Kung Fu: Tues., Thurs., 5:30-7:30 p.m., Room 206

Dance: Wed., 6:45-9:45, Room 204 and 206

Photo: first Thurs., 7:30-9:45 p.m., Room 204

Stamp: Usually Second and fourth Mon., 7:30-9:45 p.m., Room 206. Oct. only, third and fifth Mon.

Prather Award goes to two

JSC employees

The American Astronautical Society is presenting the Victor A. Prather Award to Larry E. Bell and Robert M. Bernardin of JSC. The award is presented to a person or persons who contribute most in the field of extravehicular protection in space.

The award will be presented at the AAS Twenty-Third Annual Banquet to be held in San Francisco at the Airport Hilton Jefferson Room, Wednesday, Oct. 19, 7 p.m.

Roundup Swap Shop

CARS & TRUCKS

74 Datsun Pickup. Orange, low mileage, new wide tires, Western rims, custom stripe, tuned. \$1,950. Cliff, X-4582 or 488-0286.

69 Mercedes Model 250. All pwr, well-kept, new tires. \$3,400. Allgeier, 474-3961.

71 Chevy Kingswood wgn. A/C, AM-FM, 400 V-8, good tires, fair cond. \$1,100. Hughes, X-3738 or 733-6537.

73 VW Campmobile. Pop top, engine & trans overhauled, xInt cond. \$3,200. X-5841 or 946-4059.

74 Grand Prix SJ model. Dark brown, saddle int, auto trans, pwr steer & brakes, A/C, AM-FM stereo, 455 cu. in. engine, 4BBL trailer hitch, 39,500 miles, new radials & shocks. Tarver, 481-0104.

70 Olds Delta 88. 454 cu. in. engine, A/C, good cond. \$550. 334-2317 after 5 p.m.

71 Olds 98. 67K miles, all pwr, A/C, vinyl top, original owner, good cond. \$1,250. Winkler, X-3343 or 482-4874 after 5 p.m.

67 Falcon. 2-dr, 6 cyl, auto trans, A/C, runs well. \$500. 482-7905.

77 Silver VW Beetle w/ A/C, sunroof, 8K miles. Like new, must sell. \$3,750. Harris, 488-1048.

72 Ford sta wgn. Clean Country Sedan, auto trans, A/C, pwr steer & brakes, good tires, 400 engine, luggage rack, radio. 479-4520 after 5 p.m.

76 Cadillac Seville. Silver, loaded, xInt cond. 27K miles. \$8,600. 486-1722 after 5:30 p.m. or 488-3377.

77 Olds Delta 88 Royale. All the extras. List: \$8,300. Asking \$6,300. Reeves, X-7204 or 482-7233.

73 Mach 1. Pwr, A/C, mag wheels, 351C. \$2,100. 554-6242.

74 Corvette Coupe. Red/tan leather, L-82, 4-speed, A/C, stereo, 34K miles. Ellis, X-3048 or 686-1923.

76 Cutlass Supreme. Loaded, low mileage. \$4,500. 332-2080 after 6 p.m.

77 Chevy Caprice. 4-dr, A/C, pwr steer, AM-FM stereo, cruise control, pwr door locks, vinyl top, 11K miles. In warranty; owner ordered new car. 332-2291.

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

PROPERTY & RENTALS

Galveston West End. 2 BR by-the-sea condo apt, full furn. \$180/wk off-season; \$260/wk in-season. Clements, 474-2622.

Rent: New Galveston Island Jamaica Beach cottage. \$175/wk or \$30/day for weekends. 334-1640 after 6 p.m.

Rent: Lake Livingston, Cape Royale full furn home, 3-2-1. Fishing, hunting, tennis, golf, etc. Reserve early. Wk/mo/yr rates. 488-4487.

House for sale: Camino South, 3-2-2, painted throughout, new shag carpet in family room, large partially fenced yard. \$39,900. 488-7032.

For sale: Waterfront home w/ boat slip. 1700 sq ft, 2 BR plus 1 unfinished. Large living, dining, kitchen, New appliances, carpet, central A/H. Remodeling incomplete. \$39,950. 333-3166.

Corner lot for sale: Lake Travis. \$6,000 terms; \$5,500 cash. Also lake-view lot near country club. \$12,500 terms, \$11,000 cash. Use camping/recreational facilities weekends & vacations till you build retirement home. Way, 291-1396 (Huntsville).

Three lake view lots for sale at Ivanhoe, land of lakes, near Woodville, Tex. Heavily wooded, all utilities. Rogers, X-5921 or 332-3937.

Hunting lease: 150 acres, Panola Co, approx 5 mi south Lake Murval. Existing deer stand \$400. 946-4458 or X-6421.

House for lease: Clear Lake City, 3-2-2, fenced, patio, close to schools & shopping. Available Jan. 1, 1978. \$375/mo. 474-2081 or 334-2187.

Patio home for sale: Oakbrook West, xInt cond, large living, dining, wet bar, 3 plus BR's, many extras. Low \$70's. 488-6059 after 6 p.m.

Lease: 3-BR brick home, 2 blocks from Clear Creek High. \$335/mo. 488-7212.

Rent: Lakeside vacation retreat at Cape Royale on Lake Livingston. Tennis, pool, boat launch, golf. 488-3746.

BOATS & PLANES

14-ft Fiberglass boat. Deep hull w/ V-bottom. XInt cond. \$595. 482-7546.

Bass boat, Falcon Tiger. 85 HP Johnson w/ pwr tilt, big wheel trailer, depth indicator, trol motor, etc. XInt cond. \$2,450. Brown, X-2351 or 482-1582.

76 165 Airstot-Wellcraft - 150 HP Merc OB w/ pwr T&T, SS prop, Sportsman Trailer. \$4,800. 471-3367 after 5 p.m. & weekends.

14-ft deep hull Fiberglass boat. V-bottom, 5 HP outboard motor, oars, hoists, anchor. All for \$800. 428-7546.

STEREO & CAMERAS

8-band radio, \$35. New AM-FM car radio, \$35; carrying case, \$5. Bennett, 488-3579 after 5 p.m. or X-6287

ARA auto AM-FM cassette stereo w/ 6 x 9" speakers. Only 10 mo old. Orig. \$129. Sell \$60. Labby, X-3704 or 554-6749.

AM radio w/ tape. Fits '72 Chevy. Works fine. \$15. Smith, 483-4468.

Nikkor lens. 28 mm, f3.5. \$90. Mansur, X-4458 or 585-8744.

WANTED

Pair trick skis. Allgeier, 333-4908. Join or form carpool from Galveston. Andrawes, X-4175 or 4757.

Boat trailer to fit 14' semi-V aluminum boat. Big wheel preferred in reasonable cond. White, X-5031 or 482-7529.

Need riders for carpool from W Loop, SW Fwy. Bellair area, 8 - 4:30. McLaughlin, X-5536 or 661-2974.

Firefighters needed! Men and women adult residents of CLC needed to join CLC Volunteer Fire Dept. Rewarding community service. You will be trained and equipped. Call 488-0023 any time.

LOST & FOUND

Spare tire cover. Probably for brown Chevy sta wgn. Lost 9/27/77. Samouce, X-6470.

HOUSEHOLD ARTICLES

Drapes for 4 windows: 2 pr - 60 x 84; 1 pr - 104 x 70; 1 pr - 31 x 34. \$55/all. Also dinette light fixture. Merriam, 488-3806.

Beautiful oak desk, \$275. Marble-top coffee table, \$25. Long couch, needs re-covering, \$45. Spanish captain's chairs, \$35. Massive wrought iron chandelier, 8 globes, great for large room, \$135. Plaque, X-6491 or 474-2660.

Antique table w/ 4 chairs & buffet. \$450. 5 antique oak chairs, \$350. 479-8752.

Couch for sale: Early American, wing back, fair cond. \$75. 488-4487.

Antique crystal lamps. Pair \$150, or trade for French lamp tables. Also, oval wicker table: 39 x 27, xInt cond. \$125. 488-5564.

Small washer & dryer. White, both for \$70. Call Nancy before 5 p.m., 471-6038 or Billie after 5 p.m., 422-3102.

Couch w/ 3 large cushions. Good cond, colors: yellow bright gold, & dark green striped, \$100 or best offer. Liz Pieberhofer, X-2761 or 481-2458 after 5 p.m.

PETS

Cocker Spaniel puppies, AKC, shots, wormed, 8 wks old, 1 female. \$100. 471-3367 after 5 p.m. & weekends.

Rare parrot: Citron-crested Cockatoo. White w/ dark orange crest & cheek patches. 488-1550.

AKC Siberian Husky pups. Black & white, masked faces, shots & papers. \$150. 946-4752.

Baby normal cockatiels. Tame, finger trained, sweet & lovable, 3 mo old, can learn to talk. \$80. 333-3166.

Beautiful baby boa constrictor w/ aquarium. Makes xInt pet. \$45. 474-2081.

Pet for sale: Red Doberman, male, 5 mo, ears cropped, shots, AKC. Must sell because of divorce. \$200. 332-2080 after 6 p.m.

MUSICAL INSTRUMENTS

Le Blanc B-flat wood clarinet, school approved. \$125. Lattier, 488-1366. Reconditioned upright piano. \$225. 481-3787.

MISCELLANEOUS

Fresh, locally produced honey. \$2.50/qt or \$9/gal. Ward, X-4976 or 943-1945.

Light duty trailer hitch for 72 Chevy. \$10. Smith, 483-4468.

Central A/C condensing unit. 14 yrs old but still operating. Compressor & fan newer. Fraiser/Johnson 2 1/2-ton unit. Best offer over \$25. White, 482-7529 or X-5031.

Micronta Mark 10 Delux capacitive discharge ignition system. \$28. Also Hawk 2" electronic tachometer. \$10. Jim T., X-5973 or 472-6156.

Fishing reels. New Berkley open face ball bearing spinning reel. Garcia Model 280, closed face. Spinning reel like new. 488-8678.

Tandem trailer. Suitable for hauling car or tractor. Lights & spare tire. \$700. Winkler, X-3343 or 482-4874 after 5 p.m.

Belt massager reducing machine. \$25 or best offer. 946-1683 after 6 p.m.

Hospital bed, no mattress. \$50. Invalid walker, \$50. Reeves, X-7204 or 482-7233.

Tires: 2 - 14" F70; 2 - 14" L60. Super Sports mounted on mag wheels. Less than 75 miles. \$350. 941-8102.

LATE ENTRIES

Wanted: Paint spray gun. Anderson, X-7204 or 485-3025.

Lot for sale: World of resorts on Lake Travis near Austin. Sportsman's paradise! \$4,000. Tom Taylor, X-5341 or Rt. 1, Box 21W, Arcadia TX 77517.

Ten 1976 Bicentennial souvenir sheets in original envelopes. \$160. Sugano, X-3856 or 482-5393.

Handcrafted sterling silver jewelry. Zupp, 482-7156.

"Sims" are better understood from viewing area planned for Building 5

Anyone who has never actually seen a simulation in progress would find it difficult indeed to assess its importance or to appreciate its complexities.

Comparative statements during press conferences about simulated and actual flight maneuvers generally carry little meaning for the public-at-large, and even those of us who have listened to an entire "sim" on squawk boxes or recorders harbor a vague notion that "that sure was darn good play acting."

After all, how could anything seem so real?

Soon, ordinary visitors to JSC — and maybe even a few more JSC and contractor personnel — will be able to get a better feel for the intricacies that go to make up that vast array of simulated effects in Building 5, thanks to a new catwalk currently under construction around the high bay area.

So far, only a few visitors — and no children — have been allowed to view such scenes as those pictured in this *Roundup* issue due to noise, difficult accessibility, and various potential hazards. From enclosed balcony areas, however, this major thrust of effort at JSC crew training and flight simulation — may provide visitors and employees alike with fascinating insights about spaceflight operations.

Effects simulated for crewmembers can be categorized as effects of motion, aural and visual presentations, and response characteristics.

To achieve these effects in the Shuttle program, actual hardware and software from ground and spacecraft systems are duplicated or modified.

Some of the effects, such as visual presentation, are created using ingenious, carefully aligned configurations like the model board and camera rig shown in the photograph.

Undesirable events and potential dangers, such as computer breakdown, system leaks, faulty readouts, or loss of air-to-ground contact, are addressed in simulation. The question "what if?" is ever-present in the simulated world so that redundant and backup systems can be incorporated into the real-world.

Just how close do the sims come to reality?

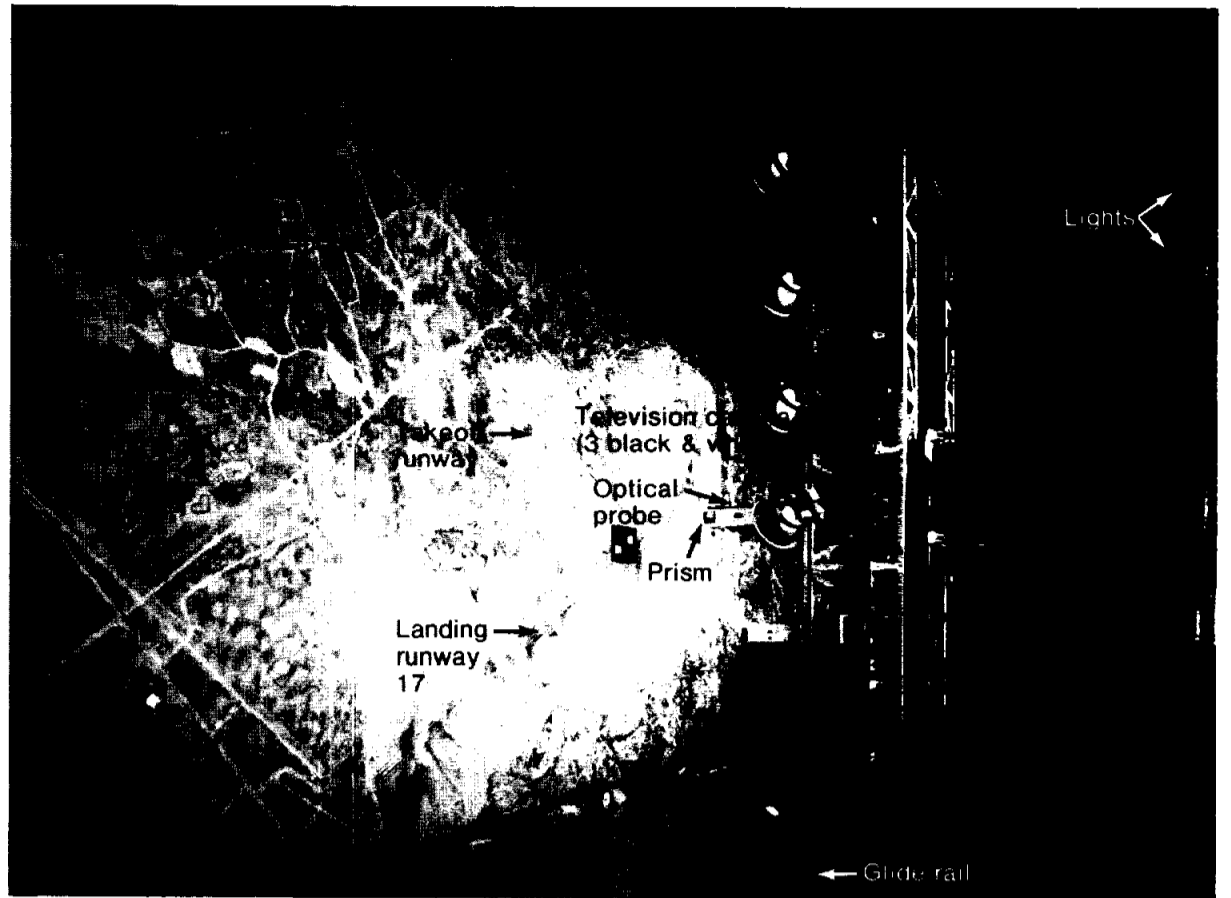
Astronaut Fred Haise's descriptions during the Orbiter Aeroflight Simulator (OAS) post-flight debriefing for Free Flight 1 may provide some answers.

Haise described the visual (sim) presentation as "very realistic until right at touchdown," where the real-world showed the ground to be a little closer and sharper.

Motion cues were said to be "fairly realistic" except for braking lurches, which were less noticeable in the real-world situation.

Aural effects were realistic, but a bit quieter in actual flight, including during gear extension.

The most noticeable difference between the sim and the first free



MODEL BOARD — From a window above, visitors will be able to see what the crew sees inside their simulator. The television camera has a 16,000-altitude capability; that is, the unit moves up or down, closer or farther away from the model board so that crewmen inside the Orbiter Aeroflight

Simulator can "see" themselves landing, taking off, approaching the runway, making turns, and so forth. The entire unit on the left, which includes the television camera, slides along the glide rail to assume a different position around the Edwards area.

flight was in the roll response of the spacecraft. There seemed to be a higher initial roll acceleration, which produced a noticeable "lateral lurch" with little or no lag any time and the hand controller was moved to command a roll. However, the rollback tendency during simulated turns was not noticeable in flight.

Pitch response was very similar to the OAS sim, more so than with the Shuttle Training Aircraft, and the speedbrake was less effective in flight than in the simulator.

Obviously, values, coefficients, estimates, and so forth are updated and modified after every flight. With experience, simulations become more and more lifelike, effects are more accurate, and training preparation is more sophisticated.

Redundant computers are devised that have what might be called a "voting capability" in that a faulty computer can literally be voted out by the others. Tense situations become somewhat less so because of simulated runs.

Newsmen at post-flight press conferences have been told repeatedly that a flight was "close to prediction" or "pretty much as simulated." Far from being non-committal statements, these comments say a lot about the confidence of crewmembers in the spacecraft they fly and in the space program itself.

Specialists...

(Continued from page 1)

with emphasis on a particular scientific discipline, such as solar physics or astronomy. The idea, then, is to complement rather than duplicate his function in selecting the payload specialists.

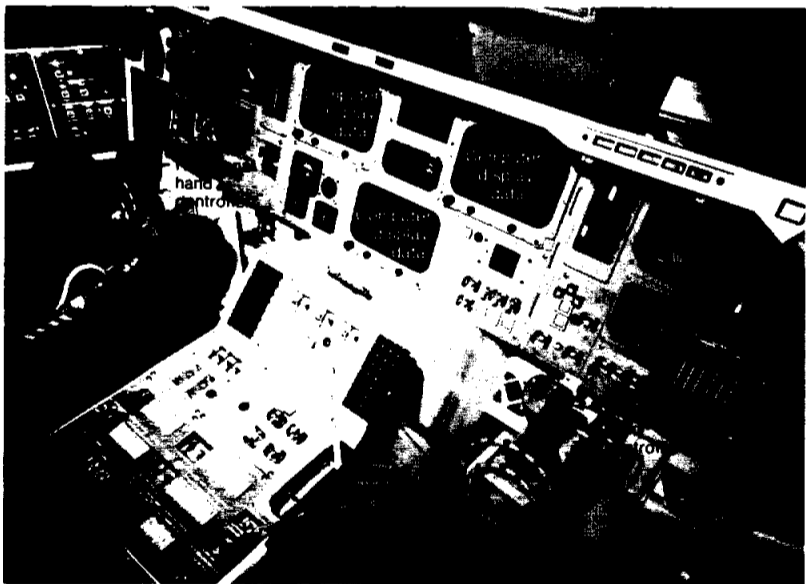
The mission specialist will assist the payload specialist by supplying him with the Shuttle capabilities that are needed to conduct the experiments. He will work with all Shuttle support systems.

After Spacelab 1, there may be a need to retrieve or deploy payloads, operate the remote manipulators, or perform extravehicular functions. These would be jobs for the mission specialist.

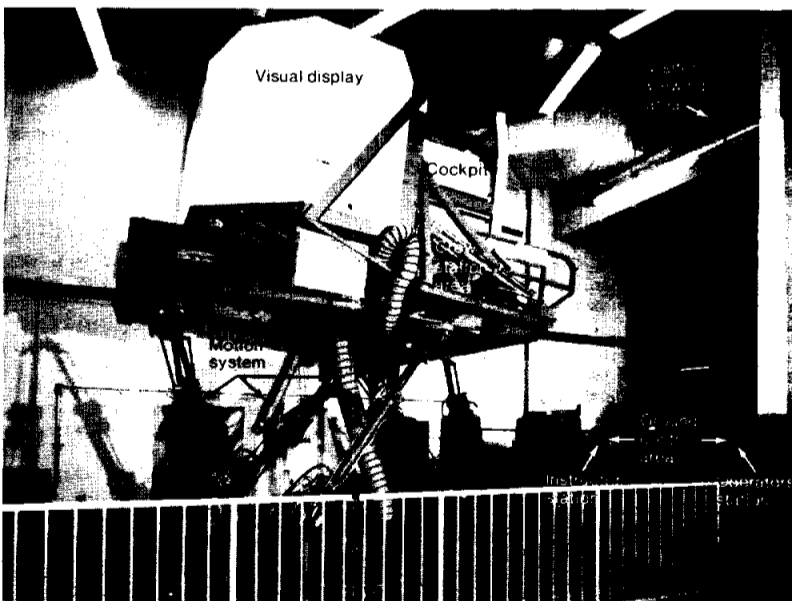
Around mid-November, six payload specialist candidates will be selected from the 18 Americans who were interviewed by the scientists (not by NASA) at Huntsville Sept. 13. Six Europeans will also be selected by European scientists.

Between April and July, the final selection of two American and two European payload specialists will be made, and these will go into a two-year training program. Primary and backup payload specialists will not be named until shortly before the flight, which is expected to occur around Dec. 1980.

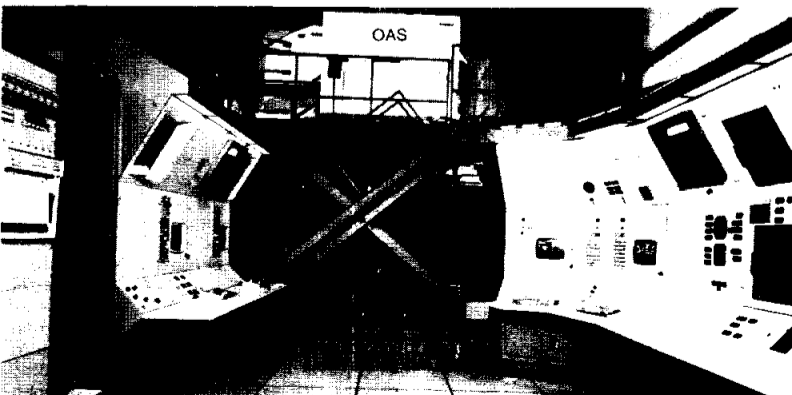
"Then, the full impact of this thing will sink in," says Giuli. "When your blue collar worker can visualize the possibility of contributing to the space program not just on Earth with money but in space with his own hands, the reality will sink in."



OAS COCKPIT — The two astronauts perform maneuvers such as pitch, roll, and yaw using the hand rotational units. The screens facing them from this position give the crew data from the onboard computers.



ORBITER AEROFLIGHT SIMULATOR — In this trainer, crewmen can perform maneuvers such as pitch, roll, and yaw. The motion system, which is mainly hydraulic, responds to crew commands. In the visual display area, the crew sees what is on the model board, while the ground control team (bottom left area) can input various situations to the crew and monitor what is going on.



GROUND CONTROL AREA (FORWARD VIEW) — Many individuals hover around the monitors during a simulation, input situations to the crew in the OAS (background), and call up various data which appear on one of the screens. Ground controllers wear headsets and talk with crewmembers just as they would in actual flight.

WEEK OF OCT. 17 — 21

MONDAY: Cream of Celery Soup; Braised Beef Ribs; Chicken a la King; Enchiladas w/chili; Italian Cutlet (Special); Brussel Sprouts, Navy Beans. Selection of Salads, Sandwiches & Pies Daily.

TUESDAY: Beef & Barley Soup; Turkey & Dressing; Country Style Steak; Beef Ravioli; Stuffed Cabbage (Special); Corn Coblette, Okra & Tomatoes, French Beans.

WEDNESDAY: Catfish w/hush puppies; Seafood Gumbo; Roast Pork w/dressing; 8-oz. T-Bone Steak; BBQ Plate; Chinese Pepper Steak (Special); Broccoli, Macaroni w/cheese, Stewed Tomatoes.

THURSDAY: Cream of Tomato Soup; Beef Tacos; BBQ Ham Slice; Hungarian Goulash; Chicken Fried Steak (Special); Spinach, Pinto Beans, Beets.

FRIDAY: Seafood Gumbo; Liver w/onions; Deviled Crabs; Roast Beef w/dressing; Seafood Platter; Tuna &

Noodle Casserole (Special); Whipped Potatoes, Peas, Cauliflower.

WEEK OF OCT. 24 — 28

MONDAY: Closed — Veterans Day

TUESDAY: Split Pea Soup; Shrimp Creole; Salisbury Steak; 8-oz. T-Bone Steak; Fried Chicken (Special); Mixed Vegetables, Beets.

WEDNESDAY: Vegetable Soup; Fried Catfish w/hush puppies; Braised Beef Ribs; BBQ Plate; Weiners & Beans; Shrimp Salad; Stuffed Bell Pepper (Special); Corn O'Brian, Italian Green Beans, Rice.

THURSDAY: Chicken Noodle Soup; Beef Stroganoff; Turkey & Dressing; BBQ Smoked Link (Special); Lima Beans, Buttered Squash, Spanish Rice.

FRIDAY: Seafood Gumbo; Broiled Flounder; Liver w/onions; Seafood Platter; Fried Shrimp; Meat Sauce & Spaghetti (Special); Green Beans, Buttered Broccoli, Whipped Potatoes.