

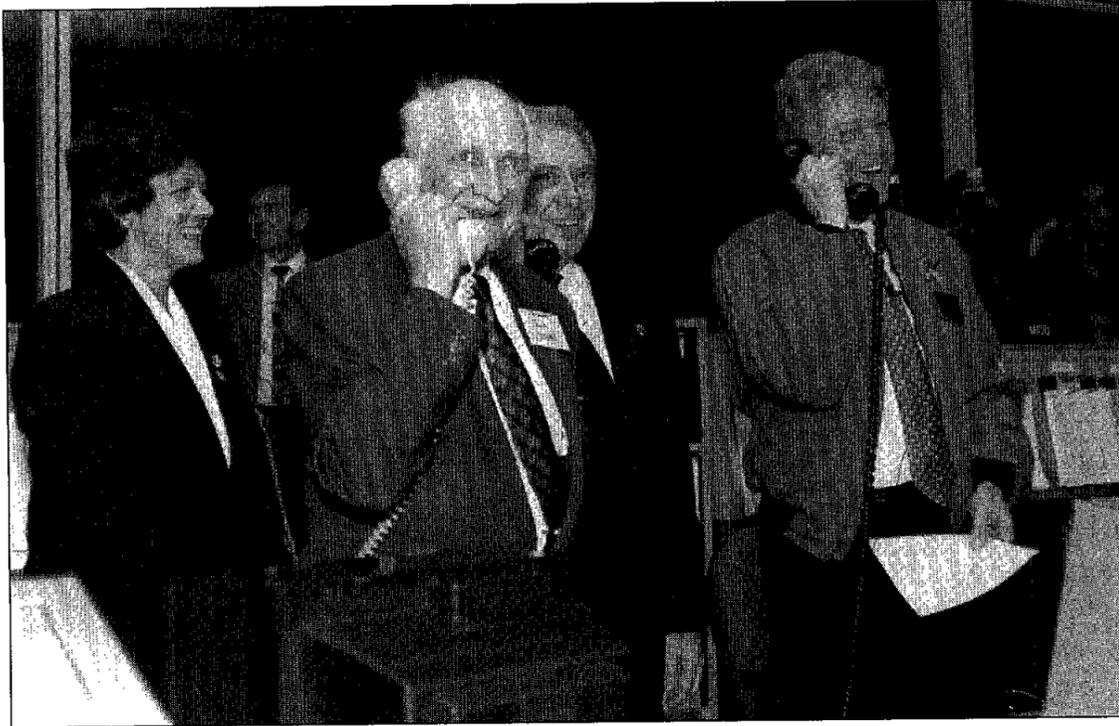


Space News Roundup

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No. 6



Center Director, Dr. Carolyn Huntoon, Rep. Jack Brooks, D-Texas, NASA Administrator Daniel S. Goldin and President Bill Clinton share a light moment during their conversation Monday with the STS-60 crew on board Discovery. Clinton discussed the importance of the mission to international cooperation in space and sent special greetings to Russian cosmonaut, Sergei Krikalev. Clinton visited the Mission Control Center as part of a tour of JSC facilities.

Clinton praises crew, NASA team in MCC

By Kelly Humphries

The Space Shuttle *Discovery* was scheduled to land this morning at Kennedy Space Center, capping an eight-day flight of international cooperation and research punctuated by a call from President Bill Clinton.

Clinton made a Monday visit to Mission Control, complimenting the crew and its ground support team, and heralding the flight as a harbinger of future international cooperation.

"I think this is the first step in what will become the norm of global cooperation in space," Clinton said. "And, when we get this space station finished with the contributions of Russia, Canada, Japan, Europe and the United States, it's going to be a force for peace and progress that will be truly historic and you will have played a major role in that."

"I appreciate the crew down here, the men and women who've worked to make your mission a success and again," he added, "I think I can speak for all of us, we're going to do everything we can to keep supporting the space program and the space station and I hope what America is seeing of you today, particularly the cooperation between the United States and Russia in space, which is a reflection of what we're trying to do here on Earth, I hope that will strengthen the support among the American people for the space program and the space station in particular. Thank you so much, we're all very, very proud of you."

Commander Charlie Bolden, Pilot Ken Reightler, and Mission Specialists Franklin Chang-Diaz, Jan Davis, Sergei Krikalev and Ron Sega conversed with the President for about 15 minutes. Bolden invited Clinton to assign himself to a shuttle flight, and Clinton kidded Davis about her microgravity hairdo.

The astronauts also participated in a live link-up with their counterparts aboard the Russian Mir space station during an interview with ABC's "Good Morning America," exchanging greetings and good wishes with three of Krikalev's fellow cosmonauts.

Research in thin-film semiconductor growth was carried out with the Wake Shield Facility on the end of

Discovery's robot arm instead of in free flight because of a malfunction in the satellite's attitude control system.

After multiple attempts to prepare Wake Shield for release, mission managers decided to conduct the full schedule of gallium arsenide wafer growth on the end of the robot arm. That meant the vacuum produced as the satellite rammed through the scarce atmosphere at 190 nautical miles was not as pure as had been hoped due to contamination around the space shuttle.

Dr. Alex Ignatiev of the University of Houston's Space Vacuum Epitaxy Center said, however, that the successful growth of five wafers on the arm proved the concept of the satellite, which is scheduled to fly again in March 1995.

"The vacuum we're seeing is about the same we see in our best vacuum chambers, so we'll get films that are about the same quality—or maybe a little better. But we're not seeing that significant difference we were looking for in going farther from the orbiter," Ignatiev said.

"We're slightly disappointed, but we're growing samples," he added. "It would be nicer for us if we were free flying, but from the science perspective we're getting science now and that's an exciting part of the program. That's part of our proof of concept."

After Wake Shield was safely berthed in the payload bay for its return to Earth, the crew deployed six metal spheres to help engineers calibrate radar tracking systems throughout the world. The Orbital Debris Radar Calibration Spheres ejected gracefully out of their Getaway Special canister about 9:30 a.m. Wednesday, paving the way for a better understanding of space junk.

The commercial SPACEHAB module, making its second shuttle flight, provide a stable, trouble-free environment for the biomedical and materials processing experiments in a pressurized environment in *Discovery's* payload bay.

Discovery was scheduled to land at 11:42 a.m. CST today. If landing occurs on schedule, the crew should be back in Houston for a welcome home ceremony about 10 p.m.

For the latest information, call x36765.



NASA budget reflects 'tough times'

NASA's 1995 fiscal year budget was unveiled Monday showing an overall decrease in funding authority of about 1% from last year's budget.

In a televised budget briefing on Monday, John Daly, acting deputy administrator, said the budget clearly "demonstrates that times are tough" and that NASA "has stepped up to the challenge. We are part of the solution."

Overall, the budget calls for funding cuts in human space flight programs and increases in science programs to preserve an overall balance in NASA's programs.

Although Johnson Space Center received about 22% of the total NASA budget, the center stands to

receive 7% less money than it did in fiscal year 1994.

The budget request of \$14.3 billion reflects an increase in all program areas, except human space flight. The human space flight program includes space station, U.S.-Russian cooperative space activities, shuttle operations and payload and utilization operations. For fiscal year 1995, the human space flight program budget is \$5.7 billion, about 6% less than in 1994.

Space station funding dropped about 3% from \$1.9 billion in 1994 to \$1.8 billion this year. Funding for U.S.-Russian cooperative activities was reduced from \$170 million to \$150 million, a decrease of

about 13%.

Space shuttle operations also received a funding cut of about 6%, from \$3.5 billion to \$3.3 billion while payload and utilization operations were reduced about 14%, from \$4.1 billion to \$3.5 billion.

The total space station budget is \$2.1 billion. Of that total, \$1.9 billion is contained in the human space flight budget and the remaining \$181 million in the science, aeronautics and technology budget.

Of the total \$150 million contained in the human space flight budget for U.S.-Russian cooperation, \$100 million will go to the Russian Space Agency as part of a four-year, \$400

Please see **NASA**, Page 4

Fellowship program accepting applications

Employees wishing to take advantage of educational opportunities offered by the JSC Fellowship Program have until March 31 to apply for the program.

Under the JSC Fellowship, the center will sponsor a select number of individuals to attend graduate school on a full-time basis for one year. Criteria used for selections include the applicability of the chosen area of study and its effectiveness in contributing to the achievement of JSC's mission and goals, a brief statement of academic purpose, prior academic courses com-

pleted, the written recommendation of the division chief and the level of activity in the employee's office.

Typically, those selected for the program have at least three years of service at JSC which may include co-op time. Review of the candidates for the JSC Fellowship will be made by a center panel of senior managers with the final selection to be made by the center director.

While application and acceptance to the graduate school is the responsibility of the applicant, tuition and fees, except travel, will

be paid by JSC. Regular service agreement requirements entailing a period of three times the length of the training will apply to the program. Interested employees should request an application from Carrie Bowers, x33067, and should contact their training coordinator for directorate-specific guidelines.

Completed fellowship applications, accompanied by written recommendations from the division chief should be forwarded to Paige Maultsby in the Human Resources Development Branch no later than March 31.

Astronauts named for Mir mission

Astronauts Norman Thagard and Bonnie Dunbar have been named as the prime and backup crew members for a three-month flight on the Russian space station Mir in 1995.

The two veteran astronauts will begin training in Star City, Russia later this month. Thagard will fly with two Russian cosmonauts in March 1995 to spend approximately 90 days aboard the Mir. As backup, Dunbar will undergo the same training as Thagard to be ready to serve on the flight crew should that become necessary. The training also will allow her to be eligible to serve on a later Mir crew mission or on a later shuttle flight that docks with the Mir station.

Thagard, 50, served as mission specialist on four shuttle flights. Dunbar, 44, has flown three times on the shuttle. Thagard and Dunbar's assignments are part of the rapidly expanding U.S./Russia human space flight cooperative program.

As the U.S./Russia cooperative activities progress, it is anticipated that additional NASA personnel will be assigned to support agency activities in Russia. In June 1995, the crew of mission STS-71 aboard the shuttle *Atlantis* is scheduled to dock with Mir. The shuttle crew will include two Russian cosmonauts who will replace Thagard and his Russian counterparts. That three person crew will return to Earth at

the conclusion of *Atlantis'* mission.

This cooperation consists of a three-phased program. Phase one consists of up to 10 space shuttle-Mir missions between 1995 and 1997, including rendezvous, docking and crew transfers. The shuttle will assist with crew exchange, resupply and payload activities for Mir.

With the scheduled landing of STS-60 today, Sergei Krikalev, a Russian cosmonaut is completing the first flight of a Russian cosmonaut on board an American shuttle. Another cosmonaut is set to fly on STS-63 in January 1995. Four or more U.S. astronaut stays on the Mir station are planned, totaling more than 2 years of on-orbit time.



Norman Thagard



Bonnie Dunbar

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Houston Rodeo — A limited number of tickets are available for selected performances. Cost is \$9 per ticket.

Sesame Street — Sesame Street Live will be presented at 10:30 a.m. Feb. 12 at the Summit. Cost is \$8 per ticket.

Moody Gardens — Discount tickets for two of three different attractions: \$9

Entertainment '94 Coupon Books — Bay Area/Galveston/Downtown or FM 1960/Downtown: \$30 each, \$1 off first book for civil servants. Gold C Books: \$8

Space Center Houston — Discount tickets: adult, \$7.50; child (3-11), \$4.50; commemorative, \$9.95.

Metro tickets — Passes, books and single tickets available.

Movie discounts — General Cinema, \$4.50; AMC Theater, \$3.75; Loew's Theater, \$4. Stamps — Book of 20, \$5.80.

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Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

EAA badges — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday-Friday; 9-11 a.m., 1-3 p.m. and 6:30-9 p.m. Wednesdays; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

Weight safety — Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Feb. 24. Pre-registration is required. Cost is \$5.

Defensive driving — Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is March 5. Cost is \$19.

Self-defense workshop — Free self-defense workshop is offered from 5-6 p.m. March 16.

Aerobics — High/low-impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

Aikido — Martial arts class meets from 5-7:30 p.m. Tuesdays and 6:15-8:15 p.m. Wednesdays. Black Belt class from 6-8 p.m. Fridays, requires instructor permission. Cost is \$25 per month.

Spring softball — Sign up for Mixed C recreational league March 1. Men's C registration is March 2; Men's B and Mixed B on March 3; and Men's A and Men's Over 40 on March 4. Non-badged teams for all leagues will be able to sign up only after 4:30 p.m. March 4.

Stamp club — JSC Stamp Club will meet from 7-9 p.m. every other Monday. For more information, call Dianne Kerkhove at 554-2764

Fitness program — Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Weir at x30301.

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Dates & Data

Today

Cafeteria menu — Special: fried chicken. Total Health: vegetable lasagna. Entrees: broiled cod fish, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

Saturday

LPI series — Dr. Jack Horner will discuss "The Complete T-Rex" and Dale Russell will speak on "Dinosaurs in the Scheme of Things" beginning at 7 p.m. Feb. 12 at University of Houston Clear Lake's Bayou Theater. The lecture series is hosted by the Lunar Planetary Institute.

Monday

Cafeteria menu — Special: meat sauce and spaghetti. Total Health: potato baked chicken breast. Entrees: wieners and sauerkraut, sweet and sour pork chop, potato baked chicken, steamed fish, French dip sandwich. Soup: cream of asparagus. Vegetables: French cut green beans, seasoned rice, California vegetables, buttered beans.

Tuesday

Parenting series — A lunchtime Brown Bag video "Seeing Infant with New Eyes" will be shown at 11:30 Feb. 15 in Bldg. 45, Rm. 551. For additional information, call Child Care Center, x34734.

Blood drive — Allied Signal & Unisys will host a blood drive from 8-11 a.m. Feb. 15 at 501-595 Gemini. For additional information, contact Debra Jackson, 238-7334.

Cafeteria menu — Special:

smothered steak with dressing. Total Health: shrimp creole over rice. Entrees: beef stew, liver and onions, shrimp Creole, baked chicken, French dip sandwich. Soup: navy bean. Vegetables: steamed rice, seasoned cabbage, corn O'Brien, peas, potatoes au gratin.

Wednesday

Astronomy seminar — The JSC Astronomy Seminar will meet at noon Feb. 16 in Bldg. 31, Rm. 129. For more information, call Al Jackson, 333-7679.

Toastmasters meets — Spaceland Toastmasters Club meets at 7 a.m. Feb. 16 at the House of Prayer Lutheran Church. For additional information, contact Dale Denais at x30432 or Steve Shields at x31941.

Cafeteria menu — Special: salmon croquette. Total Health: vegetable plate. Entrees: roast pork, baked perch, steamed fish, vegetable lasagna, Reuben sandwich. Soup: seafood gumbo. Vegetables: mustard greens, okra and tomatoes, vegetable sticks, lima beans.

Thursday

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. Feb. 17 in the Bldg. 3 cafeteria. For more information, call Jack Bacon, x38725, or Amy Mendez, x38066.

Blood drive — Rockwell will host a blood drive from 8-10:30 a.m. Feb. 17 at Feathercraft and Gemini and from 8-11:30 a.m. and 1-2:30 p.m. at 600 Gemini, Civic Rms. A & B. For additional information, contact Liz Hernandez at 282-3418.

Cafeteria menu — Special: stuffed cabbage rolls. Total Health: oven crisp cod. Entrees: beef tacos, ham and lima beans, pork and beef egg rolls, steamed fish, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, green beans, buttered squash, pinto beans.

Friday

Cafeteria menu — Special: baked chicken. Total Health: roast beef au jus. Entrees: deviled crab, Creole baked cod, baked chicken, beef cannelloni, Reuben sandwich. Soup: seafood gumbo. Vegetables: seasoned carrots, peas, breaded okra, steamed cauliflower.

Feb. 21

Presidents Day — Most JSC offices will be closed in observance of the Presidents Day Holiday.

Feb. 22

Parenting series — A lunchtime Brown Bag video "On the Move" will be shown at 11:30 a.m. Feb. 22 in Bldg. 45, Rm. 551. For additional information, call ext. 34734.

Blood drive — Martin Marietta will host a blood drive from 8-11 a.m. at 1050 Bay Area Blvd. For additional information, contact Eddie Rangel at 280-2582.

Feb. 23

Toastmasters meets — Spaceland Toastmasters Club meets at 7 a.m. Feb. 23 at the House of Prayer Lutheran Church. For additional information, contact Dale Denais at x30432 or Steve Shields at x31941.

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale: Taylorcrest, 4-3-2.5, 3200 + sq ft, pool/spa, island kit, \$275k, 4% co-op. Richard x30271 or 326-4963.

Rent: Winter Park, CO, furn, 2-2, sleeps 6. 488-4453.

Rent: Condo Basalt, CO, 3-3.5, \$130/dly \$800 w/ky. 505-527-2480.

Sale: Corner of Neuman & Rosewood in LaMarque, 4 lots, 71.5' x 138' ea. x38321 or 713-334-4272.

Sale: Brittainy Bay, LC, 3-2-2, lg kit, garden bath, \$86.5k. David, 554-5514.

Sale/Lease: Nassau Bay, 4-2-2, gas heat, fenced, \$795/mo/\$114.5k. Do, 333-6806 or 484-2456.

Sale: Chambers County, 25' x 210' lots, util, Barbers Hill ISD, financing, 488-5058.

Rent: Arkansas cottage, Blue Mt Lake, furn, 4 ac, \$250/wkly, \$50/dly. x33005 or 334-7531.

Lease: Sagemont, 3-2-2, formals, FPL, \$72k. Ben, x34339 or 481-1439.

Sale: Hill County property, 26.87 acres, near Austin/Dripping Springs, \$5k. Robert, x32587 or 332-1734.

Rent: Galveston beach house, dly/wkly, CA/H, furn. Ed Shumilak, x37688 or 326-4795.

Sale: Galveston beach house, 3-2, CA/H, furn. Ed, x37688 or 326-4795.

Sale: Lometa, TX, 894 ac ranch, 2 houses, 2.5 mi on FM 3415, \$525/ac. 488-5058.

Sale: Pearland, Southwyck, 4-2-2-2, 2-story, game rm, ex cond, no children or pets. 831-1791 or 997-1664.

Sale: League City, 3-2-2, ceiling fans, landscaped, \$63.9k assum. John, x33662 or 337-5622.

Rent: Galveston beach house, wkly/wkend, sleeps 10. 280-3909.

Sale/Trade: Newport residential lot near Crosby, cash or something of equal value. Lewis, 282-3101 or 495-1122.

Sale: Piper's Meadow, 3-2-2, FPL, study, \$82.9k. Diana, x31512 or 286-9822.

Cars & Trucks

'84 Nissan 300ZX, 5 spd, silver w/T-Tops, 87k mi, \$4.2k. x39045 or 488-2676.

'87 Tempo, 4 dr, 4 WD, pwr windows/locks, ex cond, \$3.5k OBO. Aimee, x30198.

'87 California Special Mustang (GT/CS), gold w/brn stripes, 289, 4651 auto, AC, ex cond, \$7.5k. Jim, 338-2332 or 483-9712.

'80 Chevy Custom Deluxe SWB PU, 350, auto, AM/FM/cass, dual sun roofs, 140k mi, \$2495. Jim, 483-9712 or 338-2332.

'85 Chevy Silverado PU, short bed, 47k mi, AT/PS/PB, AM/FM, AC, \$6.5k. Bob, x37246 or 326-1510.

'87 Nissan Pulsar, ex cond, \$3.5k. 333-6277 or 339-3562.

'88 Hyundai, 3 dr, wht, \$2.2k. Ike, x31575.

'88 Chrysler Fifth Avenue, 38k mi, V8, ex

cond, \$7.2 OBO. Ken, x38836.

'81 Datsun 210, std trans, work car, \$500. x31759 or 335-0714.

'66 Ford Galaxy 500, \$1.8k. 538-1019.

'78 Mustang II, rebuilt eng, \$1.8k. 538-1019.

'76 BMW 2002, \$2.2k; '81 Mazda GLC, \$1.2k. George, x35398 or 474-7021.

'91 Toyota Tercel, 25k mi, A/C, auto, 4 dr, \$7.1k. x31047 or 486-6861.

'90 Mercury Topaz GS, 35k mi, \$5950. Gene, x38020 or 334-1505.

'90 Acura Integra LS, 5 spd, ex cond, 58k mi, A/C, \$9.5k. Bobby, 538-1835.

'81 Toyota Tercel, 5 spd, A/C, 2 dr, 93k mi, \$2k. Roseann, 474-4763.

'88 Ford PU XLT Lariat, std trans, \$2,250. 996-1911.

'74 Corvette Stingray, competition orange, ex cond. 474-2071.

'79 Mercedes 300D, A/C, 186k mi, sun roof, \$3.8k. David, 286-3838.

'89 Mustang LX, convertible, V4 fuel inject, P/W/locks, blue w/bltue top, ex cond, \$5.5k. x33626 or 559-2331.

'89 Ford Mustang LX, auto, A/C, AM/FM/cass, 4 cyl, 49k mi, pwr windows/locks, cruise, ex cond, \$5.2k. x47363 or 534-4962.

'68 VW, \$900. 409-765-8453.

'89 Mazda MX6-DX, 5 spd, AM/FM/cass, 47k mi, ex cond, \$8250. Debbie, 482-7344.

'90 Mazda Miata, red/blk int, 47k mi, \$8k. 996-1815.

'82 Toyota Corolla wagon, 152k mi, 5 spd, \$450. Keith, 482-2741.

'86 Ford E150 custom van, 5.0L V8, 130k mi, \$4.5k. Frank, x38393 or 992-4703.

'90 Mustang GT, ex cond, 5 spd, \$7.5k. x38785 or 945-3235.

Boats & Planes

U.S. Yachts 22' sloop w/4.5 hp eng, 2 sails, galley, sleeps 5, ex cond, \$5k. Russ x45979 or 332-1769.

Chrysler 22' sailboat, sleeps 6, w/galley & head, 5 hp outboard, mainsail & 2 jibs, slip in CL, \$2.8k. 282-1727.

Inflatable boat, 5' x 10', elect motor, \$795 OBO. 326-5150.

'90 Welcraft 197 Eclipse, 4.3 merc, bl/wht, cuddly cabin, AM/FM/cass, \$12.5k. Rebecca, 244-4737.

'18' CC SeaRay, 135 merc, 50 hrs, SSP, 3D hum, VHF, \$13.5k. Scott, x49854 or 554-6167.

'19' Galaxy, fiberglass boat, inboard motor, \$200 OBO. Ike, x31575.

Cycles

'84 Honda Shadow 500 ce, 14k mi, \$1.2k. Ken, x31647 or 332-0882.

'93 Trek 1400 Road Bike, red, men's frame, \$600. Dee, 335-2508 or 486-6863.

'91 Kawasaki KX-250, ex cond, \$2k; '91 Kawasaki KX-60, ex cond, \$1.1k. Eddy, x35710 or 286-2958.

Trade team Fuji racing bike, 12 spd, sountour equip, ex cond, for comparable mt bike. James, 282-3215 or 480-9448.

Ladies Raleigh bike, 3 spd, w/spd/odometer, \$30. Jim, x39229 or 482-7873.

'91 Suzuki Rm 80 dirt bike, \$1k. x34720 or 332-0330.

Audiovisual & Computers

Bearcat model 201 scanner, 18 channels, \$75. Bob, 480-6797.

Apple Image-writer printer, \$50. Steve, x37626.

AT&T 6300 PC, color monitor, 33MB HD, 640k RAM, microsoft mouse, Hayes Smart Modem, 1200/300 sep, 750 VA pwr cond, \$250. Jim, x48531.

Nintendo w/ten games, \$75 OBO. Bill, 992-5836.

Bridi T-20 RC model plane w/EK-logitrol controller, McCoy 0.19 engine, \$30. 326-2307.

IBM PS/2 model 50 286, 20 MEG, 13" monitor, kybd, \$150; Proprietary XL, rubber rollers shot, \$20. Ken, x38244 or 333-2636.

IBM/Compatible software, Quicken version 2.0 for Windows, \$10; Lotus 1-2-3 version 3.1, \$95; Manuals, Using Havard Graphics, \$10; Autocad Guide for release 10&11, \$15. Jim, x39229 or 482-7873.

Photographic

Pentax Spotmatic 35mm SLR camera sys w/pret lenses, 50mm fl.4, 135mm f2.5, 35mm f3.5, macro 2:1 50mm f4.0, 2X extender, filters, ex cond, \$275. John, 483-6195.

Three 12x15 developer trays, one 12x15 washing tray, 35mm film devel can, B&W bulb, \$15 OBO. Bob, 480-6797.

Nikon-SP 35mm camera. '50 vintage, Nikkor lens, 35mm f2.8, 50mm f1.4, 135mm f3.5, case, ex cond. 326-2461.

Musical Instruments

Yamaha kybrd w/80 watt amplifier, \$200. x39034 or 474-2660.

Wurlitzer 88 key piano, \$400. 920-7239 or 470-2471.

Pets & Livestock

Whippet, Male, AKC, brindle, 1 yr old, all shots, neut, \$300. Doug, x48851 or 486-7412.

Free miniature male Schnauzer. Dorothy, 482-1505.

Free 7 yr old neut cat. 286-0447.

Red Tail boa w/tank, 4 ft, \$200. 992-8740.

Chihuahua, AKC, 7 wks, shots, wormed, \$150. 534-4667.

Free blk female Lab mix, spayed. 482-2741.

Lost & Found

Lost tie clasp, gold color, alligator clip. Earl Rubenstein, 480-1998.

Household

Sect sofa/bed w/built in recliner/end tbl, \$400; 5' computer wk stat w/hutch, \$20; Jensen 100 watt floor spkrs, \$100; w/matching cabinet w/glass drs, \$25; woodgrain TV/VCR tbl, \$15; two ceramic lamps, floor lamp, \$15; tbl lamp, \$10. Rebecca, 244-4737.

Qn sz waterbed frame w/mirrored bookcase HB, \$50. 244-5298 or 286-0447.

Mitsubishi 35" TV std, blk w/drk glass door. Laurie, x35590.

Desk w/credenza & 3-dwr file, wht melamine, 60x35, \$225. x39588 or 487-1883.

Dorm sz refig 1.8 cu ft, brwn, ex cond, \$70. Dean, 554-6629.

Qn sz waterbed, dk cherrywood w/under-dwrs, heater, matching 5-dwr dresser & nightstand, \$300. Nancy, x45716 or 280-0361.

GE electric clothes dryer, \$75. John, x33662 or 337-5622.

Kg sz waterbed w/heater, liner, frame, \$100. George, x35398 or 474-7021.

Mini blind, alum w/valance, alabaster, sz 24

3/4" x 72"; Hoover Quick Broom w/wheels. 286-8822.

Glass top rect dining tbl & four padded chairs, \$75 OBO. x31026 or 332-1664.

Dark oak BDR, qz HDB, triple dresser, mirror, armoire, \$300; full mat/box/frame, \$175 or \$425/all. x31026 or 332-1664.

Girls wht BR furn w/gold trim, full/qz headboard, desk w/hutch, 3 drwr chester, & night stand, ex cond, \$250; apart sz elect clothes dryer, wht, ex cond, \$45. Debbie, 835-8223.

Microwave oven, \$50. Bill, 992-5836.

Bedroom set four pcs, full/qz sz bed w/matt, desk/chir, chest of drwrs, dresser w/mirror, \$785. Angee, 992-3204.

Antique armoire/wardrobe, approx 45" x 20" x 61", \$400. x37210 or 471-6482.

Contemporary dining tbl w/smoked glass top & 4 chairs, \$50; stacking wicker tbls, \$15 set; 2 lamps, \$10. x33117.

GE gas dryer, lg cap, ex cond, \$150. x34121 or 482-6651.

Litton microwave oven, lg, autocook, \$125. Helen, x38413.

Rattan couch, love seat, chair, coffee tbl, end tbl, sofa tbl & mirror, ex cond, \$800. Gina, x37113 or 992-1913.

Carpet, 64 sq yds, rose color, 50 sq yds of 6 lb padding, \$200. Eric, x31917 or 482-3662.

Wanted

Suddenly, Tomorrow Came...

Chapter 4: Human Dimensions

[Editor's note: This is the second of four excerpts from the official history of the Johnson Space Center, the newest addition to the NASA History Series. The book, produced in-house at JSC, will be available in March.]

By Henry C. Dethloff

Few years have been so critical to the American space program as those between roughly March 1962, when old STG and new center employees began relocating to temporary quarters in Houston, and June 1964 when the new MSC formally opened for business. Few years have been so demanding of human energy, effort, and simple endurance. During these years, the Mercury, Apollo and Gemini programs ran concurrently while the MSC was being designed and built. Few years have been so productive. Not only did things get done, but a very important management system or style that became referred to later as the "Gilruth system" became implanted in the organization and culture of the developing space center.

During the spring of 1962, 751 STG/MSC employees moved to Houston from Langley, Virginia, and by July administrators had hired another 689 people who joined the staff in Houston. Personnel worked throughout a dozen buildings in disparate locations in Houston, while construction contracts were being let and buildings built on the site of the new center. But the real business at hand had to do with putting Americans in space, not buildings on Earth.

Not only, said Bob Gilruth, is our mission "to develop here in Texas the free world's largest and most advanced research and development center devoted to manned spaceflight," but the real business at hand is "to manage the development of manned spacecraft and to conduct flight missions." In our

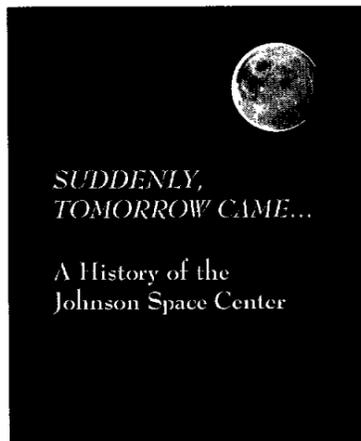
work on these missions, he said, "...during the past few months the Manned Spacecraft Center has doubled in size; accomplished a major relocation of facilities and personnel; pushed ahead in two new major programs; and accomplished Project Mercury's design goal of manned orbital flights twice with highly gratifying results."

That was July 1962. By May of 1963, with six more successful manned Mercury flights completed, Mercury ended—and within the year, the first unmanned Gemini vehicle sped into orbit.

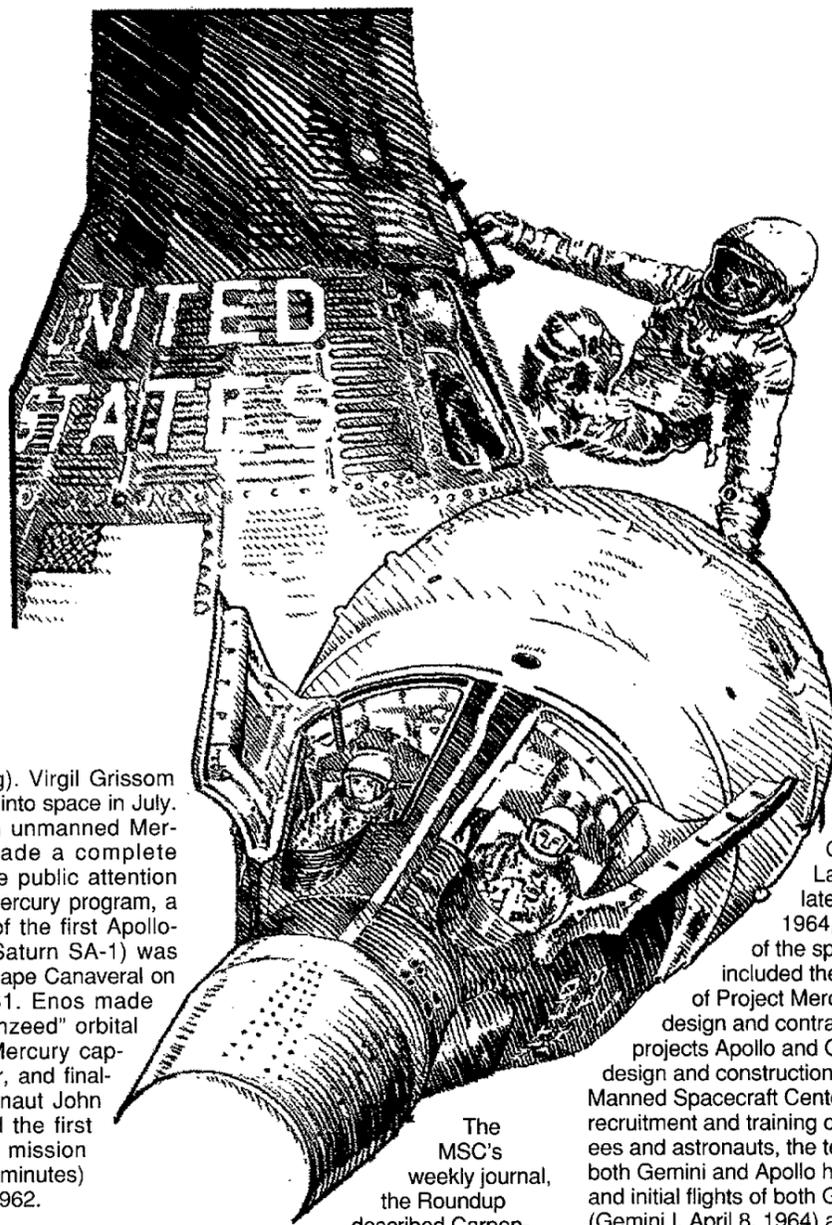
Mercury began unpromisingly on August 21, 1959, when the first Little Joe Mercury capsule prototype launch was canceled due to faulty wiring that sent the capsule, without the launch vehicle, on a premature trajectory a short distance out in the ocean from its launch point on Wallops Island. In 1960 there was talk of "slippage" in the space program. Rod Rose remembered that while awaiting delivery of the Mercury capsule, he urged Gilruth to "beat the Russians" by sending an astronaut aloft in a Little Joe module, but Gilruth declined saying that "we're running a research program, not a PR stunt team." That attitude helped provide stability and direction during the high-pressure days of the early sixties.

In 1961 and 1962, amidst the suitcase environment of the move to Houston, Project Mercury enjoyed its greatest successes and the first Apollo systems began flight tests. On May 5, 1961, Alan B. Shepard, launched from Cape Canaveral and directed by the Mission Control Center at Canaveral as were all of the Mercury flights, completed America's first manned space mission. "When Ham (the chimpanzee which had flown earlier test flights) refused to board the capsule, I had to make the flight," Shepard told a large audience at the Johnson Space Center years later (in 1989 during the 20th anniversary of the

first lunar landing). Virgil Grissom followed Shepard into space in July. In September an unmanned Mercury capsule made a complete Earth orbit. While public attention focused on the Mercury program, a flawless launch of the first Apollo-type vehicle (a Saturn SA-1) was completed from Cape Canaveral on October 27, 1961. Enos made the first "chimpanzee" orbital flight aboard a Mercury capsule in November, and finally, Mercury astronaut John Glenn completed the first American orbital mission (4 hours and 56 minutes) on February 20, 1962.



Following Glenn's harrowing return within his capsule-turned-fireball through Earth's atmosphere, the entire flight being one of America's most closely followed news events of modern times, President John F. Kennedy expressed "great happiness and thanksgiving of all of us on the completion of Colonel Glenn's trip." But we have a long way to go in the "space race." "...this is the new ocean," Kennedy said, "and I believe the United States must sail on it and be in a position second to none." Scott Carpenter made another significant step across the threshold of space soon thereafter.



Clear Lake site in late June 1964, the work of the space center included the operation of Project Mercury, design and contracting for projects Apollo and Gemini, the design and construction of the Manned Spacecraft Center, the recruitment and training of employees and astronauts, the testing of both Gemini and Apollo hardware and initial flights of both Gemini (Gemini I, April 8, 1964) and Apollo (SA-6, May 28, 1964) systems.

The MSC's weekly journal, the Roundup described Carpenter's launch aboard "Aurora 7" on May 24, "...a massive black silhouette poised on the skyline a mile and a half from the press site where hundreds of watchers held their breaths. Mercury-Atlas 7 hung for agonizing seconds, poised on a column of fire, then rose. She lifted into the low clouds, appeared again above them, flashed into the sunlight and out of sight, her heavy thunder rolling back over the Earth she had left behind."

The flight marked "a major milestone in man's pioneering venture into space," but it almost ended in disaster when fuel and temperature problems aborted the flight earlier than planned, and Carpenter's landing was 250 miles off target. He, as the chimpanzee Ham had been years earlier, was finally located and retrieved.

G. Merritt Preston managed launch operations for Mercury from Cape Canaveral, and the Mission Control Center at Canaveral directed flight operations. To be sure, Mercury flight operations were rather minimal because the capsule was not navigable. As Christopher Kraft explained later, Mercury flight control basically occurred before launch; because once you launched, the main function was to try to maintain contact and wait until it came down. Control center operations changed markedly with Gemini and Apollo. The Mercury Project Office as well as the home base for Mercury astronauts remained at Langley, Virginia, until November 1963, when the Mercury Project Office closed and Kenneth S. Kleinknecht and most of his staff moved to Houston.

The center in Houston concentrated on the "new" projects mentioned by Gilruth—Apollo and Gemini—and much more so on the former than the latter. As Mercury neared completion, most Mercury project people moved directly to the Apollo program rather than into or through the Gemini program. This ultimately created some special problems for the manned space program.

In December 1961, Project Gemini (originally designated Mercury Mark II), a two-person manned spaceflight program, was initiated to provide experience in flight endurance, rendezvous, and extravehicular activity until Apollo became operational. Thus, for several years before being finally relocated at the

The technical challenges of achieving manned spaceflight sometimes seemed less imposing than the human dimensions. Although the space programs seemed to bring America to the leading edge of science and technology, the technology of space may actually have been more in place than the social engineering required to integrate such diverse fields as bioengineering, astrophysics, metallurgy, ceramics, and computer electronics. The management of these large scale endeavors went beyond such experiences as the construction of the intercontinental railroads in the late 19th century or building the Panama Canal in the early 20th century. Even the more recent Manhattan project of World War II and the Polaris missile program differed sharply in their costs, scale, and the extent to which they integrated diverse bodies of knowledge and technologies still in the research and developmental stage. There was little precedent for the most mundane business of determining costs, allocating contracts, and reviewing progress on such a large scale and in such a defined time period.

Moreover, NASA was enjoined to design, build, and operate machines never previously built, and to help create the knowledge and technology necessary to build and fly these machines. The new generation spaceflight vehicles had to be manned, that is, be certified as a safe environment for humans and be responsive to human operators. Despite the initial successes of Mercury, whether humans could long survive and function effectively in space had not been resolved. Unlike conventional aircraft, a space vehicle's maiden voyage was its first flight mission. There were no test flights into space. Spaceflight required innovations and inventions in technology, the accumulation of enormous human and material resources, and the development of new management structures and practices. Putting Americans in space was a most difficult assignment by every conceivable measure. The frontiers of space alluded to by President Kennedy were less beyond Earth and more at the site of MSC and its associated NASA installations, and in the workshops and laboratories of the developing American aerospace industries. □



The original seven Mercury astronauts, each sporting a new cowboy hat, take the stage at the Sam Houston Colosseum. A large crowd gathered there July 4, 1962, for a Texas-style barbecue to welcome the astronauts to Houston. From left are Scott Carpenter, Gordon Cooper, John Glenn, Gus Grissom, Wally Schirra, Alan Shepard and Deke Slayton. Sen. John Tower, R-Texas, can be seen in the far right background.

Scholarship programs benefit JSC dependents

Scholarships for dependents of NASA employees are available once again through the NASA Exchange-JSC Scholarship Program.

This year, the Exchange Council expects to award three scholarships to students on the basis of academic achievement, financial need and involvement in school or community activities. The scholarship program is open to students currently enrolled and in good academic standing in college, or who will graduate from a public, parochial or private high school this year and who are dependents of eligible JSC employees.

For a dependent to be eligible, the JSC employee must have worked for the center or one of its field activities for at least two years as of Jan. 1. Dependents of

employees who were medically retired or deceased but would otherwise have met these qualifications also are eligible to participate in the scholarship program. For purposes of the scholarship program a "dependent" of a JSC employee is defined as a student for which the employee claims an exemption on his or her federal income tax or who is a natural, adopted, or foster child for which the employee furnishes the majority of support.

Scholarship support of up to \$4,000 will be provided in the amount of \$400 per academic semester, \$250 per academic quarter and \$200 per summer session, or as the Exchange Council determines. In any event, the amount will not exceed \$1,000 in

any one-year period.

Application forms and agreements for the scholarships are available in Bldg. 13, Rm. 207. High school applicants must furnish a transcript of their high school grades and a record of their scores on either the Scholastic Aptitude Test or the American College Test with their applications or as soon as the results become available. The test results must be furnished prior to March 31.

College students must furnish their most recent transcript of college grades with the application, as well as a transcript of high school grades and either SAT or ACT scores. To be considered for this year's scholarship program, completed applications must be returned by March 31 in a sealed envelope

to: R. D. Schwartz, Chairman, JSC Scholarship Committee, Mail Code EA13, Johnson Space Center, Houston, TX 77058.

Application forms and scholastic records will be evaluated by the JSC Scholarship Committee and applicants will be informed of the results by May 15.

For additional information contact Judy Willhoite, at ext. 39138.

The NASA College Scholarship Fund will be awarding four scholarships of \$1500 each. The scholarship is renewable for six years, not to exceed \$6,000.

Currently, 14 students representing JSC, Goddard Space Flight Center, Kennedy Space Center, Headquarters, Dryden Flight Research Center, Langley Research Center, Lewis Research Center and

Marshall Space Flight Center are receiving assistance through the fund. Fifteen individuals have graduated under the program.

Applicants must be pursuing a course of study that will lead to an undergraduate degree in science or engineering at an accredited college or university in the United States.

Applicants also must be dependents of current or retired NASA employees or dependents of former NASA employees who died while employed by NASA.

Applications are available in Bldg. 1, Rm. 840. Completed applications may be mailed to JSC, the NASA College Scholarship Fund, Inc.; Mail Code AH12/Scholarship Committee; Houston, TX; 77058.

For more information, contact Mary O'Connell, at x39168.

NASA shares in solution to fiscal crisis

(Continued from Page 1)

million fixed-price contract between NASA and the RSA for lease of the Mir space station.

Budget figures for the space shuttle program include \$2.42 billion for operations and \$903.9 million for safety and performance upgrades. The cost of shuttle operations in fiscal 1995 is almost 6% less than 1994 and represents the continuation of productivity activity initiated in fiscal 1992.

Programs receiving a funding increase include Science, Aeronautics and Technology, increasing from \$5.8 billion in 1994 to \$5.9 billion in fiscal 1995, an increase of slightly less than 1%. Mission Support funding increases by about 1.6% and the Inspector General's office receives an increase of just under 4%.

How these budgetary constraints will affect JSC as an institution will remain unclear until JSC's budgetary officers have an opportunity to review them more closely.

Help to save Texas waters

The State of Texas is taking a strong step to protect its ecology with new regulations concerning the disposal of used oil filters from vehicles.



Earthwatch

Beginning April 1 it will be illegal to throw used oil filters away with the rest of the garbage that finds its way to Texas landfills.

Instead, drained oil filters—and the used oil—should be taken to service stations, automotive centers and oil change shops for recycling.

According to the U. S. Coast Guard, coastal waters are contaminated by more oil seeping from landfills than from oil spilled in tanker accidents.

Security seeks lock locations

As a result of the relocation of several JSC organizations, both on-site and off, the Security Division is asking employees to help them update their property records.

Recent moves have left the record of combination padlocks assigned to employees outdated. Security is requesting that all employees—even those who have not moved recently—provide them with the serial number and location of all padlocks in their possession.

The information may be sent by PROFS note to RMCMINIM or through regular mail channels to R. McMinimy at JS2.

For additional information, contact Dick McMinimy at ext. 34037.



JSC photo by Scott Wickes

Dr. James Dickson of the National Wild Turkey Federation releases an Eastern Wild Turkey at the Armand Bayou Nature Center to the delight of a small group of children.

Wild turkeys get new lease on life

By Eileen Hawley

Sixteen Eastern Wild Turkeys have found a new home at the Armand Bayou Nature Center through the efforts of six local landowners, including Johnson Space Center.

"This area is part of its historic range," said Steve Juster, wildlife biologist for the nature center where the birds were released on Feb. 4. "There haven't been any turkeys here for the last 20 years though, because of urbanization and loss of range."

In addition to JSC, UH-Clear Lake, Exxon International, Harris County Precinct 2 and the City of Pasadena combined to dedicate more than 6,000 acres of habitat for the project. "We're pleased to do this to cooperate with the community," said Center Operations Director Grady McCright. "We're happy to contribute to the effort to reintroduce the Eastern Wild Turkey at the Armand Bayou Nature Center for bay area residents to see and enjoy."

The release is part of a long-term effort to restore the Eastern Wild Turkey population and marks the first time there has been a release in a heavily populated area.

Previous releases have taken place in some of the most remote areas of the Pineywoods and Post Oak Savannah, partly to ensure limited human intervention with the birds.

"Nest survival is the key to the success of restocking efforts," said Dr. James Dickson of the National Wild Turkey Federation. "Hens roost on the ground and that tends to be a vulnerable time."

Wild turkeys fly well for short distances and may eventually range from the release site at the

nature center to the JSC campus. It is unlikely that employees will spot the birds easily since they are extremely shy. That trait also makes them one of the most difficult birds to hunt, according to Urban Wildlife Biologist Chuck Kowaleski of the Texas Parks and Wildlife Department. "Although they fly very well, they often choose to run away from danger," Kowaleski added.

The birds often roost in tree branches at night and the first bird released, a 20-pound gobbler, flew straight to the relative safety of the tree line. Over 4,000 birds have been released since the program began in 1978 and although many of the previous releases were accomplished with the goal of developing a huntable population, the group released at Armand Bayou will not be hunted.

"The birds released here will be utilized as an opportunity to educate the population on the Eastern Wild Turkey and wildlife management in general," said Juster. "If they do well, this site may serve as a brooding stock site for future stockings throughout the State of Texas."

"This is a win-win deal" stressed Dickson. The wild birds were captured in Iowa, Georgia and Missouri specifically for release under the restocking program. "The money used to acquire these birds will be used to purchase habitat in other states. There are 4-5 million wild turkeys nationwide where there were only ten thousand several years ago."

The wild turkey is part of American history. It is the bird that Benjamin Franklin proposed as our national bird and which lost out to the Bald Eagle by only one vote in a congressional ballot.

Exhibit to preview JSC technology

By Eileen Hawley

JSC and Space Center Houston are working together on a new showcase for the achievements of the people and organizations at JSC.

The new NASA Preview Center outside the Starship Gallery just off the central plaza of Space Center Houston is set to open in mid-March.

"Our goal is to use the preview center to highlight our achievements in the human space flight program," said Louis Parker, JSC exhibits manager. "Using both displays and demonstrations, this exhibit can effectively showcase the abilities of JSC's workers."

A demonstration of virtual reality capabilities hosted by the Software Technology Branch is the first exhibit planned for the preview center. Other divisions are encouraged to develop storyline presentation ideas for the new exhibit. Regardless of the medium used to present the information, the material should be suitable for a diverse audience which includes school-aged children.

In the meantime, the first of many planned exhibits at Space Center Houston is a photo exhibition which opened last month. A series of kiosks off the central plaza display photographs chronicling a shuttle flight from launch to landing and photographs of Earth taken from the shuttle. The display is a part of JSC's Traveling Exhibits Program.

Also scheduled for display is a 22-screen video wall presentation that chronicles NASA's programs in six segments, focusing on space station, space technology, space exploration, space science, aeronautics and "the endless frontier."

Starting in April, works produced through the NASA Art Program will be displayed. The art program is administered by NASA Headquarters and commissions work from artists depicting various aspects of the manned space flight program.

For more information on displaying technology at the planned NASA Preview Center, contact JSC's Public Services Branch at x38622.

Aldrige receives space honor

The Rotary National Award for Space Achievement Foundation will present Edward "Pete" Aldrige with its 1994 National Space Trophy at a ceremony Thursday at the Hyatt Regency Hotel in Houston.

Aldrige, the president and chief executive officer of the Aerospace Corporation, is being honored for his outstanding contributions to space policy. In his post as Under Secretary, then Secretary of the Air Force in the 1980's, Aldrige was instrumental in persuading NASA, the military and congressional leaders of the need to supplement shuttle launch capability with a back-up line of expendable launch vehicles.

Aldrige's extensive experience in the aerospace industry includes more than seven years heading the previously classified National Reconnaissance Office and four years as

president of McDonnell Douglas Electronic Systems Company. He is the eighth individual to receive the award which is presented annually in recognition of an individual's preeminent contributions to space exploration.

Featured speaker for the banquet will be Air Force General Charles Horner. He is presently commander in chief of the North American Aerospace Defense Command and the United States Space Command, as well as commander of Air Force Space Command.

Master of ceremonies for the evening will be broadcast journalist Jim Hartz. A video tribute highlighting the past year in manned space flight will be presented by Stephen Gauvain of KTRK-TV.

For additional information, contact Linda Francis at 286-6662.

Visitor center plans tribute

Space Center Houston will celebrate the 25th anniversary of Apollo 11 with a number of special events.

Planned "Celebration 25" activities include a video retrospective, "Man on the Moon," to be shown on the video wall located in the plaza.

Other events include a laser show accompanied by image and sound and the premier of the NASA preview center next to the plaza. The Lego "Travel in Space" exhibit displays an 11-foot tall astronaut and rocket models constructed of 200,000 Lego building blocks.

Space Center Houston also will host speakers and an art show in support of National Space Week activities in July and the center will premiere the newest IMAX movie, "Destiny in Space," this fall.

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