



From commemorative stamps to boat parades, JSC held center stage during last week's lunar landing festivities. Story on Page 4.



Lunar landing alumni gathered at JSC and Houston's Hyatt Regency to celebrate—and remember. Photos on Page 3.

# Space News Roundup

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No. 30

## Cohen to lead Moon, Mars planning

### JSC director gets temporary Headquarters assignment

By Kelly Humphries

JSC Director Aaron Cohen will go to NASA Headquarters for the next few months to lead the agency's response to President Bush's call for specifics on the organization, resources and timetable needed to establish a lunar base and ultimately send humans to Mars.

Administrator Richard H. Truly announced the appointment Wednesday during an address to all NASA employees regarding the agency's response to the President's challenge.

JSC Deputy Director P.J. Weitz will lead the center during Cohen's absence.

"From his engineering work in the early days of the Apollo program in the 1960s to today, when he leads the JSC team in support of the shuttle and space station programs, Aaron has done outstanding work," Truly said.

"No one in the agency is as well suited to prepare NASA to accept the challenges of this historic new project," Truly added. "Aaron will be

calling on many other people across NASA to accomplish this comprehensive self-examination of the agency, and all of us look forward to this challenge."

"President Bush's statement of U.S. space goals is welcome and refreshing," Cohen said. "He has presented us the broad outline of a program for the space station, a Moon base and the exploration of Mars. Now it is up to us to help define the program and to provide the basis for concrete Executive Office and Congressional

decisions.

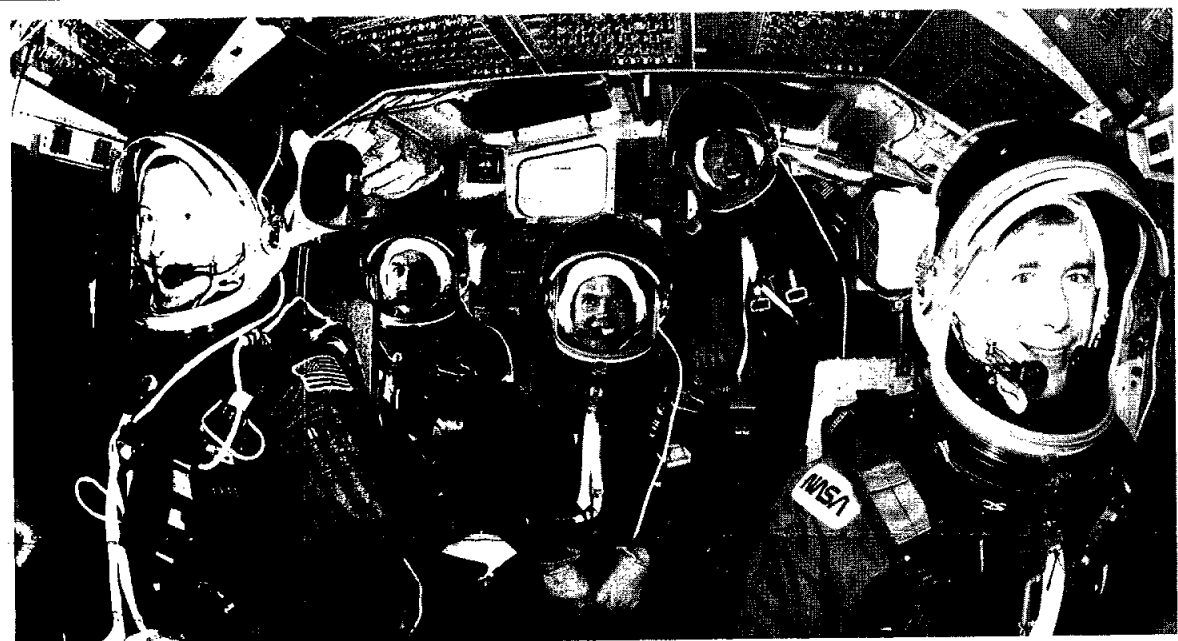
Truly and Frank Martin, associate administrator for exploration, discussed the rationale behind the strategy adopted by the President, the potential impact of the decision on NASA and the nation, and the immediate future.

"We are very well poised with the proper support from the Congress, to move out on a program such as this," Truly said. Obstacles that need to be overcome include the ability to get authority for additional engineers,

scientists, technicians and facilities consistent with the build-up of the civil space program. The NASA procurement system will need to be improved, and NASA will need to find ways to attract new employees with needed talents, he said.

"It's a major institutional challenge for NASA," Truly said. "In a way, it will require restructuring our agency. But, I don't want to tease you that I have a secret plan about a new organization." Referring to Cohen's

Please see **LUNAR**, Page 4



JSC Photo by Bill Bowers

The crew of STS-28, now scheduled for launch no earlier than Aug. 8, prepares for a training session in the Bldg. 5 Shuttle Mission Simulator. From left are Pilot Dick Richards, Mission Specialists Jim Adamson, Dave Leestma and Jim Mark Brown, and Commander Brewster Shaw.

## Columbia may blast off Aug. 8

By Kyle Herring

Space Shuttle *Columbia* could be launched as soon as Aug. 8 from Kennedy Space Center's launch complex 39B on its first flight since 1986 and eighth flight overall.

The traditional two-day flight readiness review for the STS-28 mission concluded late Wednesday with the recommendation to proceed with final pad and orbiter close-out work after agreeing no change out of an auxiliary power unit isolation valve was necessary prior to the mission.

The recommendation led Shuttle managers to the Aug. 8 target date. This schedule depends upon completion of work in progress and cooperative weather allowing normal pad activities to continue uninterrupted.

Concurrent with the announcement of the target launch date for the mission, the period of time in which the launch could occur also was released for the dedicated

Department of Defense mission. The period extends from 6:30 a.m. to 10:30 a.m. CDT.

All propellants were loaded into *Columbia's* onboard fuel storage tanks last weekend. These included monomethyl hydrazine and nitrogen tetroxide to power the reaction control system, the orbital maneuvering system, the auxiliary power units and the boosters' hydraulic power units.

Following loading of monomethyl hydrazine and nitrogen tetroxide into *Columbia's* onboard fuel storage tanks last weekend and during a hot fire of the auxiliary power units (APU) used to provide hydraulic power to orbiter systems, indications from instrumentation showed one of the isolation valves on APU number 2 was stuck open when it should have been closed.

The valve is one of two between the hydrazine fuel

Please see **STS-28**, Page 4



## Culture survey results show improvement at JSC

JSC's senior staff members were recently advised of the results of NASA's second agencywide culture survey and division and department-level briefings of employees are now in progress.

Over 60 percent of JSC's 3,500 NASA employees responded by mail last March to the 154-question survey, designed as a follow-up questionnaire to an initial culture survey conducted in December 1986. JSC Director Aaron Cohen said he was "extremely pleased" with this level of participation, which was reported to be among the highest of all NASA centers.

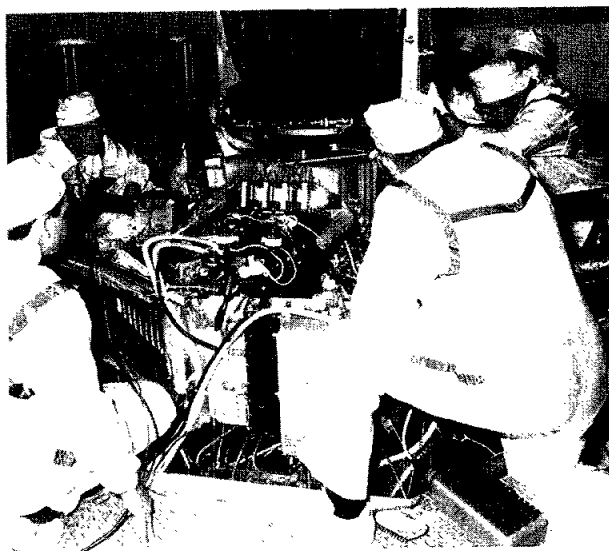
Initial results, including responses to a newly designed section of JSC-specific questions, were "very encouraging" according to Cohen. Highest-

rated questions indicated JSC employees' pride at working for NASA, their value of excellence, and that they share a commitment to high quality work.

More than three-quarters of responses to questions originally asked in the 1986 survey indicated a positive increase.

Feedback also indicated room for improvement in some areas, specifically regarding the use of contractors, the levels at which decisions are made and career development.

Cohen has appointed a senior-level working group including Deputy Director P.J. Weitz, Engineering Director Henry Pohl, Don Puddy, director of Flight Crew Operations, John O'Neill, Please see **SURVEY**, Page 4



NASA Photo

Technicians oversee the S-band/X-band high-gain antenna as it is placed on the Galileo spacecraft at Kennedy Space Center's planetary spacecraft check-out facility.

## Galileo probe safe, project leaders say

Top officials of the Galileo project said last Friday that there is little danger the nuclear fuel onboard the Jupiter probe could be released to contaminate the Earth or its atmosphere.

"The bottom line is that the mission, as it has been designed, analyzed and tested, is safe," said John Casani, deputy assistant director for flight projects at NASA's Jet Propulsion Laboratory (JPL). "Some of the reports that have been circulating in the press to the contrary are not true."

Casani said the probe's radioisotope generators (RTGs), which use plutonium-238 to produce radioactive decay that generates heat and in turn electricity, have been through a rigorous test program for the past eight years.

The tests involved full-sized explosions representing almost every conceivable type of accident that could occur during Galileo's launch aboard the Space Shuttle *Atlantis*.

Please see **PROBE**, Page 4

## 'The President's statement opens new opportunities for NASA, that should return great benefits to the country.'

—Dr. Mike Duke

By Linda Copley

President Bush's July 20 speech directing the agency's goals toward the red planet via Space Station *Freedom* and the Moon was welcome news to those at JSC who have been involved in studying such missions for more than a decade.

Bill Huffstetter, manager of the New Initiatives Office, said the President

"did exactly what we hoped he would do" by "lining things up, taking us out of the competitive atmosphere that existed where we were talking about whether to build station or a lunar base, rather than doing each as part of a single plan.

"It was a great thing to see him (Bush) establish the space station as a transportation node, which is one of its primary purposes," he said.

Huffstetter said the President's statement was good for the center as well, since a large portion of the proposed activity will be manned, therefore a lot of the coordination and planning would be coming from JSC. And, in response to Administrator Richard Truly's announcement Wednesday naming JSC Center Director Aaron Cohen to lead the agency's efforts, Huffstetter said it was "a very logical choice."

"There is no better person to deal with the programmatic issues, the

schedules, the costs, the manpower required, as well as the personality to deal with the external influences," he said.

Dr. Mike Duke, head of the Solar System Exploration Office, saw the President giving new direction to NASA, "which should carry us aggressively into the future."

"The President's statement opens

new opportunities for NASA, that should return great benefits to the country," Duke said. "We (JSC) have actually been working on the technical underpinnings of this type of program since the mid-70s," he said. "It's very heartening to see that the work we've done provided

a great deal of the early stimulus to the program, and that JSC has continually been a leader in NASA's achievement."

Duke also noted Cohen as being a strong leader in these achievements. "By making important decisions and assignments, he has put JSC in a natural position of leadership as we go forward," he said.

Mark Craig, head of the Lunar and Mars Office in New Initiatives, considers the President's speech "bolder than anyone thought it might be."

Bush took three "very important steps," says Craig. "He told us:

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JSC

# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays. A calendar of Employee Activities Association events is now available on the PROFS computer network.

General Cinema (valid for one year): \$3.50 each.  
 AMC Theater (valid until May 1990): \$3 each.  
 Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults, \$8.75; children \$5.50.  
 Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.  
 Palm Beach at Moody Gardens (valid until September 1989): adults \$2.75; children \$1.50.  
 Astroworld (valid 1989): adults, \$14.12; children under 4, \$11.99; season pass, \$32.36; Waterworld (valid 1989): \$8.15.  
 University of Houston-Clear Lake Shaw Festival Theatre Productions, "Misalliance" (July 29, 8 p.m.): adults, \$6; children, \$3; seniors, \$3.  
 JSC Caribbean Cruise has been reduced to \$1,065. A \$200 deposit is required. Call Dottie White, Bldg. 1, Rm. 126.

JSC

# Gilruth Center News

**Sign up policy**—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth. Everyone will be required to show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance.

**The gym will be closed through July 29. The weight room will be open.**

**EAA badges**—Dependents and spouses may apply for a picture I.D. 6:30-9:30 p.m. Monday-Friday.

**Defensive driving**—Course is offered from 8 a.m.-5 p.m., Aug. 19; cost is \$15.

**Weight safety**—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m. on Aug. 9 and 24; cost is \$4.

**Aerobics and exercise**—Both classes are ongoing; cost is \$24.

**Ballroom dance lessons**—Professional instruction in beginning, intermediate, and advanced ballroom dancing. Classes begin Aug. 3 and meet every Thursday for eight weeks. Beginning and advanced classes meet from 7-8:30 p.m. Intermediate class meets from 8:15-9:30 p.m. Cost is \$60 per couple.

**Taekwondo/Hapkido**—Korean art of self-defense, mental and physical discipline. Classes Tuesdays and Wednesdays. Class starts on July 31, and the fee is \$40/month.

**Mixed volleyball sign-ups**—Registration will be held the week of Aug. 21. Selection of teams will be by lottery. A flyer on lottery system guidelines and procedures is available at the Rec Center office.

**Fall basketball sign-ups**—Registration for basketball leagues will be the week of Aug. 14. NASA badged teams will sign up first.

JSC

# 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. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

## Property

Sale: San Leon, mobile home, 14' x 80', 3-2, take up notes. 559-1661.  
 Lease: Heritage Park, 3-2-2, 5-yr.-old, avail. late Aug., \$685/mo. plus dep. x35021 or 482-5615.  
 Sale: Crystal Beach cabin, 2-1, A/C, close to beach, \$32,000. (409) 832-2582 or (409) 755-1638.  
 Sale: Rayburn Country lot, Jasper, TX. 645-0008.  
 Rent: Webster/Clear Lake apt., 2-1, many extras, \$360/mo. Dave, x38156 or 486-5181 or Eric, x38420.  
 Lease: Reston, VA., architect-designed Hickory Cluster townhouse, 3-1.5, util. rm., 1CP, avail 9/1, 9 mo. at \$850, 1 yr. at \$825, plus util., ref., non-smoker(s), no pets. (713) 280-9488.  
 Sale: NE Dallas, TX., 2,100 sq. ft. townhouse, 3BR plus study, 3BA-2CP, LR w/WBFP, fenced backyard, formal DR, MBR suite w/WBFP, balcony, \$94,500, FHA assum. w/qualif., will hold 2nd w/10% down. (713) 280-9488.  
 Trade: Custom canyon view, 6-yr.-old, west of Austin, want similar age, qual., near JSC. 471-8795 or 333-6083.  
 Rent: Lake Livingston, waterfront, 3-2, fully furn., new cond., covered decks, 482-1582.  
 Lease: CLC/Oakbrook West, 4-2.5-2D, contemp., lg. LR/DR, FPL, sec. sys., gar. opener, no pets, \$895/mo. 482-6609.  
 Lease: Friendswood/Forest Bend, 3-2-2, ceiling fan, patio, fenced, solar screens, close to Greene Elem. School, \$525/mo. 482-6609.  
 Sale: Alvin area, 3-1-1 brick house, 25 min. from NASA, cul-de-sac, 2 blks. from high sch. Kay, x32251 or 331-3379.  
 Sale: Pearland lot, .7 acres, approx. 140' x 260', Shady Crest Subdiv., \$29,000. Chris or Gina, 485-6095.  
 Sale: Reseda townhome, 3-2.5, 6 blks. from JSC, covered patio, FPL, \$47,000, OBO. Bob, x32193 or 332-3817.  
 Rent: League City, Pecan Forest, 3-2-2 w/ FPL, \$700/mo. 554-6200.  
 Sale: Pearland, 4BR, 2 story, near 3 schools, \$86,000. 486-1486.  
 Lease: Scarsdale area, 3-2-2, vaulted ceilings, deck, FPL, miniblinds, drapes, gar. opener, 15 min. to NASA, \$650/mo. plus dep., no pets. Elmer, 484-1054.  
 Sale: Countryside, 3-2-2, lg. lot, 9 3/4% assum., ex. cond., \$55,000. Bob, x32193 or 332-3817.  
 Rent: Lake Travis cabin, priv. boat dock, A/C and heat, fully equipped, \$425/wkly. 326-5652.  
 Lease: Univ. Green townhome, 3-3-2, avail. 9-1-89. Diane, 280-8435.  
 Sale: League City, 2.06 acres, near schools,

city water and sewer avail, owner fin. avail., \$39,950. 554-6695.  
 Sale: Seabrook, 3 mi. from NASA, 3.29 acres w/sm. cozy home, 2-1, \$95,000, owner fin. w/ \$25,000 down. 5532-4784.  
 Sale: Heritage Park, 3-2-2 custom home, tile entry, windows in LR/DR, custom kitch., new deck and fence, new baths, new paint, \$58,500. Tony or Lori Emmons, 482-5139.  
 Sale/Lease: Forest Bend townhouse, 2-2-2CP, FPL, W/D, refrig., water and maint. paid, one story, park and pool, \$450/mo. 482-3479.  
 60 acres, 3 mi. from Karnes City, TX., on Hwy. 80. 783-9164.  
**Cars & Trucks**  
 '86 Ford Escort, 4-dr., \$4,000. 559-1661.  
 '74 Olds Omega, 53K, \$1,500, good tires; '69 Firebird Pontiac Limited SW, rebuilt 400 eng., new paint, good tires, \$5,000. 480-6048.  
 '79 Chrysler Newport, PS, PB, A/C, very clean. 332-9231.  
 '79 Chevette, runs well, \$680. x35021 or 482-5615.  
 Cadillac Fleetwood, 4-dr., under 60K mi., \$3,000. 482-3697.  
 '87 V-8, black Firebird, gray int., T-tops, code alarm, tinted WDW, cruise, elec. WDW, louver, ultra seal, AM/FM/cass., lug locks, 30K mi., \$9,950. x37426.  
 '87 Dodge Ivory Coach Conversion van, immac., loaded, CB, cass., w/captain's and bed, dual air, new tires, \$14,000. J.D. Williams, 483-2261 or (409) 925-7163.  
 '86 Buick Sommerset, loaded, ex. cond., \$6,500. Wendy, x35338 or 337-2466.  
 '85 Bronco II, 4 WD, V-6, AT, PS, AM/FM/cass., 48K mi., Eddie Bauer pkg., blue & tan. 333-2218.  
 '79 Buick Regal, reliable, new tires, \$600. Stiles, 944-1111 or 488-5509.  
 '78 MBG, rebuilt eng. w/15K, rebuilt front-end and steering, Weber carb., Monza exhaust sys., new carpet, 90K, \$3,500, OBO. x35370.  
 '81 Ford Courier PU, runs well, rebuilt trans., 5-spd., new clutch, good tires, \$700. Ed, x39847 or 559-1215.  
 '78 Cadillac Seville 350, fuel injec., all power, good cond., \$2,600. x34232 or 481-8545.  
 '54 Olds Super Rocket "88", PB, PS, elec. eye dimmer, 4-dr. sedan, needs some brake work, \$1,895. 331-7025.  
 '85 Pontiac 6000 LE, V-6, auto., PS, PB, A/C, P/W/DWS, cruise, tilt, low mi., \$5,600. Matt, x34285 or 486-7260.  
 '79 Honda Civic, 4-spd., no A/C, ex. cond., new tires, exhaust sys., clutch, CV joints, struts, rebuilt eng., \$1,395. x33617 or 280-8736.  
 '84 Chevy PU, V-8, auto., A/C, P/W/DWS, doors, cruise, tilt, clean, no rust or bumps, \$4,400. 482-7160.  
 '67 Mustang, ex. cond., rebuilt eng., 6 cyl./200 auto., A/C, no rust, new tires, \$3,800. x36276 or 332-2869.  
 '84 Pontiac Sunbird LE, blue/blue, PS, anti-lock brakes, sunroof, A/C, AM/FM/cass., std. trans., good cond., no rust. Mike, 534-4667.  
 '88 Mazda 323 SE Coupe, 5-spd., AM/FM/cass., A/C, 25K mi., ex. cond., \$6,395, OBO. Ellen, 282-3062 or 481-2335.  
 '72 Chevelle 350 V-8, auto., PS, no A/C

comp., mag wheels, gold, \$2,800. x30021 or 479-7947.  
**Boats & Planes**  
 Coleman bass boat, 14' trailer and 3hp motor, will sell sep. Joe, x33190 or 482-3069.  
 '19' Prindle Cat, fully race rigged, new jib, beach wheels, custom trailer w/sail box. Mike T., 333-6246 or 474-7217.  
 '15' tri-hull Starcraft w/trailer and 40hp Johnson motor, not running, new fuel pump, water pump, coil, current tags, \$750, OBO. 333-6558 or 339-1337.  
 Gulfcoast 14' sailboat w/trailer, \$375. 482-1702.  
 '85 Conroy (Glastron) X19, 19', stern drive pleasure boat, 140hp Mercruiser, walk thru windshield, ex. cond., \$6,850. Jim, 282-4029.  
 '16' Fiberglass, tri-hull Chrysler boat, 100hp Evin. OB, galv. trailer, needs floor work, motor runs great, \$1,650, OBO. Linda, x31168 or (409) 925-4862.  
 Venture 21, 6hp motor, trailer, 2 jibs, bimini, knot and depth meters, \$2,350, OBO. John, x30217 or 484-0395.  
 '19' jet boat, 454 Chev. eng., needs work. 326-3393.  
**Cycles**  
 '77 Yamaha RD 400, 11K mi., new batt., ex. cond., \$600. 488-2652.  
 Sears mini-bike, good cond., eng. needs work, \$50, OBO. Tony, x35966.  
 '82 Honda Nighthawk 650, good cond., runs great, less than 11K mi., \$1,075 cash, OBO. Kelvin, x36905 or 488-8173.  
 '80 Honda CB 750, new back tire and inspection, runs good, \$1,000, OBO. Will consider trade for sm. car. 332-7501.  
**Audiovisual & Computers**  
 Mac SE computer, 1 meg. memory, 40 meg. internal HD, keyboard, anti-glare filter, warr., \$2,000. 944-0918.  
 Radio Shack TRS-80 color computer, 64K, joysticks, \$35, OBO. 488-2735.  
 Hayes 1200B internal modem for IBM PC/XT/AT and compat. plus Hayes Smartcomm II software w/hardware and software documents, in boxes, \$99. David, x32751 or 326-1069.  
 IBM PC/XT 360K dual floppy controller w/ext. connector and daisy-chain cable, \$25. David, x32751 or 326-1069.  
**Household**  
 Glass table w/4 chairs, ex. cond., \$150. 331-3379.  
 Zenith 26" color console T.V., wood cabinet, good pic., firm \$175. 488-2656.  
 King size waterbed, dark wood, headboard w/shelves and cabinets, 6 drawers under bed, \$125. 332-9231.  
 Refrig., 22 cu. ft., avocado, \$250; W/D, \$100 ea. 482-3697.  
 Sofa and love seat, sturdy, comfor., ex. cond., \$300, OBO. Connie, x33264.  
 Two swivel rockers and 2 matching lamps, ex. cond., \$75. Kandy, x37256 or 482-2750.  
 Couch, Early Amer., brown tone, \$150; recliner/rocker, brown plaid, \$75. Ed, x36250.  
 Girl's 3-pc. twin BR set w/matt. and boxsp-

## Tuesday

**AIAA Committee to meet**—The local Space Operations and Mission Support (SOMS) AIAA Technical Committee kickoff meeting will be 11:30 a.m.-12:30 p.m. Aug. 1 in Bldg. 4, Rm. 1042, side B. The local committee will address operations and technology development issues, manned and unmanned missions, Earth orbital and planetary operations and support, training, servicing and logistics for the STS, Space Station *Freedom* and advanced programs. For more information, call Sonya Sepahban at 283-6979.

**Engineering courses**—A meeting designed to promote interaction between the University of Houston Cullen College of Engineering and JSC employees and contractors will be from 1:30-3 p.m. Aug. 1 in Bldg. 45, Rm. 304. Information on current course offerings will be presented, and curriculum interests and concerns will be discussed. For more information, call Debbie Hagen, x33078.

**Cafeteria menu**—Special: corned beef hash. Entrees: meatballs and spaghetti, liver and onions, baked ham with sauce. Soup: split pea. Vegetables: buttered cabbage, cream style corn, whipped potatoes.

**Wednesday**  
**Cafeteria menu**—Special: barbecue link. Entrees: cheese enchiladas, roast pork and dressing. Soup: seafood gumbo. Vegetables: pinto beans, Spanish rice, turnip greens.

**Thursday**  
**Cafeteria menu**—Special: chicken fried steak. Entrees: roast beef with dressing, fried perch, chopped sirloin. Soup: beef and

barley. Vegetables: whipped potatoes, peas and carrots, buttered squash.

## Aug. 4

**Cafeteria menu**—Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

## Aug. 8

**College registration**—Registration for JSC students planning to attend engineering courses this fall at the University of Houston-Clear Lake (UHCL) will be from 10:30 a.m.-2 p.m. Aug. 8 in the lobby of Bldg. 45. UHCL will require payment at the time of registration, and will accept an approved JSC Form 75 as payment from JSC employees. Applications for admission to UHCL will be available. For more information, call Debbie Hagen, x33078.

## Aug. 22

**BAPCO to meet**—BAPCO (Bay Area PC Organization), a PC users' group, will meet at 7:30 p.m. August 22 at the League City Bank & Trust. For additional information, contact Earl Rubenstein at x34807, or 326-2354; or Ron Waldbillig at 337-5074.

## Sept. 20

**Computer security expo**—The Data Processing Systems Division (DPSD) will host a User Workstation Security Exposition Sept. 20-21 in the Product Demonstration Facility (PDF), Bldg. 12, Rm. 112. Exhibitors will display anti-viral, file encryption, data storage, access control, keystroke auditing and Local Area Network security products. For more information, call the PDF at x37572.

system w/15 games, \$60. 488-6549.  
 Elec. typewriter, very good cond., carrying case, \$60. Tom, x35488 or 482-9172.  
 Curtis Hawk windsurfer board, good cond., \$300, OBO. Mike, 333-6246 or 474-7217.  
 Antique sewing machine (has motor), \$15; bean boy couch, \$15; 380 lbs. wts., \$70; upright freezer, \$75; Sony's multipiece stereo, no speakers, \$50. 333-6558 or 339-1337.  
 Lynx USA golf clubs, irons, 2-SW, \$150; woods tint shaft driver and 4W, \$100. Steve, x35272.  
 Ethan Allen antiqued pine dining room set; Sharp carrousel microwave; misses clothes; Panther suits, sz. 10 and 12; shower curtains and more, BO. Sue, x34008 or 482-9408.  
 DP Gympac 6200 wt. machine, access. incl., \$250, OBO. x33750.  
 Remote control 4WD track, \$50; formal dress sz. 14, pink, \$50; Kodak 110 instam., \$10. Stacey, x32649 or 480-9793.  
 20' dog leash, coated cable, retract, German made, unused, half price, \$32. 282-4263 or 488-2082.  
 Waterbed frame w/headboard, \$100; Sealy Pos., matt., 1 yr. old, \$150; computer desk, \$85; Atari game trackball, free. 334-6794.  
 King size matt., \$50. Louise, 480-5079 or 282-2509.  
 Sears garden tiller, heavy duty, ex. cond., \$90. 280-8796.  
 Marine radar, needs work, Raytheon, \$195. 280-8796.  
 Health Master 800 exer. bicycle, over-size saddle, like new, \$75. 282-4302 or 488-5509.  
 Beaded wedding dress w/beaded veil, Queen Anne neckline, sz. 10, \$300; HEAD snow skis and poles w/Solomon bindings, 180cm, \$150. Stacey, 333-9738.  
 Bar-b-que pit, new burner, \$40. Richard, 333-7074.  
 AMI juke box, 100 records, cabinet style, 20p watt amp, \$800 cash. Call after 7 p.m., 331-7025.  
 Aquarium, 20 gal., all rocks, decorations, and fish, complete setup, \$100. Lea Anne, x37541 or 486-6762.  
 Hurricane surfboard, 6' 2", rounded pin-thruster epoxy-hydro foam, bag and leash, \$275. 333-3409.  
 Flatbed trailer, dual axle, 4000 lb. plus carrying capacity, \$550. Rick, 280-1500, x3020, or 996-8961.  
 Speed skates, \$125, OBO. Tim, 333-3431.  
 Velvet sofa/sleeper, queen size, ex. cond., \$300; boy's Schwinn 10-spd. bicycle, \$50; room size carpet, 3 pcs., brown tones, \$25/ea. 482-1535.  
 Sears carpet machine, used once, \$65; twin bed compl., \$30; coffee table and end table, \$15; recliner chair, \$25, x37456 or 388-1090.  
 Batman record, 1966, from T.V. series, BO. 280-9488.  
 Diamond solitaire ring, .33K set in 14K gold, appraised at \$700, BO. 481-3102.  
 Mason canning jars, Ball and Kerr, several cases, all in boxes. 481-8886 or 481-3102.  
 Antiques: Wheelchair, wooden back, seat, handles and foot rest, good cond.; 2 seed sowers; pedal sewing machine, wooden; iron bed; sm. spinning wheel; walking plow, old wooden tele.; 1847 Wm. Rogers Silverplate set, 56 pcs., 7 ex. pcs., serves 8; quilts; much more. 783-9164.



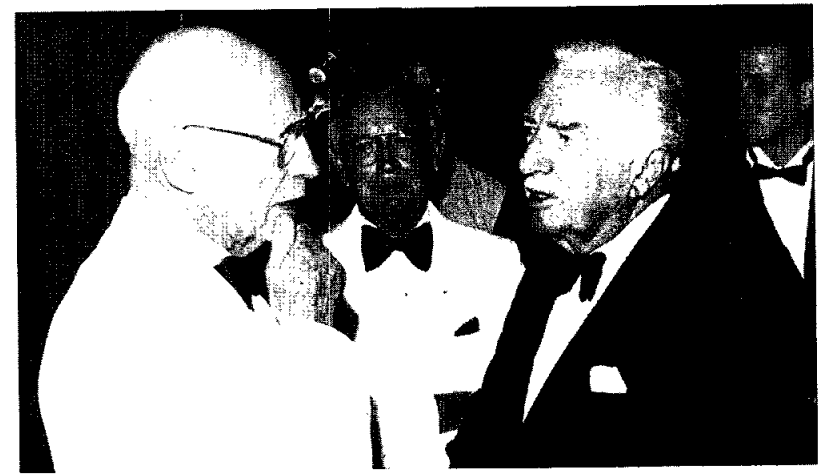
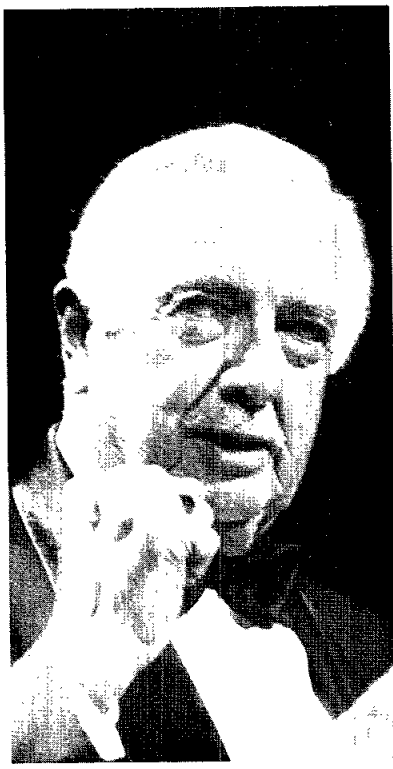
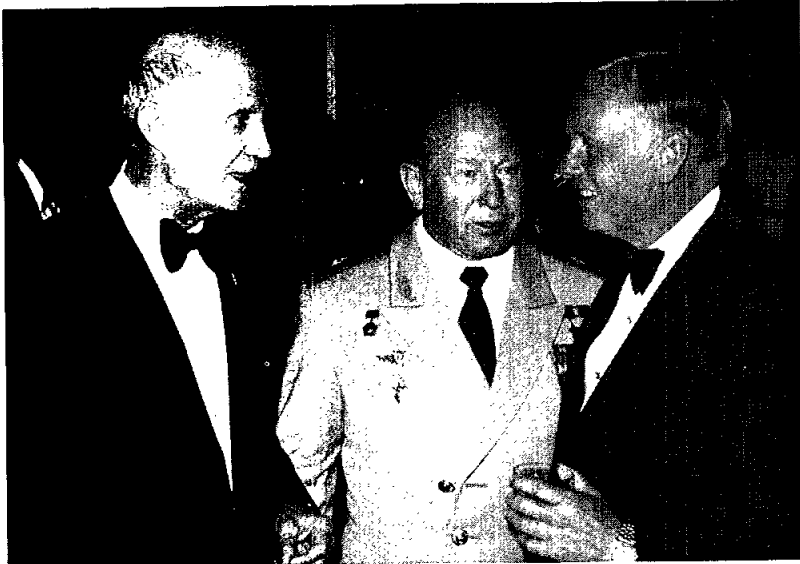
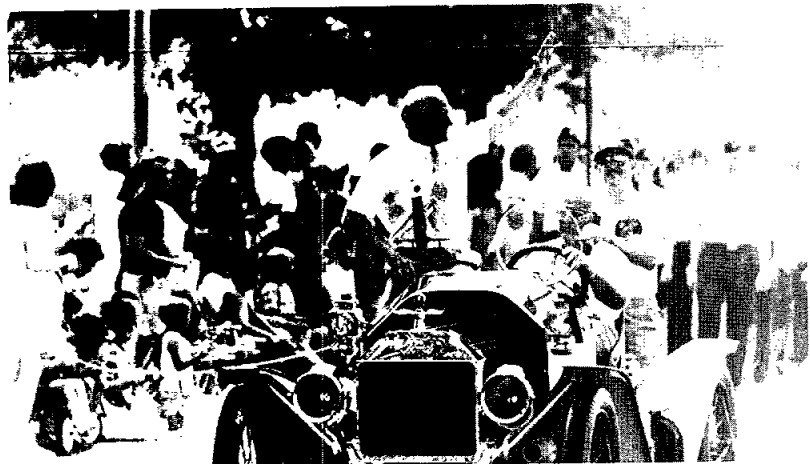
JSC Photos by Jack Jacob, Sheri Dunnette, Mark Sowa, and Kim Murray

# APOLLO ALBUM

## Snapshots from the 20th anniversary

A splashdown party, black-tie gala, open house, parade and rally brought JSC back to Earth this past weekend after nine days of celebrating the 20th anniversary of man's first lunar landing. During the celebration, sponsored by JSC, the American Institute of Aeronautics and Astronautics and the Spaceweek National Committee, an estimated 43,620 visitors joined JSC workers and retirees in a myriad of events. Clockwise from above: 1) Thousands gather at Rocket Park for a post-parade rally; 2) JSC Director Aaron Cohen (center), talks with NASA Administrator Richard H. Truly and his wife, Cody, at the Friday night gala; 3) former JSC Directors Robert Gilruth and Christopher C.

Kraft Jr. reminisce with keynote speaker Walter Cronkite at the gala; 4) Apollo 11 Command Module Pilot Mike Collins offers a toast; 5) one of the floats in Saturday's parade depicts the "one small step" taken by Apollo 11 Commander Neil Armstrong; 6) Cronkite punctuates a message in his keynote speech with a clenched fist; 7) Apollo astronauts Tom Stafford and Armstrong talk with former Soviet cosmonaut Alexei Leonov (center) at the gala; 8) the second man to step on the Moon serves as grand marshal of the parade; and 9) Armstrong is surrounded by well-wishers during Thursday's splashdown party at the Gilruth Recreation Center.





# Apollo 20th Anniversary week finishes with flourish

By Kelly Humphries

Toward the end of the 20th anniversary week, the Apollo astronauts—who had so far received most of the attention—turned the spotlight on the supporting cast.

They did so by attending a "splashdown party" re-creation with some 8,000 former co-workers and friends, current JSC employees and their families at the Gilruth Recreation Center on Thursday, by sharing their experiences in an irreverent panel discussion Friday afternoon, and in obviously heartfelt statements at the Apollo 20th Anniversary Celebration Gala on Friday night.

"The men and women of the Apollo program remember not only what emerged, what came out of that effort, but more importantly what they put into it," Apollo 11 Commander Neil Armstrong said at the gala in the Hyatt Regency ballroom.

"They gave their time and their skill, their care and their heart and their soul without limitation to make America the premiere spacefaring

nation. It was the most intense, the most challenging, the most difficult period in their lives, but most would also say those were the best days of their lives," he said.

Buzz Aldrin, who shared the spotlight with Armstrong when they became the first men to land on the Moon, remembered that a flight surgeon had shown them tapes of the world's reaction to their achievements following splashdown. He said he turned to Armstrong and said, "Neil, you know, we missed the whole thing."

And Apollo 11 Command Module Pilot Mike Collins offered a toast to Houston and the future, proclaiming "You ain't seen nothing yet."

During the nine days of festivities surrounding the anniversary, an estimated 43,620 people visited JSC. The largest visitor count was Saturday, when an estimated 14,527 visitors joined JSC workers for a parade through the JSC streets and rally at Rocket Park.

Employees and visitors filled Teague Auditorium to its 800-person capacity each day for the speakers programs that discussed the planning, preparation, operation and scientific results of the Apollo program. And thousands of people and cars jammed NASA Road 1 and the shores of Clear Lake for the "Thousand Points of Light" flotilla and fireworks display put on by the Eagle Twenty group.

"The legacy of the Apollo program is the very foundation on which this center operates," JSC Director Aaron Cohen said at the gala. "It is my strong conviction and fervent hope that the persons who gather to recognize the 30th, the 40th and the 50th anniversary of the lunar landing will have their own remarkable achievements worthy of recognition and honor."

"From a local perspective, none of us is in doubt about what the successes of the

space program mean to this community in Houston," added Houston Mayor Kathy Whitmire. "We've been through some good times in Houston. NASA has been through some good times. We've been through some times of reexamination and NASA has also been through some periods of reexamination. I think all of us together are stronger today as we look at those new challenges that are now being given to the space program."

Veteran newsman Walter Cronkite remembered that he, a professional communicator, was speechless during the Apollo 11 landing. "Everybody, everybody felt that same inexpressible high that had caught hold of me. Not just Americans, of course, but the multitudes around the globe.

"Twenty years later, I think we're thankful still that from the beginning the Apollo 11 astronauts saw their mission not only as an achievement of the United States but most importantly as a milestone in the history of man."

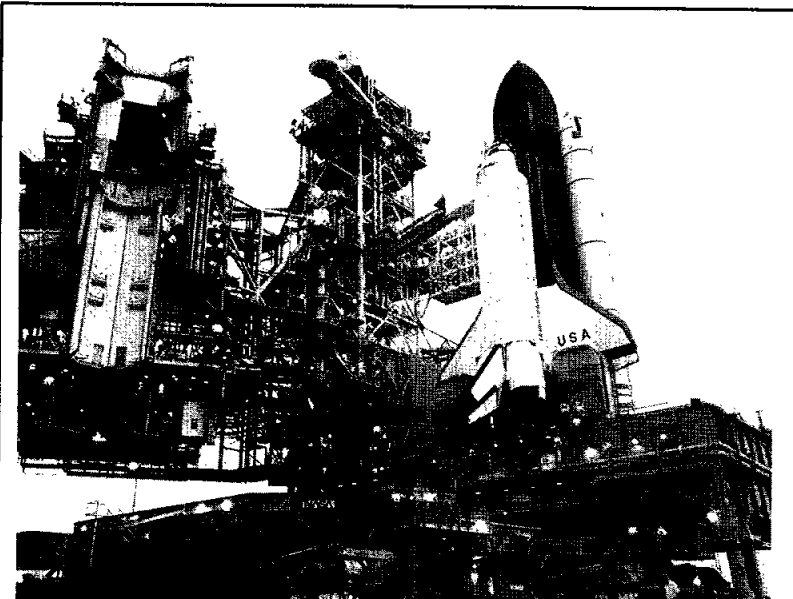
## Survey results in

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deputy director of Mission Operations, and Director of Human Resources Jack Lister to further study areas needing attention.

The group has been asked to recommend to management a set of issues on which to concentrate. To that end, NASA employees eligible to participate in the original survey, including co-op, part-time, and military personnel assigned to JSC, will soon be asked to participate in focus groups. The groups will seek to clarify centerwide and organization-specific issues, and develop specific actions toward their improvement.

Specific results of the survey, as well as periodic updates of the progress of the working group, will be reported as they become available. Questions should be directed to the Human Resources Development Branch (x33068), or to the employee's Personnel Management Specialist.



ON THE PAD—The Space Shuttle *Columbia* arrives at launch pad 39-B after a three-year absence from the launch complex. *Columbia* is scheduled for launch on STS-28 no earlier than Aug. 8.

## Lunar base could be manned by 2001

(Continued from Page 1)

assignment, Truly said. "It is a major effort, and we should not kid ourselves—we've got a lot to do."

Martin, who explained the basic Moon and Mars mission scenarios, said the lunar base will be a test program for Mars missions similar to the way Mercury and Gemini were tests for the Apollo program. He said robotic Mars missions also would be used to pave the way for humans.

America could conceivably have a lunar outpost capable of sustaining a crew of four for a month by the year 2001, and a crew of 12 for a year by 2010, Martin said. A manned Mars mission could be mounted by

the second decade of the 21st Century, as lunar base development tapers off.

"It's important we keep Mars milestones in front of the public and in front of all of you that are going to be working on this program to let them know we really are progressing in a steady way toward human expeditions to Mars," Martin said.

Using Space Station *Freedom*, equipped with hangars and a refueling capability, NASA would need six Shuttle-C flights and one additional shuttle flight each year to maintain such a lunar base, Martin said. Vehicles would cycle back and forth from the Moon using lunar transfer

and excursion vehicles. A manned Mars mission would follow a similar scenario, requiring six heavy-lift launch vehicles capable of putting 250,000-300,000 pounds into orbit and one additional shuttle mission, he added.

The lunar base also would provide an excellent opportunity for international cooperation and development of management interfaces between nations if this country's leadership decides such a program is desirable, Martin said. The development of those interfaces could help in making a decision on whether to work together with other countries on a manned Mars mission.

## Bush directive gets warm reception at JSC

(Continued from Page 1)

"(1) What path we're going to take, by outlining a plan using the space station, going to the Moon as a means of 'easy' access to train us to live in a permanent base on another world; and then onward, to Mars;

"(2) how we're going to do it, in that, unlike the Apollo program, we're going to the Moon and Mars to stay, building permanent facilities to support long-term exploration goals; and

"(3) gave Vice President Quayle, by law the chairman of the National Space Council, an action item to decide exactly what it will take, how many people, how much money, and a timetable for how long it will take to reach these goals."

Deputy Chief of Engineering's

Advanced Program Office Dr. George Zupp termed the president's statement "great. He seems to sincerely want to move forward, and has identified the area where NASA should be," he said.

"We'd like to get something going beyond shuttle," said Zupp.

Dr. Donald Robbins, deputy director of Space and Life Sciences, enthusiastically endorsed Bush's remarks and adds, "The president went about as far as he could go," in response to some critics who decried the lack of funding and scheduling specifics in the speech.

"Prior to this we had no definite statement of goals," Robbins said. "We have been criticized in the past for lacking long-range goals. Well,

now we have them. We have a vision, to have an expansive role in space."

Dr. Wendell Mendell, longtime Solar System Exploration Division moon base proponent, expressed his support for the president's "defined, stepwise plan of human presence in space."

"He (Bush) settled a debate within NASA that has been taking up the attention of those with more pressing matters to attend to. The president has been criticized for not giving us a definite timetable, but, in my view, he provided a process of accomplishments that has been carefully thought out—and perhaps not accomplished in the 'traditional' way. It was exactly the right statement with exactly the right level of emphasis," Mendell said.

## Columbia rolls to launch pad

(Continued from page 1)

tank and the APU. Each auxiliary power unit incorporates two isolation valves to permit hydrazine fuel to reach the APU or to seal fuel flow from them. A talk-back switch on a panel on the orbiter's flight deck allows the crew to position the valves open or closed depending on need.

Nothing significant was found to be wrong with the valve during troubleshooting Tuesday and Wednesday,

and no abnormal leakage was seen.

Earlier this week, the rotating service structure (RSS) was moved back around the vehicle so that workers could get into the aft compartment to complete work in the main propulsion system to rid engine one's helium system of any contamination. A new line was put in, and a filter and valve were replaced. Work in the aft compartment was scheduled to be completed by the end of this week.

## Space News Roundup

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Editor..... Kelly Humphries  
Associate Editor..... Linda Copley

## Inventors, suggestors get commendations

JSC Director Aaron Cohen recently presented Space Act, Suggestion, Patent Application and NASA Tech Briefs Awards to 24 employees during a recent ceremony in Bldg. 1.

Recipients of the Space Act Awards included:

Frederic S. Dawn, Hazards Protection for Space Suits and Spacecraft, \$250; Philip R. West, Terry O. Tri and William E. Spenny, Don/Doff Support Stand for Use with Rear Entry Space Suits, \$250 each; George A. Salazar and Richard L. Sinderson, Adaptive Data Acquisition Multiplexing System and Method, \$750 each;

Christopher L. Lichtenberg and Herbert S. Kobayashi, Method and Apparatus for Measuring Distance, \$500 each; Brian G. Morris, Tank Gauging Apparatus and Method, \$250; George F. Parma, Gripping Device, \$250; and Leo G. Monford Jr., Improved Docking Alignment System, \$250.

Suggestion Award winners were: Norman R. Lamb and D. Leigh Allen, Transmission of Computer Electronic Spreadsheets through the PROFS System, \$125 each.

Patent Application Awards went to:

Frederic S. Dawn, Protective Laminate Space Suit Helmet and Extravehicular Visors, \$250; Jose A. Marmolejo, EMU Helmet Mounted Display, \$250; Clifford W. Hess and Larry C. Li, Positioning of a Dexterous Robotic End Effector Using Proximity Sensor to Minimize Target Escape Potential During Grasping, \$250;

Richard D. Juday, Three Dimensional Moire Pattern, \$500, and Programmable Remapper for Image Processing, \$250; Margaret E. Grimaldi, Pole Crew Escape System for the Shuttle Orbiter, \$250;

Paul T. Baffes, Lui Wang and Bowen Loftin, General Architecture for Intelligent Training Systems, \$250 each; Richard T. Walter, Volumetric Measurement for Container Contents Gauging, \$250; and Michael A. Rucker, High Pressure Promoted Combustion Chamber, \$250.

NASA Tech Briefs Awards worth \$150 each were earned by:

Richard D. Juday, Synthetic Estimation Filters for Position Determination and Three Dimensional Moire Pattern; Lui Wang, Dynamic Pattern Matcher Using Incomplete Data; and Dennis R. Morrison, Perfusion Bioreactor for Cell Culture in Microgravity.



STAMP OF APPROVAL—Houston Postmaster R.J. Pitts presents a plaque containing an official commemorative cachet depicting the 20th anniversary of the Apollo 11 Moon landing to Dan Nebrig, executive assistant to JSC Director Aaron Cohen. Pitts presented the plaque during last week's Apollo Anniversary celebration.

## Galileo processing on target

(Continued from Page 1)

occur during Galileo's launch aboard the Space Shuttle *Atlantis*.

Galileo Project Manager Dick Spahalski of JPL said final approval for use of the plutonium is expected by the first of September.

Galileo is expected to be launched Oct. 12 and started on its six-year round-about trip to Jupiter by the crew of *Atlantis*—Commander Donald Williams, Pilot Michael McCulley and Mission Specialists Shannon Lucid,

Ellen Baker and Franklin Chang-Diaz.

Williams said he has no special reservations about the flight relating to the use of the RTGs.

John Conway, director of payload management and operations at Kennedy Space Center, said assembly and check out of Galileo have been completed and that technicians are ready to begin prelaunch processing and integration with *Atlantis*, which is on schedule to roll out to the launch pad Aug. 28.