

New track

Five JSC scientists are stepping onto a new career path that makes room at the top for non-supervisors. Story on Page 3.



Flight safety

There's a new flight safety award that recognizes people who prevent catastrophes from happening. Story on Page 4.

Space News Roundup

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No. 5

JSC budget tight, but rising Space station spending awaits restructuring plan

When President Bush announces his 1992 budget request next week, JSC financial experts will still be working on unanswered questions about how the fiscal 1991 budget affects the center.

Overall, JSC's budget increased by \$128 million or 7 percent in fiscal '91, not counting spending for Space Station *Freedom*, said JSC Comptroller Wayne Draper. JSC's total slice of the NASA pie won't be known until late February, when the agency takes back to Congress its plan for restructuring the space station.

When it approved NASA's \$13.9 billion '91 budget, Congress autho-

alized space station spending only through the review period and directed NASA to look at how it would build *Freedom* with \$1.9 billion in 1991 and within a NASA budget that grows by only 10 percent annually in following years. The \$13.9 billion budget is still a 13 percent increase over the \$12.3 billion fiscal '90 budget.

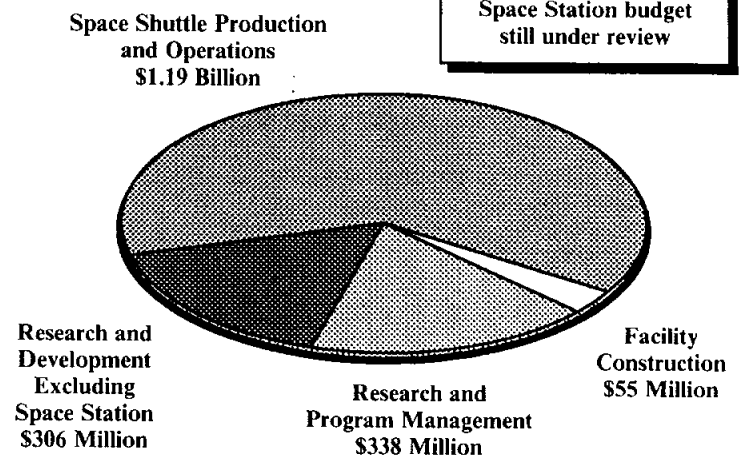
One of the most dramatic and suspenseful years in federal budget negotiation history ended in November after a series of continuing resolutions and furlough scares. In order to help meet deficit reduction targets, the President's request for NASA was cut by about \$1.2 billion, and the agency

was left with some tough decisions about how to deal with tight budgets. Some of those decisions remain, awaiting the outcome of the space station restructuring effort.

"Funding to begin the new fiscal year came in small and frequent issuances designed to merely sustain ongoing programs," Draper said. "Once an agreement was reached, a whole new federal budget process was developed to deal with future deficits. NASA came through this process in a good posture relative to other domestic discretionary programs."

Please see **SPENDING**, Page 4

JSC Budget Breakdown - Fiscal 1991



JSC tops in Equal Opportunity

JSC will receive the 1990 NASA Equal Opportunity Trophy for its leadership in the balanced placement of women, minorities and the disabled.

JSC Equal Opportunity Director Joseph Atkinson said this is the third time JSC has won the large traveling trophy that depicts two upstretched hands holding the world. The winning center also receives a permanent plaque and a \$10,000 stipend to be used for its equal opportunity programs.

"I am very happy and proud to accept this award," said JSC Director Aaron Cohen. "It means a great deal to me personally, and it means a great deal to the Johnson Space Center. Our people set their sights on this award, not just for the sake of winning, but because we wanted to do a good job in this area."

JSC previously won the 10-year-old trophy in 1981 and shared it with Marshall Space Flight Center in 1985. Last year's winner, Goddard Space Flight Center, is shipping the trophy to JSC. A presentation ceremony will be held following its arrival.

"Center management and the employees continually promote the concept of equal opportunity for all employees," Atkinson said. "They are the ones who deserve the credit."

In a letter announcing the winner, NASA Administrator Richard H. Truly wrote: "Please accept my sincere appreciation for a job well done."

Please see **EQUAL**, Page 4



JSC Photo by Mark Sowa

JSC employees climb into the new Shuttle Training Aircraft for a closer look following ceremonies in Ellington Field's Hangar 135.

Fourth STA jet joins fleet

By Barbara Schwartz

JSC took delivery of its fourth Shuttle Training Aircraft last week, and employees got a chance to tour the jet that mimicks shuttle flight characteristics.

Pilot Kenneth Baker flew the modified Grumman Gulfstream II, designated NASA 945, to Ellington Field on Jan. 24. He and flight engineers Joseph Gerky and Lawrence Neu were greeted with a welcoming ceremony in Hangar 135.

David Leestma, acting for the director of Flight Crew Operations, presented plaques

to James Raney, Robert Rivers, and Neu in recognition for their contributions as project managers for the new STA.

Leestma conveyed NASA's appreciation for the efforts of the honorees in bringing the fourth STA into the fleet as an important enhancement to astronaut training and mission support requirements.

Installation of flight simulation electronics is under way. Test flights will begin in March, and operational use is expected to begin in April. The aircraft will operate out of Ellington's Hangar 135.

Discovery thrusters replaced

By James Hartsfield

Hopes for an early launch of *Discovery* on STS-39 were thwarted this week when Kennedy Space Center technicians discovered that three small thrusters must be replaced.

The launch now is scheduled for early March, as manifested in December, instead of Feb. 26.

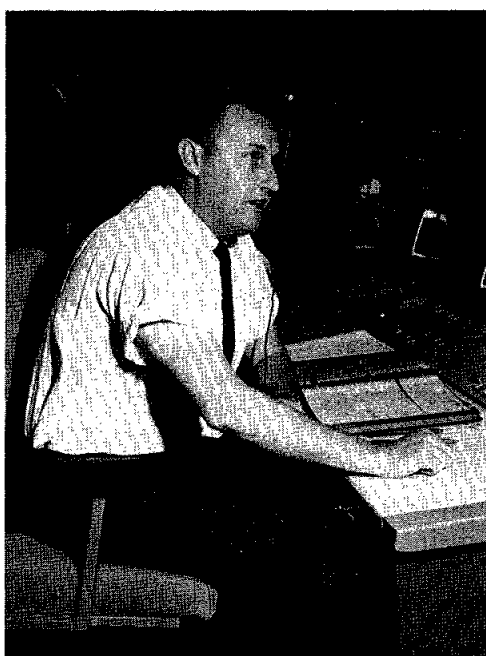
Two of the primary reaction control system thrusters on the left orbital maneuvering system pod leaked during tests, and one thruster on the right OMS pod has suspect welds. One of the primary thrusters on the left OMS pod leaked far above acceptable limits while the other leaked at a rate only slightly above the limit. Tests indicated the welds that connect the third thruster nozzle to the engine may not be solid.

The two leaks and the suspect weld apparently are unrelated.

The extra work will delay *Discovery's* move out of the processing hangar about one week, and plans are for the spacecraft to be rolled to the Vehicle Assembly Bldg. on Feb. 7 to be linked with the STS-39 external fuel tank and solid rockets.

Other work on *Discovery* has proceeded smoothly, including cleaning of the cargo bay, closeouts of the engine compartment, and closing of the cargo bay doors.

Work on *Atlantis*, slated for an early April STS-37 launch to put the Gamma Ray Observatory in orbit, has gone well during the past week. The auxiliary power units, three hydrazine-powered turbines that power the spacecraft's hydraulics, are undergoing standard pre-flight testing.



NASA Photo

Clifford Charlesworth sits at his Apollo 8 flight director's console in 1966.

Flight director for historic Apollo missions dies

Clifford Charlesworth remembered as 'analytical, unbiased, honorable'

By Brian Welch

The flags in front of Bldg. 1 were at half staff Tuesday as the manned space flight community paid its final respects to a wise and genial physicist from Mississippi who became a general in what one of his friends called "the assault on the Moon."

Clifford E. Charlesworth, 59, died of a heart attack at his home in Friendswood on Saturday. He was the fifth person to become a flight director in Mission Control, and served as lead for two of the most historic missions of the Space Age: Apollo 8 and Apollo 11.

To the authors Charles Murray and Catherine Bly Cox, who spent months at JSC researching their book, "Apollo: The Race To The Moon," of all the flight directors of the time, "Charlesworth seemed the closest to normal."

They wrote, "A Mississippian, Charlesworth was a little older than the others (he had reached the advanced age of thirty-five when he was promoted), and in many ways acted older as well, with a lazy voice and a deliberate manner.

Charlesworth didn't give much away, watching and reacting rather than trying to get out front and pull people along. 'Cliff is a very wise man, in a student-of-human-behavior kind of way,' one of his colleagues observed. 'He could have been a pool shark, or a Mississippi riverboat card player....' Charlesworth was what another colleague called 'the laissez-faire flight director,' leaving his controllers alone until a problem arose that required him to act."

Charlesworth retired as special assistant to JSC Director Aaron Cohen in June 1988 after 26 years at JSC, including three years as deputy center director under Christopher C. Kraft Jr.

Charlesworth was always a good sounding board, Cohen said. "He might not always tell you what you wanted to hear, but Cliff was analytical, unbiased and honorable. We will miss him."

Gene Kranz, Director of Mission Operations, always found it interesting that Charlesworth never called him by his first name. "He always called me Kranz." After a very tough debriefing of an

unsuccessful rendezvous simulation during the Gemini days, Kranz remembers Charlesworth telling him, "Kranz... it's as simple as F=MA."

Almost two decades later, after Mission Operations revolutionized its way of doing business by consolidating more than 20 contractor functions into the one massive STSOC contract, Charlesworth told him, "Kranz, what you do not know about management would fill volumes. Otherwise, you are O.K."

Glynn Lunney, a former Apollo flight director and now president of Rockwell Space Operations Co., remembers Charlesworth as providing a steadying hand, a tempering influence "on the exuberance with which we went at everything."

He was cool under fire, Lunney said, "pretty unflappable, not given to extremes, and he certainly was not one to panic. Everybody always felt he provided this steadying hand and respected him for that. They sought him out to get his counsel on things."

Please see **CHARLESWORTH**, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): \$4 each.

AMC Theater (valid until May 1991): \$3.50 each.

Stamp books (20 25-cent stamps): \$5.

Harlem Globetrotters (2 p.m., Feb. 2, the Summit): \$9 each.

Sesame Street Live (10:30 a.m., Feb. 9, the Summit): \$7 each.

Valentine Dinner Dance (7 p.m., Feb. 16, Gilruth, music by Sunshine Festival and Brass Rhythm and Reeds): \$15 per person.

Alaska Trip (May 24-June 2, deposit of \$200 due Feb. 15, balance due April 25, price depends on number of people): \$1,750 to \$1,900.

Thermographed, raised lettering and logo business cards can be ordered by civil service employees; \$25 cards per set. Old logos-\$21; new logos-\$18.

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Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must show badge or EAA card and pay at the Gilruth Center. Classes tend to fill up four weeks in advance. For more information, call x30304.

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

Defensive driving—Course is offered from 8 a.m.-5 p.m., April 20 and May 18. Cost is \$15.

Aerobic dance—Eight-week session meets 5:15-6:15 p.m. Tuesday and Thursday nights. Cost is \$24.

Exercise class—Class meets 5:15-6:15 p.m. Monday and Wednesday nights. Cost is \$24.

Weight safety—Required course for employees wishing to use the Gilruth weight room. The next class will be from 8-9:30 p.m. Feb. 13 and 28. Cost is \$4.

Country and western dance—Beginning and intermediate class meets Monday nights for six weeks beginning March 4. Cost is \$20.

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Technical Library News

These new publications are available in the JSC Technical Library, Bldg. 45, Rm. 100.

Pascal Programming Structures for Motorola Microprocessors. George William Cherry, 1984, QA76.73.P2 C47 1982.

Government Research Directory. Gale Research Co., 1985. Q179.98 .G68.

Programming Microprocessor Interfaces for Control and Instrumentation. Michael Andrews, 1985. QA76.6.A54.

What Every Engineer Should Know About Microcomputer Systems Design and Debugging. William C. Wray, 1984. QA76.6.W73 1984.

Programming in ADA. J.G.P. Barnes, 1984. QA76.73.A35 B37 1984.

The Ada Programming Language (videorecording). Dr. Charles McKay. QA76.77.A35 M24.

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. No phone or fax ads accepted.

Property

Sale: 1 BR Egret Bay Villa, on the water w/boat access to Clear Lake, pool, club house, pier, boat incl., \$43K. Mr. Collins, 480-8190 or 996-7693.

Sale: 3-2 mobile home, ins. incl., split level, take over pmts. at \$231.98/mo. 337-3122.

Rent: Lake Travis cabin, priv. dock, CA/H, equipped, accomm. 8, div/wkly rates, \$80-\$325. 326-5652.

Rent/Lease: CL condo on marina, 3-level, all appli., FPL, wetbar, 2-2.5-2, \$950/mo. 326-5652.

Rent: Lake Livingston, w/frnt, 3-2, CA/H, FPL, cov. deck, pier, ex. cond., furn., wk/wknd. 482-1582.

Sale: Friendswood, lot, 120x162, near schools, util. avail., \$34K. Rick, 283-1988 or 996-8961.

Rent: Baywind I condo, 1 BR, new carpet/paint, avail. Feb. 1, \$390/mo. plus dep. Walt, x36353 or Doug, 480-9280.

Rent: Galv. condo, 2-1, FPL, all appli., new carpet, 69th St., \$495/mo. 488-2664.

Rent: CL townhouse, 2-2.5-2, FPL, all appli., gray carpet, new paint, \$750/mo., nonsmokers, 488-2664.

Sale: Galv. duplex, \$49K, poss. owner fin. 486-0788.

Sale: Dickinson, 3-2-5-3, VA 8% assum., formats, FPL, wetbar, \$112K. 534-3554.

Rent: Condo at Epcot/Disney World entrance Mar. 8-15, sleeps 8, \$700. Phil, 283-5648.

Sale: El Dorado Trace condo, 1-1.5, ex. cond., all appli., assum. loan w/approval, good equity. Bobbie, 481-9199.

Sale: Middlebrook, 3-2-2, cut-de-sac, new paint/carpet/tile/AC, \$89K. 538-1051.

Rent: Baywind I, 2-2, W/D, refrig., \$550/mo., \$500/dep. 280-0477.

Lease: Baywind II condo, 2-2, FPL, all appli., fans, \$440/mo. plus dep. Bill, x39378 or 487-4537.

Lease: Pebblebrook condo, 2-1.5, new paint/carpet/blinds, WBFP, all appli., avail. Feb. 1, \$475/mo. plus dep. Lori, x34718 or 554-2601.

Sale: W/frm. beach house on pilings, 3-2-3 on San Bernard River. 862-3929.

Sale: Bayfront lot in Seabrook, \$125K; 2 waterfront lots near NASA, \$38,500/ea. Don, x38039 or 333-1751.

Rent: Mobile home in Santa Fe, 1-1 on 1 acre, \$250/mo., \$200 dep. (409) 925-8081.

Sale: Ellington/Sycamore Valley, 3-2-2, fence, stor. shed, recent paint/floors, \$62,500. Bill, x30164 or 481-6340.

Sale: Pipers Meadow, 3-2.5-2, formal LR/DR, FPL, loft, wet bar, fans, gar. door opener, deck, new paint, \$92K. Dennis, x34405 or 480-5076.

Rent: Galv. condo, Seawall & 61st, furn., sleeps 6, div/wkly/wknd rates. Magdi Yassa, x33479 or 486-0788.

Sale: 3/4 acre lot, Shadycrest Subdiv., Pearland, all util., trees, \$27,500. 992-1913.

Sale: LC 4-2.5-2, \$110K w/assum. 8% loan balance of \$82K. 332-0047.

Cars & Trucks

'55 Chev. 210 2-dr. sedan, 305 V8, 3-spd. auto., ster., many new parts, \$3,800. 474-5055.

'86 300ZX, ex. cond., auto., T-top, loaded, 95K mi., \$8,600. x30643 or 488-4373.

'87 Chev. Cavalier, 4-dr., auto., 37K mi., ex. cond., warr., \$4,350. OBO. Dave, x39579 or 482-6187.

'88 Toyota Camry LE, pwr. sunroof/moonroof, loaded, 6 yr./75K mi., ext. warr., 36K mi., \$10,700. Brian, 283-4126 or 996-9415.

'80 Toyota Celica, auto., good cond., 85k mi., new batt./carb./stickers, \$3,300. 486-4265.

'88 Chev. ext. cab Silverado, V8, 49K mi., alarm, 72K warr., \$9,800. 480-8682.

'89 Chevy S-10 Blazer, 4.3 eng., trk. pkg., auto., \$9,750.

'82 Nissan Stanza, 5-spd., 4-dr., \$2K. x33443.

'82 Ford Mustang, air, auto., new tires, ex. cond., \$2,200. x38265 or x31633.

Toyota Celica GT, 3-dr. liftback, ex. cond., 48K mi., auto., \$8,200. 639-3455.

'87 Ford Tempo GL, 4-dr. sedan, 75K mi., ex. cond., \$4K. 538-1051.

Trailer, 1/2 ton Chevy truck bed, spare tire, lights, \$150. 992-2827.

'68 Chevelle, 6-cyl., 100K mi., needs paint/new int., \$1K. OBO. Ed, 283-5716 or 333-1563.

'89 Ford F350 PU, diesel, supercab, dually, customized, ex. cond. (409) 925-5881.

'84 Ford PU, V8 w/camper, 71K mi., ex. cond., \$4,950. x37883 or 337-5482.

'87 Chevy S-10 Blazer, ex. cond., 4-spd., 4-cyl., \$5,500. 470-0777.

'86 Chevy Cavalier Z-24, 68K mi., \$5,100. Debbie, 335-2070 or 474-4354.

'87 reb. eng. in '85 customized '80 Ford van, color TV, radio, CB, 4 captains chairs, sofa bed, table, built-in bar/icebox, running water, \$4K. David, x35048 or Mary Fae, x35143 or 482-9061.

'89 Chevy C-10 PU SWB, extra clean, 6-cyl., std., \$2K. 534-3550.

'83 Buick LeSabre, 2-dr., loaded, limited ed., ex. cond., \$2,500. Scott, x39156 or 482-8017.

'80 Pontiac Phoenix, V6, AC, 5-dr. liftback, new auto. trans. w/1 yr. warr., new batt., runs good, low mi., \$1,950. x30092 or 481-3637.

'87 Cadillac Cimarron, 2.8 V6 auto., pwr., 60K mi., ex. cond., \$7,400. Ed, 486-6473 or 486-8847.

'79 Toyota truck, 4 WD, good mech. cond., \$3,900. Bob A., x34409 or 393-1670.

'89 Honda CRX Si, 5-spd., pwr. sunroof, less than 14K mi., ex. cond., \$9,300. x38088.

'85 1/2 Porsche, 5-spd., sunroof, Sony new Michelin XGT-V's, \$9,500. 470-7700.

'84 Mazda 626 LX, 5-dr., 68K mi., \$2,500. x39528.

Cycles

'80 Honda 80 XL dirt bike, runs OK, \$200. OBO. 992-2827.

'86 Honda VFR 750 Interceptor, ex. cond., \$2,950.

'81 Suzuki RM 125, wtr. cooled, reb. motor, ex. cond., \$600. Andy, 333-6671 or 332-9105.

Boats & Planes

'79 Renegade 1540 ski boat, 140hp Evinrude, SST prop, trlr., ex. cond., \$2,500. OBO. 333-6868 or 486-7846.

25hp Evinrude, elec. start, new, \$1,700. Jerry Craig, 283-5311 or 420-2936.

'73 34' Bristol, classic sloop, 28hp Westerbeke diesel, sleeps 7. 474-7225.

'87 1950SS Victory Vip 19' ski boat, I/O, 165hp Mercruiser, \$9K. OBO. x32230 or 992-2613.

'19' Crestline I/O boat, 165hp w/trlr., ex. cond., 862-3929.

'83 Renken 18' sailboat, roller furling jib, 4hp aux., galv. trlr., sleeps 4, good cond., \$4K. 339-3476.

Audiovisual & Computers

2 Ultimate box spkrs. w/8" sub-w/fooler, 3 mos. old, \$130. OBO. Oma, x30367 or 945-2486.

JSC

Today

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: baked scrod, liver and onions, fried shrimp. Soup: seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

Monday

AAS conference—The American Astronautical Society will host the Rocky Mountain annual Guidance and Control Conference Feb. 2-6 at the Keystone Lodge in Keystone Village, Colo. For information, call Alice Little at (303) 939-5147.

Cafeteria menu—Special: wieners with baked beans. Entrees: beef chop suey, breaded cutlet with cream gravy, grilled ham steak. Soup: beef and barley. Vegetables: buttered rice, Brussels sprouts, whipped potatoes.

Tuesday

Cafeteria menu—Special: pepper steak. Entrees: fried shrimp, pork chop with applesauce, turkey a la king. Soup: celery. Vegetables: au gratin potatoes, breaded squash, buttered spinach.

Wednesday

Astronomy seminar—The JSC Astronomy seminar will be held noon Feb. 6, in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

Cafeteria menu—Special: Mexican dinner. Entrees: fried catfish with hush puppies, braised beef ribs. Soup: seafood gumbo. Vegetables: Spanish rice, ranch beans, buttered peas.

Thursday

Cafeteria menu—Special: hamburger steak with onion gravy. Entrees: corned beef with cabbage and new potatoes, chicken and dumplings, tamales with chili. Soup: split pea. Vegetables: navy beans, buttered cabbage, green beans.

Feb. 8

Cafeteria menu—Special: barbecue link. Entrees: deviled crabs, broiled codfish, liver and onions. Soup: seafood

gumbo. Vegetables: buttered corn, green beans, new potatoes.

Feb. 9

APAC new year—JSC Asian Pacific American Council will observe Lunar New Year at 6 p.m. Feb. 9 at the Gilruth Center. Banquet and dance \$15 (just dance \$10, starting at 8:30 p.m.). For more information contact Hanh Nguyen-Xuan x36805.

Feb. 12

Picnic meeting—The 1991 JSC Picnic Committee will meet at 5 p.m. Feb. 12 at the Nassau Bay Hilton (2nd floor lounge). There will be a Picnic Theme Contest, send your ideas to Picnic Theme Contest; Dick McMininy JS2. No more than three theme entries per person. For more information contact Melody at x33152.

Feb. 13

Astronomy seminar—The JSC Astronomy seminar will be held noon Feb. 13 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

PSI meeting—The Professional Secretaries International meeting will be at 5:30 p.m. Feb. 13, at the Holiday Inn on NASA Road 1. The cost is \$9. Bob Dey, of the U.S. Drug Enforcement Administration, will speak on "Drugs in the Workplace." For reservation or further information contact Pat Woolcock at 754-2570, or Cynthia Thomassen at x30228.

Feb. 19

BAPCO meeting—The Bay Area PC Organization will meet at 7:30 p.m. Feb. 19 at the League City Bank & Trust. For more information contact Earl Rubenstein x34807 or Tom Kelly 996-5019.

Feb. 20

Astronomy seminar—The JSC Astronomy seminar will be held at noon Feb. 20 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

Feb. 27

Laptop showcase—The Information Systems Directorate will sponsor a notebook laptop showcase from 10 a.m.-4 p.m. Feb. 27 in Bldg. 12, Rms. 112, 254, and 256. For more information call the Product Demonstration Facility x37572.

Astronomy seminar—The JSC Astronomy seminar will be held at noon Feb. 27 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

Feb. 28

NST banquet—The National Space Trophy will be formally presented to JSC Director Aaron Cohen at the Rotary National Award for Space Achievement Foundation's annual banquet at 8 p.m. Feb. 28 at the Houston Hyatt Regency-Downtown. Broadcast journalist Jim Hartz will be master of ceremonies. For more information contact John Francis or Dana Heard at 333-5986.

March 5

Space conference—The Space Foundation will co-sponsor the third annual Space: Technology, Commerce & Communications Southwest conference March 5-7 at the Nassau Bay Hilton. For more information contact Roseann Tully at 617-862-7174.

March 21

NCMA seminar—The National Contract Management Association's semi-annual conference will be March 21 at the Moody Civic Center, Galveston. The conference theme is "Managing Contracts for Peak Performance." For more information contact Lucy Yates, x31864 or Sue Garman x35998.

Apr. 23

Space Congress—The 28th annual Space Congress will be April 23-26 in Cocoa Beach, Fla. The Canaveral Council of Technical Societies will host the conference with a theme of "Space Achievement—A Global Destiny." For more information contact Stuart Shadbolt at (407) 383-2200, x2202, or John Glass Jr. at (407) 383-2200, x2207.

Macintosh 512 Enhanced, 800K drive, \$400. 280-8796.

Commodore C64, color monitor, 1541 disk drive, printer, modem, SW, \$450. Tim, x33955 or 337-3977.

El Gar, model SPF 880, rating 550 VA, batt. back up for computers, \$300. Marie, x39309.

32-bit 386 XT clone, 20M HD, 1M 32-bit RAM, monographics, SW, ex. cond., \$1K. 538-2123.

Lotus 1-2-3 release 2.2 spreadsheet SW for IBM PC-compat., new, \$99. David, x32751 or 326-1069.

IBM XT computer, 640K mem., 30MB HD, 2 floppies, color hi-res monitor, \$975; Intel 386 inboard for IBM or COMPAQ, 1 MEG mem., Intel warr., \$375. x30092 or 481-3637.

Macintosh plus computer, 2.5M mem., 20M disk, 800K diskette, ext. PC-style kybd., Imagewriter II color printer, \$1,350. Doug, 488-8806.

PFS Professional Write, Version 2.0, \$35. OBO. 486-5500.

ATI VGA Wonder Card w/512KB RAM, capable of driving EGA res. (640x350 pixels) on RGB (CGA), TTL monochrome, or RGBi (EGA) monitors, VGA and SVGA (800x600/256 colors or 1024x768/16 colors) on VGA analog and multisync monitors, \$175. David, x32751 or 326-1069.

Musical Instruments

Antique upright piano, \$150. 488-7728.

Yamaha RX-11 digital drum mach., ex. cond., Midi compat., \$175; Hofner bass guitar, \$100. Dave, x38115 or 997-2573.

Washburn bass guitar, new, \$275; multi-trac rec. equip., Fostex 4-trac rec., \$600; reverb, \$100; compressor, \$100; digital delay, \$100. Alesis drum mach., \$300. Brad, x37653.

Pets & Livestock

Baby cockatiels, hand fed, loveable. Linda, 484-7834.

Sm. animal carry-on kennel, meets airline specs., \$10; 23"Lx14 1/2"Wx11 1/2"H kennel cab. Shane, x35916 or 326-2344.

2 AKC adult collies, tricolor M, sable F pair, \$100/ea or \$175/both. 484-7583.

Alaskan Malamute pups, champion bloodlines. 333-4144 or 333-4114.

AKC Pekingese pups, born 12-9-90, 2 M, red sable w/white feet, 4 point sire, champion bloodline; AKC Pekingese pups, 3 F, 1 M, blk., fawn, blond, 4-8 wks., champion bloodline. Sharen, x49737 or 473-4645.

Shar-Pei pups, 1 white-dilute M, 1 5 pt. red dilute M, \$550. Cynthia, x37525 or 992-4617.

Free puppy, housebroken, good w/kids, 6 mos. old, sm. 332-3185.

Photographic

Canon AE-1 cam. w/Canon speedlite, case, ex. cond., \$150. Kelly, 280-2516.

Pentax 35mm cam. w/28mm, 50mm, 300mm lenses, 3X teleconverter, case, tripod, \$200. 339-3476.

Phillips PCS 2000 elec. color enlarger, 3-lamp dichroic colorhead, 2.8/50 El Nikkor lens, Easel, motorized print drums, cutter, tanks, timer, \$650. Doug, 488-8806.

Household

Kenmore gas dryer, 6 mos. old, \$225. 474-5649.

13" color remote TV, cable ready, \$100. x31339 or 944-1551.

Spanish solid wood BR set, triple dresser w/2 mirror, 2 nightstands, queen bed w/hdbd., \$425. Jane, 480-2605 or 482-5777.

Computer hutch, \$50; DR table, \$20; spkr. cab./end tables, \$25/pr.; armchair, \$15. 486-4265.

Frigidaire gas dryer, 3 cycles, \$75. OBO. Mike, x38169 or 482-8496.

BR set, upright dresser, dresser w/mirr., night stand, \$300. OBO. 992-2306.

1.5 cu. ft. Toshiba microwave, old, but works great, \$40. Jeff, 333-7010 or 482-5393.

Maytag washer, Kenmore dryer, \$125. OBO. Karen, 481-5853.

Microwave, 0.8 cu. ft., 500 watt, ex. cond., \$50. 333-7369 or 474-5802.

Walnut bar, mirr. in front, marble top, 2 uphol. stools, \$600; 2 Early American stools, round backs, uphol. seats, \$15/ea. 486-0174.

Conv. port. GE dishwasher, \$250. Whitney, 337-2925.

1.3 cu. ft. microwave, ex. cond., \$300; 1 lg. floral couch, ex. cond., \$200; 1 DR table, 4 chairs, \$200; 2 bunk beds, no matt., 1 chest, \$275. 482-9115.

Lg. 2 pc. cream colored sec. sofa w/queen sleeper, 80x110, \$300. Leah, x34544 or 480-8780.

Kenmore W/D, \$450; Hot Point refrig./freezer, 17 cu. ft., frost free, ice maker, cold wtr. disp., \$250. 332-4409.

Bunk beds w/built-in 3-dwr. dresser, ladder, ex. cond., \$225; DR table w/4 chairs, good cond., \$100. Ann, x31336.

BR set, antique green, full sz., mirr. dresser, chest, 2 night stands, \$750; queen sz. hide-a-bed, loveseat, 3 tables, \$350; GE dishwasher w/pot scrubber, needs adj., \$75. Magdi Yassa, x33479 or 486-0788.

Wanted

Want '75-'80 Ford Pinto, auto., no P/S, no A/C, body not important, must be towable. Trey, 280-4275 or 484-7834.

Want roommate, 20 min. from NASA, \$270/mo., incl. util. and housecleaning. Eric, x38420 or 484-9179.

Want scuba gear for man, suit, BC, regulator. 280-8796.

Want inexp. camper cov. to fit Ford 8' PU bed. Bill, 282-2660.

Want china, by set or pcs. of Botanic Garden by Portmeiron or Dessert Rose by Francisian. 486-0898.

Want roof racks, Yakima or Thule for bikes and/or skiing. Shane, x35916 or 326-2344.

Want 2 roommates to share new 4-2.5-2 house, nonsmokers, \$300/mo. plus 1/3 util. 474-5106.

Want riders for vanpool starting from SW side and Braeswood-610 to JSC. Chau, x31451.

Want '82 Datsun 2000 SX HT coupe, auto. Fred, 944-0493.

Want 2.5-5 yr. olds for structured learning environment w/creative/fun edge, 6:30 a.m.-6 p.m., incl. hot meals, loving care. 332-3185.

Want doggy day care. I need fan. backyard to leave dog M-F, 7 a.m.-5 p.m., fem. blk. lab, gets along w/ other dogs, will play and clean up droppings, must be close to NASA. 334-1165.

Want to buy/trade-sell baseball/football cards. I have Topps baseball cards '73-'79, Topps football cards '70-'73 thru '80. Phil, x3129 or 333-5113.

Miscellaneous

4 Cragar hurricane rims w/6 holes, lug locks incl., 6 mos. old, \$400. OBO. Oma, x30367 or 945-2486.

Light fixture, 48" fluorescent, 4 bulbs, \$5. 992-2306.

Mens ski boots, sz. 9, used 1 day, \$80. Nathan, x30180 or 480-5596.

4 blk. wire mesh rims, 14", 5-lug, used 1 mo., \$200. 996-8961.

Ladies Dingo boots, rust colored, sz. 7 1/2, \$50; Biltmore sz. 7 cowboy hat, palamino, \$75. Dana, x33686 or 480-4636.

Racquetball racket, Ektelon Rogue, \$10. Billy, x31339.

Desk, 48x18, 7 drawers, good cond., \$85. Ted, x36894

or 280-9595.

3 Goodyear 255/50 UR16, \$35/ea.; 1 Goodyear 255/50 UR16, new, \$180. Fred, x32888 or 486-9234.

Bridal set, oval diamond solitaire, 1/4 carat, 244-9844.

Lg. telescope, 10" f/8 Newtonian, good optics, incl. eye pcs., 60mm finder scope, needs mount, \$500. OBO. Ed, 283-5716 or 333-1563.

Ladies sz. 10 matching ski jacket/bibs, cream/brn., ex. cond., \$70. OBO. x35444 or 326-2754.

Xerox 3701 copier, needs repair, \$300. OBO. Don, x38039 or 333-1751.

Graco play pen, \$45; crib bumper w/matching quilt, \$30; Century walker, \$10; 25" color console TV, doesn't work, \$10. Michele, 482-9576.

Sears Craftsman riding lawnmower, 6hp, 25" cut, good cond., \$175. x35180 or 326-3706.

Pink Pearl Justin boots, sz. 6 will fit about 8 shoe sz. \$65. 488-2652.

Metal office credenza, blk. w/formica wood grain top, good cond., 2 hanging file drws., bkcs. shelves w/doors, \$175. OBO. Dennis, x34405 or 480-5076.

Browning Citi shotgun, ex. cond., case, \$750. 992-1913.

Ping, Wilson Staff, Taylor Made, Titleist and Spalding golf clubs, bags, drivers, 486-1970.

2 Wilson Profile tennis racquets, 95 sq. in. surface, \$140/ea. or \$250/both. Kyle, x38653 or 532-1130.

Cherry TV/VCR cab., slide out platforms, 2 stor. drws., ex. cond., \$450. 482-0909.

1 Wards tire, Power Grip snowtire, A78-15, 1 1/4" tread remaining, \$15; 2 General tires, Amerway XT, P205/65R15 92T M&S, 3/16" tread remaining, \$25/ea. or \$40/both; auto ski racks, lockable, \$25. 486-5500.

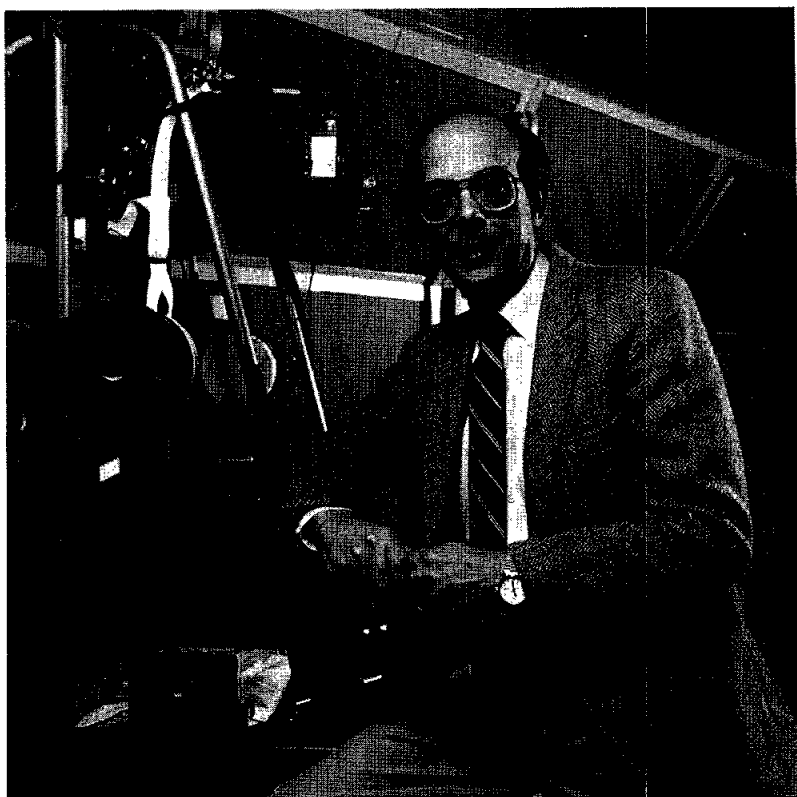
Heart shaped 1.37 carat diamond, \$3,500; 5mm 18" pearl necklace, \$225; wood/glass china cab., \$125; 18-pc. hand blown stemware set, \$100; combo wtr. skis w/boots, \$50. 474-5055.

Everglow kerosene hr., model PT-E4, ex. cond., \$60; Huffy girls 24" 10-spd. bike, needs front brake, \$35. Kelly, 280-2516.

Ladies Obermeyer ski stretch pants, sz. 12, ex. cond., \$75; mens Obermeyer ski stretch pants, sz. 30R, good cond., \$40; Rossignol FP comp. skis, 180cm w/Tyrolia 260D bindings, \$50; 2 pr. ski poles, \$5/pr. Shane, x35916 or 326-2344.

Rossignol Stinger skis, 185cm, Solomon bindings, K2 strapless poles, \$75; Solomon 5x82 ski boot, sz. 10, ex. cond., \$155. OBO. Eric, x38420 or 484-9179.

1 BIC board w/4.1 sail, 1 Rocket board w/7.1 sail,



Millard Reschke



Donald Kessler



Donald Bogard

On the Right Track

Five JSC scientists among elite group recognized for scientific, technical accomplishments

By Pam Alloway

When NASA Administrator Richard Truly submits a Congressional report today on NASA employees who have attained the scientific/technical status, it will include the names of five JSC scientists.

The JSC scientists are among a small group of scientists or technical people throughout the federal government who have earned the new designation, which recognizes important research responsibilities without supervisory duties as part of a dual career track.

The JSC scientists who received the ST designation in November are: Dr. Frederic Dawn, Ph.D., nonmetallic materials chief engineer; Dr. Donald D. Bogard, Ph.D., Planetary and Materials Science discipline scientist; Dr. Lawrence F. Dietlein, M.D., assistant to the director of Life Sciences; Donald J. Kessler, chief scientist, orbital debris research; and Dr. Millard F. Reschke, Ph.D., chief scientist, neurosensory and vestibular research.

The salary and position designation, separate from the Senior Executive Service, recognizes specially qualified people who are not in supervisory positions. Together, SES and ST form a dual career track that encompasses both supervisory and nonsupervisory steps.

There are 55 SES positions at JSC, 565 within NASA and about 8,000 authorized throughout federal service. There are five scientific/technical designees at JSC, 31 throughout NASA and 517 authorized throughout federal service.

ST candidates must have at least four years of experience in a major professional, scientific, or technical field and experience in directing difficult programs of national or international significance.

Dawn is JSC's chief expert on polymeric materials and structures for crew systems and spacecraft. In the past decade, Dawn has completed more than 1,500 projects ranging from developing lightweight flight suit material to improving a wide variety of technologies. His research has led to 18 patents.

Dawn developed Beta fiber, a fibrous structure that is completely nonflammable, even

in 100 percent oxygen. Beta fiber has been used extensively in Apollo and shuttle space suits and spacecraft, and the Mariner satellite. The scientific materials community views the Beta fibrous structure as one of the most outstanding textile fibers to have been produced in this century.

The private sector also has used the Beta fiber. Its most outstanding applications are as the roofing material for the 80,000-seat Detroit Lions' Silverdome and the Jeddah International Airport in Saudi Arabia.

"I like to do research development," Dawn said. "This is my dream for my career. I don't have any hobby. My research is my main interest."

Bogard is NASA's chief adviser on the use of planetary materials and the discipline scientist in that area. He helped establish an analytical laboratory in JSC's Lunar Receiving Laboratory and participated in the preliminary examination of returned lunar samples. In 1978 he played a major role in starting a program at JSC to curate meteorites found in Antarctica, a program that involved agreement between NASA, the National Science Foundation, and the Smithsonian Institution.

Bogard implements an agency program of planetary science research that involves many scientific disciplines, planetary materials and research institutions.

He'll participate in the effort to define planetary samples' role in new NASA initiatives such as a Moon outpost and the exploration of Mars.

"I like the idea of being able to combine my original research and supporting research worldwide in planetary materials," said Bogard.

Dietlein, as the assistant to the director for life sciences and JSC's chief medical officer, acts as both consultant and coordinator for JSC's broad-based bioscientific research programs.

As Human Research Policy and Procedures Committee chairman, Dietlein works with other foreign and domestic medical board chairmen on proposed human flight experiments and training protocols. He has served as a member of the NASA-Soviet Joint

Working Group on Space Biology and Medicine since its inception.

During Mercury and Gemini, Dietlein's interest centered on cardiovascular deconditioning induced by space flight. He conceived and sponsored microgravity simulation (also known as bed rest) studies at a U.S. Public Health Service Hospital, in which saline replenishment, coupled with lower body negative pressure, was first used to reduce fainting tendencies following simulated space flight.

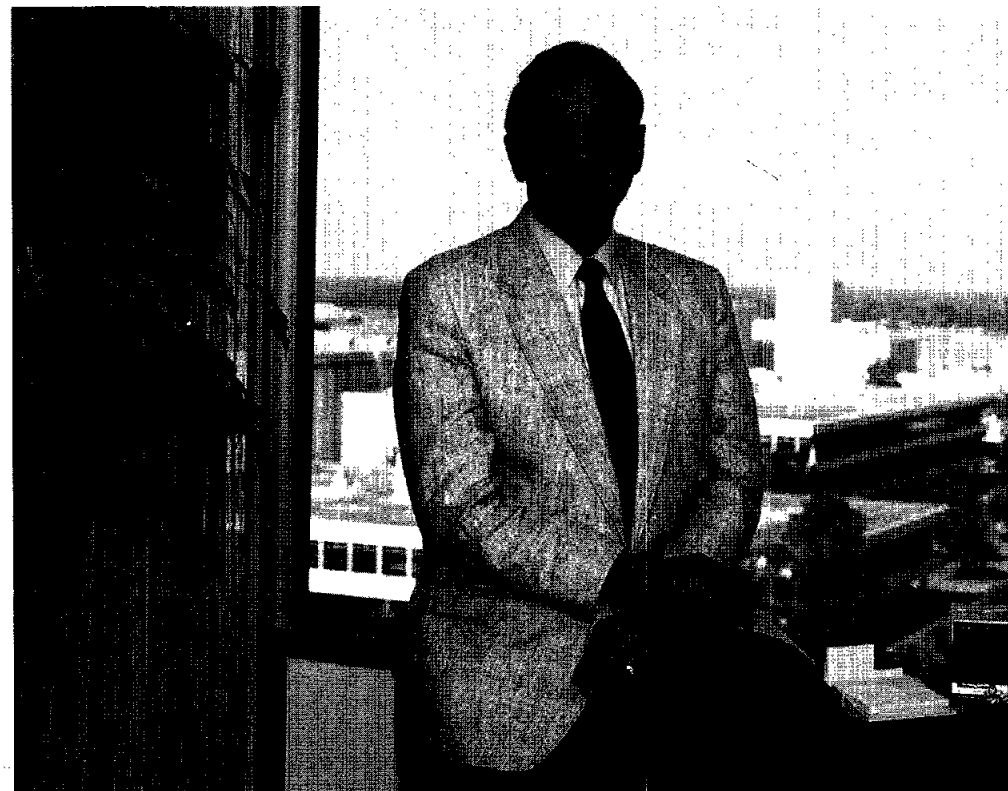
Kessler, as chief scientist of orbital debris research, is NASA's chief adviser on developing techniques to quantify the orbital debris environment, evaluating the adequacy of protection, and recommending cost-effective methods to minimize orbital debris.

Kessler's independent, original theoretical and experimental research has helped develop a new field of study. His research over the past 15 years, combined with others' research efforts, recently led an Interagency Group for the National Security Council to concur with his conclusion that the level of U.S. research should be increased to ensure future spacecrafts' safe and reliable operations. He also has independently developed new theoretical techniques and modeling approaches to predict current and future orbital debris environments.

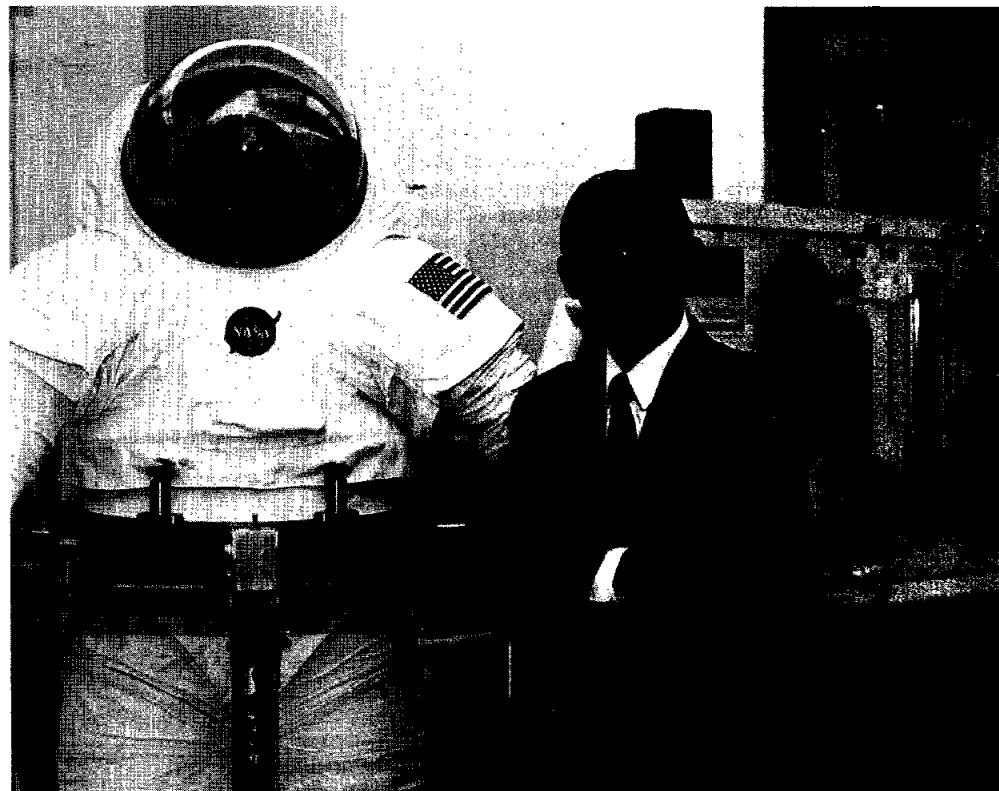
Reschke is NASA's chief adviser on the effects of sensory, motor and vestibular responses as they relate to human space flight.

Reschke formulated the Otolith Tilt-translation Reinterpretation hypothesis, the first new concept in motion sickness in 30 years. This hypothesis has changed the direction of vestibular research significantly and has led to the development of the Preflight Adaptation Trainer that allows flight crews to experience and adapt to stimulus rearrangement in preparation for space flight.

Reschke also is the principal investigator for the Microgravity Vestibular Investigations, a group of 27 experiments scheduled to fly on the International Microgravity Laboratory-1 spacelab mission in early 1992. In this role he is leading the efforts of a team of prominent U.S., Canadian and European neurovestibular scientists.



Lawrence Dietlein



Frederic Dawn

Marks new Equal Opportunity deputy

Freda M. Marks became deputy director of the Equal Opportunity Programs Office on Monday.

Marks has been Federal Women's Program manager since 1989, implementing several new initiatives that have generated more interest in the program and its activities. Her work also has helped increase the number of career development opportunities available to women at JSC.

Marks, who joined JSC in 1973, held a variety of positions within the Human Resources Development Branch. For seven years, she was a development specialist responsible for numerous developmental programs, as well as secretarial and administrative professional training.

JSC recycles six orbiters worth of paper

By Pam Alloway

The people who manage JSC's paper recycling program are wearing big smiles these days as they peer over mounds of paper destined for recycling plants.

"This has turned out as good if not better than we anticipated," said Michael Scott, chief of the Special Purpose Maintenance and Services Office which manages JSC's recycling program.

JSC's recycling program began as a pilot program in October 1989 and was centerwide by April 1990.

During the first full year of the program, JSC and contractor personnel recycled 673.8 tons or 1,347,600 pounds of paper. That's more than six shuttle orbiters weigh (an orbiter weighs about 200,000 pounds or 100 tons).

Recycling program personnel said that the amount of paper recycled during the first three months of 1990 was low as the entire site was not yet participating in the program. But they're predicting that this year JSC and contractor personnel will recycle even more — between 850 and 900 tons.

Even though the price of recycled paper dropped from \$160 per ton when the JSC recycling program first began to the current rate of \$100 per ton, there was a net income, or credit to the custodial services contract, of nearly \$50,000. That amount includes the initial purchase of 10,000 desktop recycling receptacles and 110 portable collection bins called "Toters."

Additionally, the recycling program has resulted in an overall decrease in residual trash disposal and receptacle rentals. That means JSC has passed on a cumulative net savings to the government of about \$100,000 for this past year.

"I think we're getting very good participation," Scott said. "The only thing I might suggest is that before those people who don't think about recycling throw that piece of paper in the trash can, they look at it, and see if it can be recycled."

Spending remains tight in spite of increase

(Continued from Page 1)

Without taking into account the funding for space station research and development, JSC's spending will include \$1.19 billion for space shuttle production and operations, a 5 percent, \$59 million increase over last year's \$1.13 billion; and \$306 million for research and development other than space station, a 22 percent, \$56 million increase over 1990's \$250 million.

A minimal increase in research and program management spending for the second year in a row will bring

JSC

People

Lulla chief editor of Geocarto journal

Kam Lulla of JSC's Flight Science Support Office has been named chief editor of Geocarto International, a multidisciplinary journal of remote sensing and Earth sciences.

The professional journal publishes research and application papers on Earth observations from space, includ-

ing a section on space shuttle Earth observations science reports.

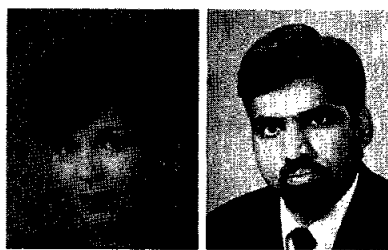
Lulla was associate chief editor from 1989-1991.

Engineer qualifies for world archery tourney

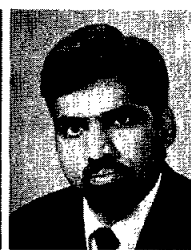
Rick Stonebraker, a quality engineer for EBASCO at JSC, has qualified to compete in the first Indoor World Archery Championship in Finland.

Stonebraker was one of three men and three women who qualified recently for the tournament at the Olympic Training Center in Colorado Springs.

He will compete against top



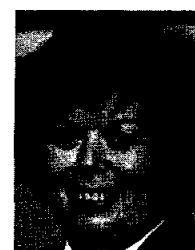
Marks



Lulla



Stonebraker



Kunkel

archers from around the world March 9-17.

Kunkel top secretary

Mary Nell Kunkel, secretary to the chief of the Space Shuttle Procurement Division, recently received the Marilyn J. Bocking Award for Secretarial Excellence.

Kunkel was cited for improving the

overall productivity of the office by suggesting new scheduling, document review and suspense systems. She also supported the source evaluation board for the Commercial Middeck Augmentation Module and was instrumental in putting together the board's reports in a timely manner.

She received a plaque from JSC Director Aaron Cohen and a \$500 stipend.



NASA Photo

The new NASA Flight Safety Award will recognize catastrophe-avoiding contributions. From the back, the award reads: "Presented in appreciation for your significant direct contribution to manned space flight safety."

New flight safety award honors mishap prevention

NASA has created a prestigious new award to recognize extraordinary contributions to space flight safety that help avoid a catastrophic mishap to the vehicle, crew or mission.

The NASA Flight Safety Award, sponsored by the NASA Space Flight Safety Panel and administered through the Manned Flight Awareness Program, is designed to impress the importance of crew safety on the minds of everyone involved with America's manned space flight program.

Lois Walker, JSC's National Manned Flight Awareness Panel representative, said the award will

serve as a continual reminder of what is riding on every manned space flight and an acknowledgement of the people whose efforts above and beyond their job result in significant, direct contributions to flight safety.

The award will be presented to individuals or groups by an astronaut for catastrophe-avoiding safety contributions in any area, including design, production, quality assurance, testing, administration, management or flight crew operations.

Additional information and nominations forms may be obtained from Walker, x38425.

Seven earn honors for aviation safety

By Barbara Schwartz

Seven Flight Crew Operations employees were honored Monday at the sixth annual JSC Aviation Safety Awards ceremony.

Flight Crew Operations Director Donald Puddy, welcoming recipients and guests, said recognizing and rewarding employees for their strong work ethic and outstanding performance is a premiere event of his job.

Astronaut Kevin P. Chilton earned the Stephen D. Thorne "Top Fox" Award for his work in enhancing flight safety.

"Lt. Col. Chilton continues to foster flight safety awareness in daily shuttle processing and in aviation operations by his meticulous attention to detail and his outstanding example to others," said Aviation Safety Office Chief David Mumme, who presented the plaques.

Jill D. Brigham received the Mark Heath Aircraft Engineering Award for her work as project engineer for the Shuttle Carrier Aircraft Program, providing expertise during the procurement and modifications of a Boeing 747 into SCA NASA 911.

Daniel C. Hill, recognized for his work as lead Quality Assurance Specialist assigned to the SCA program, was presented the John T. Bassham Quality Assurance Award. Hill developed the data used to plan the modifications to the second SCA and update modifications to the

original SCA.

Henry L. Littlejohn, head of the Aircraft Engineering Section, received the Aircraft Maintenance Award for his contributions to improving performance and reliability of General Electric J-85 engines and his leadership of a seven-member team that maintains more than 100 jet engines in the NASA fleet.

Scott D. Reagan, recipient of the Stuart M. Present Flight Achievement Award, was recognized for work as T-38 Avionics Upgrade Project Pilot and for developing an automated aircraft scheduling and flight data management system.

"He is an exceptional Operations Duty Officer," Mumme said.

Robert A. Rivers received the James A. Korkowski Excellence in Achievement Award for exceptional skill in managing the fourth Shuttle Training Aircraft Project, enabling completion ahead of schedule and below budgeted cost.

Steven R. Swanson, an STA Flight Simulation Engineer, was honored for his crew training activities. Swanson improved the quality of pilot training by developing several STA software enhancements and by working with the orbiter flight techniques panel to improve accuracy and confidence of STA touchdown data on launch and landing weather flights. Swanson was presented the Flight Simulation Engineering Award.

SOAR solicits abstracts, exhibits

The Space Operations, Applications and Research (SOAR) workshop has issued a call for papers and exhibits for its 1991 symposium. The fifth annual combination symposium and exhibition is scheduled for July 9-11 in JSC's Gilruth Center.

SOAR is co-sponsored by the U.S. Air Force and NASA as part of Air Force/NASA Space Technology Interdependency Group activities. SOAR goals include the interchange of technical and program information related to space operations. Such exchanges enhance communication between the Air Force and NASA and encourage interdependent programs.

"SOAR has been and continues to be a great Air Force/NASA cooperation success story," Kumar Krishen said. Krishen, chief technologist for JSC's New Initiatives Office, serves as co-chairman of the group's Space Operations Subcommittee

along with Col. Paul Anderson, director of Assessment and Planning at the Air Force Space Command Phillips Laboratory.

Last year's symposium, hosted by the Air Force Space Technology Center and the University of New Mexico, featured more than 150 technical papers on subjects including automation and robotics, environmental interactions, human factors, intelligent systems and life sciences.

During the 1990 sessions, speakers discussed the changing political and fiscal situations pointing to the need for more cooperative and joint development efforts.

Two-hundred-word abstracts should be submitted by March 15, 1991. For more information and registration, contact Carla Armstrong at x39071. For information regarding exhibits, contact Charles Pitman at x32469.

Charlesworth dies

(Continued from Page 1)

Charlesworth's daughter, Leslie Lousma, expressed her thanks to the people of JSC for their kindness and warm wishes. "On behalf of my brother David's family and mine, I just wanted to say thank you to everybody," she said.

The Center's tribute to Charlesworth on Tuesday followed the recent formalization of a policy which calls for the flag to be flown at half-staff on the day of interment. The new policy applies to any JSC employee killed in the line of duty, and to astronauts and high-ranking NASA officials regardless of the circumstances of death.

NASA-JSC

Space News Roundup

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

Editor Kelly Humphries
Associate Editors Pam Alloway
Kari Fluegel

Equal Opportunity Trophy returns to JSC after five years

(Continued from Page 1)

According to Truly's letter, JSC had:

- The most balanced representation of women and minorities in the science and engineering workforce;
- The best placement of individuals with severe disabilities and of disabled veterans;
- The best utilization of the coop-

erative education program to attract minorities and women;

- An extensive and diverse community outreach program;
- The best internal support of minorities, women and the disabled;
- The most money awarded to minority universities from research and development and research and pro-

gram management funds; and

- Positive, collaborative relationships between senior management, personnel and equal opportunity managers.

Langley Research Center was commended for management leadership needed to continue to improve NASA's equal opportunity accomplishments.