



**SCHOLARSHIPPEERS** — Students studying under the NASA Exchange-JSC Scholarship program recently lunched with Exchange Council members at the Bldg 3 Executive Dining Room. Left to right are Susan Dittman, University of Houston; Rosemary Norman, San Jacinto Junior College; Peggy Powell, Texas A&M; Lois Ransdell, JSC Scholarship chairperson; Marilyn McBride, University of Texas; and Patsy Palos, University of Houston. Not in photo: Kathy Brown, Texas A&M; Pat Stokes, University of Texas; Michael Stutesman, University of Houston; Lee Balinas, Louisiana State University; and Colleen Paulos, University of Houston.

## ASTP Crews Reunited For Joint USSR Tour

Apollo crewmen Thomas P. Stafford, Donald K. "Deke" Slayton and Vance D. Brand, accompanied by their families Saturday arrived in Moscow for the start of a two-week tour of the Soviet Union with Soyuz crewmen Alexei Leonov and Valeriy Kubasov.

"We are very pleased to be back in the Soviet Union again," said Stafford to an airport crowd. "Now we can say our joint flight has been fulfilled successfully. I am confident that our flight will serve progress and peace on Earth."

Sunday the US crew and families laid wreaths at the Yuri Gagarin Memorial at Star City where much of the Soviet half of the crew training for the mission had taken place. "For two years, Star City was a second home to us," said Stafford to some 500 Soviet space workers. "Thank you for all your work."

The joint crew tour of the USSR this week included stops in Moscow, Leningrad and Kiev, and they are scheduled to visit Volgograd (ex Stalingrad) tomorrow before moving on to Novosibirsk in Siberia Sunday. The tour will end with stops in Tbilisi and Sochi, with return to the US scheduled from Moscow on October 4.

Leonov and Kubasov will join the Apollo crew October 12 for a similar two-week tour of the US starting with a White House visit in Washington. Cities to be visited by the two crews include Chicago, Omaha, San Francisco, Reno, Las Vegas, Los Angeles and return to Washington. Stops will include receptions, TV shows, luncheons, sight-seeing and a visit to Rockwell International Space Division's Downey plant where the Apollo spacecraft was built.

## Lunney to Head Payload Office

JSC has announced the creation of a program office to plan and develop JSC payloads for the Space Shuttle.

Glynn S. Lunney will manage the Shuttle Payload Integration and Development Program Office and will report to JSC Director Christopher C. Kraft, Jr. Lunney has been Apollo Spacecraft Program Manager and was US Technical Director for the Apollo-Soyuz Test Project.

ASPO has been abolished, and people from that office and the Payloads Coordination Office have been reassigned to the new program office.

SPIDPO will manage JSC Shuttle payload integration and operations including payloads developed by other organizations — such as Spacelab, Interim Upper Stage, low-cost modular spacecraft, Long-Duration Exposure Facility and Large Space Telescope — and will manage JSC participation in international space activities, including any future joint US/USSR activities.

## ASTP Medals Presented In JSC Awards Ceremony

In a whirlwind tour of the three NASA manned flight field Centers — KSC, MSFC and JSC — NASA Administrator Dr. James C. Fletcher September 16 spoke to employees at ASTP Honor Awards Ceremonies at the centers. Apollo crewmen Thomas P. Stafford, Donald K. "Deke" Slayton and Vance D. Brand commuted between the centers to take part in the awards ceremonies.

In the JSC ceremony, JSC Director Christopher C. Kraft, Jr., introduced the Administrator who presented 16 individual awards and 11 group awards.

ASTP Lead Flight Director M. P. "Pete" Frank received the NASA Distinguished Service Medal at the JSC ceremony, ASTP Technical Director-US Glynn S. Lunney and the Apollo crew had received the DSM from President Gerald Ford in August 9 White House ceremonies.

The NASA Outstanding Leadership Medal went to Deputy Apollo Spacecraft Program Manager Arnold D. Aldrich, and the NASA Exceptional Scientific Achievement Medal was presented to ASTP Mission Scientist Dr. R. Thomas Guili. Receiving NASA Exceptional Service Medals were Reinhold H. Dietz, Jr., Walter W. Guy, Bennett W. James, Frank C. Littleton, Jr., James E. Mager, Leonard S. Nicholson, Dr. Arnauld E. T. Nicogossian, John E. Riley, Herbert E. Smith, Jr., J. C. Waite, Douglas K. Ward and Robert D. White. The NASA Public Service Award to Rockwell International Corporation was accepted by Ray F. Larson.

NASA Group Achievement Awards went to the ATS-6 Tracking Satellite Communications Relay Team, the ASTP Experiments Team, ASTP Language Team, ASTP Operations Team, ASTP Television Team, and to the six ASTP Working Groups: Project Management, Mission and Operations, Guidance and Control, Mechanical Design, Communications, and Life Support-Crew Transfer.

# ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS



VOL. 14 No. 20

Friday September 26, 1975

## Tomorrow's EAA Picnic Offers Varied Activities

The annual EAA picnic tomorrow will be held at the Gilruth Center, with bus service from parking lots along Second Avenue starting at 10 a.m. Ticket sales will continue today in the lobby of Bldg 45 and at the Gilruth Center tomorrow up to the number of meals contracted for with the caterer.

Tables and chairs may be carried aboard the buses from the parking lot, and bus service will be continuous until 6 p.m. Horseshoes, volleyballs and other game equipment may be checked out of the Gilruth Center gym equipment room by employees holding EAA membership cards.

A schedule of picnic events and a map showing location of games, rides, food and beverage, lost parents and other features are printed on page three of this issue.

## Duke Resigns To Become Beer Dealer

Astronaut Charles M. Duke, Jr., last week announced that he will leave NASA on January 1, 1976 to enter business in the San Antonio area.

Duke, 39, a colonel, said he will resign from the Air Force after 18½ years service to establish a Coors beer distributorship covering the northeast section of San Antonio and Bexar county and the counties of Comal, Hays, Guadalupe and Caldwell.

Duke was lunar module pilot of Apollo 16, April 16-27, 1972. He and John W. Young landed in the Descartes region of the moon for a 71-hour stay, including three surface explorations of the lunar highlands totaling 20 hours, 15 minutes.

Since 1973, Duke has been assigned to the Space Shuttle program, including serving as technical assistant to the Manager for Space Shuttle Systems Integration. He has been an astronaut since April, 1966, and his departure will reduce the number of NASA astronauts to 29.

Duke and his wife have two sons. The family will move to the San Antonio area.

## Headquarters Realigns Two Program Offices

NASA Administrator Dr. James C. Fletcher announced that the Launch Vehicle and Propulsion Program in the Office of Space Science will be transferred to the Office of Manned Space Flight and the NASA Directorate for Life Sciences, now in the Office of Manned Space Flight, will be transferred to the Office of Space Science.

Coincident with the change, which is effective September 28, the name of the Office of Manned Space Flight will be changed to Office of Space Flight.

"The exchange of these program functions will provide a more logical alignment of responsibilities as we move into space shuttle operations," Fletcher said. "The new Office of Space Flight will be concerned primarily with launching space flights and conducting Shuttle operations, while Space Science will have responsibility for the science to be performed on these flights."

The NASA life sciences program will remain under Dr. David Winter and the Launch Vehicle and Propulsion Directorate will continue under its present director, Joseph B. Mahon. The name of the Launch

Vehicle and Propulsion Program, however, will be changed to Expensible Launch Vehicle Programs.

"The recent successful completion of the Apollo-Soyuz mission marks the end of an era in manned space flight," Fletcher said. "Future manned flights, as well as most of our unmanned payloads, will be launched with the Space Shuttle which is scheduled to become operational in 1980."



**PRESSING THE FLESH** — ASTP lead flight director M. P. "Pete" Frank moves down the handshake-line of ASTP crewmen and NASA management after receiving his NASA Distinguished Service Medal at the September 16 JSC Annual Awards Ceremony. Awards went to 16 individuals and 11 groups for their participation in the Apollo-Soyuz mission. (See story at right.)

# Ames/Stanford Study Urges Space Colonization Program

The final report of the 1975 NASA/Stanford University Summer Study in engineering systems design recommends that the United States adopt a program to move toward the colonization of space.

The feasibility of establishing human communities in space was examined by 28 scientists, engineers, sociologists and economists for 10 weeks this summer at NASA's Ames Research Center in Mountain View, Calif.

The group designed a system for colonizing space and found no fundamental scientific obstacles to such an undertaking, although the practical engineering and social problems were seen to be quite difficult.

The design developed by the Summer Study Group calls for the construction of a wheel-shaped habitat over a mile in diameter at a point on the Moon's orbit 240,000 miles from both the Earth and the Moon. The wheel or torus would rotate around its hub at 1 revolution per minute, fast enough so that the centrifugal force felt by its inhabitants would simulate their normal weight on Earth. Its rim would house 10,000 people along with shops, schools, light industry and a closed-loop agriculture.

The mass of the torus and its contents would be about 500,000 tons, approximately the mass of the largest super tanker. Heavy industry would be outside in order to make use of the weightlessness and high vacuum of space. The principal industries would be the manufacture of other colonies and of power satellites to be placed in geosynchronous orbit above the

Earth. These satellites would gather sunlight almost 24 hours a day and beam it to Earth as low density microwaves. On Earth the microwaves would be converted to electricity and fed into the usual distribution systems.

Space colonies would process materials from the Moon using the abundant solar energy of space. The Apollo explorations have shown that lunar materials contain from 20 to 30 per cent metals, 20 per cent silicon and 40 per cent oxygen by weight. About one 150 people on the Moon would mine and ship into space a million tons of these materials each year using a ground-based mass launcher powered by a special type of electric motor.

The material would be sent to a point 50,000 miles behind the Moon. There it would be collected and ferried 240,000 miles to the colony. At the colony the material would be metallurgically refined to extract aluminum and perhaps titanium for construction material, silica for glass and oxygen for life support and a rocket fuel. Carbon, nitrogen and hydrogen would have to come from Earth.

The transportation system of the colony would be derived from the current Shuttle program of NASA. A heavy launch vehicle (HLLV) using the same engines that have been developed for the Space Shuttle would carry loads from Earth to nearby orbits. From there to more distant points a large space tug would be used. The large loads of 100,000 tons or more of lunar

material would be moved from the vicinity of the Moon to the colony by an electrically-driven pellet launcher.

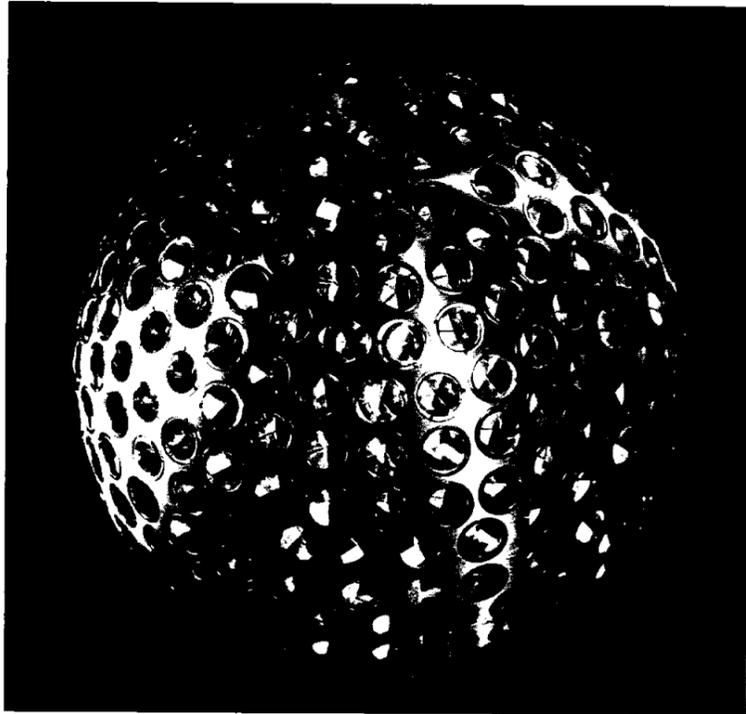
The NASA/Stanford Summer Study program was intended to introduce faculty to the problems of large scale systems design, to develop contacts between engineering and other disciplines and to encourage useful investigation of an important systems problem. The group of 28 faculty, students and visitors that gathered at the Ames laboratory formed a cooperative study group. They were not a tightly structured, goal-oriented design team as might be found in government or industry. The definition of the design problem, the direction of the study and all major decisions were made by consensus.



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## Martin to Build Checkout System

NASA has selected Martin Marietta, Denver Division, Denver, Colo., for award of a cost-plus-award-fee contract for the checkout, control and monitor subsystem hardware for the launch processing system in support of the Space Shuttle program. The total estimated cost and fee for this contract is approximately \$22.8 million.



WHAT'SIT? — A model of the Laser Geodynamic Satellite (LAGEOS), that's what! LAGEOS is planned for a 1976 launch to provide Earth motion and strain information for a better understanding of earthquake-causing movements within the surface of the Earth. NASA Marshall Space Flight Center built the 411-kg 60-cm diameter satellite, which has 440 retroreflectors on its outer shell for accurate ground station laser ranging.

## More on Betty Allen...

In the deadline crunch of the September 12 *Roundup*, August Secretary of the Month Betty F. Allen got short shrift in citation verbiage.

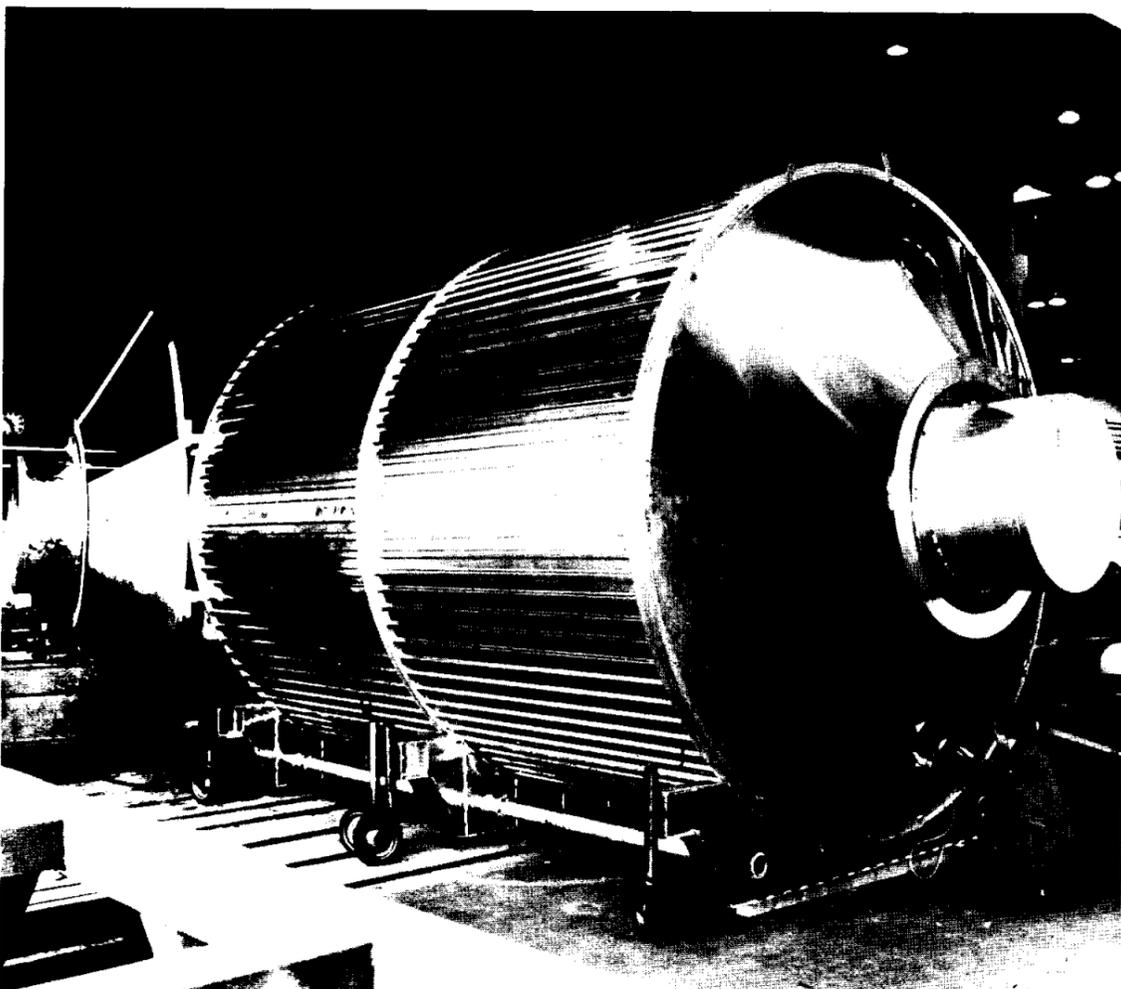
As a clerk-typist in Financial Management Division's General Accounting Branch, Betty was cited by her supervisors as "excelling in accuracy, neatness and promptness which she demonstrates in preparing and processing correspondence and reports for the branch. She possesses an excellent personality, is most pleasant and maintains an excellent attitude toward the public as a whole as well as toward her fellow workers. Her performance far exceeds that

normally found in employees with comparable experience and background, and her potential is exceptional."

Betty is a graduate of the Worker Trainee Opportunity Program, and has been taking courses in shorthand and business-related subjects at San Jacinto Junior College and Alvin Junior College during the past two years.

### WANTED

People to attend tomorrow's JSC-EAA annual picnic. Tickets today in Bldg. 45 lobby, or from Rachel Windham Bldg. 1, Room 657, Ext 6495.



PAYLOAD FOR THE 1980s — A full-scale mockup of Spacelab takes shape at the ERNO/VFW-Fokker plant in Bremen, Federal Republic of Germany. VFW-Fokker is building Spacelab under contract from the European Space Agency as a reusable laboratory payload for the Space Shuttle. Shown in the photo is a mockup of the pressurized module that would serve as a scientific workshop for scientists and payload specialists. Spacelab is scheduled for first orbital flight in 1980. (ERNO photo)

## WINTER'S COMING

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## ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER HOUSTON, TEXAS

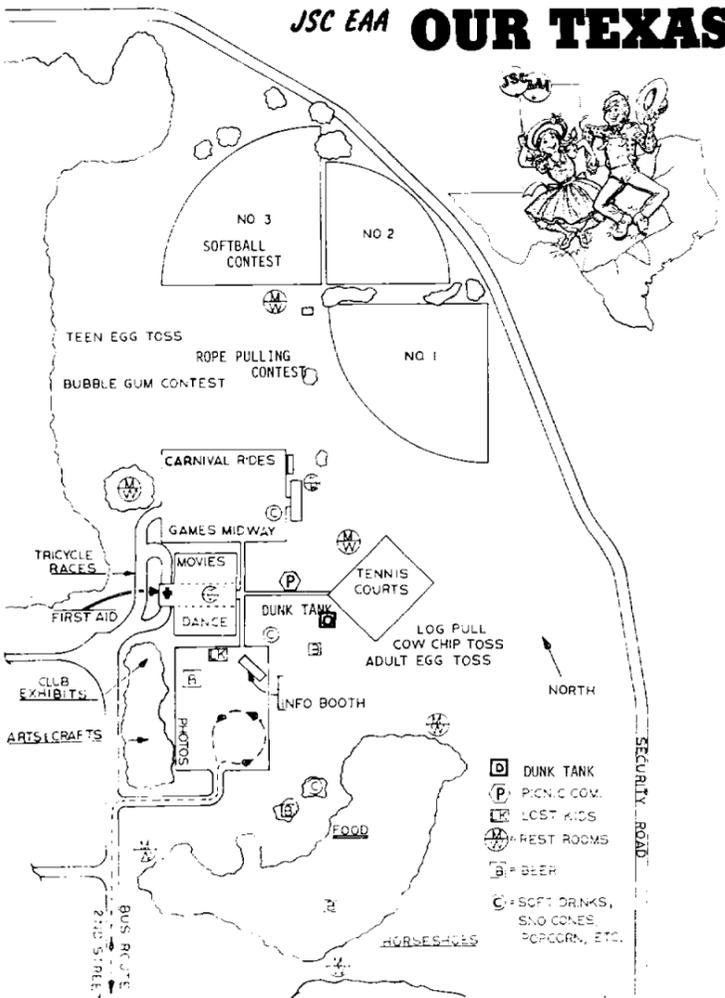


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Photographer: A. "Pat" Patnesky

JSC EAA **OUR TEXAS**



# EAA Attractions

**TICKETS AVAILABLE**

Bldg. 11 Exchange Store 10 a.m. - 2 p.m. no refunds: Sports - Houston Astros baseball, \$3.50 reserve, \$4 box (regular \$3.50 and \$4.50). Places of interest: Sea-Arama - adults \$3.25, kids \$2.25 (regular \$4.25 and \$3.25); Disney Magic Kingdom Cards free, good at Disney World and Disneyland for special-price ticket books and 10% discount at Howard Johnson's; Lion Country Safari cards free; Six Flags Funseekers cards free - entitles card holder and family to \$1 savings on each Astroworld, Six Flags Over Texas plus 10% discount at major hotels in area. ABC Interstate Theater, \$1.50. Dinner theater: Windmill Dinner Theater *Everybody Loves Opal* starring Martha Raye, \$14/couple, only 15 available, runs thru October 26. Dean Goss Dinner Theater, \$16/couple, Murray Schisgal comedy *Luv* thru November 9.

**SHRINE CIRCUS**

The EAA will sponsor again this year NASA Night at the Arabia

- Subteen Event:  
3:30 Bubblegum contest
- Teen Events:  
4 Tricycle races  
4:30 Teen egg toss
- Adult Events:  
12 - 5 Dunk tank  
3:30 Log pull, cow-chip toss, adult egg toss.

Shrine Circus, but this year there will be two NASA Nights, Sundays, October 5 and October 12. Both performances start at 6:30 P.M. in the Sam Houston Coliseum. This year's Circus consists of many outstanding acts, including:

"TARZAN" - the finest Wild Animal Act in the Circus world today - back for an unprecedented 4th year by popular demand; "THE SMAHAS" First time in Houston; Beautiful Lipizzan Stallions performing the difficult "Capriole"; "VICTOR JULIAN" - Performing Poodles that will please the "Kids of all Ages"; "PABLO RODRIGUEZ" - Amazing Aerial Artists performing fantastic feats high above the Coliseum floor. First time in Houston; "THE DYMEKS" - Poland's finest Acrobatic Bar Trio - Houston Debut; ... And many, many, many more!!

A circus that you will be proud to support and delighted to see - ACT NOW - your family and friends will be glad you did.

Tickets for the best seats in the house - center ring - which regularly sell for \$6.00 are available for these performances only at \$4. (Building 11-Exchange Store)



**DEFENSIVE DRIVING COURSE**

It has been three years since the EAA offered the Defensive Driving Course to JSC employees, and unless the course is taken again, eligibility for the 10-percent auto insurance discount expires in December.

The course will be offered at the Gilruth Center for the first two weeks in November. Registration will be on October 28, 29 and 30 in the Gilruth Center lobby from 7:30 to 9 a.m., 10:30 a.m. to 1 p.m., and 4 to 6 p.m. The registration fee of \$8 per person (includes materials) will be payable at registration.

Classes are limited to 35 and additional classes will be added later if needed. Four sections are planned from 6 to 10 p.m. all dates: Section 1 - November 3 and 5; Section 2 - November 4 and 6; Section 3 - November 10 and 12; and Section 4 - November 11 and 13.

**HORSESHOES ANYONE?**

Horseshoe pits are now available in the JSC picnic area, and horseshoes may be checked out at the Gilruth Center with an EAA card. Bring your lunch and play a few games or challenge someone to an after-work match.

**BELLY DANCING**

Ladies - firm up and have fun at the same time in the belly dancing

class which starts October 29 in the Gilruth Center. It is terrific exercise for hips and abdomen while developing muscular control and coordination. The class will meet Mondays and Wednesdays from 5:30 to 6:15 p.m. for six weeks. The fee is \$16 and the class is limited to 15. Call Ext 3594 to register.

**CHRISTMAS PARTY OPEN DATES**

The Gilruth Recreation Center still has a few open dates for JSC or industry Christmas parties. Call Ext. 4921 for more information.

**LABOR DAY TENNIS RESULTS**

Men's A singles: Gid Weber defeated Ed Tribble 6-3, 6-0; Women's A singles: Ruth Damoff defeated Elizabeth Piland 6-0, 6-3; A mixed doubles: Ed Tribble and Amy Young defeated Dan McFarlin and Sue Harmon 6-2, 4-6, 6-2.

Men's B singles: Dorsey Wilmarth defeated Bob Merriam 4-6, 6-4, 6-4; Women's B singles: Joy Souris defeated Kathy Harlan 7-5, 6-4. B mixed doubles: Bob and Elizabeth Piland defeated Randy and Chris Rendon 2-6, 6-4, 6-4.

Men's C singles: Tom Murtagh defeated Tom Hughes 6-3, 6-0; Women's C singles: Kather Tamer defeated Stacy Henning 6-4, 7-6. C mixed doubles: Tom and Mailyn Hughes defeated Dennis and Sandra Schmidt 6-3, 6-4.

Consolation winners in A were: Bob Purnell, Ann Williams, and Gid Weber and Barbara Kincade; in B - Gary Henning, Marie Fullerton and Jack and Ann Williams; in C - Drew Tribble, Sarie Silveira and Jeff and Sarie Silveira.

With 148 entries, the JSC tournament was the largest ever and ran three days - August 30, 31 and September 1.

**BRIDGE LESSONS**

Learn the fundamentals of bidding and playing from Bill DeGeorge, a licensed teacher and game director in this area since 1969. Beginner and novice bridge lessons are now being formed at the Gilruth Recreation Center. The novice class will meet from 6:45 to 9:45 p.m. each Monday beginning September 29 for 6 weeks. The beginner's class will meet from 7:30 to 9:30 p.m. each Thursday beginning October 2 for 6 weeks. The fee is \$15.00 a person for each class. To register and for further information call X4921.

**PECANS-PECANS-PECANS**

Our new JSC Grounds Maintenance Supervisor did the right things this year - called in a pecan-growing consultant and then fertilized and sprayed on schedule. So for the first time in four years we have a good pecan crop. Details of the harvest will be in the next Beacon.

**BATON TWIRLING**

Take this opportunity for your daughter to learn baton twirling from Becky Bourland, the Texas State Champion in 1973. Classes will begin at the Gilruth Recreation Center Saturday, October 4 at 9:00 a.m. The fee is \$8.00 per month. To register and for further information call X4921.

**EAA Picnic Schedule**

- |   |   |
|---|---|
| 10 - 6<br>Bus Service   | 12 - 3<br>Food service  |
| 11 - 5<br>Concessions - soft drinks, cotton candy, snocones, popcorn, Zay Wynn the clown, silly photos (bring your camera), Carnival rides, games Midway, arts and crafts exhibits, beer. | 1 - 4<br>Rock band  |
| 12 noon<br>Horseshoes   | 12 - 4<br>Championship softball game and rope-pulling contest |
|   | Auditorium entertainment:<br>12:30 - 1:30<br>Cartoons         |
|   | 2 - 2:30<br>Recess  |
|   | 3 - 4<br>Cartoons   |

## Roundup Swap-Shop

Swap Shop advertising is available to JSC and on-site contractor personnel. Articles or services must be offered as advertised, without regard to race, religion, sex or national origin. Ads should be 20 words or less, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday of the week before publication.

**BOATS**

74 Ski King 16-ft tri-hull, 71 Johnson 60-hp w/PT, BW trlr, custom top, depth-finder, plus xtras, \$1875. 333-3609 after 5.

12-ft wooden Jon boat w/5-hp motor, \$175. Colonna, 483-3937.

**PETS**

Free: adorable Dachshund/Poodle puppies, 8 wks. 482-7715.

AKC reg B&W champ sire Cocker pups, wormed, 2 mos, \$100. Barton, 474-2110.

Baby boa, 6 ft long, xclnt for elixir salesperson needing snakeoil replenishment, only \$100. Rubenstein, 334-2354.

10-mo old male Irish Setter, housebroken, wormed, shots, part trained, \$50. 946-2782.

AKC Wire-Haired Fox Terrier female pups \$125; male pick-of-litter (show/stud potential) \$175. 333-2616 or 333-3672.

AKC Lhaso Apso at stud, Underhill's Tibetan Dust Mop (Dusty), grey-black-white, long and full coat, \$100 fee or pick of litter (your choice). 482-3100.

**VEHICLES**

72 Yamaha 350cc R5C, xclnt cond, \$575. Nicholas, 944-3656.

Rent: Jayco hrtdp fldwn camper, kitchen, icebox, sleep 8, low profile, pulls easy. \$10/day, \$57/week, \$25/wkend (\$25 deposit reserves). Kilbourn, 482-7879.

C-170H 10-spd bicycle, good cond, \$80. 471-1930.

Rent: 74 Skyhawk II, full IFR, at LaPorte, \$23/hr wet. Hartsoe, 471-4410.

69 Dodge Monaco 4-dr hrtdp, air, pwr, \$500. Matties, 944-3586.

73 Monte Carlo, 1/2 vinyl roof, AM-FM stereo w/tp, new radials, \$3395. Whitfield, 783-1582.

Rent: motorhome, full queen and dbl beds, wkly & wkend rates. 471-5161 after 10 a.m.

Cab-over camper, Bell custom built, stove, icebox, sleeps 4, fits long whtbase truck, good cond, \$650. Brenda, Baytown 573-1449.

Rent: 74 motorhome, sleep 5-8. 333-2182 or 333-3738.

74 Mercury Montego, 4-dr, autotrans, 302 V8, 18,000 miles, no pwr/air, \$2400. 482-1664.

73 Honda CB350G, 1500 miles, adult ownr, xclnt cond, helmet, access, \$675. 559-2697.

66 Dodge 2-dr hrtdp, 318 eng, very clean, \$375. 941-0489.

Hunters rent new Coleman camper, cranks up/down, or 16-ft travel trailer, self contained. Both deluxe, have sink, stove, dinette, icebox, sleep six. 488-2387 or 488-2816.

If hi cost of motor sports racing put you off, see my Margay racing kart, engine, access and spares, ready to race, \$400. Siler, 333-2787.

Honda SL-90, \$150. Colonna, 483-3937.

**WANTED**

Carpool rider, Montrose area to JSC, hours 11 a.m. to 7 p.m. Fred, 333-6475.

Ride to work 8 a.m. from Sharpstown area, Beechnut Terrace. Taylor, 8920 Beechnut St., No. 14, 483-2471.

Someone to drive auto from Huntsville, Ala. to JSC. Hughes, 333-2287.

**PROPERTY & RENTALS**

4-2-2 Brookforest, contemp, open floor plan w/sunken den & corner fireplace, covrd patio, former model, prof Indscpd. 488-3734.

Canal lots near Intercoastal Waterway, Downey Caney Creek, Sargent, TX, 1 lot \$2000, 1 lot \$1500. 488-4139.

Dickinson Bayou 4-3-2, incl effc aprtmt, near I-45, wooded 3/4 acre, waterfront, assume \$47,000 8-3/4%, avail any time. 534-4986.

Friendswood 2-acre lot in El Dorado subdiv, \$7500. Zupp, 482-7156.

**HOUSEHOLD ARTICLES**

Ethan Allen maple spindle twin bed, frame only, \$35. 488-1366.

Unique antique oak fireplace mantel 5 ft x 7 ft 8 in tall w/bttn Seth Thomas mission clock and mirror, \$1,100. 474-4041.

**MISCELLANEOUS**

Pacific DL-105 shotgun reloaders 12 & 20 ga, very good cond, \$35 ea. 559-2697.

S&W K-38 model 38 single-action target pistol, \$155. Lerdal, 488-5327.

Large-size misc hunting clothing and Herter's decoy paint. 471-0262 after 6.

Binks 3/4-hp 2-cyl oilless paint compressor, 6.5 cfm @ 40 psi, \$80. Hake, 554-3778.

Gas built-in oven & rangetop, aqua, good cond, \$50. Hake, 554-3778.

Football tickets: U of H vs Fla State Nov 22; vs Tulsa Nov 29; two xclnt seats, resvd prkng, \$12. 331-3976 after 5.

Gym team warmup suit, blue w/white stripes, 100% nylon, med jacket, sml pants, xclnt cond, \$12. Doherty, 488-0182.

Polaroid 25 w/case, pk B&W film, flashgun, bulbs, cable release, timers, \$40. Smith, 483-4776.

**WANTED**

People to attend tomorrow's JSC-EAA annual picnic. Tickets today in Bldg. 45 lobby, or from Rachel Windham Bldg. 1, Room 657, Ext 6495.



INTO COMMERCIAL PRODUCTION — A lightweight firefighter's breathing system developed at JSC, shown here being worn by two JSC firemen at the Center's burn pit, will be marketed commercially as the Scott Air-Pak 4.5 by Scott Aviation Co. of Lancaster, NY. The system was field tested by firemen in Houston, New York and Los Angeles, and uses a lightweight air tank built of fiberglass-wrapped aluminum. The system weighs 40 percent less than breathing gear now in use by fire departments.

#### LIGHTER, MORE COMFORTABLE

## Scott Aviation to Market JSC Firefighter System

The Scott Aviation Co., Lancaster, N.Y., has announced it will begin production of a new, lightweight firefighter's breathing system based on concepts and hardware developed by JSC engineers from aerospace technology.

The announcement was made during the annual meeting of the International Association of Fire Chiefs held in Las Vegas, Nev.

Called the Scott Air-Pak, 4.5, the new apparatus is considered an excellent example of the transfer of NASA-developed technology to help in the solution of pressing national problems.

The new unit is the first major improvement in compressed air breathing systems in over 20 years. Although conventional units now in use are considered acceptable, they are cumbersome to wear and they tend to restrict a firefighter's mobility and vision.

Important new features of the improved system include:

- A 40 per cent weight reduction, using a lightweight air bottle
- An improved pack frame and harness, with the unit's weight carried on the hips rather than the shoulders
- A redesigned face mask permitting better vision

#### Satellite Film Shown

*Space Down to Earth*, a NASA film on the role satellites play in solving earthbound problems, will be shown in the JSC Auditorium October 7 at 12:15 p.m. The film is part of the series of films shown to JSC employees the first Tuesday of each month.

The October film covers present and future satellite applications in pollution tracing, mineral location, weather forecasting, Earth measurements, navigation and communications.

- Numerous design and human factors improvements

Weight reduction is achieved primarily by using a NASA-developed high pressure composite vessel consisting of an aluminum liner overwrapped with fiberglass — technology originally developed for solid-propellant rocket motor cases.

NASA involvement in development of the new breathing unit began in 1970 when the need for an improved system was identified as the highest priority problem at a meeting of municipal officials from throughout the nation.

The meeting, organized and conducted by Public Technology, Inc., was held to identify local government problems that might be solved by using NASA-developed technology and expertise.

Following the meeting, NASA established a User Requirements Committee composed of fire officials, city managers and representatives of the National Bureau of Standards. The group was responsible for establishing performance standards and design concepts for the improved breathing system.

The NASA effort was carried out at JSC as an Engineering Applications Project under the Technology Utilization Program. A number of alternate design concepts were studied and eventually prototype units of the new system were built which meet NASA and regulatory agency standards.

Starting last year, prototype units were successfully field tested — under actual firefighting conditions — by selected units of the Houston, New York City and Los Angeles fire departments. Firefighters who used the new breathing system were impressed with its light weight and comfort.

For example, Jon King, Safety Coordinator for the Houston Fire Department, reported, "The NASA... system has produced a

major breakthrough in reducing the combat weight that a firefighter carries into battle. With this system and other new technology applications, it is now possible to cut the combat weight of a firefighter in half."

Throughout the development and testing program of the NASA breathing system, information on all aspects of the effort was available to the fire service community. Pat McLaughlan of JSC's Crew Systems Division was project engineer.

Scott Aviation Co., a division of A-T-O, Inc., is the first manufacturer to announce production of an apparatus based on NASA's effort. NASA does not endorse commercial products developed as a result of its research. It does, however, encourage the widest possible use of its technological innovations.

Later this year, when a final report on the improved firefighter's breathing system is published, NASA will sponsor an industrial symposium at JSC to explore other possible commercial applications of all or part of the new system.



#### Cost Reports Due

Tuesday is the last day in this quarter and the final day for submission of third-quarter Cost Reduction Reports (Form 1105A) to the Cost Reduction Office BH4.

## KSC Starts Pad 39 Mods For Space Shuttle Launches

NASA Kennedy Space Center last month awarded an \$18,749,000 contract to Blount Brothers Construction Co. of Montgomery, Alabama to modify Launch Complex Pad A for Space Shuttle operations and to convert a mobile launcher from Apollo to Shuttle configuration.

Pad A, which was the launch site of all but one of the Apollo/Saturn V missions and the Skylab space station, will be the launch site of all early Space Shuttle missions. Pad B will be modified later.

The Mobile Launcher is one of three Mobile Launchers used at Complex 39 during the Apollo program.

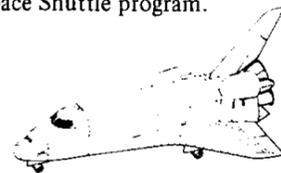
Completion of Pad A modifications is scheduled for 730 days after award of the contract and modification of the Mobile Launcher is to be completed within 547 days.

KSC has been designated the prime launch and recovery site for the reusable Space Shuttle, with the first manned orbital launch from here scheduled for early 1979.

The reshaping of KSC's Complex 39 for its role in the Space Shuttle era is well underway. Construction of the 4,500-meter-long (15,000-foot), 90-meter-wide (300-foot)

landing facility to the northwest of the VAB began in April 1974, and paving should be completed by the end of 1975.

Additional contracts will be let in the near future to modify Complex 39 for its new role, with costs kept to a minimum by adapting existing facilities for use in the Space Shuttle program.



## Secretary Group Holds Seminar

The NASA-Clear Lake Chapter of the National Secretaries Association November 8 will hold its sixth annual seminar for secretaries at the Gilruth Recreation Center.

In a workshop format, the seminar will emphasize subjects of interest to secretaries who are continuing their education and training and who have goals of advancing into executive secretary, administrative or managerial positions. The seminar is not limited to secretaries, but is open to all women in business who are interested in self improvement for advancement opportunities.

The pre-registration fee is \$10, registration at the door is \$12, and students \$5. Georgia Yawn at Ext 5195 has more information.

#### WANTED

People to attend tomorrow's JSC-EAA annual picnic. Tickets today in Bldg. 45 lobby, or from Rachel Windham Bldg. 1, Room 657, Ext 6495.



HERITAGE SPEAKERS — Shown above are the four principle speakers at the September 17 "From Santa Maria to Shuttle: Hispanic Heritage Perspectives" program in the JSC Auditorium. The program was part of JSC's observance of Hispanic Heritage Week, September 14-20. Speakers are: Alfonso Ludi, NASA Headquarters Equal Opportunity Programs Office, whose topic was the agency's Spanish Speaking Program, top left; Dr. Josephine Sobrino, Director-Programs and Professional Education, UofH Clear Lake City, who spoke on Spanish influence in the USA, top right; Dr. Leo Gallegos, Houston Independent School District Director of Social Studies, spoke on cultural contributions — Spain, to Spinach, lower left; and Dr. Juan Gonzales, associate professor of Bilingual Studies, UofH Clear Lake City, whose topic was "Assimilation and Acculturation-Cracks in the Melting Pot", lower right.