

# ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS

VOL. 15 NO. 21

Friday, October 22, 1976

## Dr. Kraft receives coveted Legion of Honor decoration

Center Director Dr. Christopher C. Kraft Jr. has received the Insignia of the Knight of the Legion of Honor — the highest honor given by the French government to a citizen of another country.



Dr. Christopher C. Kraft Jr.

Kraft received the medal during ceremonies held at noon, Oct. 13, at the Washington, D.C., residence of His Excellency Jacques Kosciusko-Morizet, the French Ambassador to the United States.

The award was presented in recognition of Kraft's role in the space program and his "tireless efforts toward better understanding and cooperation between the people of the United States and France."

A spokesman for the French Embassy noted that the Legion of Honor is presented only to people of the highest distinction for military bravery or civil achievement.

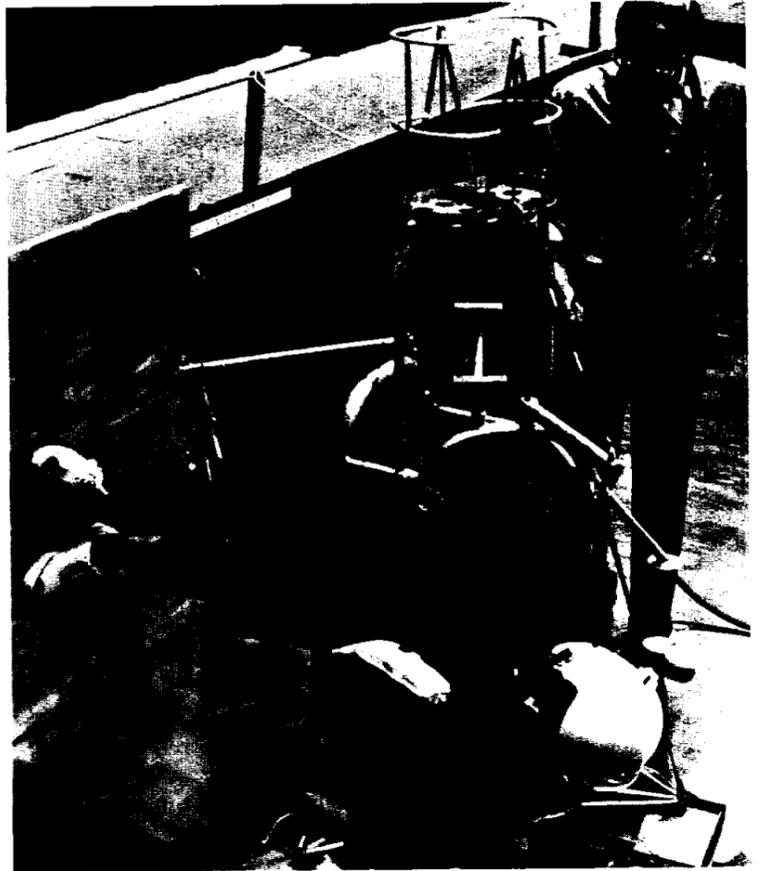
There are five classes of the Legion of Honor, of which the Insignia of the Knight is one.

Kraft has also been recently notified of his selection as recipient of the National Civil Service League's Career Service Award for 1976.

Bertrand M. Harding, president of the NCSL, said in a letter to Kraft, "The award signalizes not only the recognition of excellence in the public service, but the contribution of public service itself to the welfare of our nation."

The Career Service Awards are presented annually to ten outstanding career civil servants. This year's ceremony, to be held Nov. 16 at the Smithsonian Institution's Museum of Natural History, will be the 22nd annual Career Service Awards program.

Recipients are traditionally received personally and congratulated by the President at a later date.



SPACE-AGE SNEAKERS — Engineer Darrell Arndt hangs from a floating air bearing frame as he demonstrates the "suction cups" which are being evaluated by the Spacecraft Design Division for possible use on the shoes of Shuttle Orbiter crew members. Assisting is W. P. Henry. The frame glides on a cushion of air above the 80 by 100 foot air bearing table in the new Remote Manipulator Facility in Bldg. 9-A. The facility is being shown to the news media Friday, Oct. 22. See related photos, page 2.

## Hall of Fame inducts Dr. Robert R. Gilruth

Former Manned Spacecraft Center Director Dr. Robert R. Gilruth was one of 35 space pioneers inducted into the International Space Hall of Fame, Oct. 5, during the dedication of the new facility at Alamogordo, N.M.

About 3,000 persons attended the ceremonies which officially opened the four-story, \$2 million structure.

A highlight of the dedication was the planting of a "moon tree" by NASA astronaut-scientist Dr. Robert Parker and New Mexico Gov. Jerry Apodaca. The sycamore seedling was sprouted from a seed taken to the moon on Apollo 14.

Gilruth and fellow inductee Dr. Charles S. Draper, developer of the inertial guidance system, were honored during a special session of the International Academy of Astronautics convening in Alamogordo in conjunction with the Hall of Fame opening.

Dr. Maxime A. Faget, director of Engineering and Development at JSC, introduced Gilruth as "an outstanding leader and an inspiration to the thousands of engineers and

scientists who have been privileged to be on his team."

Gilruth, who directed the Manned Spacecraft Center (now JSC) until 1972, listed several factors which made possible America's landing of men on the moon.

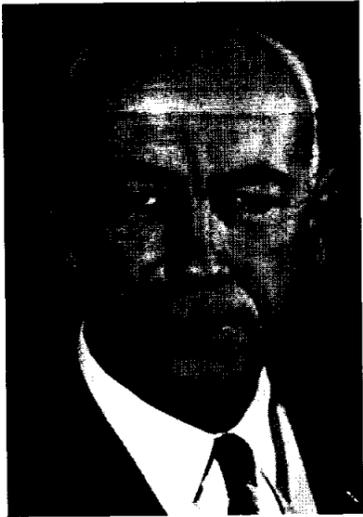
Among these were support of the citizenry and Congress, a strong aerospace industry, cooperation of the military, good engineering design and good luck.

Gilruth is now a consultant to the administrator of NASA.

Keynote speaker at the Hall of Fame ceremonies was Lubas Perek of Czechoslovakia, chief of the Outer Space Affairs Division of the United Nations.

Of the 35 inductees, nine were Russian, eight American and eight German.

As a member of the International Space Hall of Fame, Gilruth joins such space notables as Robert H. Goddard, Yuri A. Gagarin, Eugen Albert Sanger, Konstantine E. Tsiolkovski, Wernher von Braun, Neil A. Armstrong and Hugh L. Dryden.



Dr. Robert R. Gilruth



Donald K. Slayton

## Heart of Year award goes to Deke Slayton

The American Heart Association presented its 1976 Heart of the Year Award to Astronaut Donald K. Slayton during a ceremony at JSC, Oct. 18.

Slayton was saluted for "inspiring millions of Americans with his zeal and perseverance in overcoming a heart problem that had grounded him for 10 years, enabling him to resume his distinguished participation in America's space program."

Slayton, 52, was pilot of the Apollo docking module in the Apollo-Soyuz Test Project mission — a joint space flight which culminated in the first historic meeting in space between American astronauts and Soviet cosmonauts. It was Slayton's first space flight although he was named as one of the Mercury astronauts in 1959. He was scheduled to pilot the Mercury-Atlas 7 mission but was relieved of the assignment due to a heart rhythm irregularity and the mission was flown by M. Scott Carpenter in 1962.

An Air Force Major, Slayton resigned his commission and became Director of Flight Crew Operations for NASA. Over the next decade Slayton took drugs and underwent other treatment, determined to overcome his problem and convince doctors he was fit to fly again.

In 1972 at the age of 48 he was restored to full flight status and certified eligible for manned space

flights.

In July 1975, as the oldest man to fly in space, Slayton achieved his long-delayed goal and logged 217 hours and 28 minutes aloft in the Apollo-Soyuz mission — nearly one day in space for each year he had been grounded.

Last January, Slayton was named Deputy Director of Flight Operations for Approach and Landing Test at the Johnson Space Center. He is responsible for planning and implementing the approach and landing test project for the space shuttle program.

The Heart of the Year Award is given annually to an individual who has made an outstanding contribution to the battle against the nation's number one health enemy — the heart and blood vessel diseases.

Lyndon Johnson, then Senate Majority Leader, received the first award in 1959. Other winners have included Arthur Hays Sulzberger, Clarence Randall, Gen. Lauris Norstad, Admiral Hyman Rickover, Dwight Eisenhower, Patricia Neal, House Speaker Carl Albert, Pearl Bailey, Henry Fonda and baseball pitcher John Hiller.

Representing the Heart Association at the presentation were: Richard D. Dotts, chairman of the board; John T. Shepherd, M.D., D.Sc., president, and William W. Moore, executive vice president.

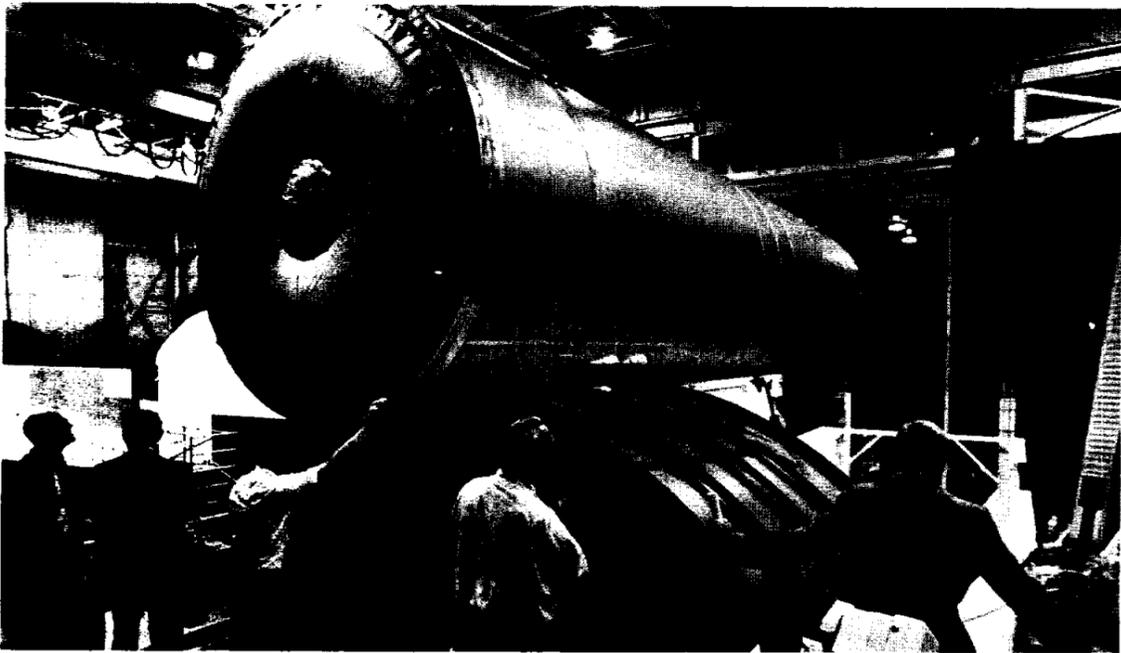
## Civilian astronaut applicants total 313

The Astronaut Candidate Program Office reported, Oct. 14, that 313 applications have been received for civilian astronaut pilot and mission specialist candidate positions.

Of a total 7,340 applications and announcements mailed out

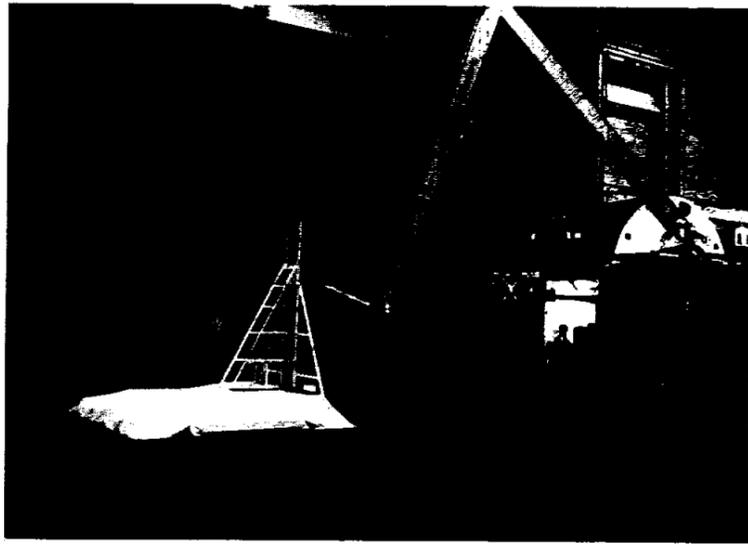
by request, 173 went to JSC employees.

Civilian applications must be postmarked no later than June 30, 1977. For information, write the Astronaut Candidate Office, Code AHX.



WITH CARE AND GENTLY — That is the way Space Shuttle astronauts will be required to move heavy and large payloads in and out of the Orbiter with the aid of the Remote Manipulator System. Development of procedures for the system will be undertaken in the new Remote Manipulator Facility which recently became operational in Bldg.

9-A. The 50-foot long manipulator arm, above right, is shown moving a 32,000 pound payload which is floating on a cushion of air. Above, JSC management view manipulation of a 15 by 60 foot helium balloon from the payload specialist station. The balloon represents the mass of a maximum payload which Shuttle astronauts may have to move.



## Communications film series to be shown in auditorium

Important aspects of the organizational communications process will be examined through a series of five films to be shown in the Bldg. 2 auditorium during the next three weeks.

The films, from the Berlo Communications Series, comprise the second Management Film Series to be conducted at JSC by the Employee Development Branch.

Educators from the University of Houston and University of Houston at Clear Lake City will assist in the programs.

Following each film, a faculty member will discuss the concepts presented, update them and relate them to JSC situations. Audience questions will be fielded if time permits.

The sessions will be held between noon and 1 p.m. and all interested Civil Service or contractor

employees are welcome. Organizers suggest that supervisor permission be obtained.

The dates, film titles and faculty members for the five sessions are as follows:

Oct. 26, "Communication Feedback," Dr. Dutch Holland.

Oct. 28, "Meanings are in People," Dr. Linda Calvert.

Nov. 4, "Communicating Management's Point of View," Dr. Tim Singleton.

Nov. 9, "Avoiding Communication Breakdowns," Dr. Otis Baskin.

Nov. 11, "Changing Attitudes Through Communications," Dr. Walt Natemeyer.

For further information, contact Eugene Horton, X-3734.

## JSC will host first Scout Space-arama

Johnson Space Center will host a first-of-its-kind event this weekend when about 500 Boy Scouts and Webelos gather on-site for a Space-arama.

Conceived as a camporee, jam-boree and Scout show rolled into one, the Space-arama will allow the

youngsters to demonstrate their Scouting skills and learn more about the space program.

The Scouts, representing the Bayshore District, will begin arriving on-site Friday evening, Oct. 22, and will camp near the trees north of Bldg. 265 until Sunday afternoon.

In addition to tours of JSC facilities, the Scouts will participate in various competitive activities with space themes which allow them to display their Scouting know-how.

A radio-controlled glider and plane exhibition and a model rocket exhibition and contest are also planned.

Jack Eggleston, assistant to the director of E&D, is a co-director of the Space-arama.

## Center contracts for study of space construction needs

JSC has awarded a contract to the Martin Marietta Aerospace Co. of Denver for a study of equipment required to support construction of a Solar Power Satellite (SPS) in geosynchronous orbit about 1990.

The \$96,200 nine-month contract calls for a conceptual design and system definition of the equipment to support orbital construction of large space systems. In addition, the study will determine the

development and maintenance costs of the equipment.

The study will assume that construction of an operational power satellite, utilizing the Space Shuttle, will begin in 1995, and be supported by a construction base in orbit. It will assume technology available in 1980, and may draw upon technology assumed to be available in 1990.

## Skopinski scholarship fund grows to \$840

Friends and co-workers of Ted H. Skopinski have contributed \$840 to date to the memorial scholarship fund set up in his honor at Clear Lake High School.

Skopinski, of the Shuttle Payload Integration and Development Program Office, died Sept. 16 at the age of 56.

Trustees of the scholarship fund are CLHS Principal George Carlisle and John O'Loughlin, of the Payload Project Engineering Office.

Although specific details have not yet been worked out, plans are to award the scholarship to a 1977 CLHS senior student planning to enter college next fall and major in some engineering field.

Persons interested in contributing to the fund may contact O'Loughlin at X-5321.

After brief employment in the aircraft industry, Skopinski joined NACA, predecessor of NASA, at Langley Research Center in 1944. He then entered the Army but returned to Langley after his discharge.

In 1957, Skopinski wrote a section on satellite motion around a rotating Earth for what was probably one of the first textbooks on space technology.

In April, 1959, he joined the

newly-formed Space Task Group, the predecessor of JSC, at Langley.

Skopinski participated in trajectory analysis work for Project Mercury and was project manager for trajectory analysis for the Mercury Redstone flights which put America's first man in space in 1961.

In 1964, Skopinski became chief of the Trajectory Analysis Section, Mission Planning and Analysis Division, and later was assistant chief of the Orbital Mission Analysis Branch. During this time he participated in the planning of all Apollo flights.

In 1972, he transferred to the Space Shuttle Program Office. He actively contributed to the initial preparation of the Payloads Accommodation Document and extensively analysed payload performance and operational support requirements.

When the Shuttle Payload Integration and Development Program Office was formed in August, 1975, Skopinski continued his work in the Payload Systems Engineering Office.

He was returning home from a two-day NASA meeting at the Jet Propulsion Laboratory when his death occurred.

## Longer test firings begun on Shuttle's main engine

The pace of Space Shuttle Main Engine (SSME) testing has quickened with more frequent and longer duration static test firings.

Personnel of the Rocketdyne

Division, Rockwell International, are running the tests at the National Space Technology Laboratories (NSTL), Bay St. Louis, Miss., under the direction of NASA's Marshall Space Flight Center, Huntsville, Ala.

The latest engine test in the current series took place Sept. 30 when one of two engines was fired successfully for 650 seconds at mainstage operating levels (50 percent rated thrust level).

This was the longest test firing of the SSME to date. Previous firings have concentrated largely on testing other important parameters such as engine throttling control, engine start and shutdown sequence and engine power balance.

The engine test program at NSTL is a combination development and acceptance test program. Each Shuttle engine, before being certified for flight, will be fired at NSTL.



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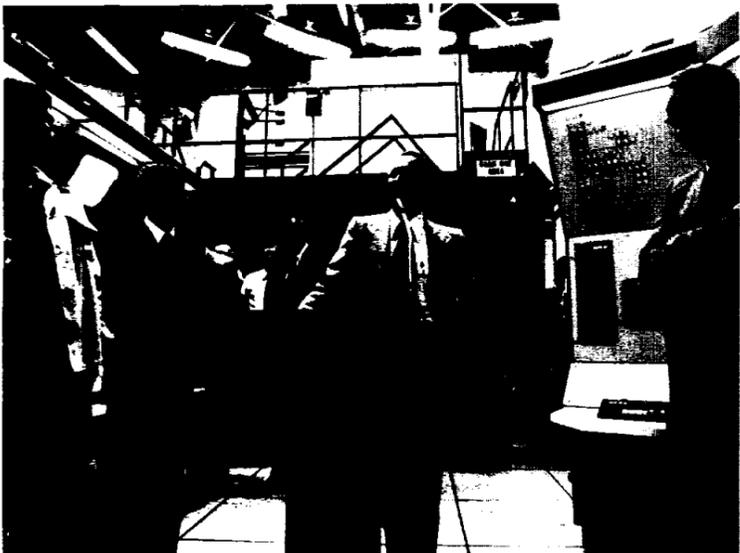
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Photographer: A. "Pat" Patnesky



THOMPSON VIEWS ORBITER — Space Shuttle Program Manager Robert F. Thompson, left, converses with an unidentified visitor at roll-out ceremonies for the Enterprise held last month in Palmdale, Calif.



**SIMULATOR ACCEPTED** - Center Director Dr. Christopher C. Kraft Jr. addresses about 60 JSC and contractor employees at recent acceptance ceremonies for the Orbiter Aeroflight Simulator (OAS). Group achievement awards were presented to JSC personnel and employees of the contractor, Link Division of Singer Co., for their work on the project.

# EAA ATTRACTIONS

## TICKETS

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

**Astroworld** - Tickets good through the end of the season, Nov. 28, may be purchased at \$1.50 off the regular price. Adult tickets cost \$6 from EAA; children's \$5. Children under 3 are free. Get your tickets now to assure yourself of a discount.

**Houston Aeros** - EAA discount gift coupons may be exchanged at the Summit box office for "live" tickets on the night of the game. A \$6.50 coupon get you an \$8 ticket, \$5.50 gets a \$7.50 ticket and \$4 gets a \$5 ticket. Aeros play Edmonton, Oct. 26; St. Paul, Oct. 28; Phoenix, Nov. 5; Indianapolis, Nov. 9; San Diego, Nov. 12, and Calgary, Nov. 16.

**Six Flags Funseekers Club** - Free membership cards. Six Flags will be open weekends through November.

**ABC Interstate Theaters** - \$1.50 admission tickets.

**Dean Goss Dinner Theater** - Comedy production, *Take My Wife*, \$16/couple. Tickets available every night except Monday, Saturday, through Nov. 2.

**Disney Magic Kingdom Club** - Free membership cards.

**Sea-Arama Marineworld** - No tickets will be available until December.

## TENNIS TOURNNEY RESULTS

The following results of the JSC Tennis Club tournament held Oct. 9-10 were announced by Jim Walker, tournament director, X-2611.

**Men's Championship Singles:** Gid Weber beat Tom Weber; 6-3, 6-1.

**Men's Championship Doubles:** Gid Weber & Al Morrey beat Ron Via & Ken Robinson; 7-5, 6-2.

**Men's 35 Singles:** Tom Milton beat Al Jowid; 4-6, 7-5, 7-5.

**Men's Intermediate Singles:** Doug Voss beat Dave Evans; 6-2, 5-7, 6-3.

**Men's B Doubles:** Stan Kohan & B. Suler beat Jim Bone & Earl Young; 5-7, 6-1, 7-6.

**Men's Novice Singles:** Howard Jones beat Lyle White; 7-5, 4-6, 6-3.

**Women's Championship Singles:** Betty Weber beat Karen Evans; 6-4, 5-7, 7-6 (5-4).

**Women's Intermediate Singles:** Lisa Proch beat Myrna Dorman; 4-6, 6-4, 6-1.

**Women's Novice Singles:** Leslie Garner beat Ginny Beck; 6-3, 6-2.

## GLASS RECYCLING

We are sorry to announce that the glass recycling collection program at the Recreation Center is being discontinued. After Monday, Oct. 25, ecologically-mined employees will no longer be able to recycle their glass refuse at the Gilruth Center. The one outlet in

Houston that used to take glass is no longer easily available to us. They have far more glass than can be used in their operation. Collection times have been cut way back or many times cancelled because the glass is not needed.

If other outlets become available or if the demand situation changes, we will again attempt to do our part and offer a place for you to recycle your glass refuse. Thanks to all the employees who have taken part in the recycling operation over the past three years. Due to your efforts, over 6 tons were recycled.

## 1976 SUPER TEAMS

The 1976 Super Teams Competitions will be held about Nov. 15. How many weeks they run will depend on the number of teams participating. Events this year will be run on about the same basis as last year, but there will be more events.

Teams will again consist of no more than 12 people. Rosters and \$50 entry fee should be turned in between Oct. 25 and Nov. 12. Roster forms are available at the Recreation Center.

When forming your teams, keep in mind that teams will have to complete in all 9 events: softball, basketball, volleyball, tug-o-war, darts, relay foot race, weight lifting (probably by weight division), horseshoes and tennis.

## "TAKE MY WIFE"

You asked for it - a NASA Night at the Dean Goss Dinner Theater will be held Sunday, Nov. 14, featuring the comedy production, *Take My Wife*.

Tickets (400 are available) will be sold on a first come first serve basis at the Bldg. 11 Exchange Store for \$7 per person.

Doors open at 6 p.m. Dinner is from 7-8 p.m. Play begins at 8:30 p.m. Highballs are two-for-one, other drinks are regular price.

Make plans now to join us Nov. 14 for a really super night out on the town.

# Picnic ticket refunds

Picnic ticketholders may obtain refunds from their EAA representatives or from the persons who sold them the tickets.

All tickets must be turned in for refund by Friday, Nov. 5.

Forecasts of bad weather forced the cancellation of the picnic, scheduled for last Saturday.

Plans are being formulated to reschedule the event in the spring at a date to be announced later.

## SOFTBALL LEAGUES Final standings Fall 1976

### Mens A League

Team	W-L	Pct.
Mets	7-0	1.000
Blazers	6-1	.857
Dreamers	5-2	.714
Dynamos	4-3	.571
Singer	3-4	.429
Fokkers	2-5	.286
SoPac	2-5	.286
Animals	0-7	.000

### Mens B League

Team	W-L	Pct.
Dudes	5-1	.833
Hustlers	5-1	.833
Oreos	4-2	.666
Bandits	3-3	.500
Marvels	2-4	.333
Rats	1-5	.166
FAB	0-6	.000

### Womens League

Team	W-L	Pct.
Nasa III	6-0	1.000
Rookies	3-3	.500
WYSIWYG	2-4	.333
Roadrunners	1-5	.166

### Mens C League

Team	W-L	Pct.
Marx Bros.	6-1	.857
Rookies	5-2	.714
SMD	5-2	.714
Nerds	4-3	.571
Heat	3-4	.429
TTA	3-4	.429
Moon Pies	2-5	.286
Oreos	0-7	.000

# Roundup Swap Shop

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

## CARS & TRUCKS

**CREDIT UNION REPOS:** 76 Chevy Nova, 75 Chevy Nova, 73 Opel, 73 Plymouth wagon will be shown 10-26 thru 10-28, 10 am-2 pm by appt only. Bids opened 10-29. We reserve right to refuse all bids. For appt, call Collection, 488-7070.

75 Chevy Beauville 3/4-ton Van. Dual air, pwr, new radials. Equity. 488-5876.

72 Pinto wagon. Xint buy, new 2000cc eng, paint, alternator, batt. Rebit trans and A/C. \$1,500. Whitacre, X-4601 or 487-1476 evngs.

66 Pontiac Tempest. V8, 4-sp, air, looks bad, runs good. \$200. 482-1956.

72 Porsche 914. Xint cond, air, AM/FM, 5-sp, 37 mpg, removable hardtop, Michelin radials, orig owner. \$4,000. Chuck, X-3905 or 488-0373 after 5.

72 Merc Comet. 2-dr, 250-6 cyl, air, auto, bukt seats, 18,500 ml, xint cond. \$2,100. Dell'Osso, X-4126 or 488-5077.

75 Pontiac Astre SJ. All extras, 60K ml eng warranty, 15K actual miles. \$2,400. 488-1149 after 4:30.

64 Rambler 370 Classic. Air, pwr steer, auto, 5 good tire, 77K ml, good cond. 688-6134.

73 Corvette. White w/red int, 4-sp, air, AM/FM, clock, tach, alarm, xint cond. 58K ml. \$6,200. 488-3342 after 6.

## CYCLES

Two 74 Yamahas, 100/125cc. Make offer. 488-5876.

75 Honda 750S. Windjammer III fairing, mint, 6,500 ml. \$1,675. 488-3319 after 5.

74 Yamaha 360MX. Mint/showrm cond, never raced, low miles. \$650. 991-4626.

75 Honda 750 Super Sport. Blue, rack factory lugg carr/sissy bar, xint cond. \$1,800. Bullock, 488-6095.

74 Yamaha RD350. Very good cond, \$525. 488-2716 after 5.

Boy's 26" bicycle. Single speed, red frame, incl steel cable. \$33. Karen, X-2583 or 482-7302 after 6.

## BOATS

14-ft Quachita John Boat w/5 hp outboard motor. Hardly used. \$300. 333-2717 evngs.

## PROPERTY & RENTALS

Rent/sale: CLC Middlebrook, 4-2-2, contemp w/atriums and skylight, fireplace; fenced, near schls, 1 yr old, 2240 sq ft. \$485/mo. or \$61,900. 474-2081 or 488-0346.

Townhouse for lease: Forest Bend, immaculate 2-2-2, all elec. 488-2289.

74 Winnebago motorhome for rent. \$140/wk, \$22/day, 9 cents/ml. 488-2329.

## HOUSEHOLD ARTICLES

Trash compactor. White, stand alone unit, very good, must sell. \$115. 471-1984.

Panasonic AM/FM stereo w/turntable, 8-trk tape, 2 spkrs and dancing lite, like new. \$150. 941-2325 after 5.

Two EPI-50 speakers. \$50 each. Lake, X-3286 or 523-2137.

Singer Zigzag Sew Mach. 3 yrs old but in mint cond, hardly used, w/case. \$65. Parker, X-4241 or 481-4372 after 5:30.

Antique wicker table, oval 27-1/2 X 39". Also, pr lovely mahog lamp tables w/drawers and shelf. Perfect cond. 488-5564.

20 lb Norge Gas Clothes Dryer. Like new, must sell, new home is all elec. \$150. Byrns, X-6247 or 985-2356 Alta Loma.

JVC AM/FM stereo w/turntable, dust cover and 2 hi-fi spkrs. \$90. Ford, X-5326.

Pioneer PLA-35 semi-auto turntable. Belt drive, dust cover, new Pickering XV-15400E cart. \$85. 488-3966.

## WANTED

Barbie clothes/accessories and girl's size 9 or 10 roller skates. 941-1494 after 6.

Study desk and chair set in good cond. Must be reasonably priced. Jeff, X-6355 or 482-5393 after 5.

Family willing to share home w/student co-op. Either room and board or room w/kitchen privileges. Judy, X-3571.

Information about Bass Clubs in SE Houston area (Alameda Mall-Clear Lake). Parker, X-4241 or 481-4372 after 5:30. GM car seat for baby. 334-4175.

Forming carpool betw Sagemeadow and JSC. Reubens, X-2450 or 481-3433.

## MISCELLANEOUS

Signet silver flute. Xint cond. \$175. Bourland, 488-5580.

AKC reg Chow-chow male puppy. "Blue" color, superb one family guard dog. \$150. Byrns, X-6247 or 985-2356 Alta Loma.

35MM Camera w/case and flash cube adapter. Bit-in rangefinder and light meter, f1.8. \$50. Medack, 481-2366.

First 11 Issues of Byte Magazine. Mint cond. \$50. Gorman, X-4826.

Sliding glass door and 9X4 ft window. \$25 ea. Doherty, 488-0182.

Swimming pool cover, 20X40 ft, and tree leaf vacuum. \$35 ea. 488-1326 after 5.

Gas cook stove. Sultable for vacation home. \$45. Beasley, 944-4281.

Rolex watch. Solid gold. Xint cond. \$1,000. 333-2616 or 333-3672.

Bumper pool table; air hockey table. Cost \$110 ea, sell \$50 ea. 334-1639 after 5.

Golf pull cart. Whls fold out automat. \$750. Gorman, X-4826.

12-gauge Browning Model 2000 shotgun. 26" ventilated rib improved cyl, recoil pad, like brand new. \$240 firm. Gus, 487-1488.

Medium size dog house. Nice. \$15. 488-5876.

Asstd used parts for Fiat 850. 482-1956.

## LOST & FOUND

Found: Pr. contact lenses in case, Nassau Bay Hotel pk lot. Gentry, X-3836 or 644-3579.

## LATE ENTRIES

65 Pontiac Tempest. Rusty but runs good. 71 VW Fastback. Stick shift, air, runs good. 488-1003 evngs.

2 girls' 10-sp bikes. Like new. \$50 ea. Jay, X-6357 or 481-2335.

Large printers' type drawers. Great for miniatures and collectibles. \$12. 488-1890.

Player piano. Electrified, reconditioned and refinished, plays perf. 488-1890.

73 Pinto Runabout. Air, radio, std trans, steel radials, new valves, front brakes. Terry, X-5941 or 944-4300.

# Lab seeks women volunteers for treadmill, pressure tests

Do women's bodies react differently from men's to exercise on a treadmill or when under decreased lower body pressure?

These are among basic questions which Dr. R. L. Johnson, Cardiopulmonary Laboratory cardiologist, would like to investigate before NASA recruits its first women astronauts for the Space Shuttle.

He is asking JSC women employees to volunteer for testing on a treadmill and Lower Body Negative Pressure (LBNP) device to provide some baseline data on women.

"We expect to use both of these tests in the selection of pilots and mission specialists in the Shuttle Program," Johnson said.

Although the tests have been conducted with many male subjects in the past, there is little data on how women respond to the treadmill exercise and none on the LBNP, he said.

By testing female volunteers, the Cardiopulmonary Laboratory hopes "to furnish information that's really a background for some of the selection criteria used for women (astronaut) applicants," Johnson

said.

The doctor is seeking Civil Service women of all ages to be tested but will limit the number participating by age groups.

On the treadmill test, the speed and elevation of the moving belt is varied while the test subject's heart rate and blood pressure are being monitored.

The LBNP device encases the test subject from the waist down. Pressure in the chamber is then reduced and the reaction of the cardiovascular system to the pressure change is studied.

"During the course of these tests we will take electrocardiograms and vectorcardiograms and some tests that evaluate heart sounds and mechanical efficiency of the heart," Johnson said. "These provide a pretty efficient cardiac evaluation."

The doctor is hoping to find volunteers who will make a long-term commitment to the program. He expects to repeat the tests with the same subjects at intervals of from 3-6 months.

The tests take from one and

one-half to two hours each (less if both are conducted on the same day). Women who volunteer will be excused from normal work duties to participate, Johnson said.

A prerequisite for participation in the program is a physical examination at the NASA clinic. Examinations can be scheduled for women who have not had a recent physical.

Volunteers to the program can benefit personally in at least two ways.

First, exercise programs will be suggested. "There is some evidence that people who exercise regularly have a lower incidence of heart attacks and when they do, they are less apt to be fatal," Johnson said.

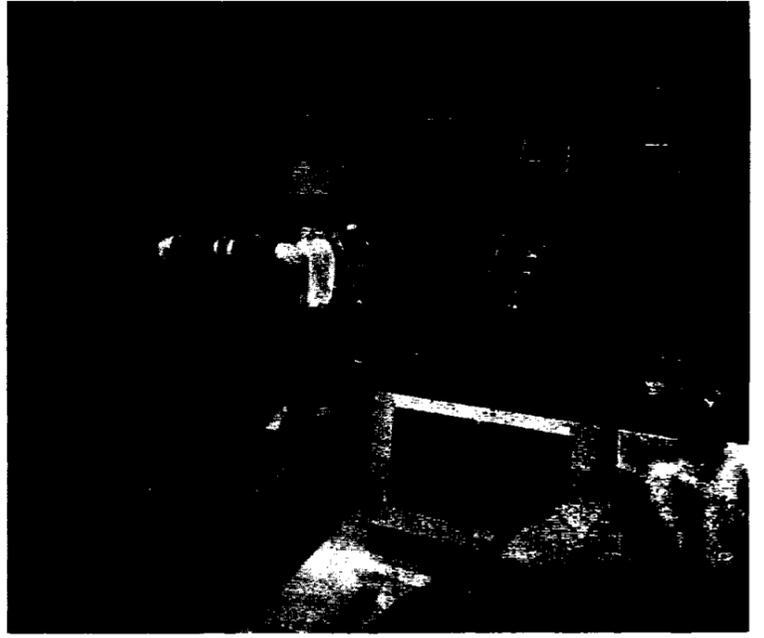
Second, the conditions of their hearts and overall health will be regularly monitored. "The treadmill is the best non-invasive test for detecting coronary heart disease before symptoms are produced," the doctor noted.

For more information about the program, contact Margaret Jackson, X-3518.

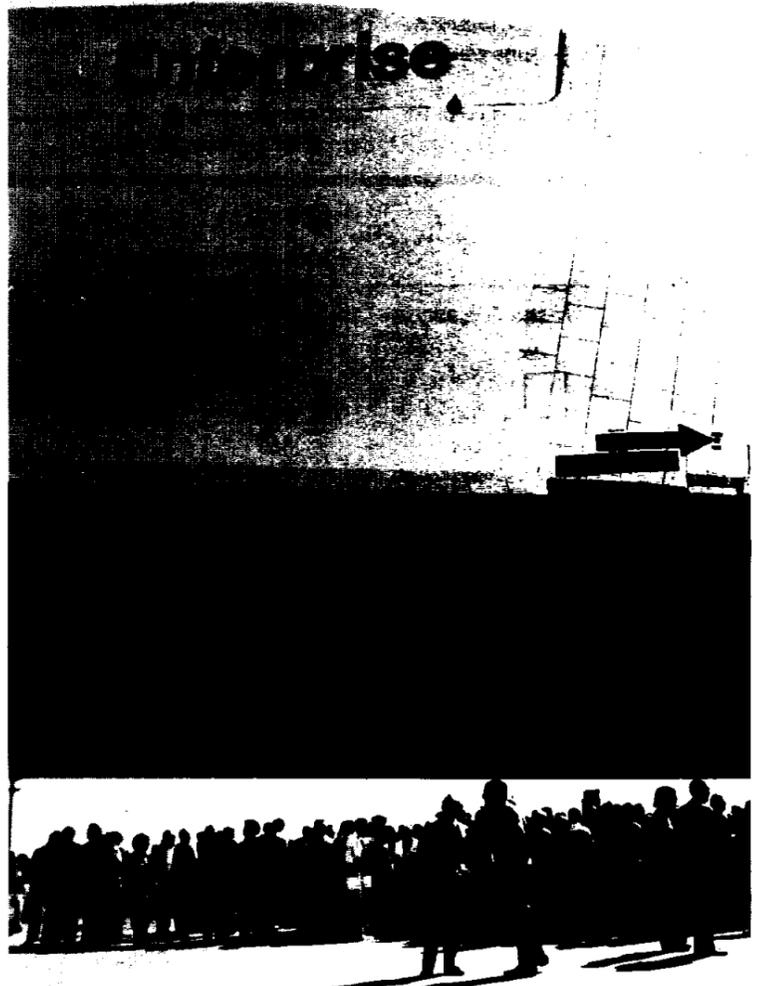


**PRESSURE CHAMBER** — Engineer Marsha Ivins lies encased in the cylinder of the Lower Body Negative Pressure (LBNP) device as Dr. G. W. Hoffler of the Cardiopulmonary Laboratory attaches a carotid artery pulse sensor to her neck prior

to testing. Pressure inside the cylinder was reduced in increments and the resulting change in Marsha's heart activity was monitored and recorded.



**ALL WIRED UP** — Marsha Ivins of the Displays and Controls Section, Spacecraft Design Division, is wired to the new Computer Assisted System for Exercise (CASE) as she begins her treadmill test at a moderate walk. A physiologist and bio-engineer study the monitor of the CASE, which records heart rate, blood pressure and an electrocardiogram. The machine controls the speed and elevation of the treadmill.



**ATTENDING ROLLOUT** — Important guests attending roll-out ceremonies last month in Palmdale, Calif., included JSC Director Dr. Christopher C. Kraft Jr., center foreground, and former NASA Deputy Administrator George Low, right center. Kraft and Low stand beneath the fuselage of the Enterprise, the first Space Shuttle Orbiter vehicle.

# Shuttle road crosses Indian campsite

Reprinted from NASA X-Press,  
Hugh L. Dryden  
Flight Research Center

NASA has become involved in the field of archeology but not in search of ancient astronauts. The road that is being built to transport the Space Shuttle Orbiter to the Center from Rockwell Site 1 in Palmdale (Calif.) will preserve a prehistoric Indian campsite.

The site was discovered during a routine investigation conducted to determine the environmental impact of the construction of the road. After preliminary investigation to determine the extent of the site, the Shuttle road is being built over it and will preserve it for future excavation.

The site is easily identifiable on the surface by the midden (dark soil that results from decomposition of organic material) dug up by rodents and the flakes (waste pieces of worked stone) on the surface. It is located directly in the path of the Shuttle road, an extension of Division Street. Located on government property, the site was probably chosen by the Indians for a reason similar to why it was chosen for the Shuttle road. It is located on a high spot that was probably the edge of Rosamond Lake at one time. Like many of the lakebeds around, Rosamond Lake was a wet rather than dry lake up until an earthquake in the 1920's dropped the water table down. A line of telephone poles prevents the road from being built around the other side of

the site.

According to Van Eggers, principal archeological consultant on the site, the site was probably just a campsite used by the Indians while traveling from one end of the valley to the other. His crew of local experienced archeologists has uncovered several artifacts including rhyolite and obsidian flakes, a spear or knife point and a piece of grinding stone. A single olivella bead, probably used by the Indians as a form of money and usually only found in burial sites, was found in the bottom 10 cm level of a one and half meter test unit they dug. Some charcoal and some rodent and bird bone were also found.

The preliminary investigation of the site was carried out using scientific archeological techniques by

Eggers, Roger Robinson and Mark Sutton, both archeology instructors at Antelope Valley College, as consultants and about twelve workers. The entire area was surveyed and marked out. A surface collection of the area was made, with careful records kept of the location of all artifacts. Six test units measuring one meter by one meter were dug. These units are dug in ten cm levels. The location of the artifacts is very important in reconstructing how the Indians lived. A 5 by 5 meter unit was also dug to determine the effect of digging by rodents on the site.

The collected items will be sorted, counted, labeled and cataloged using facilities at Antelope Valley College. AVC will store the

material. The archeologists' final report will be sent to the Corp of Engineers, who are performing the environmental impact study for NASA and also to the archeological community.

The Shuttle Road construction crew will back up to the site and lay down a layer of decomposed granite in front of them, so that as they cross over the site they won't have to drive directly on it. The compressed granite under the asphalt road will support the weight of the vehicles driving on the road, protecting the site from damage. Both the Corp of Engineers and the archeological community will keep records of the location of the site so that it can be fully investigated in the future.