**Women Under Study For Shuttle Mission**

Clinical research in female physiology to develop criteria for women passengers in Space Shuttle mission has begun at NASA's Ames Research Center, Mountain View, Calif., as a follow-up to similar studies on men conducted last year.

Twelve nurses are joining a five-week experiment as volunteers to find out how weightlessness and reentry Gs may affect the female body. After two weeks of orientation and preliminary medical studies, eight of the 12 nurses will simulate weightlessness by absolute bedrest and four will act as ambulatory subjects. After two weeks of immersion the eight women will be subjected to G forces expected when the Shuttle enters the atmosphere at the end of a mission. The last week is for recovery and final testing.

One of the experiment's objectives is to see how well women can resist the tendency for blood to pool in the legs after a period without gravity and subsequent cardiovascular deconditioning already observed in male astronauts.

Another objective is to determine female tolerance to the long period of low G forces which Shuttle reentry will create. The third objective is to measure specific physiological changes induced by the simulated weightlessness. These measurements are on biochemistry, cardiovascular responses, and changes and effects of endocrine gland activity under the stress of simulated spaceflight. Much of the data on the women will be compared to similar data on men to determine the reaction differences.

Medical literature on many of the test objectives for women is scarce or non-existent. The results of this experiment therefore regarding vital as criteria for determining flight training selection criteria for female passengers.

(Continued on Page 7)

**Kohoutek Is SL-4 Bonus Feature**

Tentative launch date for Skylab 4 astronauts Gerald Carr, Edward Gibson and William Pogue is November 11. Probably the first of the many activities the crew will undertake is reactivating the primary cooling loop. Carr's crew will take with them a special saddle valve and tank of coolant to refill the primary loop's coolant to refill the primary loop. The third objective is to measure specific physiological changes induced by the simulated weightlessness. These measurements are on biochemistry, cardiovascular responses, and changes and effects of endocrine gland activity under the stress of simulated spaceflight. Much of the data on the women will be compared to similar data on men to determine the reaction differences.

Medical literature on many of the test objectives for women is scarce or non-existent. The results of this experiment therefore regarding vital as criteria for determining flight training selection criteria for female passengers.

(Continued on Page 4)

**Second Blood Drive Set for Oct. 31**

The second NASA blood drive for federal and on-site contract employees will be held October 31 at the Gilruth Recreation Center. This is the first blood drive to be held under the Employee's Activities Association contract with St. Luke's Episcopal Hospital. The new contract differs slightly from the one last year with Blood Services of Houston.

Under the new plan the donor's spouse, unmarried dependent children under 21 years of age who are either full-time students and/or living in the same household and dependent parents living in the same household are eligible for benefits. If a donor is hospitalized outside the Houston area, blood replacement will be made by St. Luke's through the American Association of Blood Bank's National Clearinghouse System whenever possible.

NASA blood drives began in the fall of 1966 when 12 NASA employees went to Houston to donate for the son of a fellow worker. That September the first bloodmobile drive resulted in 201 units being drawn. The following year that number was up to 600 but slipped to 600 in 1968.

The number of donors rose again to 799 and has risen every year since. Last year 1,130 units of blood were donated.
Space Station Proves Quite Habitable for SL-3 Crew

A third year extension in its contract to provide general electronic, scientific and computing Center support services has been awarded to the Houston Aerospace System Division of Lockheed Electronics Company Inc., Plainfield, New Jersey.

The amount in the cost-plus fixed-fee contract is for an estimated $27,773,000. The work will be done at JSC.

Under the terms of the award, Lockheed supports the Engineering and Development, Flight Operations, Flight Crew Operations and Life Sciences Direct.ates in a variety of functions associated with computer operations and maintenance, general electronics, instrumentation and engineering.

This is the largest support services contract at JSC in terms of personnel. More than 150 Houston-area personnel are employed under the contract.

Lockheed initially was awarded the work in 1971. The contract contained provisions for five negotiated one-year periods. This third year extension remains in effect through August 31, 1974.

More than $50 million in payments have been made to Lockheed for the prior two years that the contract was in effect.

Ideas Are Worth Money to JSC

JSC Director Christopher C. Kraft announced recently that ideas for improving operations at JSC have resulted in cost savings and more effective methods of accomplishing daily Center activities.

Dr. Kraft encouraged employees to participate in JSC's Suggestion Program. "A Suggestion Form should be submitted to the Awards Office (AH/3) if there is something in your organization which you would not normally be expected to change, or if you have a proposal for improving something outside your work area.

"Your suggestion will be brought to the attention of the appropriate management official, and if the change is in the best interests of the Center, you will be considered for a cash award when it is implemented." Dr. Kraft added.

Dr. Kraft noted that the program is part of the Incentive Awards Program which is designed to make government careers more interesting and rewarding. It provides an opportunity for employees to be recognized for useful ideas.

Dr. Kraft observed, "When your ideas result in significant improvements and greater efficiency, we all benefit."
**Roundup Swap-Shop**

Swap Shop advertising is available to local advertisers without regard to sex, race or any other reason. Articles or services must be offered as advertised. Phone numbers are included, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy only. Roundup reserves the right to publish or reject any and all ads. *JSC and on-site contractor personnel.*

**MISCELLANEOUS**

Pool Table w/accessories, $300. Bob, x 8735.

Ballroom dancing lessons, have few openings for S.A. members, calls x 8500, Roy, 4535. 

Glen Miller. 22 car auto air-shoot type repeater w/4 pk scopes, pr. stock. 50, 458-1646.


14 Horse Catwail trailer, x 513, 7 yrs.

Fiberglass ski boat, 65 ft John cryptocurrency, 6, 43-808, Dealer: $200, ebay, 933-4837.

16 Horse sailboat, fiberglass, main and jib, N.O.S. trailer w/6 – 2 wheel trailer accessories, Marianna, 333-2381.

**ADVERTORIES**

AC/DC Ancient Paddles 7, x 35, 944-1011.

AC/DC registered collectible at stunt, world famous (Gulf) Bloodline, Sab, and whis, 744-6096.

**WANTED**

Carpool wanted from Danbury/Angleton area, 8-4-30. Howard, 972-1739, 483-2291.

2 tickets to Texas/Oklahoma football game in Dallas. Oct 13, 538-1147 (Keham) aft.

Used portable sewing machine, old-time, blade, ceiling fan, x 7-4-4733.

**LOST AND FOUND**

Found expensive ball point pen, owner may call to identify and claim, ext 4606.

**PROPERTYANDRENTALS**

-used old custom guitar, in working order, N.O.S, 117-900.

Allgemeine 2 & 3 yr old, x 944-4733.

**IBM Gets Shuttle Avionics Contract**

JSC has awarded the Electronics Systems Center of IBM Federal Systems Division, Owego, New York a contract to design, implement and maintain avionics software for a data system on the Space Shuttle orbiter.

Estimated cost of the development program is $6.5 million, to be effective following the initial increment of the contract. A cost-plus-fixed-fee type of award has been issued. It will remain effective through April 10, 1977.

The term ‘software’ relates to mathematical computations and information translated into language acceptable for computer systems.

In space terminology, the IBM award is for a Space Shuttle Orbiter Avionics Software Development Program. It is to be Government Furnished Equipment (GFE) separate from the orbiter manufacturing program, to be performed by Rockwell International, Downey, California.

Work to be performed by IBM falls into three major categories.

- Development and maintenance of the software for Data Processing Systems (DPS) on the orbiter.
- Development and maintenance of the tools required for the software program.
- The design, development, and implementation of test software for ground based facilities such as the Avionics Development Laboratory and the Shuttle Avionics Integration Laboratory, both of which are planned for JSC.

The contract was awarded in two increments. During Increment I, the contractor will develop in-depth programs for orbiter missions and for the supporting laboratories.

IBM earlier was selected by Rockwell International to design and produce two key electronic units for the Space Shuttle orbiter. The components are an orbiter general purpose avionics computer and an input/output unit that works in conjunction with the computer.

**Donna L. Sanders Gets Outstanding Award For Oct.**

Donna L. Sanders, secretary to the Chief of the Planetary and Earth Sciences Division has received the Outstanding Secretary Award for October. Miss Sanders was nominated for her sustained exceptional performance during the past year as secretary for the late Dr. Paul W. Gast. Donna’s exceptional dedication, tact and cheerfulness greatly contributed to Dr. Gast’s efforts in his last months to pull together his research studies and ideas regarding science and human life.

In addition to personally supporting Dr. Gast, Miss Sanders’ talents and efficiency contributed immeasurably to maintaining the stability of the Division during this trying period.

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Space Research Contributes to Fire Prevention Program

"Recognizing that maximum benefit can be obtained from space research only when its discoveries are widely shared... we hope you will find ways of adapting some of the many valuable findings presented here to relieve and reduce the hazards of fire in everyday working and living-in housing, hospitals... cars, aircraft, theatres... wherever people and their valued possession may be."

This statement made by former NASA Administrator Dr. Thomas Paine, May 6, 1970 at a JSC sponsored "Conference on Materials for Improved Fire Safety." Among those involved was one with some of the nations most serious problems—the control and elimination of fire perils.

In fact design fire safety had always been a top priority item. However, the best efforts were not good enough. The tragic Apollo spacecraft fire of January 27, 1967, took the lives of Astronauts Virgil I. Grissom, Edward H. White, II, and Roger B. Chaffee--in the world, and threatening the future of space flight.

But from the tragedy emerged a Flameproof and firecontrol program based on the most extensive scientific fire safety research ever conducted by man.

Available only to government and industry are fire prevention and protection techniques and materials that might never have been discovered had it not been for the launch pad fire.

The mandate in designing spacecraft after the Apollo fire was threefold: substitute wherever possible with completely fireproof material; if suitable substitutes do not exist, develop them, and if any item cannot be made fireproof and cannot be deleted from the spacecraft, cover it with fireproof material.

Fagel Gets Award (Continued From Page 1)

Kodakan Judo Club Emphasizes Harmonious Development

Persons interested in the harmonious development and eventual perfection of human character will be interested in the Kodakan Judo club which meets on Monday and Wednesday at the Gilruth Recreation Center.

Tom Murray (X-4491), one of the instructors at the club, explained that Judo was founded by Dr. Jigoro Kano in 1882. The two principles of Judo are maximum efficiency and mutual benefit.

Prior to the introduction of Judo, unarmed combat skills called the martial arts, were practiced in Japan for about 1000 years.

The club, which has been operating in the City for about two months, opened on site last week. Club dues are payable on the first meeting of each month and are $10 per month.

Great Pumpkin Regatta Coming Soon

On Sunday, the warning gun for the third race will be fired at 3 p.m. Trophies will be awarded after the races are complete. Registration fee is $4.00 and should be mailed to Pat Butler, CLSC, P.O. Box 58212, Houston TX 77058.

"The annual Great Pumpkin Regatta staged by the Clear Lake Sailing Club will take place October 13 and 14 at the Harris County Park in Clear Lake.

On Saturday registration and Check-in time is from 8:30 to 11:30 a.m. The warning gun for the first race goes off at 12:15 p.m. and the warning gun for the second race will be fired at 3 p.m.

There will be a social hour following the race with free refreshments.

On Sunday, the warning gun for the third race will be at 10 a.m. Trophies will be awarded after the races are complete. Registration fee is $4.00 and should be mailed to Pat Butler, CLSC, P.O. Box 58212, Houston TX 77058.

Information about boat classes and hours are available from Pat at 331-5764. Expected classes include Dolphin Dr., and 17, Sunfish, Snipe, 470, Windmill, Lido, Wildflower, Hobie 12, 14 and 16, Starfish, Scorpion, GC 14, EJ, FD, Thistle, Laser, DS, Coronado 15, Sweet 16, FS, Banana, Finn and handicap class to include types with fewer than three boats entered.