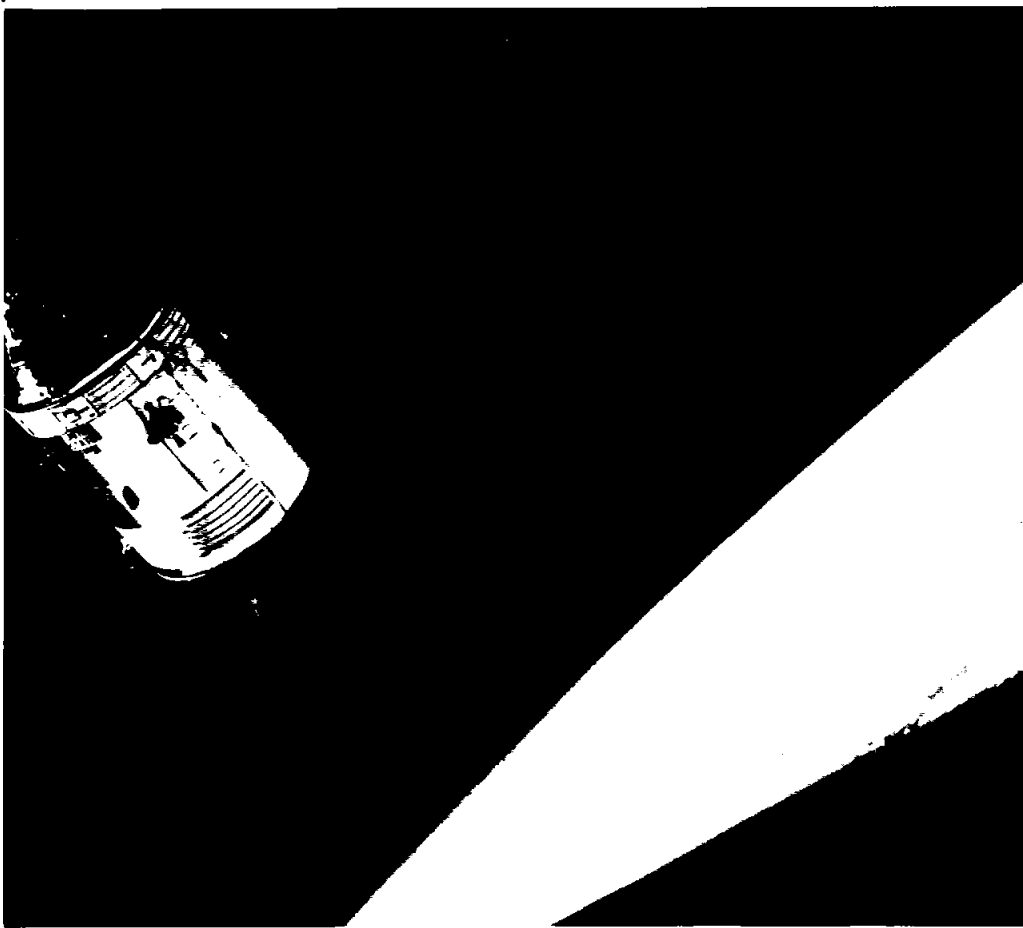


## Gumdrop and Spider Pose for Each Other



**PIROUETTE IN SPACE**—The Apollo IX command/service module and lunar module (right) back off for a look at one another after undocking for the rendezvous sequence. Command module pilot David Scott pitches the CSM up to place the hatch window in position to take photos of the LM as part of a post-undocking photography inspection. Aboard the LM, commander Jim McDivitt and LM pilot Russell Schweickart rotate the LM through its three axes to

allow Scott to photograph it from all angles. The LM is heads-down relative to the earth—an attitude that makes no difference to a spaceflight crew except perhaps to provide better horizon reference. Thermal blankets make the LM look like a foil-wrapper freezer package. The lunar surface sensing probes jut out from each LM landing pad, and in lunar missions will advise the crew when to shut down the LM descent engine.

## LM-2 Drops Simulate Landing Accelerations

An Apollo lunar module today will make a landing—not on the moon but on a prepared surface in the MSC Vibration and Acoustic Test Facility. The landing is the first of a series of five drop tests of Lunar Module 2 from heights ranging from eight to 24 inches on man-made slopes and obstructions to simulate landings on rough moon-scapes.

MSC test project manager Robert Wren said Apollo program officials are interested in how well installed lunar module subsystems and interconnecting plumbing and electrical systems withstand landing stresses. The drop tests are being run by the Structures and Mechanics Division for the Apollo Space-

craft Program Office with support by LM manufacturer, Grumman Aircraft Engineering Corporation.

A series of 16 drop tests conducted last year at Grumman's Bethpage, N.Y. plant demonstrated the structural integrity of the LM using a structural test vehicle minus all subsystems, wing and plumbing. The MSC drop test series, using an all-up LM, aims toward verifying proper systems operations following a lunar landing.

*(Continued on page 3)*

## Apollo X Launch Set for May 18

NASA Monday said the Apollo X mission profile remains in its present form—a lunar orbit mission with a lunar module descent to within 50,000 feet of the moon's surface—the launch day will be May 18. The May 18 date is the second day of the lunar launch window for that month.

The change from the first to the second day of the May window would permit observation and collection of data on Apollo landing site 2 as the area of primary interest and would also permit observation of site 3 after sunrise on the Moon. The Apollo site 1 was the area of primary interest in the December flight of Apollo VIII.

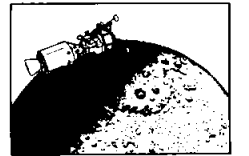
A final decision as to the specific nature of the Apollo X mission will be made next week after a review of the Apollo IX mission.

# ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS

VOL. 8, NO. 11



MARCH 21, 1969

## Successful Apollo IX Forges Missing Link in All-Up Stack

A manned lunar landing this summer seemed all the closer last week when the Apollo IX command module splashed down less than four miles away from the prime recovery vessel

to end a ten-day mission in which all objectives were met.

The majority of these mission objectives centered around the first manned flight of the Apollo lunar module, which until this

mission, had been the missing link in the checkout of the full Apollo spacecraft stack.

Minor problems did crop up during lunar module operations, such as a pressure decay in descent stage supercritical helium pressurant for fuel tanks, and a malfunction of one of two ascent engine pressure regulators during the final burn to depletion. "The lunar module problems would not detract in any way from flying the next mission," said Apollo Spacecraft Program manager George Low.

The Apollo IX command/service module problems were mostly of a nuisance nature—a higher than normal temperature in one of three fuel cells that later cleared itself up, and an intermittent binding of the navigation sextant in the manual mode, a fault which also later cleared up.

Apollo IX was launched into a near circular 102.3 x 103.9 nm orbit following an on-time liftoff at 10 am CST March 3 from Kennedy Space Center Launch Complex 39A. At three hours after liftoff, Apollo IX crewmen James McDivitt, David Scott and Russell Schweickart settled down for an intensive five days of checkout and operations with the lunar module when they separated from the S-IVB third stage, did a turnaround and docked with the LM

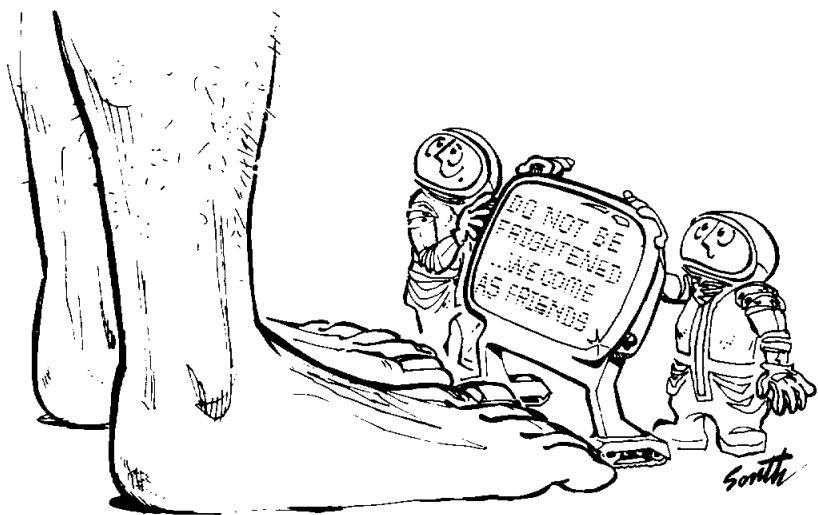


**RED ROVER**—Spider and Gumdrop were joined by the call-sign "Red Rover" during the period Schweickart was EVA in the Golden Slippers foot restraints on the LM porch. Schweickart's transceiver in the portable life support backpack became the fourth communications link between Mission Control, Gumdrop and Spider. Here, Schweickart retrieves thermal samples from the LM exterior and is caught in the act by Scott's camera in the command module. The EVA handrail is in right foreground, and the LM front leg and lunar surface ladder are in the left background.

*(Continued on page 4)*

**THE ASTRONUTS**

(filched from TRW Systems Group)



**Teller Speaks At March 31 Science Seminar**

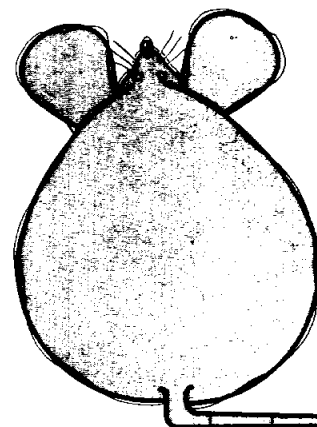
Dr. Edward Teller, professor of physics-at-large and associate director of the University of California Lawrence Radiation Laboratory, March 31 will be MSC science seminar guest speaker at 3:30 pm in the MSC Auditorium.

Teller's subject will be "The Practical Consequences of Space Activities" at the Colloquium Scientific, sponsored monthly by the MSC Science and Applications Directorate.

Teller has broad research interest and he has made significant contributions in several fields, including chemical physics, molecular physics, nuclear physics and quantum theory. He was an early researcher in studies of thermonuclear reactions—the processes by which stars like our sun generate energy.

In recent years he has gained recognition for his role in the practical application of thermonuclear principles in the development of thermonuclear weapons. He has made contributions to the spectroscopy of polyatomic molecules and has maintained an interest in the theory of atomic nuclei.

Teller has also been active in the development of the Sherwood Project—the controlled thermonuclear program, and in the development of Project Plowshare—the peaceful uses of nuclear explosives. His present activities are in applications of nuclear energy, astrophysics and molecular physics, and in the teaching of elementary and applied science on the graduate level.



to make a  
**LONG TALE SHORT...**  
we gotta  
**CUT COSTS!**

**COST REDUCTION PROGRAM**

The *Roundup* is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

Director ..... Dr. Robert R. Gilruth  
Public Affairs Officer ..... Paul Haney  
Editor ..... Terry White  
Staff Photographer ..... A. "Pat" Patnesky

**Apollo CSM Change Pact Signed**

NASA has signed a supplemental agreement with North American Rockwell Corporation valued at approximately \$27 million for changes in the Apollo command and service module contract.

The agreement formally incorporates into the NR contract 156 changes previously authorized by NASA for modification to the contractor's documentation and reporting procedures for test and check-out of the CSM, for modification to flight and ground test hardware, for additional test and effect analysis, and for crew safety hardware changes.

NR performs the majority of work on the command and service module contract at its Downey, Calif. facility with sup-

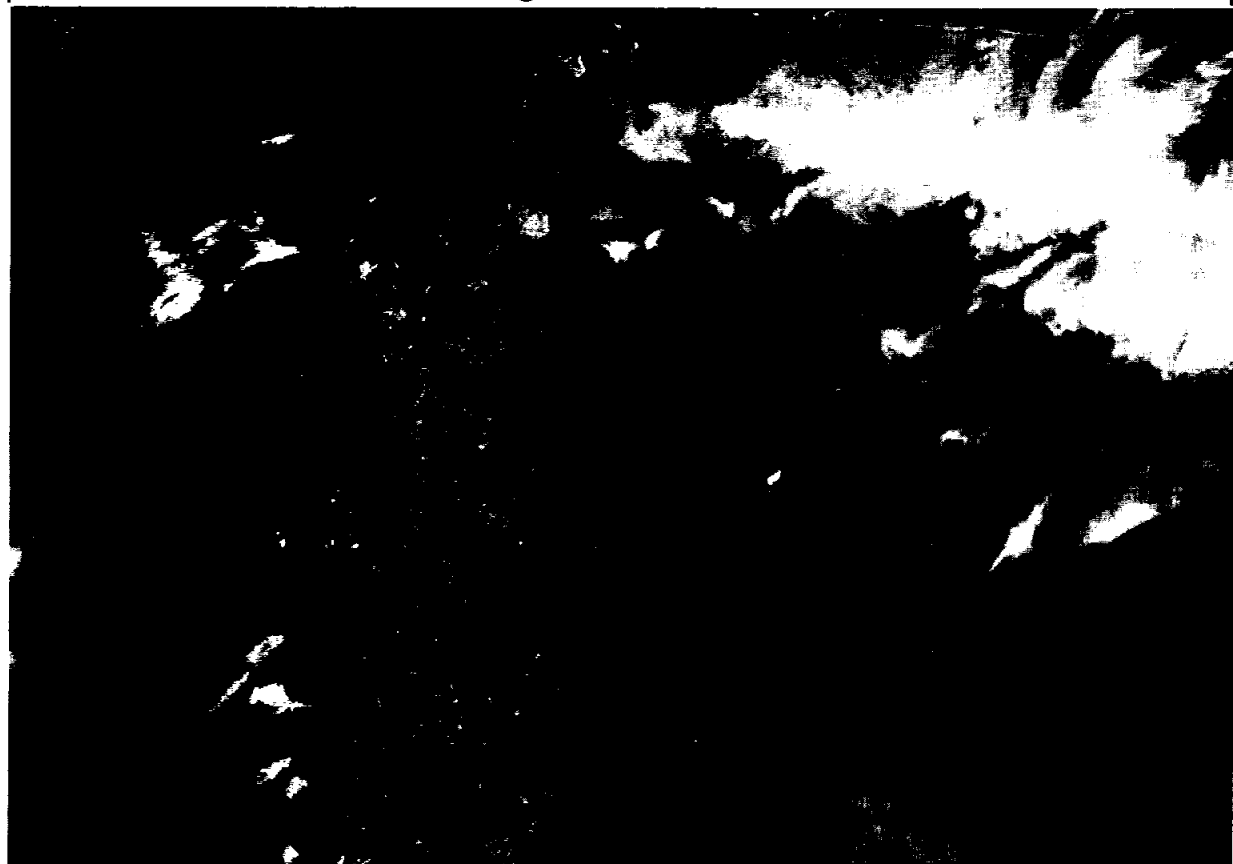
port from field offices at MSC, White Sands Test Facility, N.M., Tulsa, Okla. and Kennedy Space Center, Fla.

**Stamp Club Hears Olling on Collecting**

The MSC Stamp Club Monday will hear guest speaker Ed Olling of the ASTD Earth Orbital Missions Office speak on "Topical Collecting" at 7:30 pm in Room 108 Bldg 13. An auction will be held during the meeting.

The Club is planning publication of a cacheted first-day cover for the May 5 issuance of the Apollo VIII commemorative stamp. For details of the cachet publication or of Club activities, call Alan Doyle at 7278 or Matt Radnofsky at 3343.

**A Long View of Home**



**BIG H**—The Houston area looked like this to the crew of Apollo IX as they pointed their camera to the southeast toward Galveston Bay. The Brazos River-US 90A junction is at lower center, Beaumont-Orange in upper left corner, and the Bolivar Peninsula and Galveston Island beaches are visible through a deck of wispy clouds at upper right. The white line jutting into Galveston Bay at upper center is the Texas City dike.

**Your Job in Focus**

**Veterans Dividends**

More than 4.2 million World War I and World War II veterans holding GS insurance policies will receive \$236 million in dividends during 1969, according to the Veterans Administration.

The dividends will be paid throughout 1969 on the anniversary of the policies. Veterans need not apply for the dividends since payments will be made automatically, it was announced.

For nearly 4.1 million World War II veterans, National Service Life Insurance 1969 dividends will total \$218 million. The average payment will be about \$53.

Increased interest earnings of Government life insurance funds made possible the higher 1969 dividends. The earnings will also enable VA to pay a modest first-time dividend averaging \$11 to approximately 193,000 veterans holding modified life insurance policies. These policies are issued at a low permanent plan premium rate and provide maximum insurance protection until the veteran reaches age 65.

**Within-Grade Increases**

The Personnel Division frequently receives inquiries from employees about the time lapse between within-grade increases for Class Act employees. The length of creditable service necessary for advancement to the next rate of grade (waiting period) is listed below:

- 52 calendar weeks to steps 2, 3, or 4.
- 104 calendar weeks to steps 5, 6, or 7.
- 156 calendar weeks to steps 8, 9, or 10.

When an employee completes the prescribed waiting period, his within-grade increase becomes effective the beginning of the next pay period provided his work is of an acceptable level of competence.

When an employee receives a quality increase, he does not start a new waiting period to meet the time requirements for a regular within-grade increase unless the quality increase places an employee in the fourth or seventh rate of his grade. Then the waiting period for a regular within-grade increase is extended by 52 weeks.

**Hans Mark Named to Direct NASA Ames Research Center**

Dr. Hans M. Mark, chairman of the Department of Nuclear Engineering at the University of California, Berkeley, has been appointed director of the NASA Ames Research Center, Moffet Field, Calif.

The appointment of Mark was announced by NASA Administrator Dr. Thomas O. Paine.

At the same time, Clarence A. Syvertson, director of astronautics at Ames, was appointed to the newly created position of deputy director of the center. Both appointments were effective February 28.

Because of prior commitments to the University of California, Mark will spend about one-fifth of his time at Ames until July 1969. Until that time, Syvertson, as deputy director, will provide the necessary continuity to the center's operations.

As director of the Ames center, Mark will succeed H. Julian Allen, internationally known authority on reentry physics and

originator of the concept of blunt-shaped reentry vehicles so successfully employed in the nation's space flight programs.

**Softballers Meet**

Softball team managers are urged to attend the organizational meetings April 7 (slow-pitch) and April 8 (fast pitch). Both meetings will be at 5:15 pm in Room 261 Bldg 4.

EAA vice president-athletics Dennis Doherty at 3005 will field any questions about the leagues.

**Volleyball, Ladies?**

Now that spring has sprung, a movement is afoot to organize a ladies volleyball league. Call EAA vice president-athletics Dennis Doherty at 3005 if interested—ladies only, that is.

## Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is the Friday preceding Round up publication date. Ads received after the deadline will be run in the next following issue. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 20 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor, AP3. Ads will not be repeated unless requested.)

### FOR SALE/RENT—REAL ESTATE

Large heavily wooded corner lot with view over Taylor Lake, half block to park and docks. 591-4632.

Large waterfront lot in Nassau Bay, near marina, by owner, D. Bell, 591-2340.

1/2 city block (400' x 125'), \$2,600 total. Lots 17-32 block 439, LaPorte. J. Kersh, 932-3496.

Tiki Island water front lot with boat slip. Ready to build on. Morris, 482-7775.

Rent beach house on water at Bolivar, living room, bedroom, bath, electric kitchen, sundeck, boat landing, sleeps 10. Huvar, 946-5565.

### FOR SALE/AUTOS

66 Olds Delta 88, 4-dr. hardtop, fully equipped, new tires, excellent condition, one owner, \$1800. C. C. Kraft, HU 2-7357.

62 Corvair Monza 2-dr. bucket seats, 4-speed, new tires, good second car. Charlie Duke, 877-1389.

1966 Simca GLS, 1000, 4-dr., full financing can be arranged. \$775. Consider trade. Floyd Turner, 733-7667.

Ford, 1960, air conditioned, 6 cylinder, standard transmission, two door, 82,000 miles, good condition, \$225. P. Latour, 591-2984.

55 Chevy 2-dr. V8 auto, stereo, new lacquer paint, new wide ovals. Runs great, \$350. Mark Johnson, 474-2422 after 6:30.

64 4-dr. Buick Special, factory air, P/S auto, new muffler, shocks, brakes, good rubber, 55,000 mi., E. Simon, 488-4043.

64 4-dr. Olds F-85, factory air 3-spd, new muffler, shocks, brakes, good rubber, 38,000 mi., runs perfect, E. Simon, 488-4043.

1963 VW sedan, \$575. Ed Mitros, 932-4896.

64 Corvair Monza 2-dr., bucket seats, auto transmission, good running condition, \$250. For quick sale. Carpenter, 877-4810.

1960 Falcon, 2-dr., 6 cyl, autotrans, good tires and battery, runs well, only 51,000 miles, \$150. Ed Chimenti, 591-3897.

62 Catalina 4-dr. hardtop, AC, PS, PB, all vinyl, buying new car, sell for best offer. Thompson, 932-3653.

67 VW sunroof sedan, low mileage and excellent condition, \$1250. R. Kubick, 471-3174.

63 Cadillac salvaged, most parts for sale. M. L. Bopp, HU 8-3159.

65 Pontiac LeMans, automatic transmission, air conditioned, \$1300. G. L. Walker, 488-0328.

66 Pontiac Bonneville, automatic transmission, 2-dr. hardtop, power, air conditioned, \$2000. G. L. Walker, 488-0328.

66 Pontiac Executive, 4-dr., one owner, fully equipped. \$1,450 wholesale. C. Vetter, HU 8-0275.

Two good 9.00 x 15 snow tires \$20. 20" power lawnmower, \$20. Galen Pittman, 488-1243.

66 Mercury Comet, radio, heater, 34,000 mi, good tires, runs well. Farris Tabor, 946-8366.

62 Opel Caravan 2-dr station wagon, body damaged—chassis, engine okay, needs windshield, rebuilt spare engine optional, \$75. Brock, 932-5292.

Triumph, 58 TR-3 roadster, soft top and tonneau cover, good condition. J. A. Raymer, 471-4094.

61 Econoline Ford van, motor overhauled, good condition, right for surfer or camper, \$295. Carpenter, 877-4810.

63 Ford Galaxie 500 XL, interior and body like new, full power, air, white with red vinyl interior. \$900. Mandell, 877-2925.

59 Olds 88, 4-dr. hdt, A/C, power, radio, good work car, \$150. Myers, 591-4673.

64 Olds 4-dr. Holiday 88, factory air, PS, PB, new tires and muffler, one owner. S. Bachman, 658-5471.

68 Pontiac GTO, power steering, radio, heater, many extras, \$2995. Jorene Parker, 483-4386 (no home phone).

### FOR SALE/MISCELLANEOUS

Will fly persons anywhere they want, on weekends, for cost. Blankenship, 944-0750 after 5.

1965 Allstate Mo-Ped, motor in good shape, \$50. Dana Murphy, 479-1942.

Danish walnut Story and Clark piano; 1964 like new, self tuner. \$500. Dorothy A. Childress, Texas City, WI 8-8774.

Fly with no-profit Skyrovers, Inc. at LaPorte. Student pilots welcome. 172-\$6/hrs. 182-\$8/hrs., J3-\$4.50/hrs., \$12.50/mo. dues. 488-3872 or 944-5635.

67 red Honda Sport 50 in excellent condition. Recent tune-up; low mileage; excellent for work/pleasure, \$150. B. Reina, 488-1474.

Baby bed mattress, port-a-crib, Formica coffee table, bed frames, dog crates, overstuffed chair, deacon's bench, antique desk. L. Palmer, 591-2698.

Pair of Spanish ornate gold leaf mirrors, \$45, 7x35 binoculars, new—\$20, Antique mantle clock, good running condition, \$40. MI 9-2569.

Organ teacher has several openings for students. Bell, 591-2340.

Little girls clothes, size 18 months to 3 years. Bell, 591-2340.

19 ft. custom fiberglass bottom inboard boat, Gray Marine engine, custom trailer, never in water, make offer, G. Holloway, 941-0262.

Tektronix oscilloscope, excellent condition; also other test equipment items. R. B. Lang, 488-0149 evenings.

Camping trailer, Ted Williams, \$275. John Opre, 479-3923.

Viola, \$40. Cornet, \$15. Two baby jump chairs, \$10 ea., high chair \$10, rocking horse \$6, Mouton jacket \$25, Human hair wig, \$25. S. Jacobson, HU 7-0792.

Frig. air cond. 15,000 BTU/230 volts, Colonial rugs 10x14 oval, 9' round, hall runner, \$75. Male poodle A.K.C. 3 yrs., \$150. A. R. Grebel, 658-8695 Alvin.

Penn reel with line \$35. Gulton rechargeable lantern \$7.50; two-piece, 10-ft surf spin rod \$12.50. Bob Sherman, HU 2-7949 after 4.

Secretary desk, \$25; Misc. electronic equip; assort. antique bottles; motorcycle frame and parts \$50; Speed Graphic 2 1/4 x 3 1/4 \$50. R. E. Cox, 944-0366.

Free puppies born October 30, 1968. Four females. HU 2-1061.

Modern Kroehler living room suite recently upholstered, brown sofa and orange chair, \$150, 488-0125.

Save \$100 Clear Lake Country Club Membership, \$350. 488-0125.

Free puppies, who-done-its, should be small/medium size. D. L. Doherty, HU 8-0182.

Lone Star 16 sailboat, trailer, many extras, all in excellent condition. E. Simon, 488-4043.

Sears heavy-duty ping pong table, with net, paddles, etc. \$20. Judy Atchison, 483-7301.

Automobile stereotape system, 2 speakers, \$40. Judy Atchison, 483-7301.

TV 24" b/w table model, good condition, 3 year old picture tube, \$25. Ed Chimenti, 591-3897.

Snare drum set, \$25. M. L. Bopp, HU 8-3159.

Siamese seal-point thoroughbred kittens, born Feb. 1, \$15 ea. Marlow, 946-3497.

Electric sterilizer, in perfect condition, \$6. J. Williams, 877-2483.

Used Conn cornet for young band student. Good condition. \$60. T. J. Adams, 534-3243.

Matching pair of Westinghouse dryer and washing machine, like new. Leo T. Chauvin, 877-4921.

17" Regal Lancer outboard cabin cruiser, 1964 60-hp Johnson O/B, Words tilt trailer, extras, \$950. Gene Krause, 932-3420.

Crib with mattress and several sheets. C. E. Whitsett, 488-1337.

Dinette, formica top, 4 chairs. Brown top, black legs. 36x48 plus 12 inch leaf. \$10. A. F. Smith, 488-3238.

Bethany tent camper sleeps 6-8, Fiberglass top, V. L. Wegner, 488-1967.

Atlas metal lathe, 6 in., with steel bench, motor and tooling. Excellent condition. \$290. Wesselski, 658-4501.

Save one-third on group subscriptions to Consumer Reports Magazine, \$4/year. Roy Parker, 591-2253.

LIDO 14, orange deck, white hull, excellent condition. Never stored outside. Must sell to liquidate partnership. \$1,300. Mandell, 877-2925.

Yellow crepe and brocade evening gown, size 9, worn once \$12, 110-pound barbell set, perfect condition \$15. C. R. Price, 488-3685.

### WANTED

A ballistic pendulum. Fletcher, 483-6205. Roommate to share 2 bdr. studio at Portofino along waterfront. Bob Cusick, 591-4445 after 5.

Want to buy Lionel electric trains made before 1960. 9324174 after 5.

Need 4 bedrm home mid June, NASA area, owners only. C. N. Rice, 483-2901.

Refined young lady wishes to share two-bedroom apartment. Villa Monterrey. Two bath, patio, disposal. Lynda Chase, GR 2-7313, 944-8681.

Persons interested in part ownership of aerobatic biplane (Stearman PT-17) based at LaPorte. R. W. Grow, 944-9152.

A fifth member for car pool from Gulfgate or U of H area to MSC, 8 to 4:30, Jonny Ferguson, 747-0403.

Camper, fold down or self contained, must sleep 6. Harver Baldwin, 944-6484.

## Course Given On Resuscitation

A one-day course in cardiopulmonary resuscitation was given to a group of MSC and contractor employees in Building 37, on February 18, by Dr. William J. Brady of the Public Health Service, Washington, D.C. The group included representatives from the MSC Medical Directorate, the Kelsey-Seybold Clinic, Brown and Root-Northrup, and the Fire Department.

The course included a slide presentation and film which were prepared by the American Heart Association. In addition, course attendees practiced on manikins the techniques learned in the course.

The course was presented to these employees as a service of the Preventive Medicine Office and the Employee Development Branch. Color slides and booklets on emergency measures in cardiopulmonary resuscitation are now available from either of these organizations.

## Anyone for Muzzle-loaders?

Shooters who had rather load gunpowder from a horn down a musket muzzle than to chamber a brass-jacketed cartridge in a sport rifle may be interested in forming a local charter club.

Gene Allen at 2521 and Bob Block at HU 8-1270 ext 387 are seeking shooters who prefer muzzle-loading rifles, muskets, shotguns and pistols for competitive shooting.

Ride, 8-4:30 from Red Roc Apts, 4102 S. Shaver to MSC, Bldg 2. M. Cascaden, 483-2811.

Need ride from 2408 Beatty to NASA, 8:30-5, Building 2. Linda Buchanan, 645-2287.

Old copies of the National Geographic and Time-Life books. C. E. Whitsett.

## NASA Forms Eight Mars Viking Teams

Selection of 38 scientists organized into eight teams to assist in the design and development of the Martian soft lander for the 1973 Viking missions was announced recently by NASA.

Dr. John E. Naugle, Associate Administrator for Space Science and Applications, said the teams will participate in early instrument development, in designing the soft lander and in planning the 1973 Viking missions in which the lander spacecraft will play a leading role.

It is planned that final selection of the investigations and participating scientists for both the landers and the orbiters which make up the 1973 Viking missions will be in December 1969. Naugle said. The initial results of the Mariner flybys of Mars this summer will be available at that time.

Management responsibility for the Viking Mars 1973 mission has been assigned to the Planetary Programs directorate. Donald P. Heath, Director. Walter Jakobowski is Program Manager and Dr. Milton A. Mitz is Acting Program Scientist.

The NASA Langley Research Center, Hampton, Va., has been assigned overall project management and direct responsibility for managing the planetary lander portion of the project. Jet Propulsion Laboratory, Pasadena, Calif., has management responsibility for the orbiter spacecraft.

## Yo-Yos Are Back

Three engineers strolled out of Bldg 16 on their lunch break. The one in the middle had not lost his boyhood touch, for in his right hand he maneuvered a yo-yo in the vertical, horizontal and round-the-world modes.

## LM-2 Drop Tests

(continued from page 1)

One of the five MSC tests will produce high vertical accelerations on the aft equipment bay's wire harnesses and plumbing. A second test will induce lateral accelerations on the same area.

The third test will produce high accelerations around the inertial measurement unit and the environmental control system, and the fourth drop will stress the front LM face and egress hatch.

The fifth test will demonstrate staging capability and ascent stage propellant flow following a lunar landing.

The test series is scheduled for completion by late May.

## A Time for Unwinding



**CIGAR TIME**—Apollo IX flight controllers and Apollo program management fire up the traditional splashdown cigars and watch recovery operations on display screens in the Mission Control Center. The Apollo IX three-color crew patch was flashed on the center screen after crewmen McDivitt, Scott and Schweickart were safely aboard the recovery ship. Apollo IX flight directors Gene Kranz, M. P. "Pete" Frank and Gerald Griffin stand at console at right center.



HELLO, AGAIN— Rendezvous sequence complete, the Apollo IX command module waits rock steady for the LM ascent stage during the final phases of the rendezvous and preparation for docking. Descent stage and landing legs jettisoned at the time of the concentric maneu-

ver of the rendezvous sequence, the LM pitches over to provide a view of the ascent engine. RCS thruster quads are seen on each side of the cabin, triangular windows on the front face, and the rendezvous radar antenna is lowermost in the photo.

## Apollo IX Demonstrates Manned Lunar Module Operations

(Continued from Page 1)  
 nested in its housing atop the S-IVB.

### First All-Up Stack

The LM extraction went normally, and for the first time the entire Apollo spacecraft stack was flying in space. Apollo IX maneuvered to a safe distance away from the S-IVB to observe the first of two restarts which would place the stage into a solar orbit.

The first of a series of service propulsion system burns was carried out during the first mission day, and three additional SPS burns were made the second day. The burns had a two-fold purpose—to reduce CSM weight and enhance the ability of the reaction control thrusters to deorbit the spacecraft should the SPS misfire, and to adjust the orbit for optimum tracking and lighting conditions for the rendezvous sequence.

### Hungry Commander

At the beginning of the third

mission day, McDivitt and Schweickart, after having powered up the LM and run extensive checkouts of LM systems, ignited the LM descent engine for a long-duration burn described by McDivitt as "mighty beautiful all the way." One of the mission's lighter moments came when midway through the docked descent engine burn, McDivitt said, "Man, am I hungry!"

Schweickart's extravehicular hand-over-hand transfer from the LM to the CSM and back again the following day was abbreviated somewhat after he experienced nausea the day before. After first cancelling EVA altogether, the Apollo IX crew decided upon a modified EVA in which Schweickart stood in the LM porch golden slippers, made photographs, and retrieved thermal samples from the LM exterior. Scott opened the command module hatch to make photos of Schweickart and the

LM and to retrieve similar samples from the command module exterior.

Schweickart's EVA marked the first space test of the portable life support system (PLSS) backpack which provided breathing oxygen, suit pressurization and cooling independent of the spacecraft life support system.

### Spins Web

The next day's activities centered around the rendezvous sequence in which Spider (LM) spun an invisible web around Gumdrop (CSM) which extended out 190 nm and led back to a redocking in the two spacecraft in an earth-orbit duplication of the type rendezvous that will follow lunar landing missions.

As Spider closed on Gumdrop in the final minutes of the rendezvous, Scott, flying solo in the command module sang out as he spotted the LM emerge into daylight, "You're the biggest,

friendliest, funniest-looking, spider I've ever seen!" Spider's legs and descent stage had been amputated midway through the rendezvous to expose the ascent engine for duty.

McDivitt and Schweickart transferred back into the CSM after redocking the two spacecraft, and the LM was jettisoned for a ground-commanded LM ascent engine burn to depletion which placed the spacecraft into a 126.6 x 3746 nm orbit having an estimated lifetime in excess of 19 years.

### Less Hectic

The rest of the mission was spent at a more leisurely pace as the crew carried out landmark tracking and target-of-oppor-

tunity photography tasks. The only experiment carried aboard Apollo IX, SO65 Multispectral Photography, for earth resources study (see March 7) *Roundup*) was conducted during the second five days of the mission.

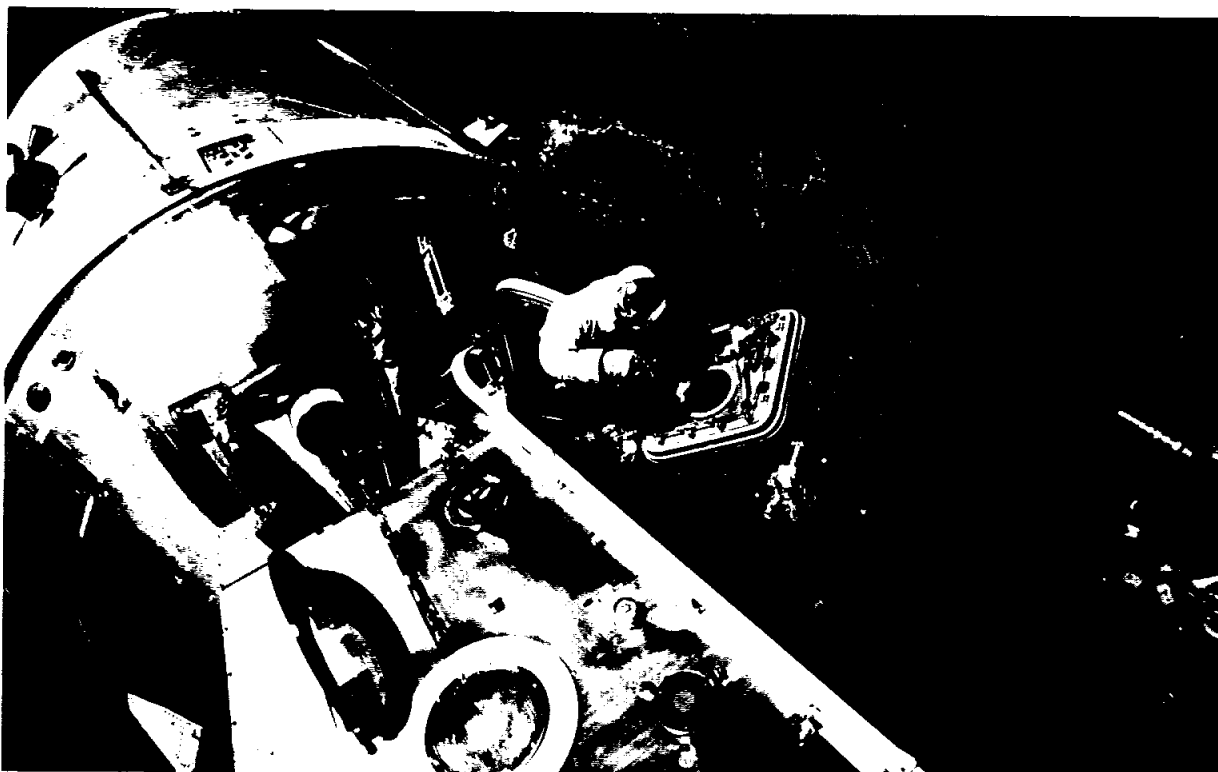
Three additional weight-losing and orbit-adjusting SPS burns were also made during the last five days, including the deorbit burn to land one revolution later than planned because of foul weather in the original West Atlantic prime recovery area.

Apollo IX splashed down less than four miles from the helicopter carrier USS *Guadalupe* at 53 seconds after 11 am CST March 13.

## Apollo IX Events Box Score

Event	Ground Elapsed Times	
	Planned hr:min:sec	Actual hr:min:sec
Liftoff	10 am CST	10 am CST
S-IC stage cutoff	00:02:40	00:02:42
S-II stage ignition	00:02:44	00:02:43
S-II stage cutoff	00:08:56	00:08:56
S-IVB stage ignition	00:08:58	00:08:57
S-IVB stage cutoff	00:10:49	00:11:04
(Insertion into 102.3 x 103.9 nm orbit)		
Transposition/docking, LM extract	3:00:00	3:02:08
SPS burn No. 1 (108.3 x 125.6)*	5:59:00	5:59:00
SPS burn No. 2 (107.7 x 198.5)	22:12:03	22:12:03
SPS burn No. 3 (109.5 x 271.8)	25:17:38	25:17:38
SPS burn No. 4 (109.3 x 272)	28:24:40	28:24:40
Docked LM-DPS burn (108.9 x 271.2)	49:41:33	49:41:33
SPS burn No. 5 (125.4 x 129.2)	54:26:11	54:26:11
SM-RCS separation burn (122 x 127)	93:02:53	93:02:53
LM-DPS phasing burn (111 x 136)	93:47:34	93:47:34
LM-DPS insertion burn (133.9 x 138.9)	95:39:07	95:39:07
LM-RCS concentric burn, staging (113 x 138)	96:16:03	96:16:03
LM-APS constant height burn (111.9 x 116.4)	96:58:14	96:58:14
LM-RCS terminal phase burn (122 x 127)	97:57:59	97:57:59
Docking, LM ascent/CSM		98:58:59
LM-APS burn to depletion (126.6 x 3746)	101:53:14	101:53:14
SPS burn No. 6 (105.4 x 120.2)	123:25:05	123:25:05
SPS burn No. 7 (97.7 x 250)	169:38:59	169:38:59
SPS burn No. 8 (deorbit)	240:31:14	240:31:14
Splashdown, 23.25° NLat x 68° WLong	241:00:43	241:00:53

(\*Maneuver times shown are those predicted in real-time trajectory calculations—not pre-mission flight plan. Post-maneuver orbits are in nautical miles)



PILOT-PHOTOGRAPHER—Command module pilot David Scott adjusts a 70mm Hasselblad still camera during Schweickart's EVA. Scott also retrieved some thermal samples attached to the exterior of the command module. Schweickart made this photo of Scott standing up in the command module crew hatch from his EVA position on the LM porch. The photo also shows a great amount of detail of thrusters and antenna on both spacecraft.