ROUNDUP

NASA MANNED SPACECRAFT CENTER HOUSTON, TEXAS

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'NOT HIS CUP OF TEA'—

O'Leary Drops Out Of Flight Training

MSC scientist-pilot Dr. Brian T. O'Leary has withdrawn from the NASA pilot training program because, he says, "Flying just isn't my cup of tea."

The 28-year-old Boston native who holds a doctorate in astronomy has been learning to fly for the past month at Williams AFB, Ariz. He and 10 other civilian scientist-pilot candidates comprised the most recent group to join the MSC spacepilot corps in August 1967.

O'Leary soloed and had about 15 hours of flying time when Monday he advised his MSC superiors and Air Force authorities at Williams AFB that he had decided to drop out of the program to pursue a career in planetary research.

"It is true," O'Leary said in a letter to friends, "that in my present youth . . . I might be overlooking a promising opportunity to conduct planetary research either from earth orbit or *in situ* (on location) 10 to 15 years hence.

"But meanwhile I will be in an age range in which a scientist performs his most productive and creative research. "Also," he said, "the recent budgetary delays are disappointing."

In the letter, he went on to emphasize the key point on which his decision turned—flying. "In spite of the problems cited, I was still reasonably content to stay with the program and let my attitude depend on my reaction to flying. Somewhat to my surprise, I found I just don't care for it."

"Finally," he said, "I want to make it clear that while I am leaving the astronaut program, I am not leaving the space program. I think I can better serve that effort as a full-time researcher in planetary astronomy."

MSC Director of Flight Crew Operations Donald K. Slayton said NASA would work with O'Leary in trying to find the proper assignment for him.

O'Leary got a bachelor's degree in physics from Williams College, a master's in astronomy from Georgetown University and a doctorate from the University of California at Berkeley in 1967.

He is the fourth spacepilot to resign. The others are John Glenn, Scott Carpenter and Dr. Duane Graveline. His resignation leaves 54 spacepilots active in the program.

Kraft Speaks At Opening of UofH Building

MSC Flight Operations Director Christopher C. Kraft, Jr. will be the featured speaker at a May 3 evening banquet for the opening and dedication of the University of Houston's new Cullen College of Engineering Building.

J. M. Lewallen of Computation and Analysis Division will speak on "Space Engineering" at an afternoon series of lectures following the morning session of open house and tours of the new building. Dr. J. L. Youngblood, Assistant to the MSC Director for Academic Relations, is on the Building Dedication Committee.

Table reservations for the banquet are available from Youngblood at Ext 2665. Banquet tickets run $5 each.

Out, Damned Spot!

MYSTERY SPLOTCH—At liftoff plus 2 min 13 sec in the Apollo VI mission a color change was detected of the side of the Spacecraft-LM Adapter (SLA) by a camera aboard a USAF chase aircraft. The splotch appeared about mid-height of the 28-foot tall SLA and spread over about half the SLA diameter. Apollo Program Director Maj. Gen. Samuel Phillips said the marks possibly were caused by chunks of heat-protective paint sloughing off. There was no structural damage to the SLA.

Apollo Director Recommends Third Saturn V Fly Manned

Apollo Program Director Maj. Gen. Samuel Phillips Wednesday announced that he had recommended to NASA Administrator James E. Webb that "we proceed with plans to fly Apollo/Saturn 205 as the first manned Apollo mission, and that we prepare the third Saturn V launch vehicle (A/S 503) for a manned mission in the latter part of 1968."

Phillips' recommendation made the proviso that should technical problems arise, A/S 503 could revert back to an unmanned mission. The A/S 503 stack presently is in the Kennedy Space Center Vehicle Assembly Building undergoing checkouts prior to the crawl to Launch Complex 39.

His recommendation reserved the unmanned mission option pending demonstration of the full adequacy of fixes to the Saturn V stages arising from evaluation of the April 4 Apollo VI (A/S 502) mission in which two S-II second stage engines shut down early and the S-IVB third stage engine failed to restart for a simulated lunar injection burn.

Pending Webb's approval of his recommendations, Phillips said that ground testing and modification of all Saturn V stages would continue at KSC, Marshall Space Flight Center and at Mississippi Test Facility. If the recommendation to fly A/S 503 manned is turned down, the mission would fly with boilerplate spacecraft 30.

Among modifications planned as a result of Apollo VI, is a helium injection system for the first stage S-IC propellant feed to offset a "pogo" effect noted during first stage powered flight. "Our design margin of stability indicated that no pogo would occur on Saturn V," said Phillips. "It did not occur on A/S 501, but did on A/S 502. But it's not a show-stopper sort of a problem. The pogo oscillations had absolutely nothing to do with engine failures in the other two stages."

Early shutdown of the two S-II engines has been pinpointed as a combination of incorrect wiring in the engine propellant feed solenoid circuit and a fuel line break. The cause of the S-IVB restart failure has been determined to be a break in a hydrogen line flexible joint. The fix prescribed will be either a strengthening of the line or replacing it with a solid stainless steel line.

Apollo VI Launch Data Examined To Show Saturn V Misfire Cause

Early evaluations of the data on the April 4 launch of the second Saturn V vehicle provides further information relating to the propulsion troubles in the two upper stages.

Despite propulsion problems, the Saturn V succeeded in placing a total of more than 264,000 pounds into earth orbit. The vehicle was launched at 6 am CST from the Kennedy Space Center.

Preliminary results of the flight were contained in an early report issued by the NASA Marshall Space Flight Center, in charge of Saturn development.

Second stage engines 2 and 3 cutoff prematurely at 408.7 and 410 seconds after liftoff, respectively, causing a 58-second longer than normal second stage burn and larger than expected deviations from second stage (S-II) flight end conditions.

One candidate cause for the two engines' cutoff was the possibility of the S-II aft interstage having struck the engines when it was jettisoned at second plane separation. Onboard camera film recovered after the launch ruled out this possibility by showing a normal and smooth separation.

First burn of the third stage (S-IVB) was 29.2 seconds longer than planned to compensate for the early cutoff of the two second stage engines. The result was a high cutoff velocity and an elliptical parking orbit. The attainment of this orbit was a demonstration of the unusual flexibility designed into the Saturn V.

All engine and stage restart conditions appeared normal, but the S-IVB's J-2 engine did not restart in orbit. The restart was to have propelled the S-IVB and Apollo spacecraft into a simulated translunar trajectory.

Evaluation of early data indicated that the first stage (SIC) performed as planned. Stage thrust was essentially the same as predicted during the first portion of the flight.

The data indicated satisfactory S-II performance through first stage boost, S-II ignition and the early portion of the S-II powered flight.

The earliest observed deviations were decreasing temperatures on the main oxidizer valve and its control line on engine 5 and a steady increase in engine 2 yaw actuator pressure, occuring at 278.4 seconds.

Several engine parameters indicated a sudden 5,000 pound thrust decrease in engine 2 at 318.4 seconds. At the same time there was a sudden increase in pressure in both pitch and yaw actuators.

Analysis of the data indicated the cutoff signal from engine 2 caused the number 3 engine to shut down by incorrectly closing the engine 3 liquid oxygen prevalve. It is possible that wires carrying cutoff commands to the number 2 and 3 engines were interchanged.

Quick-look data indicates that the third stage performed satisfactorily through first burn and orbital coast. Shortly after orbit insertion a cold helium supply

(Continued on page 3)

Bond Campaign Kickoff May 3

MSC 1968 Savings Bond Campaign chairman Dexter Haven has announced that the MSC drive to enroll at least 80 percent of MSC employees in the Savings Bond payroll savings plan will have a kickoff meeting May 3 of canvassers and division chairmen.

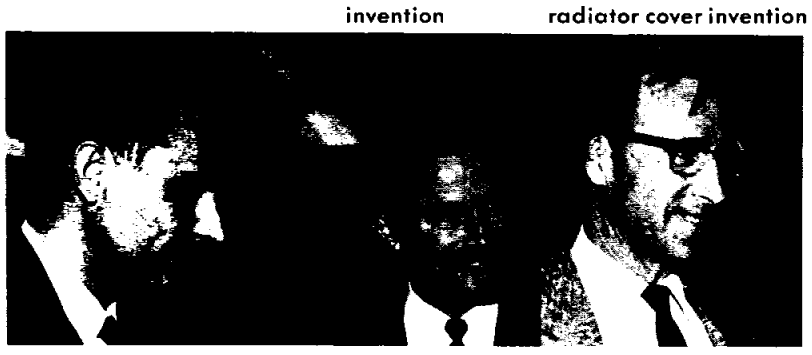
The campaign will be conducted at all NASA installations May 6 through June 14, and will offer a package deal of Series E Bonds and Freedom Shares which pay 4.74 percent interest at their four-and-a-half year maturity.

The E Bond/Freedom Share combination can be bought through one payroll allotment. For example, $9.75 each payday for four paydays buys one E Bond ($18.75, worth $25 in seven years) and one Freedom Share ($20.25, worth $25 in four-and-a-half years) for a total investment of $39. The matured value is $50.

CASH FOR IDEAS

Elton M. Tucker
$300—Coupling device invention

Joseph A. Chandler
$100—Spacecraft radiator cover invention



James M. Ellis, E. L. Shropshire Split $35
for power forming brake precision metal stop

Dearon J. Bailey
$35 each for two devices for metal shears

Fred Chalfont
$25—Fix overhead crane control hazard

Wm. L. Gill, Frederic S. Dawn $25 each for publication of NASA Tech Brief

Edward S. Johnson
$25—Warehouse door gust arrester

Eddie J. Jung, Jr.
$25—Window in stairwell door for safety

James R. Moore
$25—Decal for annual inventory

Calvin D. Howard
$15—Explosive device historical records

James A. Martin, Jr.
$15—Change times on reserved cafeteria parking

Barbara J. Simpson
$15—Steno/typist course on contracting methods

Proposed July Federal Pay Hikes Show Gains from 3 to 9 Per-Cent

Proposed Federal salary schedules derived from the Bureau of Labor Statistics 1967 salary survey have been sent by the Civil Service Commission to officials of Federal employee organizations for comment.

Information furnished the unions indicates that salary increases ranging from 3 to nearly 9 percent, to take effect in July, would be warranted under the half-way-to-comparability formula in the Federal Salary Act of 1967.

Increases are larger at the higher grades where the gap between Federal and private salaries is greater.

In grades GS-1 through GS-6 the increase would be 3 percent. At GS-16, it would be nearly 9 percent. Increases in grades GS-17 and GS-18 would be limited by the provision of law which holds career salaries to an amount not above the rate for level V of the Executive Schedule, now $28,000.

(In the accompanying table, asterisks indicate what the pay should be to reach halfway to comparability.)

The 1967 law provided for pay increases in October 1967, July 1968, and July 1969 to close the comparability gap between Federal salaries and pay in private employment. Second stage adjustments to be determined by the President following receipt of the union views will be automatically effective in July 1968.

Proposed July 1968 Federal Pay Raise

	1	2	3	4	5	6	7	8	9	10
GS- 1	$ 3,889	$ 4,019	$ 4,149	$ 4,278	$ 4,408	$ 4,538	$ 4,668	$ 4,798	$ 4,928	$ 5,057
GS- 2	4,231	4,372	4,513	4,655	4,796	4,937	5,078	5,219	5,360	5,501
GS- 3	4,600	4,753	4,907	5,060	5,214	5,367	5,521	5,674	5,828	5,981
GS- 4	5,145	5,316	5,487	5,658	5,829	6,000	6,171	6,342	6,513	6,684
GS- 5	5,732	5,924	6,115	6,307	6,498	6,690	6,881	7,073	7,265	7,456
GS- 6	6,321	6,532	6,743	6,955	7,166	7,377	7,588	7,799	8,010	8,221
GS- 7	6,981	7,214	7,447	7,680	7,913	8,146	8,379	8,612	8,845	9,078
GS- 8	7,699	7,956	8,213	8,470	8,727	8,984	9,241	9,498	9,755	10,012
GS -9	8,462	8,744	9,026	9,308	9,590	9,872	10,154	10,436	10,718	11,000
GS-10	9,297	9,607	9,917	10,227	10,537	10,847	11,157	11,467	11,777	12,087
GS-11	10,203	10,543	10,883	11,223	11,563	11,903	12,243	12,583	12,923	13,263
GS-12	12,174	12,580	12,986	13,392	13,798	14,204	14,610	15,016	15,422	15,828
GS-13	14,409	14,889	15,369	15,849	16,329	16,809	17,289	17,769	18,249	18,729
GS-14	16,946	17,511	18,076	18,641	19,206	19,771	20,336	20,901	21,466	22,031
GS-15	19,780	20,439	21,098	21,757	22,416	23,075	23,734	24,393	25,052	25,711
GS-16	22,835	23,596	24,357	25,118	25,879	26,640	27,401	*28,162	*28,923	
GS-17	26,264	27,139	*28,014	*28,889	*29,764					
GS-18	*30,239									

Increases of 6 percent for postal workers and 4.5 percent for other Federal workers whose salaries are fixed by law went into effect last October.

Under the Federal Salary Act of 1967, the rates approved last October will be adjusted in July of this year to close half the remaining gap between present salary rates and private rates determined on the basis of the 1967 BLS survey. No employee covered by the Act, however, will receive less than a 3 percent increase this July.

The Act provides that rates will again be adjusted in July 1969 to close the remaining gap between Federal and private pay.

Wage employees in trades, crafts, and laboring occupations are unaffected by this adjustment.

Even though the 1967 law provides for an automatic increase in July, Congress can approve new legislation to prevent its going into effect. Members are discussing cutting the average raise from 5 to 2.5 percent, or postponing its effective date to October 1 or even January 1.

MSC employees will be kept informed of the progress.

AFGE Lodge Elects Officers

Lodge 2284 of the American Federation of Government Employees May 13 will elect officers for the 1968-69 Lodge year.

Nominees for president are Alma A. Hurlbert and William C. Scott; 1st vice president: Edward Kawiaka and Robert E. Thrower; secretary: Jean Stone and Myra L. Shimek; treasurer: Norbert Philippi; chief steward: Herman P. Fisher and Billie D. Rowell; sergeant-at-arms: Albert Jackson.

Ballots have been mailed to each Lodge member.

Sagan Says Mars Life Question Answered Only by Direct Contact

By Aneta Davis

Conditions on Mars are such that life can definitely occur, according to Professor Carl Sagan, one of the world's leading investigators in exobiology and planetary physics. Direct contact with the surface of the planet offers the only probable means of resolving the question.

"Without direct contact," Professor Sagan told an MSC audience, "all observations of the planet can be explained with equal compatability either with or without the existence of life."

Although it is possible, Professor Sagan said, that unique evidence might be obtained from fly-by or orbiting satellites, it is highly unlikely that any definite observations can be made from a distance which would label a phenomenon organic or inorganic. Since it is difficult, if not impossible, to second-guess extraterrestrial life, the problem is in knowing what to look for. The clues would be valuable, but not definitive.

As an example of dual explanations, Professor Sagan referred to the seasonal darkening of certain areas of Mars. If the phenomenon is biological, we may be seeing the growth and reproduction of Martian organisms comparable to the algae and lichens known on earth. Since Mars is a windblown planet, springtime winds may scour the finer, brighter particles off the hills, causing a change in the intensity of light reflection.

One possibility for clues of life lies in the analysis of the chemical composition of the planet's atmosphere. A chemical imbalance might indicate a life source as responsible. For example, on earth one source of the gas methane is its production by methange bacteria in the stomach of cows. A spectrometer in orbit around earth would detect the gas, and would probably record an increased abundance over India, the home of a quarter of the world's cows.

"Now we would not be able to deduce from such observation that there are cows on earth," Sagan said, "but we would certainly suspect life in India." But, as a definite indication of life the observation is complicated by the fact that marsh gas can also be responsible for methane.

In response to a question of whether color photography would aid the research, Professor Sagan stated that it would be of little value. For instance, he said the color green seems to be a mistake made by earth plant life. Therefore, since green is not the optimum life-producing color, we cannot disprove life by the color's absence.

Professor Sagan feels that the comparison between the moon and Mars has been overdrawn. The fact that both have craters, definitely does not indicate that because the moon is barren, Mars also is barren and lifeless. The dissimilarities are too great. On Mars there is "wind and water; carbon dioxide and sunlight; clouds, rolling hills, and deserts; winter frosts and balmy summer afternoons."

MARS EXPERT—Harvard astronomer Dr. Carl Sagan introduces his bride of two weeks to MSC Director of Science and Applications Dr. Wilmot N. Hess, left, prior to Sagan's talk on the likelihood of life on Mars at the April 23 MSC Science Colloquium. At right are Dr. Donald Hagge, Cosmic Ray Physics section of Space Physics Division, and Dr. Thomas Giuli, National Academy of Science post-doctoral fellow in astronomy assigned to MSC.

What Does the Inspector Inspect?

A box labeled "NASA Regional Inspections Office" on the MSC organizational chart jogs the curiosity and makes one ask, "I wonder what they inspect?"

The NASA Regional Inspections Office at MSC, headed by Glenn L. McAvoy, is assigned the responsibility for establishing and conducting a comprehensive program at MSC designed to prevent and detect illegal and unethical conduct by NASA employees as well as to detect fraud or other illegal activities by contractors or others which affect NASA.

McAvoy is assigned to NASA Headquarters and reports administratively to the Director of Inspections at Headquarters level. His functions are independent of MSC management.

"We are as much concerned with disproving as we are proving allegations of wrongdoing levied against NASA employees and we do this in a straight-forward type investigation without use of covert devices or gimmicks," said McAvoy. "About half of our investigations of wrongdoing discloses that the allegations were either false or exaggerated," he said.

Among the activities of NASA employees which come under the eye of the Inspector are using job-related information for personal gains, such as prior knowledge of a contract award for stock speculation; use of Government property – cars, telephones, and equipment – for personal use; favoritism in the awarding of contracts; contract irregularities; theft of Government property; and acceptance of gifts and gratuities. Also, some types of moonlighting or outside employment may get an employee into trouble, especially if the outside employer does business with NASA.

"During an investigation," said McAvoy, "the Government employee has a responsibility to answer questions relating to his job. In any investigation, we have to first determine whether NASA regulations or Federal laws have been violated. When we have reason to believe that a Federal law has been violated, we are obliged to refer the matter to the Department of Justice. Violations of NASA regulations are handled administratively within the agency."

Glenn L. McAvoy

McAvoy is a graduate of Corell University, Ithaca, New York. He was a special agent with the FBI from 1951 to 1960. McAvoy was an investigator-in-charge for the Ohio Department of Liquor Control from 1960 to 1963. In 1963, he joined NASA and was assigned to the NASA Regional Inspections Office at the Marshall Space Flight Center, which at that time handled MSC inspections functions. He was appointed Regional Inspector of the MSC office when it was created in 1965.

McAvoy and his wife, Beverly, live in Clear Lake City. She is a nurse with the Clear Creek School District. Their only child, Gloria, is a junior at the University of Houston. For relaxation, McAvoy plays golf and volleyball.

Apollo VI Data Examined

(Continued from page 1)

leak was observed but bottle pressure was sufficient to meet second burn requirements.

Even though normal engine and stage prestart conditions were observed, the engine received the start signal and the engine valves opened properly, the engine did not restart.

The initial study of data relating to the S-IVB reignition problem suggests that there may have been a leak on one of the two propellant lines – probably fuel leading to the J-2 engine's augmented spark igniter (ASI). If that was the case, the propellants reaching the spark plugs were probably insufficient, or inadequate in mixture, to achieve the proper start conditions.

Hydraulic system performance was satisfactory on the first stage. It was satisfactory on the second stage until about 140 seconds before premature shutdown of the two engines. At this time there was an increase in the yaw and pitch actuator differential pressures.

Third stage hydraulic systems performance was normal through first burn. Shortly before spacecraft separation, a programmed command to initiate the auxiliary hydraulic pump was given but the pump failed to operate. Ground commands after spacecraft separation also failed to start the systems. Pump operation was not a requirement for engine restart.

A longitudinal oscillation of the vehicle, measured at 5 cycles per second, was experienced during the later portion of the SIC stage burn. This phenomenon was also recorded on the first Saturn V flight, but it was greater on AS 502. Investigations are also continuing in this area.

Guidance and other instrumentation unit functions were satisfactory. Flight profile was nominal up to the loss of engine 2 on the second stage. At second stage cutoff, the altitude was high and velocity was low. This led to a longer burn of the third stage and a slightly higher velocity than normal, causing the third stage and spacecraft to go into an elliptical orbit.

Preliminary inspection of the telemetry record indicates that few measurements failed. There were 29 measurements waived prior to launch, 9 known failures and 19 questionable measurements. Telemetry performance was good on all lengths. Some 2,800 measurements were planned originally.

Onboard television cameras gave good data. Only two of the six onboard film cameras have been recovered. The two cameras recovered viewed the separation of the first and second stages.

Lost: One Hour

Digital clocks, hourglasses and just plain old wind-up alarm clocks Sunday at 2 am jump forward one hour as most of the country goes on daylight saving time. Set all clocks ahead one hour when the cat is put out tomorrow night.

Mars Lander Model In Dry Lake Drop Test

A model of a wheel-shaped planetary landing craft, sterilized by heat and dropped from an altitude of 250 feet has operated successfully after impacting the ground at 80 miles per hour.

The test conducted recently for NASA by the Jet Propulsion Laboratory, Pasadena, Calif., was a major step in an advance development program to demonstrate the feasibility of sending a lightweight scientific landing capsule to Mars in a future mission.

For a simulated Martian surface, JPL engineers selected the "hardpan" bed of a dry lake near NASA's Goldstone Space Communications Complex in the California Mojave Desert.

The 63.5-pound craft was released from a hovering helicopter and allowed to free-fall to the lake bed. In the thin atmosphere of Mars the lander would be slowed to the same velocity by a 20-foot parachute. No parachute was used in the test.

Thirty seconds after the model struck the surface, its radio transmitter turned on and operated for a scheduled 20 minutes. Three minutes after impact, a tiny anemometer – to measure wind velocity – deployed automatically at the end of a four-foot telescoping metal instrument boom.

A wind measurement is one of the prime experiments under consideration for initial planetary landing missions. Others include investigation of surface pressure, temperature, water vapor and low-mass atmospheric constituents.

Following a mission profile identical to projected Mars surface operations, the craft's radio turned on again 22 hours after the initial transmission (when the Earth would again be in view). Signals from the 3-watt transmitter were received for another 40 minutes to conclude the test.

The lander model made a stable fall striking the lake bed on its flat bottom. It bounced several inches and made a two-inch depression in the ground.

Trimble Speaks To AAS-ISA

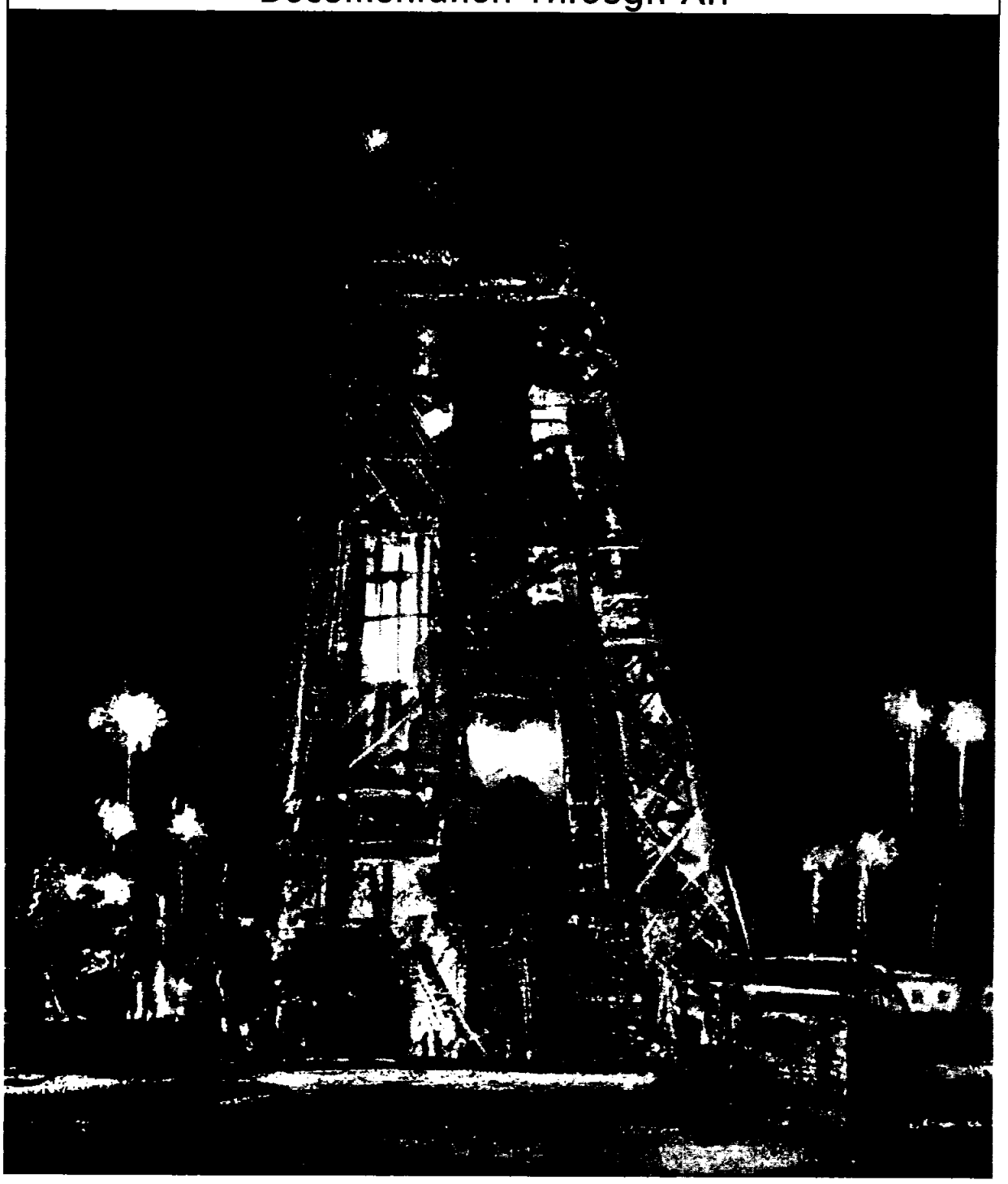
MSC Deputy Director George S. Trimble May 28 will address a joint meeting of the American Astronautical Society and the Instrument Society of America. Trimble will speak on the "NASA-Industry Partnership."

The meeting will be at the Nassau Bay Motor Hotel starting at 6 pm with hosted cocktails, a buffet dinner ($3.50/person) at 7, and the program at 8.

Co-op of Month

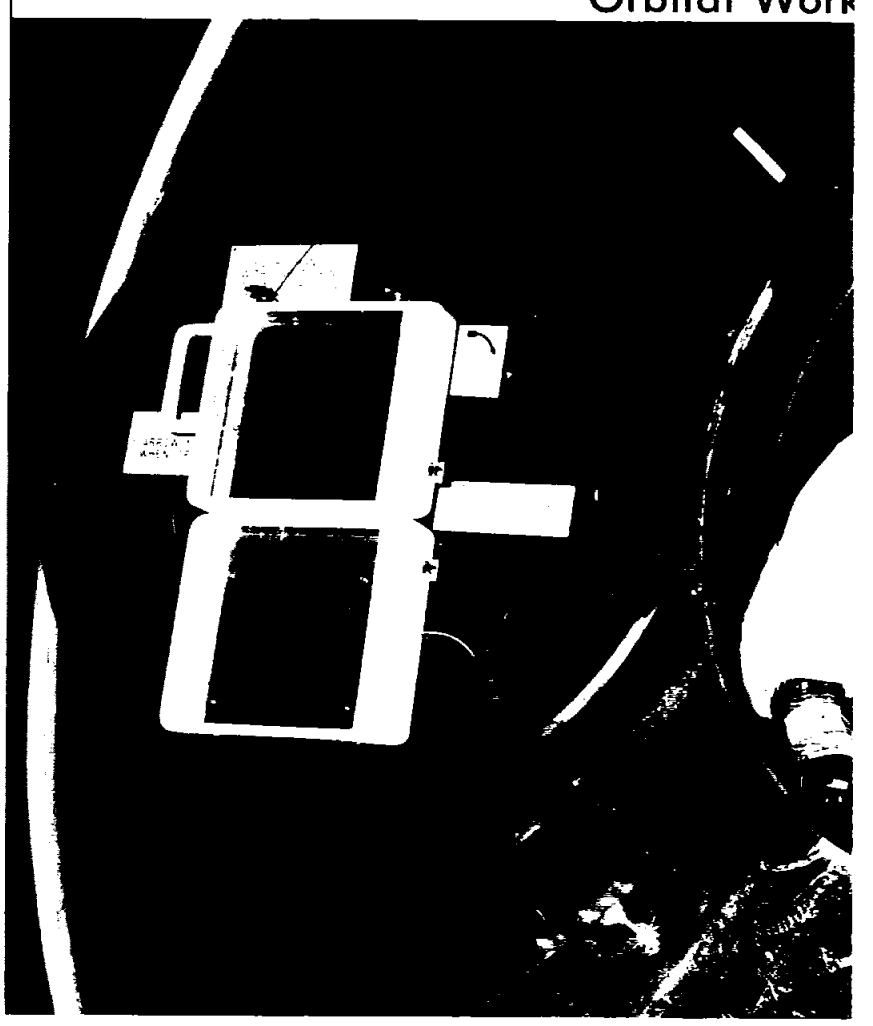
MASTERS JOB – Mississippi State electrical engineering major Joe H. Wilson is assigned to the Flight Support Division Systems Engineering Branch where he has had such assignments as preparing Gemini digital command tapes and other computer programming tasks. "His abilities to accomplish a task are surpassed only by the interest he takes in accomplishing the task," say his supervisors.

Documentation Through Art



SPACE PALETTE—Artist Peter Hurd captured in oils the nightime activity at a Kennedy Space Center launch pad. Hurd is one of several noted American artists taking part in the NASA Artists' Cooperation Program which is aimed toward documenting space history through works of art—a practice that had fallen into disuse since the advent of photography. Other artists who have taken part in the program include Dong Kingman, Paul Sample, Mitchell Jamieson and Jamie Wyeth.

Orbital Work



FLIP-TOP HATCH—MSC pilot Jack R. Lousma boosts himself over the sill of Center. Lousma was suspended from a six-degree-of-freedom simulator to design review. The fully-equipped spent-stage Workshop will have crew q

PHOTO ROU

...the space

Another Skirmish in the Battle Against the Sea

ERSATZ SEAWEED—Metal frames with artificial plastic seaweed attached are lowered from a barge offshore of the NASA Wallops Station, Va., as part of an experiment to develop means of retarding sea erosion. The fake seaweed fronds float underwater like the real thing and attract barnacles, water blisters and sea ferns as well as inducing sand particles in suspension to drop to the bottom. The reefs also attract fish where there were none earlier.

Aurora Bor

NORTHERN LIGHTS—Arctic aurora wa NASA Ames Research Center scientific Aurora Expedition flying out of Church The lower edge of the aurora is some and the upper edge about 160 miles a center is the planet Jupiter—made fuz exposure.

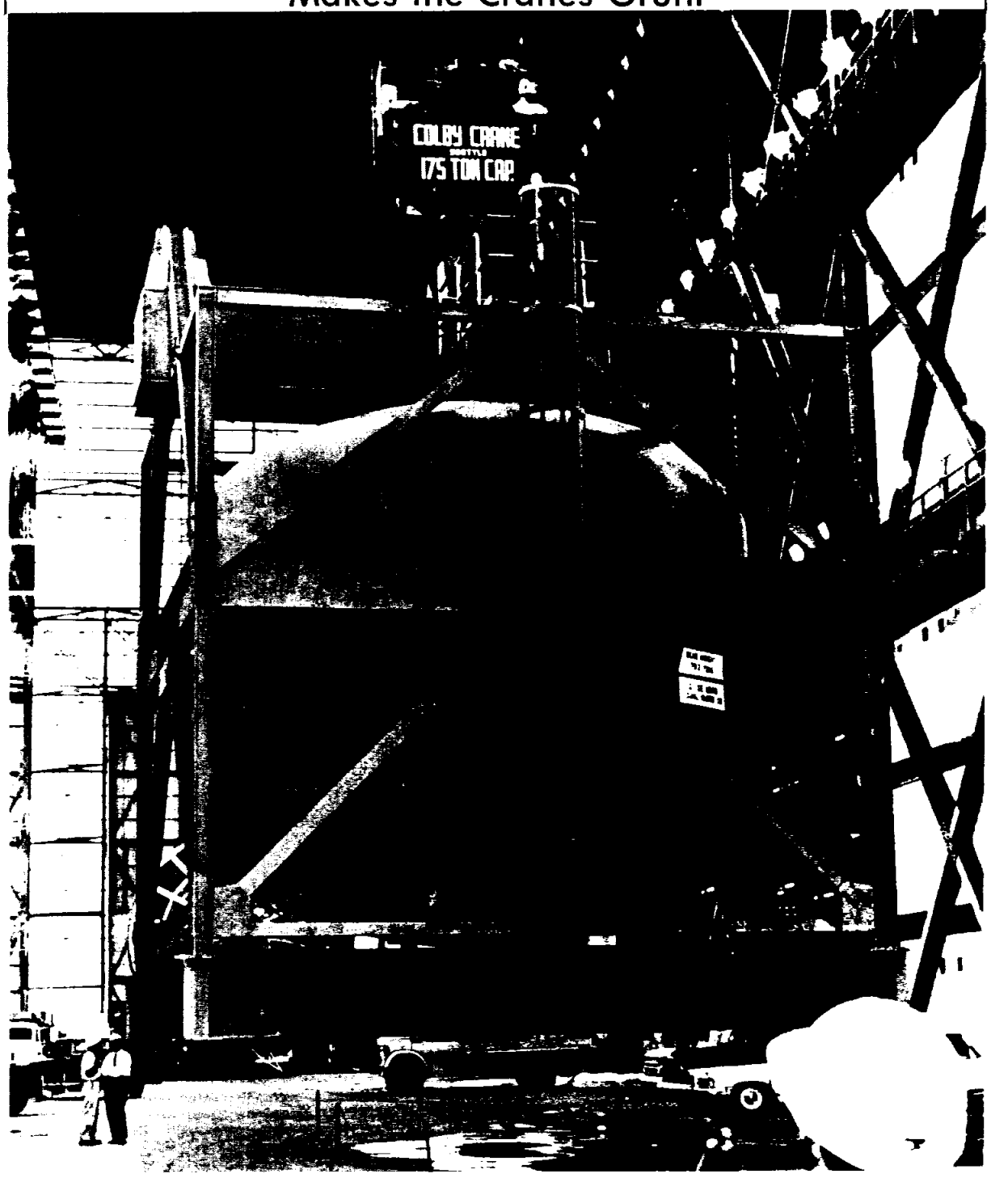
hop Dry Run

mockup S-IVB Orbital Workshop hatch at NASA Marshall Space Flight heck out ease of ingress during a week-long Orbital Workshop crew station arters, food area, laboratory work spaces and a waste management area.

NDUP

program in pictures

Makes the Cranes Grunt

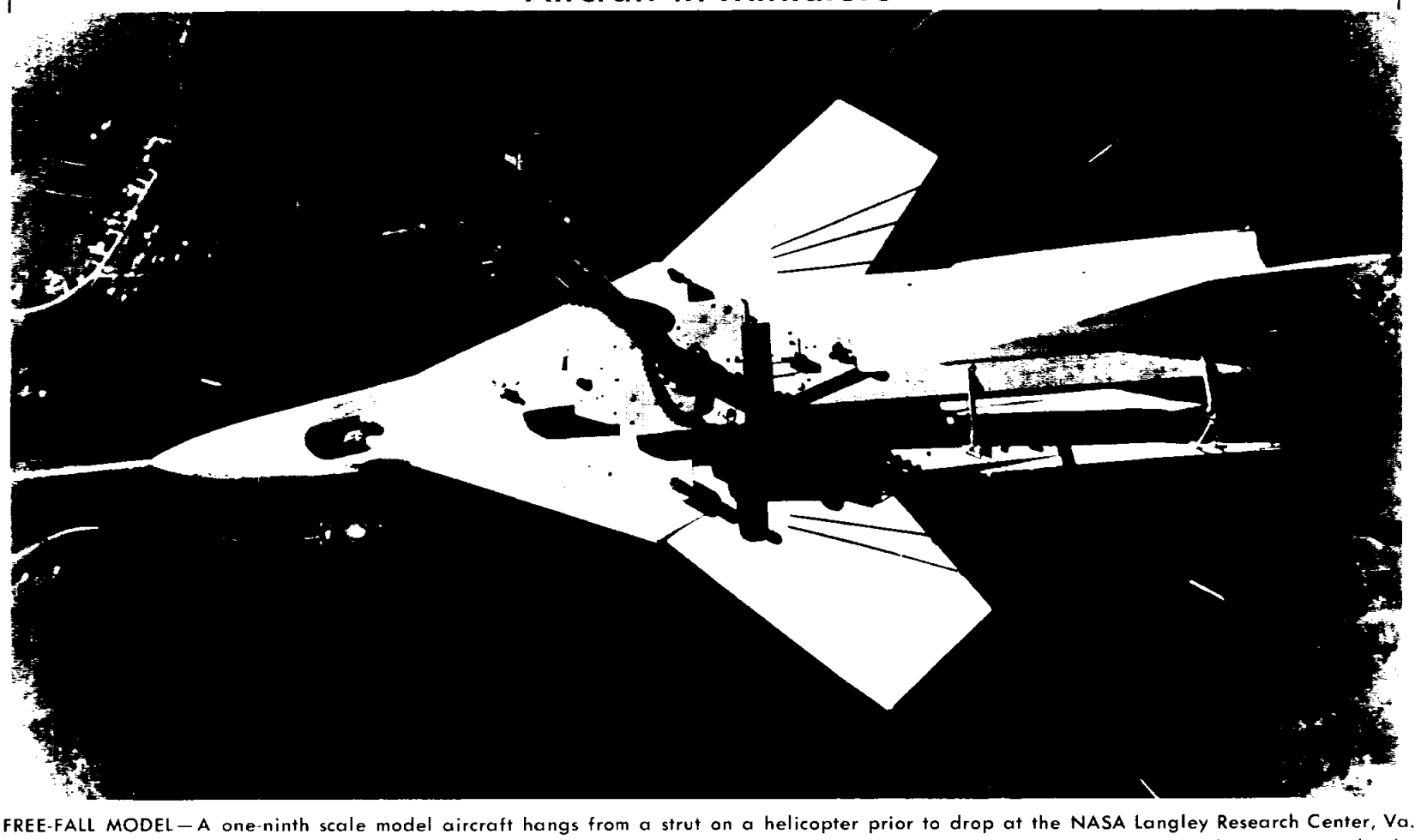


HEAVY, HEAVY, HANGS OVER THY HEAD—Bridge cranes in the Kennedy Space Center Vehicle Assembly Building used for hoisting and stacking Saturn V stages are checked out by this spherical-steel weight simulator. By varying the amount of water loaded into the device, the gross weight for crane hook loads can range from 79 to 312 tons. Two VAB cranes have 250-ton capacity and travel the width of the high-bay at the 462-foot level. A third crane, with a 175-ton capacity, runs along the transfer aisle the full length of the VAB at a height of 166 feet.

ealis Probe

captured by a camera aboard the ircraft *Galileo* during the 1968 NASA l Research Range, Manitoba, Canada.) miles above the surface of the earth ove the earth. The white light near the y by slight aircraft motion during the

Aircraft in Miniature



FREE-FALL MODEL—A one-ninth scale model aircraft hangs from a strut on a helicopter prior to drop at the NASA Langley Research Center, Va. The dynamically-scaled models duplicate not only the mass of the full-scale aircraft, but also have other features exactly proportional. The model's flight path after drop is geometrically similar to that of a full-size aircraft in similar conditions. Control surfaces are actuated by ground radio command, and a parachute in the tail section allows the models to fly another day.

HATCH ACT Q & A

What Kind of Political Activities Are Open to Federal Employee?

Many election-year questions come up concerning Federal employees' rights and restrictions under provisions of the Hatch Act. The following questions and answers have been prepared for the guidance and information of MSC employees.

Specifically, an employee covered by the Hatch Act cannot run for any office as a partisan candidate or campaign for any partisan candidate or engage in any partisan political management. By partisan candidate is meant one representing a national or state political party such as the Democratic or Republican Party. A federal employee may not run for office, even as an independent, in an election in which partisan political designations are used, unless he lives in one of the communities to which the Civil Service Commission has given partial exemption in connection with his local government.

Q. What employees are prohibited by the Hatch Act from active participation in politics?

A. Employees of the executive branch of the Federal Government and the Government of the District of Columbia, including temporary and part-time employees. The political activity of employees of any state or local agency whose principal employment is in connection with a Federally-financed activity is also restricted.

Q. Please explain for employees affected by the Hatch Act just what their responsibilities and rights are under the act.

A. They have the right to vote and to express their political opinions, but are forbidden to take an active part in partisan political management or in partisan political campaigns. In connection with Federal employees' right to vote, the Commission emphasizes that political-activity restrictions do not relieve employees of their obligation as citizens to inform themselves of the issues and to register and vote.

Q. What is the penalty for violation of the Hatch Act by a Federal employee?

A. The most severe penalty for violation is removal from his position. The minimum penalty is suspension without pay for 30 days.

Q. Is it possible for a Federal employee to run for public office on the ticket of a national or state political party?

A. No. Federal employees cannot be candidates for any national, state, county, or municipal office filled by partisan elections. They may run for local office only in elections that are nonpartisan.

Q. May employees covered by the Act attend political rallies and join political clubs?

A. Employees covered by the Hatch Act can attend political rallies and join political clubs, but they cannot take an active part in the conduct of the rally or operation of the club. Other things they are prohibited from doing are becoming involved in soliciting or collecting political contributions, distributing campaign material, and selling dinner tickets, or otherwise actively promoting such activities as political dinners.

Q. May an employee who is subject to the Hatch Act write a letter to the editor of a local newspaper, expressing his opinion on a partisan issue?

A. Yes, but he must not solicit votes for or against any political party or partisan candidate. If he solicits votes, it is a Hatch Act violation.

Q. May he make a campaign contribution to his party?

A. Yes, but he cannot be required to do so. The contribution cannot be made in a Federal building or to some other employee who is prohibited by Federal law from accepting contributions. Of course, as a Federal employee, he cannot solicit political contributions.

Q. Does an employee violate the Hatch Act by merely wearing a campaign button or displaying a bumper sticker on his car?

A. No. This is not prohibited by the Hatch Act.

Q. May a Government employee's wife who is not a Government employee engage in political activity?

A. Yes. The Act does not restrict the activities of an employee's wife or of other members of his family in any way as long as the activities engaged in are done independently, upon the family member's own initiative, and in the member's own behalf.

Q. What is the Commission's general philosophy with regard to the individual's participation in registration?

A. The Commission, over the years, has expressed the view that it believes all citizens should be encouraged to register and to vote, and that no impediment should be permitted which would hamper an individual from participating in registration activities and voting.

Q. May a Federal employee participate in nonpartisan registration drives?

A. Yes, to the fullest extent.

Q. May a Federal employee serve as an election officer?

A. Yes, provided that in doing so he discharges the duties of the office in an impartial manner as prescribed by State or local law, except that he may not become a candidate for such office in a partisan election.

Q. May a Federal employee serve in any capacity at the polls in behalf of a partisan political candidate or political party?

A. No. He may not assist such candidate or party in any way at or near the polls.

Q. May a Federal employee use his auto to take voters to the polls on election day, or lend it, or rent it for this use?

A. Generally, no. Of course, the employee's auto may be used to transport himself and members of his family to the polls. In addition, members of a car pool may stop at the polling place to cast their votes on the way to or from their places of employment.

Q. In most States a registrar is appointed by the County Clerk or Clerk of the Court. Can a Federal employee accept such appointment?

A. Yes, if in doing so he gets permission from his agency and the work does not interfere with his agency's business. This is a matter for each agency to decide.

Q. May a Federal employee be excused for a reasonable time to vote or to register to vote?

A. Yes. As a general rule, where the polls are not open at least three hours either before or after an employee's regular hours of work he may be granted an amount of excused leave that will permit him to report for work three hours after the polls open or leave work three hours before the polls close, whichever requires the lesser amount of time off. If an employee's voting place is beyond normal commuting distance and vote by absentee ballot is not permitted, the employee may be granted sufficient time off to make the trip to the voting place, not to exceed a full day.

For employees who vote in jurisdictions which require registration in person, time off to register may be granted on substantially the same basis, except that no such time is granted if registration can be accomplished on a nonwork day and the place of registration is within reasonable one-day round-trip travel distance of the employee's place of residence.

"YOU'RE SUFFERING FROM CREDIT-CARDITIS. YOU'LL WORRY LESS IF YOU DO ALL YOUR BORROWING AT THE CREDIT UNION"

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
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Your Job in Focus

Got a problem?

MSC employees have several channels through which to resolve problems, air complaints, or to obtain information. These matters should first be brought to the attention of the supervisor. When he is unavailable or unable to satisfactorily resolve a question, the employee is encouraged to talk to his Personnel representative.

Personnel Division is setting up a schedule of visits to work areas by personnel representatives, and it is planned that each organization will be visited at least once every other week to talk to employees. The visit schedule will be published in the near future.

'Trial Retirement' Plan

The Air Force Systems Command and the Department of Agriculture are testing a one-year "trial retirement" plan for eligible employees. Called Project 55-60, the plan provides for the retirement of interested eligible employees for a period of one year on a trial basis. If the trial retirement does not prove satisfactory to the employee after one year, he may return to work at the same grade and salary.

MSC employees will be informed on whether or not NASA plans to test the "trial retirement" system.

Pending

A bill to increase the maximum rate of per diem allowance for government employees traveling on official business has been favorably recommended for passage by the Committee on Government Operations. The bill would increase the maximum per diem allowance from $16 a day to $20 a day.

Gillespie Judge At Science Fair

Warren Gillespie, Jr. of the Engineering and Development Directorate staff will serve as a judge in the 19th International Science Fair in Detroit's Cobo Hall May 15-17. Sponsored by Science Service, Inc., the ISF attracts high school youngsters in the tenth, eleventh and twelfth grades from more than 200 regional science fairs.

Student entries are grouped in seven categories for boys and five for girls in natural and applied science disciplines.

Gillespie recently was elected director-at-large in the American Astronautical Society.

Organ Club Meets

The MSC Organ Club will meet May 1 at 5:30 pm in Room 188, Bldg 1. Bring Notebook.

Credit Union Straight Talk

Get smart; stretch a dollar's buying power.

For example, financing a new auto on time payments from lending institutions can boost true interest rates to almost nine percent — no matter who the money is borrowed from.

High interest rates can be headed off at the pass with some extra benefits thrown in by making share-backed loans from the MSC Federal Credit Union. Savings withdrawn from deposit with commercial institutions and deposited as shares in the Credit Union act as collateral for share-backed loans.

Such a scheme is smart in four ways:

• Money deposited with the Credit Union last year earned five percent interest, and net income for the first quarter of 1968 portends an even higher dividend this year.

• A Credit Union note backed by the borrower's own money carries an interest rate of three-quarters of one percent a month on the unpaid balance instead of the normal one percent — a lower interest rate than is available *anywhere*.

• The Credit Union shareholder receives a free life insurance policy that pays off dollar for dollar upon his death the amount of savings on deposit up to $2000.

• Another free insurance coverage pays off the unpaid portion of a loan automatically should the borrower die.

What is the gimmick?

There is no gimmick. It's just that the MSC Credit Union has pending more loan applications than deposits — a situation that forces the Credit Union to borrow money from other credit unions with excess cash. Such money generally brings with it a five-and-a-half percent interest charge.

But if shareholders deposit their savings in the Credit Union, *they* receive the interest in the form of dividends instead of interest going to someone else's credit union.

Share-backed loans, then, amount to a sort of borrowing from oneself — a right step toward getting smart.

At the MSC Credit Union, straight talk is spoken — not double talk.

Roundup Swap-Shop

(Deadline for classified ads is the Friday preceding *Roundup* publication date. Ads received after the deadline will be run in the next following issue. Send ads in writing to *Roundup* Editor, AP3. Ads will not be repeated unless requested. Use name and home telephone number.)

FOR SALE/RENT—REAL ESTATE

Five acres of land off Manvelle Highway on County Road 101. MI 5-0188.

5 Bay lots from $50 to $100 below regular selling price. Lots located 4 blocks off Highway 146 in Baycliff. J. W. Clepper, RE 3-6473.

Dickinson—1½ acre waterfront with private boat slip. High rise, 2 bedroom, 2 years old, furnished, drapes, carpet, paneled, gas built-ins, airconditioners, ready to move in. Very nice throughout. $14,500. Don White, 534-5058 Dickinson after 5, or Jean White, HU 8-0210-Ext. 51.

Lake house on Clear Lake, sublease one bedroom apt, everything furnished—TV, stereo, dishes, linens—even the Siamese cat should you desire. Pool, pier—boat slips available. $200. Smith, 877-1147.

Clear Lake City, 3-2-2 brick, large den, formal living and dining room. Assume 5¾% loan. Owner transferred, available 1 June. Rex Dunivent, HU 8-2615.

Brick 3-2-2, Deer Park, equity and assume loan, $14,700 total. R. Gadbois, GR 9-1761 after 5.

Newport outstanding contemporary 3-2-2, 6% VA loan, 140 per mo., $1950 *and assume* loan. J. Dunn Jr. 932-2814.

8 month old French Provincial in Baybrook: 4 bedrooms, separate dining room and living room, large family room w/ fireplace, kitchen and dinette, utility room and separate two-car garage with fenced backyard. Refrigerator, washer, dryer and miscellaneous furniture included, central air/heat, located on court, away from main traffic and apartments. Cost $25,000—equity and assumption. Dave Peterson, GR 4-3681 after 5.

Fairmont Park, 10315 Belfast Rd., beautiful all brick excellent condition, 3 bedrooms, 2 baths, large paneled den, central air, detached 2-car garage, all-electric kitchen, cedar fence, near schools. Equity. 6% loan. M. P. Frank, GR 1-2848.

Immediate possession--Friendswood, 3 years old, brick veneer, 1830 square feet, 4-2-2 detached, fenced, built-ins, intercomm, wall-to-wall carpeting, heat and air. Sam Spade, HU 2-1034.

Nassau Bay Townhouse for rent, furnished or unfurnished, 2 bedrooms, 1½ bath, washer-dryer, double garage, complete exterior *maintenance*, pool and club available, shown by appointment. Sullivan, 591-3968.

2 bedroom, 2 bath all-masonry house on large fenced lot. Frank E. Wittler, Dickinson 534-6623.

4 bdrm, 2½ baths, formal dining rm, drapes, landscaped, oversized lot, assume 6% loan, equity $4200/pay $299. Clear *Lake City, W. T. McBride*, HU 8-4239.

Bay Colony—15 minutes from MSC. 5¾% FHA loan. Brick, 3-2-2, paneled den, fenced, central air, all built-ins. Pool, launching ramp, fishing pier privileges. Adjoins Houston Yacht Club, near new school, by owner, $151 per month. David Brown, GR 1-0066.

League City-Meadowycke 3-2-2 Colonial style home, panel den, central A/H, carpet-drapes, built-ins, landscaped, 6 ft. cedar fence, all utilities underground, totally electric Medallion home. Equity and assume loan. Al Bucknell, 932-3513 after 5.

By owner, 3 bedrooms, 1½ bath, 2 car garage, large paneled den w/cathedral ceiling, built-ins, large landscaped fenced yard, near schools and new Foley's shopping center. Assume for equity 5¼% FHA loan, $120 per month. Mike Collins, 944-5558 after 5

FOR SALE—AUTOS

29 Model A Ford 2-dr. sedan, mechanically sound, body in near excellent condition, runds good. Larry Arnim, HU 8-2757 to see.

64 VW sedan, black w/red interior, sunroof, whitewalls, radio, tinted front window, clean 28,600 miles. $975. Harold Atwater, HU 8-3662.

1963 Buick Special, 4-dr. sedan, P.S. air cond., good tires, $500. Bill Stephenson, 471-4694.

65 K-Ghia VW convertible, red with black leather interior and black top; excellent condition, bought new in September 1965, priced $150 above average loan value at $1195. 1963 Plymouth Valiant 4-dr. sedan, excellent commuting car, recently added new tires and brakes and tune-up. Bought new in September 1963, $170 below average retail at $595. Tony Verrengia, OV 1-1872.

66 Olds 98 convertible, burgundy, black top, new radial tires, excellent condition, $2425. Norman Bailis, 591-2300 after 5.

67 Volkswagen, 10,000 miles, 9 mos. old, air cond, FM radio, $1795. Joy, HU 8-3530, ext. 2614.

57 Lincoln Premeir, Landau (4-dr. hardtop), 2-tone green/white. Luxury car—300 hp, automatic, air, dual heaters, power (brakes, steering, windows, seat), electric door locks, town and country automatic seeking radio with electric antenna, etc. Excellent condition. $400. H. Kyle, HU 2-7789.

65 Ford Galaxy, LTD, full power, air, radio, exceptionally clean, $1750. J. Green, 877-3316 Kemah.

61 Buick LeSabre 4 door hardtop, air, automatic transmission, PS, PB, four new Firestone whitewalls, new muffler and tailpipe. Excellent condition and super-dependable. Will trade for MG, Triumph, or Austin-Healey in good mechanical condition, or make offer. Lee Swank, GR 9-4485 after 5.

59 Jaguar XK-150 steeltop roadster, recently overhauled, good running condition. $750 firm. Dave Peterson, GR 4-3681 after 5.

65 Valiant, white 2-dr sedan, xclnt condition, new tires and battery, $850. Sherman Kendall, JA 9-8662.

51 Ford 2-dr. sedan, flathead six, stick w/overdrive, 95,000 miles, new engine installed at 65,000 miles, runs perfectly, no rust, chrome good, original paint worn thin, needs headliner, good rubber, excellent brakes, R&H work. Must sell—Army calls. $170 as is; $200 w/68 plates. J. Stanley, 591-2101.

67 Volvo 1800S, white-black leather interior, 14,000 miles, mint condition, extra's. Sullivan, 591-3968.

66 VW, clean, good condition, original owner, 16,000 miles, $1195. Frank E. Wittler, Dickinson, 534-6623.

60 Ford Starliner, new plugs, points, muffler, excellent tires, 1968 plates, $325. S. M. Ullman, HU 2-1176 after 5:30 pm.

60 Rambler station wagon, 6 cyclinder, standard transmission, very clean, runs good, $250. K. I. Mansfield, 944-5473.

62 Renault Dauphine, only 38,000 miles, excellent second car, $195. B. W. Tyler, GR 1-4460.

FOR SALE—MISCELLANEOUS

62 Starcraft Premier, 17 ft. fiberglas, folding seats, 85 hp Mercury (has alternator), trailer, convertible top, two 12-gal. fuel tanks, water ski equipment, extras, excellent condition, $1250. M. Broussard, 643-1611, after 5:30.

16 ft. fiberglas boat, big two-wheel tilt trailer, 100-hp Mercury motor, canopy. MI 5-0188.

Mobile home for lease, furnished, air. Will relocate to your choice area, if on a long-term lease. Reasonable rent. Floyd A. Turner, RE 3-7667.

Formica-topped table with leaf and four chairs in good condition for $15. Two clarinets with cases: Gerard, $35; and Selmer, $45. Chord organ with base, major, minor chords, and two scale keyboard for $25. Jackie Rogers, 877-4866.

Stud service: silver-blue AKC.registered German Shepherd "Troop of Canterbury." This is an unusually gentle animal and should produce good natured pups. Pick of litter for fee. Tony Verrengia, OV 1-1872.

Hydroplane, 10 ft. racing hull, complete will controls, good condition, $45. Steve Heywood, Dickinson 534-3979.

57 Chev. three-speed transmission with floor shift and linkage, $20. Don Heywood, Dickinson 534-3979.

Rally pack for 1965-66 Mustang. 0-6000 RPM tach & clock, like new $25. Don Heywood, Dickinson 534-3979.

Chev. 283-327 dual-quad. manifold complete with carbs and linkage. $60. Don Heywood, Dickinson 534-3979.

15-ft. fiberglas boat with windshield, remote controls, steering wheel—12 hrs on 50-hp electric Mercury, large wheel trailer, $750. Phyllis Morton, 946-4752.

Shetland pony, very good with children, halter, bridle, saddle, sacrifice all for $50. George Latherow, HU 2-1723.

Ham radio station, 1 kilowatt, CW, AM, SSB. Drake R-4, T-4X and Heath SB-200 $700. Wiseman, Dickinson 534-3802.

Tent: Sears 10X12 sidewall, alum. poles, carrying case, stakes, sewn in floor, $50. H. Brasseaux, 877-1719.

AKC registered, Yorkshire terrier male, 18 months old, housebroken, has all shots, weighs 4 pounds, very good with children. $100. Joe Vilgos, 643-2062.

Guitar amplifier, fender twin, in very good condition; can be supplied with two 12" or four 10" special design Jensen speakers. Asking $225. Oscar Bernard, 487-3697.

10½-ft. Norge refrigerator, $50. McBryar, Dickinson 534-5246.

Small wood business desk and chair, desk in very good shape and suitable for den furniture. R. D. Newlin, HU 7-2121.

Sailboat—El Toro class, 8-foot dinghy with dacron sail, excellent condition. $150. T. M. Macfarlane, HU 8-2493.

5-piece Danish bedroom includes twin beds with beauty-rest bedding, $85. W. E. Thomas, League City 932-4787.

15-ft. Victor travel trailer, sleeps 4, ice box, butane stove and light. $675. Helen Hensley, 944-1353.

Racing bicycle, Atala Grand Prix model, handmade in Italy, 10-SPD, only 27 lbs/ original cost $140, sell $65. Ron Hagood, WI 8-2870 Texas City after 6.

1955 MG-TF-1500 engine and transmission, engine needs minor repair/transmission in excellent condition. Sell both $150. Ron Hagood, WI 8-2870 Texas City after 6.

G.E. air cooler, good condition, $15. Babyline playpen, like new, $10. J. W. Samouce, HU 8-0406.

RCA console 21-in TV, UHF-VHF, $35. Corner table, blond with glass top, $15. Corner table, blond with glass top, $7.50. Zenith stereo with matching side speaker, 40 watts, fruitwood, $175. Al Bucknell, 932-3513.

Black and white Checkered Giant rabbits, 4 mos and 6 wks old. Californians 6 wks old. $1 per month of age. Some Checkered Giant and New Zealand White bucks for sale. Bucks are proven stud stock. H. F. Kline, ID 3-5190.

35 mm SLR camera, Nikkorex F, 50 mm F1.4 auto Nikkor lens, soft leather case, flash accessory shoe, and 1A and K 2 haze filters. Excellent buy at $130; original cost $280. Also, like-new 135 mm F3.5 Auto Nikkor telephoto lens, $75; original cost $160. Package price, $195. Sy Liebergot, 534-3100 (Dickinson).

Coldspot self-defrosting refrigerator, $50. L. Underwood, 944-3292.

Lone Star 16 sailboat with galvanized tilt trailer, 4 life jackets, masthead fly, bottom paint, tarpaulin, 3½-hp outboard, all in excellent condition for $1600 firm. Ed Simon, 488-4043.

17' Glastron, 75-HP Johnson, two tanks, hardtop, galvanized trailer, lights, compass, anchor, line, etc.—ready for water, excellent condition. $1125. Fred Hake, 932-4693.

20" girls bicycle, refinished, new fenders and seat, $20. Boys full size Schwinn tank model bicycle, good condition, $20. J. Townsend, 591-2545.

Gibson long neck 5-string banjo, excellent condition. Original cost $325, asking $180. Also 12-string guitar, Dave Peterson, GR 4-3681 after 5.

18-ft. Lone Star El Dorado alum cabin cruiser, new trailer, Mark 75 Mercury, 18-hp Johson for Offshore backup, head, builtin ice chest, 2 bunks, lots of storage, $950. R. L. Carlton, GR 1-4539.

17 ft. fiberglas I/O, Volvo Penta, deep vee, with trailer $2250. R. L. Carlton, GR 1-4539.

HO-gauge trains RTR, still in original wrappers and boxes. Tyco, Varney, AHM, Athern, like new. Freight car assortment; box, cattle, tank, flat, skid, gondola, caboose, Reg. $1.90—$2.49; all types $1 each. Passenger cars: Tyco RTR, AHM RTR, only $3. Diesel engines: $6. Mike Bledsoe, GR 1-2600.

Washing machine, Kelvinator, model W300, white. A working machine at an excellent price, $15. Vornado window unit air conditioner, 220-volt, cools very good, $25. Clayton Pollard, HU 7-0024 in Pasadena.

Collie pups, 7, AKC, pedigree shows 25 champions in the last five generations of mother and father. Pups will be weaned and available for new owner on May 24. Predeveloped price $50 each. Howell Hooper, 488-4120.

Motorcycle, 441 c.c. Lunger 1967 BSA Victor, inspected and licensed, perfect scrambler. D. V. Massaro, HU 2-7976.

Mans 1-diamond ring, approximately 1 carat, $195. Ladies 1-diamond ring, approximately 1 carat, $195. Ladies 53-diamond gold and platinum Gruen watch with diamond attachment, $295. Mans 1-diamond ring, approximately 1¾ carat, $495. L. Frank, CA 2-0680 or PA 9-9209.

11' X 11' Sears umbrella tent, used only twice last summer, like new, $80. 4 like-new cots, also only used twice, $5 each. L. P. Murray, GR 4-3373.

Authentic 36' dia. meat block, $45. Car seat, $4, Casco play pen $2. B. W. Tyler, GR 1-4460.

25" color TV—Curtis Mathes (RCA circuit) 18 months old, listed $750, sell $350. B. W. Tyler, GR 1-4460.

CB radio, Johnson Messenger II, $100. B. W. Tyler, GR 1-4460.

1947 Ercoupe 1400 TT, 580 SMOH on C-85, metal prop, paint red and white, fabric 2 yrs old, rudder pedals, new interior last year. Nova Star radio with omni. Fresh annual upon purchase. $2195. Gary Hanisch, 932-2739.

16mm Bell & Howell, Model 550, sound-movie projector, automatic threading, less than 8 months old, used very little, excellent condition, $475. Tom Moser, 877-3048.

14" Sailfish, excellent condition, new sail, $200. Joe Rutherford, HU 7-1671.

Electric exercising equipment: a Nadco Metri-Cycle and a belt massager both for $175 or make offer. L. V. Hartzog, 591-3933.

Modern dining room suite, Foley's cost eight months ago, $1200—see and make offer around $600. L. V. Hartzog, 591-3933.

Double bedroom suite, Simmons Beauty rest mattress, like new condition, make offer around $225. L. V. Hartzog, 591-3933.

Contemporary bar with matching stools, sell for $125. L. V. Hartzog, 591-3933.

14" portable Zenith TV, $25. 4" bench belt sander, $10. Joe Rutherford, HU 7-1671.

Thermos pup tent, has never been used. $100. B. Gardner, HU 8-1270 ext. 205. After 5 call 591-3781.

Garage Sale: April 26, 27 and 28: Chest-type deep freeze, refrigerator, stove, 9x12 oriental rug, bedroom furniture, lounge chair, water-well pump, garden tools, dishes and miscellaneous items. 416 Oak Vista, Friendswood, Texas.

Cessna 120 modified to 140, 234 SMOH, excellent condition, new tires, battery and carpet, VTH-3 Radio with Omni. Parked at Clover Field, L. Normand, HU 2-7520.

WANTED

Young man to share apartment in MSC area. Present roommate moving. Arland Atkinson, 591-4501.

Nassau Bay Ski Club: Next meeting is May 2 at the Sveden House, 7:30. For information, call Dick Osburn, at 591-2186.

26' thru 30' ChrisCraft or Trojan Cruiser. Prefer single engine. Buy equity, pick up notes. T. B. Hartzog, MI 9-3389 or MI 5-5279.

Card Party 9 of spades, $1000; Tigerama left half (luggage); Tigerama left half (RCA color TV); Bonus Bingo B-4 $1000; W-2 $750; B-1 $300; U-2 $200; O-4 $100. Will split prizes—will bargain. S. Jacobs, PR 4-9924.

Wanted: TV, Hi-Fi components, working or not; also dryer, self-propelled lawn mower, edger, sailboat. Don Frisbee, 946-7193 Houston.

Will share driving or ride. Freeway Manor to MSC, 8 to 4:30. Don Frisbee, 946-7193.

Female roommate to share two-bedroom apartment. Someone between the ages of 19-21 whose husband or fiance is in the service or overseas. Jorene Parker WI 5-9540 or WI 5-6802 in Texas City.

Judokas Host AAU Judo Meet

The NASA Judo Club and the Clear Lake City Judo Club jointly will host the Gulf Coast AAU Junior Olympics May 11 at the Clear Lake City Recreation Center.

Competition starts at 1 pm and no spectator fees will be charged. More than 200 youngsters 5 to 16 will compete.

Third degree Black Belt holder Sgt. Jim Giles will be tournament director. Scorers will be NASA Judo Club president Dutch von Ehrenfried, Clear Lake City Judo Club coach Kit Cantrel, NASA Club vice president Dale Moore, treasurer Tom Murtage, and secretary Ray Lundin. Referees will be Black Belts from the Karl Geis Judo Club in Bellaire.

Houston-area judo has seen considerable growth since the Gulf Coast Judo League was formed in 1967. The League holds monthly matches for adults and children.

The NASA Judo Club recently ordered $900 in special judo mats, and delivery is expected shortly. Offering a means of staying in shape, the club dues are $6 a month—which go toward the cost of mats and equipment. If interested in the "gentle way" call Murtage at MSC Ext 3151 or Lundin at 591-3300 Ext 3271.

Pesman Retires, Plans to Travel Before Settling

Gerard J. Pesman retires today after 24 years service with NASA and its predecessor, NACA. He is manager of the Flight Experiments Control Office of the Biomedical Research Office.

Pesman joined NACA Lewis Research Center in 1944 as a flight research engineer investigating engine performance and aircraft icing. In 1959, he joined the Space Task Group at NASA Langley Research Center.

Pesman, who turned 62 Tuesday, said, "My wife and I plan to travel for a year or two until we decide where to put down roots. We have a travel trailer on order, but we have to sell our house in Friendswood first."

He said their choice of a permanent home likely would be in the western part of the country.

Antarctic Soil Probed For Mars-Life Clues

Despite the warming California sun, there is a small corner of the NASA Jet Propulsion Laboratory that is Antarctica.

In a small walk-in freezer laboratory, simulated antarctic cold keeps antarctic soil acclimated. Here more than a ton of dirt is kept in hibernation by Dr. Roy E. Cameron and his JPL soil sciences group in Pasadena, Calif.

This week Dr. Cameron and his colleagues received another half-ton of Antarctic soil, collected in the 1967-68 summer season. Along with many samples returned the year before, this material will be tested and cultured to see what types of micro-organisms live in extreme cold.

The JPL team is seeking clues to help determine whether life exists on Mars. The studies are sponsored by NASA and the National Science Foundation.

Thus far, experiments show that bacteria, yeasts, molds and algae begin to grow within two weeks when antarctic soil kept laboratory-frozen more than a year is subjected to room temperature 68 degrees or above. They also grow more slowly at temperaturesjust above freezing.

The JPL soil samples came from high, dry valleys in Victorialand near the US base at McMurdo. Some were taken from the surface, others six to 12 inches deep.

This year, Dr. Cameron and two assistants used a jackhammer to dig samples from the permafrost as deep as two feet, where they found an abundance of micro-organisms.

"If there is permafrost on Mars," the JPL scientist says, "the chances of life will be increased."

In some antarctic soils, microorganisms occur almost double the usual numbers in the permafrost. The frozen layer preserves soil bacteria, some quite ancient. If the subsurface soil occasionally thaws, the released water aids their growth.

Cameron and Howard Conrow, a JPL technician, built the walk-in freezer lab addition from a converted refrigeration unit. The super-cooled 12x20-foot box keeps samples at their native temperatures until the scientists are ready to put them to the growing test. Minimum temperature inside varies from minus-15 to -22 degrees F, depending on the Sun's heat on the flat roof. Walls and ceiling are about six inches thick.

The soil scientists wear parkas and full antarctic gear whenever they go into the box to work. Samples are weighed, sifted and cataloged there. Dirt is carefully kept in labeled containers until ready for testing. Hundreds of samples are under culture, thousands more will be within months.

The work probably will continue right up to the time the US lands a soil sampler and begins digging on supposedly frigid Mars, possibly sometime in the 1970's. Scientists hope to make Mars soil diggers and analyzers even more sophisticated than those on the successful Surveyor lunar craft.

What results have been obtained from the antarctic soil thus far?

Seven types of micro-organisms live, if not flourish, in the so-called dry valleys. Three are in the bacterial group, four are in the algae family. These are among the smallest microflora (sub plant life) yet discovered on Earth being only one micron (1/25,000th of an inch) in diameter.

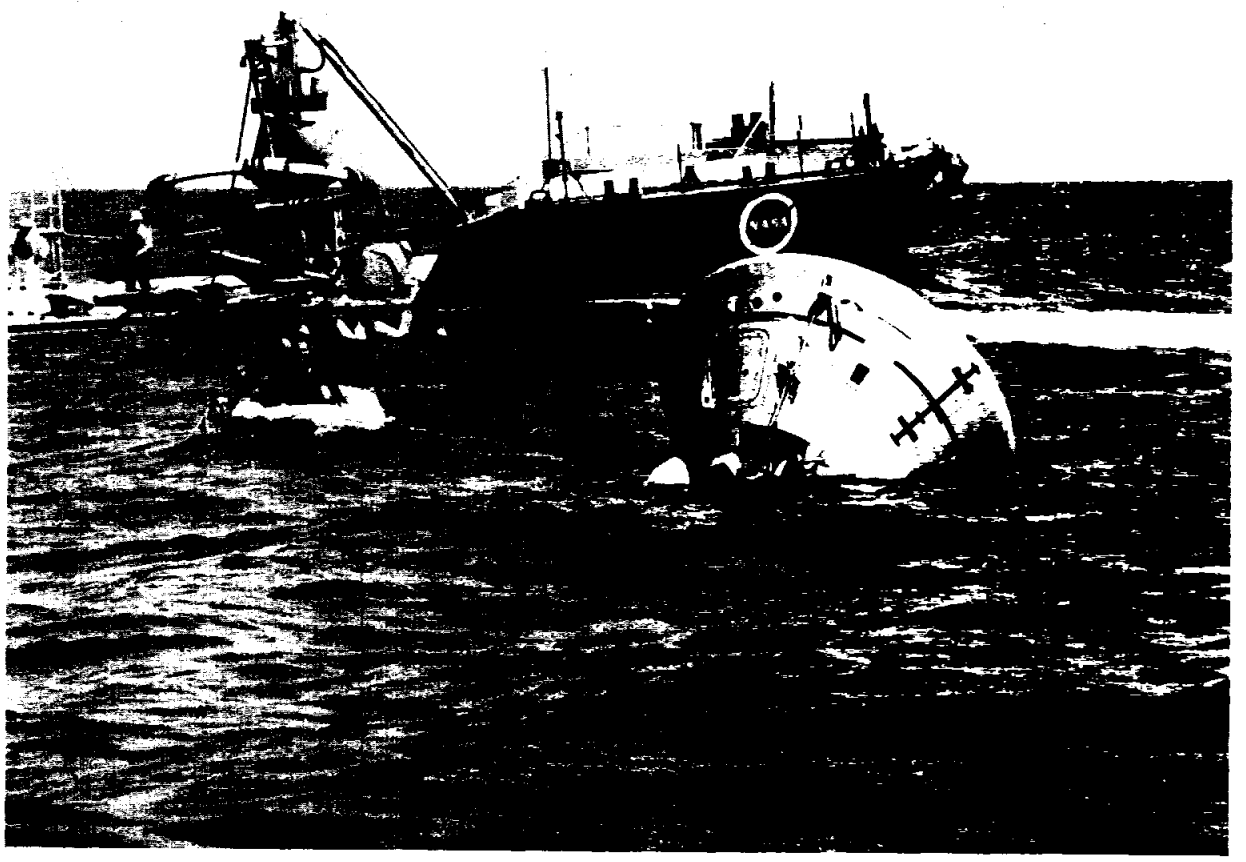
As many, if not more, microorganisms were found below the surface, especially at the level of hard, icy permafrost, as at the surface. Subsurface bacteria are generally nonpigmented. Colored bacteria usually have been found at the surface. Pigment protects them from adverse radiations.

The ice-desert of Antarctica has less life than any other desert soil investigated on Earth.

Cameron and Dr. Norman H. Horowitz, JPL bioscience section manager who suggested the antarctic studies, believe they will help scientists decide what type of life-detection equipment should be sent to Mars. Dr. Horowitz says the studies also will provide relevant information on spacecraft quarantine and sterilization problems.

On the Mariner 1969 Mars twin spacecraft, only fly-by experiments will be performed. However, NASA and JPL scientists hope a Mars landing will be achieved by the US in the next decade.

Yo, Ho, Ho and a Bottle of Marezine



DOWN TO THE SEA IN SPACECRAFT—Apollo command module 007A rotates from the Stable II (apex down) position to Stable I (apex up) at the start of the 48-hour Apollo postlanding systems qualification test April 5-7 in the Gulf of Mexico. Crewmen for the test were James A. Lovell, Jr., Charles M. Duke, Jr. and Stuart M. Roosa. The NASA Motor Vessel *Retriever* stood by with technicians and swimmers aboard for the duration of the test.

Command Module Takes Its Lumps At MSC's Impact Test Facility

By Doug Ward

The Apollo Spacecraft Command Module has been taking its knocks recently at MSC to assure the safety of crewmen when they fly the vehicle for the first time.

The rough treatment is being served out by MSC's full-scale land and water impact test facility, a 100-foot-long, 39-foot-high steel framework resembling a railroad trestle. The device can subject full-scale Apollo test vehicles to impact forces like those of normal water landings or of almost any conceivable emergency landing on water or land. A 33-foot-deep, 160-foot-long pool at one end of the structure is used for water drop tests. At the other end a surface of sand closely matched in grain size and structure to Cape Kennedy beach sand is used for land impact testing.

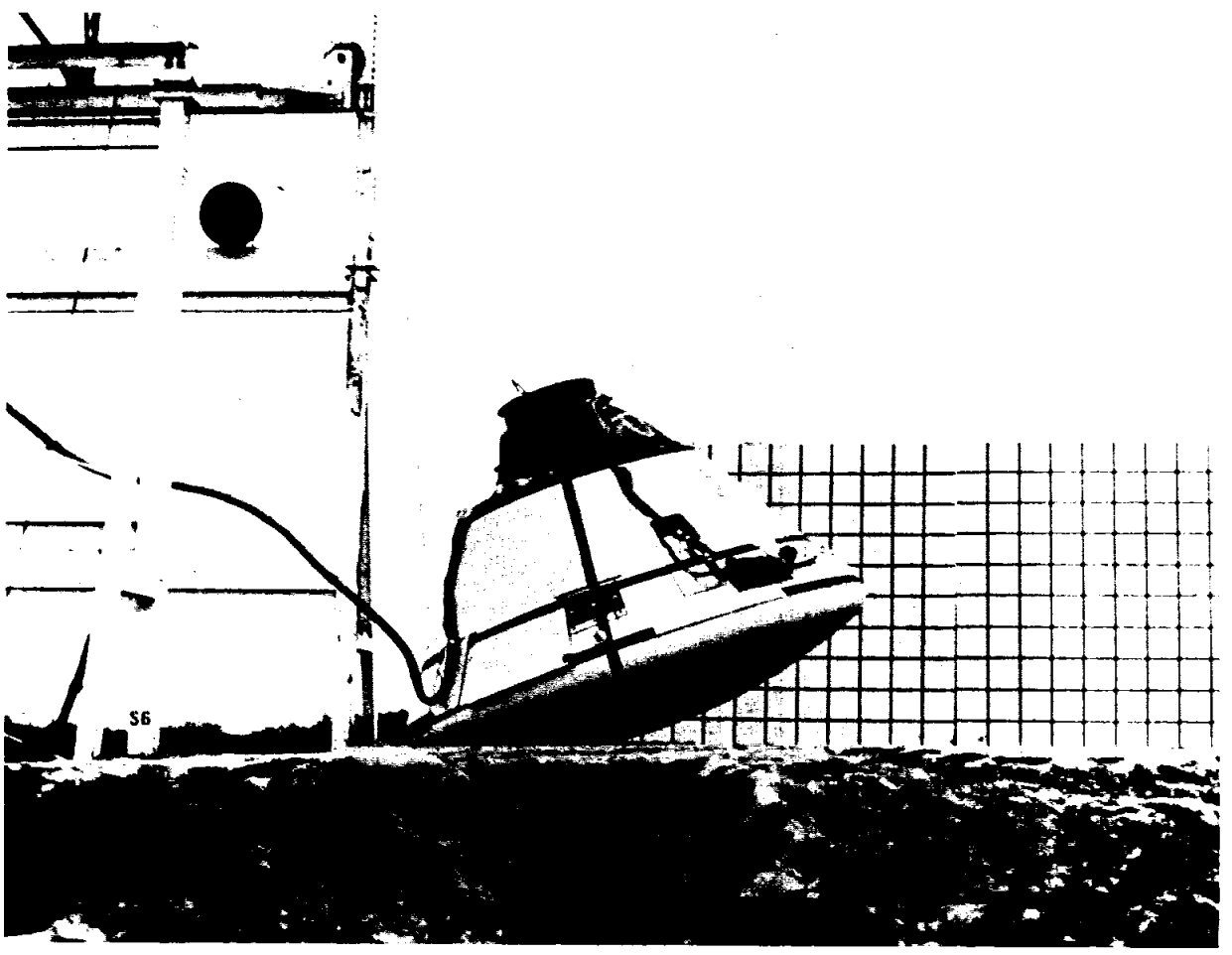
A pneumatic aircraft carrier-type catapult rigged to steel cables and pulleys propels the spacecraft either direction down the 100-foot length of the facility on an overhead monorail. Shortly before it reaches the end of the track, the spacecraft is cut loose by a pyrotechnic charge, allowing it to fall at a precisely controlled and monitored speed toward its planned landing point. At impact, motion picture cameras and electronics sensors monitor the effects of the "landing" on anthropomorphic dummies strapped into the three crew couches, while other instruments record the effects on the spacecraft structure.

A series of land-landing impact tests duplicating off-the-pad aborts started last fall, is continuing, while the first of a series of water impact tests began April 6.

The current series of tests at MSC is to prove that the Command Module, with its added weight of fireproofing and other safety modifications, still lands softly enough to prevent injury to crewmen.

In a related program, the Apollo parachute system has been beefed up with larger drogue chutes to slow and stabilize the vehicle prior to opening three main chutes. The main chutes have also been modified to open in three stages instead of two, allowing them to handle CM recovery weights of up to 13,000 pounds, 2,000 pounds more than the previous system was designed to handle.

Apollo is the second generation of spacecraft to be tested on this facility. The structure, which was originally located at the McDonnell Aircraft Corporation, St. Louis, Missouri, was used in water impact studies for the Gemini spacecraft.



WHUMPFFF!—Apollo Command Module 008 connects with Mother Earth in a bone-jarring simulation of an off-the-pad abort beach landing at the MSC full-scale land and water impact test facility. Various horizontal and vertical velocities and parachute conditions can be programmed into the facility's catapult mechanism.