

MOON ROCKS ARRIVE AT MSC FOR DELIVERY INTO LUNAR RECEIVING LABORATORY

In the welcoming committee for the shipment of lunar samples were: George M. Low, Apollo Spacecraft Program manager; George S. Trimble, MSC deputy director; Lt. Gen. Samuel C. Phillips, Apollo Program director; Eugene G. Edmonds, Photographic Technology Laboratory; Dr. Thomas O. Paine, NASA administrator and Dr. Robert R. Gilruth, MSC director.

Experiments begin on lunar samples

The quiet stir of scientific minds at work, the subtle humor of intellectual disagreement, the nervous excitement of man on the brink of a scientific discovery every moment—such has been the atmosphere surrounding the detailed study of Apollo 11 lunar samples in the Lunar Receiving Laboratory.

Beginning with the delivery of approximately 52 pounds of Moon rock to the LRL on July 25, three dozen scientists and technicians have worked day and night studying, identifying and cataloguing information on some of the most important scientific specimens man has ever had.

As soon as it is determined that no harmful pathogens exist in the lunar material, much of it

will be released to the 140 principle investigators chosen by NASA from the United States and nine foreign countries.

These men will continue the job, begun here at MSC, of unraveling the Moon's mysteries.

Preliminary experimentation, conducted under tightly controlled and extremely restricting quarantine conditions, was expected to go slowly—and it has.

However, LRL scientists have made many surprising and significant discoveries during their two short weeks with samples.

The first samples were described as having very pronounced structures. Many fragments have bubbles or bubble cavities in them, possibly formed by gases escaping from the melted material as it cooled and solidified.

The "slippery" quality of lunar dust, noted by Apollo 11 crewmen during their Moonwalk, may be attributed to a large proportion of minute spheres of glass, ranging in size from microscopic up to a few tenths of a millimeter in diameter.

These "transparent, lustrous, reflecting" spheroids were estimated to make up a quarter to a third of the dark, fine-grained Moon dust.

(Continued on Page 3)

Crews named for Apollos 13 and 14

Flight crews for Apollo missions 13 and 14 were announced Wednesday.

Prime crewmen for Apollo 13 are James A. Lovell, Jr., commander; Thomas K. Mattingly, II, command module pilot; and Fred W. Haise, Jr., lunar module pilot.

Apollo 14 prime crewmen are Alan B. Shepard, Jr., commander; Stuart A. Roosa, command module pilot; and Edgar D. Mitchell, lunar module pilot.

The backup crew for Apollo 13 is composed of John W. Young, John L. Swigert, Jr., and Charles M. Duke, Jr.

Backup crewmen for Apollo 14 are Eugene A. Cernan, Ronald E. Evans, and Joe H. Engle.

Members of the support team for the Apollo 13 crew are Jack R. Lousma, William R. Pogue, and Vance D. Brand. A support team for Apollo 14 has not been named.

Both missions include lunar landings and exploration. Landing sites are expected to be selected this fall. Prime consideration in site selection will be to meet scientific objectives within operational capabilities. Continued exploration of the Moon's

surface will lead to sites more difficult to reach operationally.

Apollo Lunar Surface Experiment Packages (ALSEP) will be deployed on each mission, extending a network of scientific experiments over the Moon's surface. Other objectives include the study of dark, mantling material on the Moon, volcanic

processes, and age dating.

Total lunar surface stay time for both missions will not exceed 35 hours.

The commander and lunar module pilot will conduct two periods of extravehicular activity (EVA) on each mission. Duration of each EVA period will be approximately three hours.

Apollo 12 to aim for Surveyor site

Following the successful lunar landing of Apollo 11, the flight of Apollo 12 has been scheduled for November 14, 1969.

And as an added challenge, Lt. Gen. Samuel Phillips, Apollo Program manager, announced a chance for Apollo 12 to land near Surveyor 3 and to inspect the spacecraft that has been on the Moon since April 20, 1967.

The primary landing site for the second lunar mission is in the Ocean of Storms, "a mare in the western base of the Moon at approximately 23 degrees west and 3 degrees south," said Phillips. Apollo 11 touched down on the east side of the Moon's visible face.

The prime crewmen selected for the second Moon journey are: Charles Conrad, Jr., 38; Richard F. Gordon, Jr., 39; and Alan L. Bean, 37.

Two periods of lunar surface activity, totaling more than five hours, are tentatively scheduled for Apollo 12 and it is expected that the Apollo Lunar Surface Experiment Package to be car-

ried will have more experiments than did the Apollo 11 package.

The all-Navy prime crew served as backup crew for Apollo 9. Conrad, mission commander, is a veteran of Gemini 5 and 11.

The backup crew for the lunar expedition consists of David R. Scott, 36; Alfred M. Worden, 37; and James B. Irwin, 39. A support team has not yet been named.

Woman joins 22 men in CRA: all are healthy, ready to leave

Twenty-two men and one woman now occupy the Lunar Receiving Laboratory's quarantine facilities, and all are scheduled for release on Monday, August 11.

MSC's LRL is divided into two separate parts. On one side are the lunar sample laboratories where special precautions are taken to minimize possible contact with lunar material and where personnel may come and go as they please.

On the other side is the Crew Reception Area where a strict medical quarantine and observation period is in force for those who have been exposed to lunar contamination.

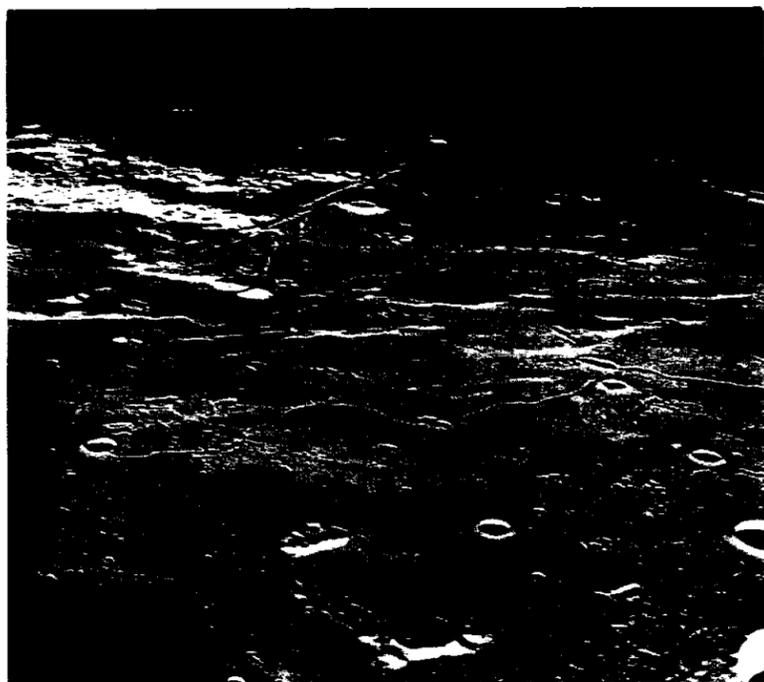
The CRA was originally scheduled to hold 17 persons—12 staff members, the three Apollo 11 crewmen, Neil Armstrong, Edwin Aldrin and Michael Collins, and their two support personnel.

Then, as was anticipated, breaches occurred in the sample area processing system, leading to the admittance of five technicians in two separate incidents.

After a vacuum chamber glove ruptured early on August 1, quarantining two Brown and Root scientists, Dr. William Kemmerer, chief of the LRL's preventive medicine, said:

"... it's part of the basic obligation of that part of the facility—of the CRA—in the event

(Continued on Page 2)



APPROACH TO LANDING SITE 2 SEEN FROM LM
Tranquility Base is at edge of darkness at right

Astronaut Michel resigns to become full-time scientist

Dr. F. Curtis Michel, 35, one of the first scientist-astronauts selected in 1965, resigned this week to devote full time to research.

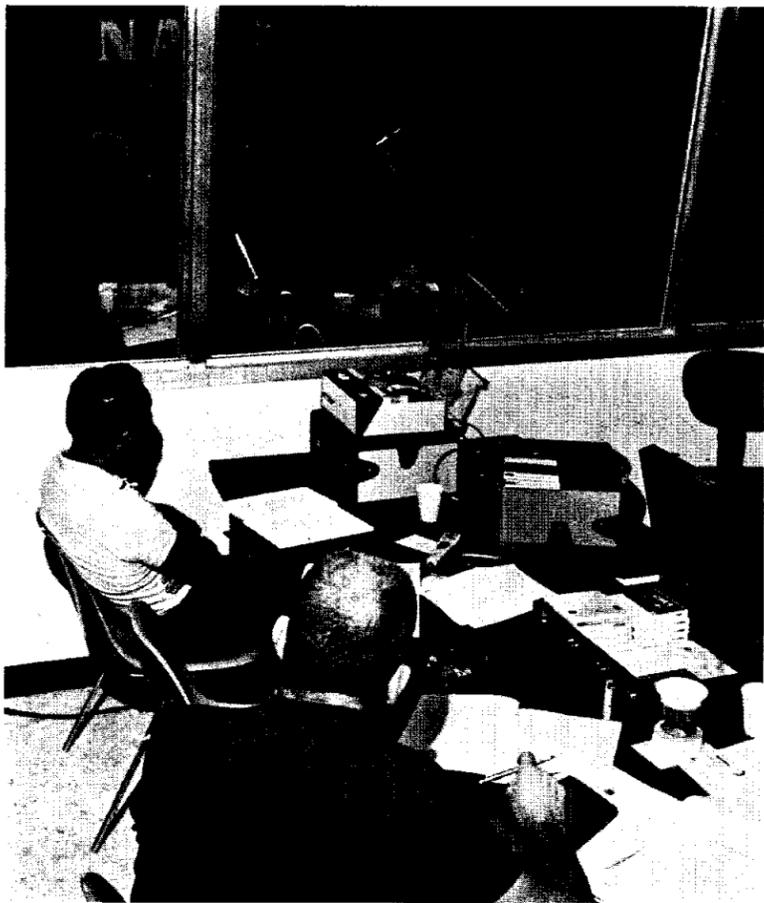
Michel, who was assigned to the Apollo Applications area of the Astronaut Office, has been on leave of absence for the past year to pursue his scientific interests at Rice University where he is a faculty member.

In his letter of resignation to Donald K. Slayton, director of Flight Crew Operations, he cited his desire to spend more time on scientific research and his belief that a spaceflight opportunity for him was distant.

The Rice physicist said in his letter that the prospect of a flight was still a strong motivation and that he was reluctant to leave. Speaking of the time allowed him for scientific work he said, "I see no further request that I can reasonably make."

Michel intends to remain at Rice and he told Slayton, "You can always count on me for whatever support I can offer as a private citizen."

The total number of NASA astronauts now stands at 48.



ALDRIN, COLLINS, ARMSTRONG DEBRIEF IN LRL CREW RECEPTION AREA
Lloyd Reeder and Deke Slayton conduct session.

CRA personnel show no signs of contamination

(Continued from Page 1)
of some more extensive containment fault, to be able to house all of the personnel that might be in the sample lab. That is the design

criteria of the building." The CRA has a capacity for 125 quarantined personnel.

The Apollo 11 crew entered the LRL shortly before 4 am Sunday, July 27. At no time during the quarantine has anyone shown a reaction to "Moon bugs".

All personnel have undergone periodic physical examinations under the supervision of Dr. Craig Fischer, chief of the Clinic Laboratory, and Dr. William Carpenter, flight surgeon.

MSC Stamp Club will issue covers for Moon stamps

The MSC Stamp Club is publishing a special souvenir envelope to coincide with the "First Man on the Moon" ten cent air-mail stamp to be released this month.

The envelope's full-color cover design was created by artist Milton Caniff. The back will carry a reprint of the plaque which was left on the Moon and the flap will bear the insignia of Apollo 11.

The cancellation will duplicate the postmark used by the Apollo 11 crew on a letter they took to the Moon.

Collectors should write to: MSC Stamp Club, Box 58328, Houston, 77058, enclosing 50 cents for each cover and a self-addressed, 9½ inch return envelope carrying sufficient return postage (six cents for each three covers ordered).

Inquiries regarding special services to dealers and specialist collectors will be answered if a return envelope accompanies the request.

MSC's Hess to direct ESSA research labs

Dr. Wilmot N. Hess, director of Science and Applications at MSC, has accepted a position with the Environmental Sciences Service Administration.

Dr. Hess will be the Director of Research Laboratories for ESSA at Boulder, Colorado and will assume his new duties in September.

His successor at MSC has not yet been selected.

In his new position Dr. Hess will be in charge of the research program for 12 ESSA laboratories in the United States.

This program encompasses meteorology, oceanography, aeronomy, earth sciences, research on hurricanes and other related disciplines.

In announcing his decision to transfer to ESSA, Dr. Hess de-

scribed his new post as very interesting and a most challenging job in a new and growing organization with an important mission.

"We have passed a milestone in the manned space flight program by the recent lunar landing," he said. "We have put the Lunar Receiving Laboratory into operation and it is performing its mission well. We have instruments on the Moon successfully and have the scientific program for the next several lunar missions well organized."

Dr. Hess has held the position of Director of Science and Applications for the past two years. Prior to joining MSC he served as Chief of Laboratory for Theoretical Studies at Goddard Space Flight Center, Greenbelt, Maryland from 1961 to 1967.

"We have found nothing that is not within normal limits or that is significantly different from preflight values," said Carpenter.

Everyone, including the four Brown and Root technicians admitted on August 5, is scheduled to be released on Monday.

Since their arrival at the LRL, most of the crew's time has been spent debriefing every aspect of the lunar landing mission.

These sessions, conducted for the most part with Donald K. Slayton, director of Flight Crew Operations, and Lloyd Reeder, training coordinator, have ranged from performance of spacecraft equipment to critical analysis of flight procedures.

Special glass partitions isolate the crew during the debriefings.

One of the larger meetings was with a roomfull of astronauts—another was held for management officials over closed-circuit television.

About mid-way through the quarantine period two representatives of the World Health Organization visited and inspected the LRL facility.

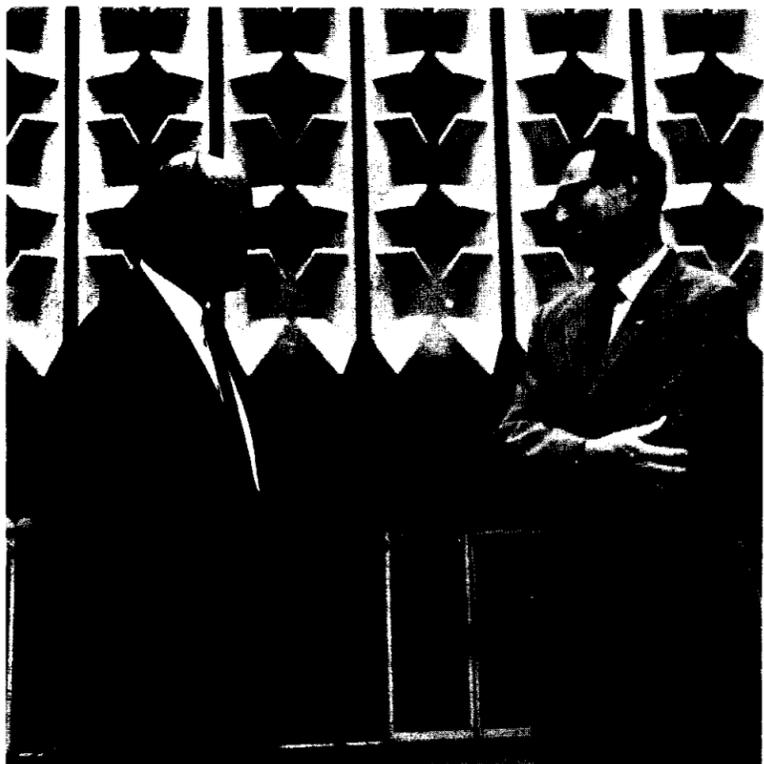
Dr. M. G. Candou, director general, said he was "very well impressed by the whole organization of the quarantine that we see here. I think it is quite clear that this is not the work of the last few days. This is the work of many, many months . . . I wish to congratulate you on what has been done."

ROUNDUP

NASA MANNED SPACECRAFT CENTER HOUSTON, TEXAS

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MODEL AIRPLANE DESIGNERS AUSTRIA-BOUND
Two MSC employees, George Xenakis of Guidance and Control and Frank Parmenter of Technical Services Division, have qualified for the World Free-Flight Model Airplane Championship competition being held in Wiener-Neustadt, Austria August 12 to 17. Teams from 30 to 35 countries are selected every two years to compete in the contest sponsored by the Federation Aeronautique Internationale.

Your Job in Focus

If you must go to court . . .

Any Civil Service Employee (permanent or temporary) who receives an order, subpoena or other summons to appear in behalf of the Government or to present himself for jury duty in a Federal, State or Municipal court, may be granted absence from his work without charge to leave or loss of pay.

Procedures for requesting court leave and for disposing of court fees are found in part 6.2 of MSCM 3000.

Employees may organize

MSC recognizes the right of employees to join or refrain from joining any employee organization not within normal limits of right to strike against, or advocate the overthrow of the Federal Government. This right may be exercised freely and without fear of penalty or reprisal.

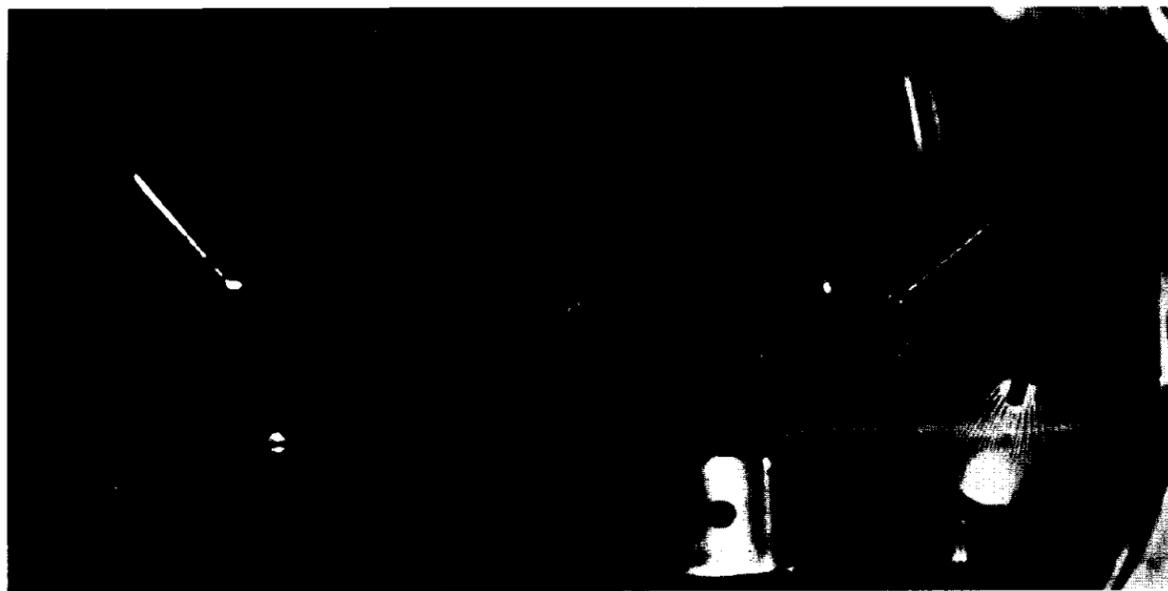
Currently, three employee organizations are represented at MSC: the American Federation of Government Employees, the National Federation of Federal Employees and the Pattern Makers Association.

Personnel folders should be updated

It is important that official personnel records be correctly maintained at all times.

Therefore, if employees acquire on their own additional training, education or experience, or if they assume offices or memberships in professional organizations, the information should be forwarded to mail code BP8 for inclusion in personnel folders.

The information should be submitted on SF-172, "Supplemental Experience and Qualifications Statement" (previously SF-58).



LUNAR SAMPLE 10003 UNDER STUDY IN THE LRL VACUUM CHAMBER
Early examination of the mafic sample showed it similar to Earthly igneous rock

Work starts on bio-prime samples -

(Continued from Page 1)

A glassy material was also found coating some of the lunar samples and flowing into tiny vesicles in the rocks.

Dr. Ray Wilcox of the United States Geological Survey Team, described the rocks as "generally gray tone, dark gray. Partly this is due to the dust cover, partly from the actual constituents in the rock itself—dark gray. There are also some dark brown minerals there—so far not identified," he said.

One of the surprising discoveries made from the first chemical experiments was the unusually high percentage of the element titanium—six percent in one sample.

Titanium, which is relatively rare on Earth, is used in the manufacture of certain heat-resistant products.

The first announcement is that the overall composition of lunar material is close to an analysis made from Surveyor 5 information and published recently. This includes the relatively high instance of titanium and a low alkali element content.

The scientists declined to further define the elemental content until more detailed analysis can be made from more representative samples.

A report from the radiation counting laboratory revealed relatively low concentrations of uranium, potassium and thorium, compared to terrestrial basalts.

In the biological testing laboratory, inside the Lunar Receiving Laboratory, experiments are underway to determine whether lunar materials contain any toxins or pathogens which might prove harmful to life on Earth.

The bio-prime lunar sample, consisting of representative material from each core tube and from the documented sample, was introduced into a number of germ-free mice last week. Preliminary analysis of these exposed animals indicate no abnormalities.

"At this present point in time," said Dr. William Kemmerer, quarantine manager of the LRL, "there is no indication of bacterial growth in the prime sample."

However, the most detailed experimentation will be conducted on the several hundred rodents, birds, fish, micro-organisms and plant life scheduled to be exposed to the bio-pool sample after August 11.

This bio-pool sample, containing about 600 grams of material from the bulk lunar sample, is scheduled to be placed in the various bio-test lab's on Monday.

Experiments have been performed on each sample returned from the Moon—the documented sample return container, under vacuum; the bulk sample, in dry nitrogen; the contingency sample and the two core samples.

The solar wind experiment, designed to measure the composition of solar dust particles, was removed from the documented sample box and is being processed for release to Swiss scientist Dr. Johannes Geiss as soon as the quarantine is lifted.

NASA negotiates for two quiet jet aircraft engines

NASA recently negotiated an \$18.7 million contract with General Electric Company's Aircraft Engine Group, Evendale, Ohio, to build two experimental quiet jet aircraft engines and to conduct an extensive test program with them.

It is a fixed-price contact with provision for a performance reward.

The work is part of the Quiet Engine Research Program conducted by NASA's Office of Advanced Research and Technology to assist in developing quieter jet engines for future commercial subsonic aircraft.

Two main approaches to reducing noise produced by the engine fan are being tried.

One is to reduce the tip speed, or rotational speed, of the fan and increase blade loading. The other is to increase blade tip speed and use blades which are more lightly loaded. Both fans will provide the same compression to air entering the engine.



EDWIN ALDRIN PAUSES TO REFLECT ON THE MOON
Space suit visor mirrors Neil Armstrong, LM at Tranquility Base

LRRR bounces back beams

Frustrated scientists at California's Lick Observatory have finally registered a successful laser bounce from the Laser Ranging Retro-Reflector left in the Moon's Sea of Tranquility by Apollo 11.

Friday, August 1, after 12 days of missing the tiny mirror assembly, the scientists received their first answer from the device.

The signals reportedly received during lunar surface activity

apparently were not of lunar origin.

Over two dozen seismic events, some very much like earthquakes, have been registered by the Passive Seismic Experiments Package, the other experiment left by the landing mission.

Geologists are now considering the possibility of landslides within Moon craters, caused by the extreme fluctuations in temperature between lunar day and night.

Houston to honor space program with parade, Domeshow on 16th

The City of Houston, in cooperation with the Houston Chamber of Commerce, is offering a salute to MSC, her employees, contractors and their families, in the form of a downtown parade and Astrodome variety show on Saturday, August 16.

"A Chronology of the Space Program" is the theme of the all-day event—a tribute to the program's odyssey: Mercury to Apollo 11.

Festivities at the Domes Stadium, featuring top performers from both Broadway and Hollywood, will begin at 7:30 p.m. Saturday.

Reserved seat tickets will be distributed to employees through their directorates some time next

week. The Special Events Office has asked that those who plan to attend request only enough tickets for themselves and their immediate families.

The ticker-tape parade, hosting many of NASA's high officials and astronauts, will begin at the Sam Houston Coliseum at 10 Saturday morning.

The motorcade and marching groups will cover a 45-minute route up Main Street, down San Jacinto, past the Civic Center and back to the Coliseum.

"We wish to honor everyone in Houston who has had a part in the space program to date," said a spokesman for the City's planning committee. "It's just our way of saying 'well done, and thank you.'"

Apollo 11 Event Score Box

Event	GET Planned	GET Actual
Liftoff	00:00:00.0	00:00:00.6
S-IC stage cutoff	00:02:40.4	00:02:41.7
S-II engine ignition	00:02:41.8	00:02:43.0
S-II engine cutoff	00:09:11.0	00:09:08.3
S-IVB engine ignition	00:09:15.0	00:09:12.2
S-IVB engine cutoff	00:11:39.0	00:11:39.3
Insertion 99.4 x 102.6 nmi Earth orbit	00:11:48.8	00:11:49.3
Translunar injection	02:50:13.4	02:50:13.0
S-IVB CSM separation	03:15:03	03:17:04.6
Midcourt correction #1	11:30:00	unnecessary
Midcourt correction #2	26:44:58	26:44:58.8
Midcourt correction #3	53:55:00	unnecessary
Midcourt correction #4	70:55:00	unnecessary
Lunar orbit insertion	75:49:00	75:49:50.5
LM CSM separation	100:39:50	100:39:51
Descent orbit insertion	101:36:14	101:36:15
Powered descent initiation	102:33:04	102:33:05
Lunar Landing	102:45:05	102:45:39
Lunar crew egress	107:59:00	109:07:36
Lunar crew ingress	111:47:00	111:39:00
Lunar liftoff	124:21:00	124:22:00
Terminal phase finalization	127:39:39	127:43:08
Second docking	128:00:00	128:03:00
Lunar module jettison	130:30:00	130:09:00
Transearth injection	135:23:41	135:23:42
Midcourse correction #5	150:29:54	150:29:56
Midcourse correction #6	172:00:00	unnecessary
Midcourse correction #7	192:06:00	unnecessary
Entry interface	195:03:07	195:03:07
Begin blackout	195:03:25	195:03:24
End blackout	195:07:00	195:06:59
Main shoot deployment	195:12:56	195:12:57
Splashdown	195:17:53	195:18:35

Mars Moon-like in Mariner photos

The friendly-looking "red" planet which scientists have long thought the most likely body in our solar system to support higher forms of life, has been re-classified as more Moon- than Earth-like following the recent close passes of Mariners 6 and 7.

Crowning triumph with success, NASA has followed man's first landing on the Moon with his closest approach to the planet Mars.

Although the excellent computer data and pictures recorded during the July 28 to 31 Mariner atmosphere, they also revealed

of Webster at 7:30 p.m. All newcomers are welcome. President Ross Ferland, at X4751, will provide additional information.

a rough, crater-ridden terrain and a disappointing lack of nitrogen, a gas required for all Earthly life.

Nonetheless, Jet Propulsion Laboratory's Project Scientist Dr. John Stallkamp, emphasized that neither of these spacecraft was expected to show definitely whether any form of life exists on Mars.

The two vehicles were programmed to send back pictures of about 20% of the Martian surface and as well as information concerning the atmosphere density and composition and the varying surface temperatures. This was done with amazing rapidity and accuracy.

The technology of the two

craft, which in five months needed only one mid-course correction between them, far surpassed the 1965 flight of Mariner 4.

Detailed pictures, which Mariner 4 took eight and a half hours to transmit, were recorded within five minutes by Mariner 6, with the aid of Goldstone, California's 210-foot diameter dish.

Mariner 6's closest approach of 2,170 miles showed a bleak, jagged surface much like the Moon's though shrouded in clouds.

The follow-up vehicle, Mariner 7, began sending back signals Tuesday night and was expected to continue transmitting until early today.

Football returns!

There will be an organizational meeting for the Employees Activities Association Flag Football League managers on Monday, August 25 at 5:15 p.m. in bldg. 2, room 316.

Only MSC and active military personnel are eligible to participate. For further information contact Dennis Doherty at X2741.

Bowling League to add teams

The MSC Bowling League is considering the addition of several new teams, and perhaps, the creation of another division. The League will meet at Ellington AFB on Monday evenings, beginning September 8.

Any MSC or contractor person-

nel interested in adding their names to the roster should contact Lloyd Arnold, at 483-7358.

Tuesday League seeks members

Bowlers are needed for the MSC Moonshot Couples League which meets at Mimosa Lanes on Tuesday evenings at 6:30 p.m.

League play begins on September 9 and interested parties may sign up by calling Pat Morgan at 877-2305 or Jolene Absher at 488-4260 or 591-2420.

Cyclists hold monthly rev-ins

The MSC Space Center Cycles (Motorcycles) Club reminds enthusiasts of their meetings, the first Tuesday of each month at the Singing Wheel (Highway 3, Old Galveston Road) just north

Jogger reaches Cape on schedule

On the day of Apollo 11's launch, exactly four weeks after he left the front gate of MSC, the Space Center Rotary's William Emmerton, super-jogger, slipped through the blaring bands and cheering crowds at Cocoa Beach, Florida to end his 1,056-mile Cape run.

The 49-year-old Emmerton finished his last mile accompanied by about 50 local joggers, mostly children, and was met at the end by an official welcoming committee headed by James Lovell.

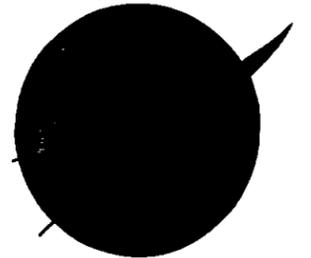
Lovell was there to receive the messages of good-will sent with Emmerton from several Mayors and city councilmen in the MSC area and to deliver them to the Apollo 11 crewmen before launch.

The Australian road-runner, who is working his way to a second 100,000 miles, has devoted most of his life to the promotion of physical fitness on a community level and was invited by the Rotary Club of Space Center to assist in their effort.

The Emmerton entourage, consisting of up to 12 persons and a trailer, averaged 40 to 45 miles a day in the 95 to 100-degree heat of Texas, Louisiana, Mississippi, Alabama and Florida.

As he stood, sweating, before the crowd at Cape Kennedy, he said, "I'm sure everybody is praying to God for a successful mission and a safe return . . . Thanks for the fantastic reception, but I'd rather go to the Moon than do it again. Now let me sit down before I fall down."

news from around



LOCKHEED — Lockheed's Missile and Space Company, working under NASA contract, is studying the potential uses for communication systems, including satellites, that might be used to flash vital information around the world.

"Some day it may be possible to bank, run credit checks, transmit mail and even check criminal identification via an integrated communications system," said LMSC's project manager.

CAPE KENNEDY—Kennedy Space Center's Unmanned Launch Operations is on a tight launch schedule for the month of August.

The sixth Orbiting Solar Observatory will blast off today, and Applications Technology Satellite will be launched on August 12 and the Pioneer sun-explorer is "go" for August 29.

Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is the Friday preceding Roundup 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 15 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor. AP3. Ads will not be repeated unless requested.)

REAL ESTATE

Pearland, 1 3/8 acres, corner, 30 small pines, residential development, sacrifice \$4000 Plaque, 474-2660.

West Galveston Island Beach House, gulf view, all electric, 1 block to water, sell or rent, Green, 932-3486.

Taylor Lake corner lot, wooded, lake view, \$1000/down, balance at 7%, owner, 591-4632.

Nassau Bay 4-2-2, fenced, assume 6% loan, X7256.

West Galveston Island (Spanish Grant) house for rent, 3-2 air, furnished, gulf view, \$175/wk, J. Small, 591-2315.

Arlington Heights 3-2-2, carpets, drapes, fenced, assume 6% loan, 944-5817.

Friendswood 3-2-1 for sale or lease, clean, built-ins, central air, carpets, 6% VA, low equity, 877-3028.

Near LaPorte, older 2-story house on large, beautiful bayfront lot, \$20,000, Brooks, 471-0579.

AUTOS

66 Parshe 911, 14,000 mi, new radial tires, AM/FM, deluxe interior, R. Schweickart, 591-2439.

68 VW sunroof sedan, radio, red w/black vinyl interior, \$1550, J. Sutton, 932-3979.

66 Simca BLS 1000, 4-dr, full financing arranged, \$775, consider trade, F. Turner, 733-7667.

68 gold GTO, automatic, air, AM/FM stereo, \$2850, S. Spaeth, 944-3170 after 5.

62 Corvair Monza interior & exterior body parts, hub caps, tinted glass, 477-4448.

65 Corvette Coupe, 365, air, power brakes & windows, new polyglass, J. Lewis, 643-2166.

66 Simca, 4-dr, radio, 32 mpg, excellent work or second car, \$495, K. Lindemuth 482-1086.

61 Mercury Meteor, V-8 engine good,

\$150 or best offer, Williamson, 643-2729. 68 Malibu, 4-dr sedan, 6-cyl, standard, 10 mo. old, pay balance \$1895, Presswood, 479-1159 or 479-2504.

59 Olds, 4-dr HT, power, air, radio, \$150, Myers, 488-0810 after 5.

64 Chevy convertible, automatic, power, air, R/H, 327, E. Beck, 946-3702 after 5.

59 Triumph TR-3A, new paint/upholstery, rebuilt engine, spare parts, manual, \$550, LaMarque, 935-5493.

64 Dodge Dart GT, convertible, air, V-8, automatic, buckets, radio, 643-8584.

63 Impala, V-8, 4-dr HT, automatic, power, wife's car, \$550, Burns, 877-1787.

63 Falcon convertible, 4-speed, new top/tires/battery & carburetor, R/H, good paint & upholstery, no rust, \$265, S. Owens, 932-3011.

63 Corvair, standard, \$200, A. Hiemer, X2386.

64 Dodge Dart, R/H, air, automatic, new brakes & tires, 45,000 mi, one owner, \$675, W. Bays, 591-2413.

BOATS

19 1/2' ob day cruiser w/trailer, fiberglass hull & decks, excellent cond, \$750 (engine not included) W. Mallary, 482-7081.

15' fiberglass boat, top, 40 hp Evinrude, Little Dude trailer, excellent cond, 11122 Sageriver, Berkeley, 487-0178.

13' plywood boat, 10 hp motor, trailer, \$300, J. Westover, 944-2497.

7 1/2 hp Martin ab w/shift, just spent \$50 on overhaul, sell for \$65, S. Owens, 932-3011.

HOME FURNISHINGS

Selig contemporary: brown couch, \$100; orange chair, \$45; natural chair, \$35; brown & gold tweed couch, \$50; J. Cooper, 944-2680.

Two matching royal blue contemporary upholstered chairs, 2 cushioned, excellent cond, \$60 each, Flagg, 591-3810.

Kimball grand piano, completely reworked 2 yrs ago, Reid, 488-3187.

Air conditioner, 220, \$45; Maytag gas stove, \$30; Frigidaire refrigerator, \$50; Williamson, 643-2729.

Baby bed w/mattress, \$15, R. Sampson, 487-2716.

Two matching bar stools, colonial, maple, good cond, new, \$40 each; sell for \$20 each, F. Powell, 488-1320 or 488-4009 weekends or after 5.

12'X15' braided oval rug, wine red w/white, black & gold, like new, \$75, Flagg, 591-3810.

21" GE TV, table, technicians special, \$25, Liddell, 471-4448.

Crib, good cond, \$8, H. Kosel, 534-5818.

Wurlitzer contemporary walnut spinet piano w/bench, 3 yrs old, excellent cond moving, will sacrifice, W. Jaderlund, 877-4900.

Dining table, 6 chairs, Heywood-Wakefield \$90; friendly old Royal manual typewriter, \$25, 877-4900.

ENTERTAINMENT

Garcia Classical Guitar w/hardshell-lined case, made in Madrid, \$120, Canin, 534-3721.

Two Allied stereo 12" speakers, walnut cabinets, \$70 each, S. Spaeth, 944-3170 after 5.

Roberts model 770 4-track stereo recorder, 2 mikes, input-output patch cords, good cond, \$150, E. Walters, 649-2838.

Ampex model 2075 stereo tape recorder, 4-track record/playback, walnut case w/built-in speakers, automatic features include reverse, shutoff, projector synchronization, \$175, 645-6089.

Sears camper trailer, sleeps 4, \$175, Collins, 944-8647.

VOX Super-Beatle Piggyback amplifier model V1141, replacement cost \$1523, good cond, \$695, J. Weber, 944-3256.

Panasonic Hi-Fi radio w/speakers, \$30; Panasonic stereo setup w/speakers, \$80, 591-2452.

Small stereo system w/Garrard changer, excellent cond, 4 speakers, \$65, K. Gray, 748-4322 after 5:30.

69 Starcraft tent trailer, compact super six model, used only 5 times, excellent cond, sleeps 6, stove, sink, dinette, R. Vogt, 488-4069.

PETS

AKC german shepherd puppies, see after 5 at 3632 Federal St, Pasadena.

Black spider monkey w/cage, excellent pet, \$75, C. Barnes, 591-3401.

MISCELLANEOUS

19" RCA TV w/stand, \$50; men's valet, \$10; 8mm movie projector, \$50; exerciser, \$40, J. Cooper, 944-2680.

Electric motors, F. H. P. \$10 each, 477-4448.

Fly retractable w/Aero Club, Inc. for MSC and contractors, P & K Bonanzas, IFT, 195 mph, \$17/hr wet, Cessna 172 \$9/hr; 150 \$8/hr; Instructor \$5/hr, B. Ward, 877-3187.

Radios: 50 Chevy, \$10; 62 Corvair, \$20; transistorized Allstate, under dash, \$10, 477-4448.

Honeywell Pentax camera w/exposure meter, like new, soft leather case, \$120, J. Ragan, 483-2891 or 487-0408.

65 BMW, R695, 600 cc, saddlebags, windshield, etc, R. Davis, 483-4660 or 877-1654.

First day covers for Apollo 11 First Man on the Moon, 7c each, J. Ragan, 483-2891.

Set springs & mattress, \$20; girl's 24" bike, \$10; chrome table & 4 chairs \$50; champion AKC poodle \$100, 534-3297.

Fancy boots 9N, new, \$15; 15" speaker cabinet, \$5; calendar watch, \$15; 8mm editor/viewer, \$5, R. Lindemuth, 482-1086.

Bronze 2-blade propeller for 1960 Mercury 700 EL; aquameter tachometer, R. Taylor, 877-2760.

Autumn haze mink stole, excellent cond, \$175, 649-2569.

Will fly persons on weekends for cost, F. Blankenship, 944-0750 after 5.

Manual adding machine, excellent cond, \$30; upholstered chair, \$30; 7 X 35 binoculars, new, \$20; 3' X 6' wool rug, \$20, 649-2569.

Mooney M20A, 1550 TT, 600 SMOH, Genave Navcom, good paint & interior, \$5950, D. Friis, 944-5000.

Honda Super 90, excellent cond, used less than 6 mos, \$300 or best offer, J. McCormick, 591-4587 mornings or after 5.

Set springs & mattress, \$15; 9' X 12' braided rug, \$15; 4 rattan bar stools, \$20 each; 534-3297.

Polaroid 250 colorpack camera w/case, \$80; Polaroid big swinger camera, \$10; Marlin 22 w/scope, \$50; man's Omega watch, \$40, 591-2452.

WANTED

Throw-away "junk" TV, Hi-Fi components, etc, will pick up, J. Samouce, 488-0406.

Outboard motor in good cond, 7.5 to 10 hp, prefer Evinrude, Johnson or Mercury, R. Hill, 471-4305.

Girl's 20" bike w/training wheels, maximum, \$15, R. Sampson, 487-2716.

Need fourth member for car pool from UH-Gulfgate area, R. France, X3500.

Fifth car pooler needed to drive one day a week from southwest Houston, S. Jacobs, 774-9924 after 6.

Female roommate to share apt in NASA area or within reasonable commuting distance, G. Isenhower, X5281 or 512-364-1670.