

# Space News

# ROUNDUP!

VOL. 1, NO. 21

MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

AUGUST 8, 1962

## MA-7 Results Conference Set Here August 21



**ASTRONAUT WALTER M. SCHIRRA, left, busy on preparations for the six-orbit MA-8 mission this fall, was interviewed at Cocoa Beach last month by Martin Bush of Radio Free Europe. In addition, greetings were sent to the European audience by Jo Schirra on behalf of the astronauts wives. Schirra also had a part in the American program broadcast to the countries of Europe via Telstar, the experimental communications satellite, July 23.**

Approximately 3,000 invitations have been issued to representatives of universities and colleges, industrial organizations, space science boards, foreign embassies, Congress, and the President's Scientific Advisory Committee to attend a conference here in Houston Aug. 21 on the results of the second manned orbital flight.

The all-day session will be held in the main ballroom of the Rice Hotel beginning at 9:15, and will include seven reports on key aspects of the MA-7 mission, interspersed with recesses and discussion periods.

Those invited include approximately 2,000 who received invitations to the MA-6 conference held in Washington April 6, in addition to some 1,000 scientists and engineers from the Houston area.

General chairman for the session is MSC Director Robert R. Gilruth. Chairmen for the morning and afternoon sessions respectively, are Maxime A. Faget, Assistant Director for Research and Development, and Kenneth S. Kleinknecht, Mercury Project Officer.

The conference agenda includes an opening statement by Gilruth, then a morning session on "Operations and Scientific Analysis," with an introduction by Faget. J. H. Boynton, of Mercury Project Office will present a 20-minute talk on "Spacecraft and Launch Vehicle Performance and J. J. Donnegan from Goddard SFC will talk on "Mercury Network Performance," followed by a 15-minute recess.

Talks on "Mission Operations" by J. D. Hodge, and a "Space Science Report" by Dr. J. A. O'Keefe will be followed by a 20-minute discussion period.

The luncheon recess will begin at 11:30 a.m. and end at 1:30. Rice University has scheduled a luncheon for between 30 and 50 conferees.

The afternoon session on "Astronaut Responses" will get underway at 1:30 with an introduction by Kleinknecht. A half-hour will be devoted to "Aeromedical Studies," given by Dr. C. A. Berry. Other speakers and their topics will be H. A. Kuehnel, on "Pilot Performance," and Astronaut M. Scott Carpenter, giving the "Pilot's Flight Report." A 20-minute discussion period and concluding remarks by MSC Associate Director Walter C. Williams will follow.

After the afternoon session, a 30-minute press conference

has been scheduled.

A special program to be held on the mezzanine of the Rice Hotel has been scheduled for the night before the conference. Members of the families of the conferees and their guests may attend this program.

Two films, "Aurora 7," the story of Scott Carpenter's flight, and "Friendship 7," the documentary of John Glenn's flight, will be shown. The NASA Office of Education Services will display and explain models of rockets, satellites and spacecraft in a 50-minute space science demonstration. The demonstration answers such questions as how a satellite is put into orbit, what keeps it there, and what NASA's plans for future research and space exploration are.

### Industry Meet On Information Procedures Held

An Industry Information Procedures Conference was conducted in Houston July 26-27. It was attended by 63 public relations and advertising representatives from MSC contractor companies in addition to MSC Public Affairs personnel.

Associate Director Walter C. Williams extended greetings to the group and stressed the importance of members of the industrial complex getting together with their counterparts at MSC in order that all concerned might have a unified position in the many items with which they work.

Presentations concerning the progress of the three manned space programs were made by Bill Rector on Apollo, Homer Dotts on Gemini, and Tom Grace on Mercury. These presentations were each followed by question and answer periods.

Another portion of the agenda was devoted to a discussion of exhibit and display opportunities and the mutual assistance in such activities which can be offered by both contractors and MSC.

## Director Gilruth Receives President's Award For Distinguished Service

Manned Spacecraft Center Director Robert R. Gilruth was one of five federal career officials presented the highest award the government can bestow on a civilian employee in ceremonies at the White House Tuesday.

The 1962 President's Award for Distinguished Service went to Dr. Robert R. Gilruth, Llewellyn E. Thompson, retiring Ambassador to Russia; Dr. Donald E. Gregg, chief of the department of cardio-respiratory diseases at Walter Reed Army Institute of Research; J. Stanley Baughman, president of the Federal National Mortgage Association; and Waldo K. Lyon, head of submarine and Arctic research for the Navy electronics laboratory.

Kennedy said the five men have made "exceptional contributions to the current public good and to the national interest."

Dr. Gilruth was cited for "successfully carrying out one of the most complex tasks ever presented to man in this country - the achievement of manned flight in orbit around



**Dr. Robert R. Gilruth**  
the earth."

Commented Dr. Gilruth, "This is an honor for Manned Spacecraft Center on the achievement of Project Mercury. By nature, this award must go to an individual, but it should be clear to everyone that it is also recognized the

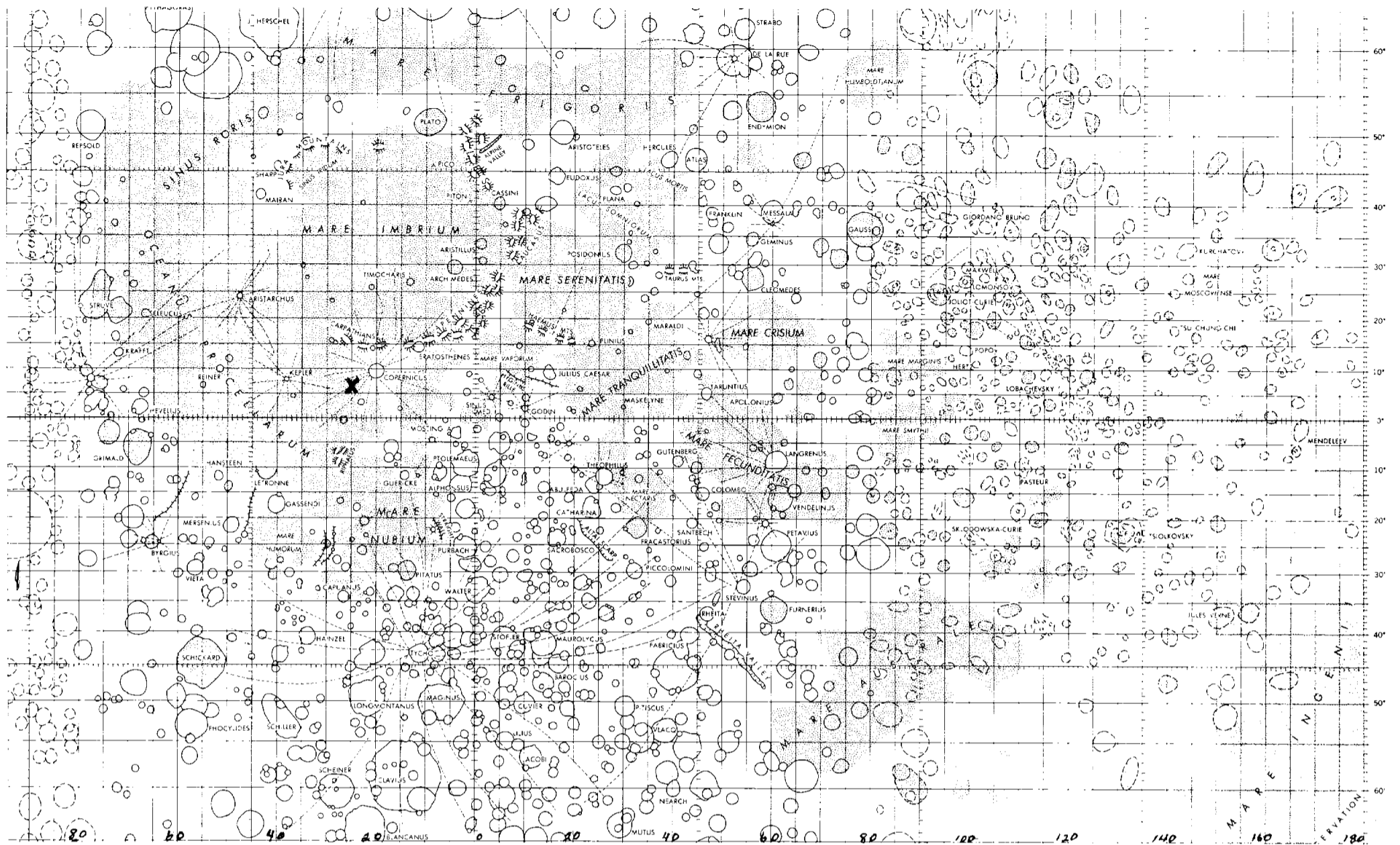
group."

Ambassador Thompson, one of seven Foreign Service Officers holding the rank of Career Ambassador, was cited for "outstanding representation of United States interests in foreign affairs, whose work has been marked by exceptional leadership, judgement and diplomatic skill."

Dr. Gregg, said the citation, has made "major contributions to medical knowledge of heart disease and thereby to the welfare of humanity."

Lyon "has been singularly responsible for the pioneering development of knowledge, techniques and instruments that make it possible for a submarine to operate under the ice cap in the Arctic, a highly important contribution to the nation's security."

Baughman has "with extraordinary effectiveness established and managed the world's largest mortgage banking facility, merging harmoniously the interests of the general public, private investors and the government."



A PARTIAL REPRODUCTION of this map from the Russian publication "Atlas of the Far Side of the Moon" shows the portion photographed by the Russians at the right quarter of the picture. Note Russian names. At lower left is Tycho crater, with its strong Ray pattern. The "X" at center left shows the approximate area where Ranger 5 will be aimed.

## Moon Now Subject For Maps Instead Of A Rhyme For 'Spoon'

It is safe to say that the efforts of a good part of mankind have recently been directed toward the eventual exploration of a piece of real estate which has been floating around the sky more or less taken for granted for an estimated four billion years.

The first rudimentary creature to crawl out of the primitive seas probably did so beneath its glow. Dinosaurs ate late suppers under it; early man stared at it in wonder; the ancient Greeks and Romans built a complicated body of superstition about it; wags have insisted that it is made of green cheese; children are told a man lives in it; and song writers repetitiously rhyme it with "June" and "spoon."

It affects, logically or otherwise, the tides of the sea, the planting of crops, the conduct of wars, the quality of the scenery and, possibly, whether or not John will propose to Mary tonight.

Yet only in the last couple of decades, a mere flicker of time on the cosmic calendar, has man stopped day-dreaming about it and begun to take concrete steps to visit the place. We are now treating the moon simply as a piece of unexplored ground, a hard-headed scientific project with which to busy our computers.

The first step in exploring new ground is to make maps. Consequently, craters and "seas," "bays" and mountain ranges are no longer just explanations of what makes the



AST John Dornbach

features on the man in the moon. They are now features of terrain to be noted carefully, mapped as thoroughly as possible and considered as possible landing sites for Project Apollo astronauts.

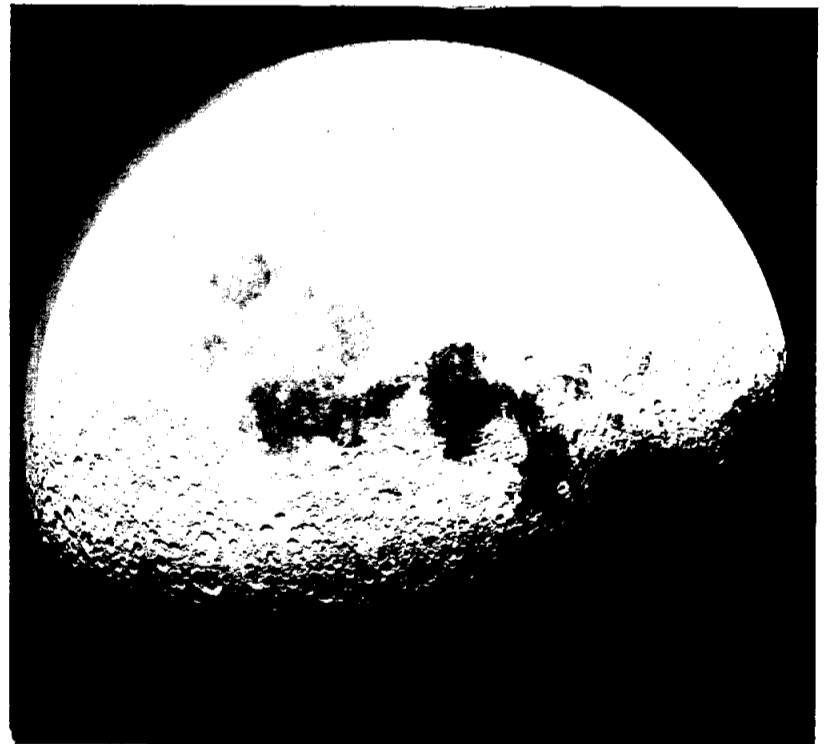
The near side of the moon, which because of relative rotation rates is kept facing the earth, has been observed and photographed ever since Galileo first turned his telescope on it in the 15th century. Only as recently as October of 1959, however, has a man-made cam-

era (aboard the Russian's "Lunik") circled the scarred satellite for a photographic peek at the far side.

The Russians later released their photographs and a map combining part of the known face with most of the unknown face of the moon in a volume entitled "Atlas of the Far Side of the Moon," edited by N. D. Barabashov, A. A. Mikhaylov and Yu. N. Lipskiy. The atlas has been translated from the original Russian by the Air Force Aeronautical Chart and Information Center in St. Louis, Mo.

"To my knowledge, this is the first chart that has attempted to portray the entire surface, front and back, except for the poles and an area of the far side not included in the Russian photographs," Aerospace Technologist John Dornbach of the Space Physics Division explained. Dornbach is MSC's selenographer, selenography being a fairly recent word for the science of charting the moon.

"This is just a starting point for further study," he said. "Our main interest is in the visible side, since our astronauts will land on this side in order to maintain radio com-



munication with Earth. But when you are planning a trajectory you have to go around the back side as well as the front."

Dornbach said such small scale charts of the moon as we have now will not be used for navigation, "but they will provide a base on which to plot trajectories, as we do with Mercury mission trajectories plotted on Mercator projection maps of the earth."

In an effort to further improve our charts, the United States has initiated a series of "Ranger" launchings by NASA in order to get increasingly clear, detailed pictures of the lunar surface. Rangers 1 and 2

failed to achieve their intended purpose. Ranger 3, the first of a three-shot series intended to take close-up pictures and land an instrumented capsule on the lunar surface, was launched January 26 but missed its target by some 22,800 miles due to problems in mid-course correction. An attempt was made to carry out the photography experiment in spite of this, but another malfunction, this time in the equipment that positioned the antenna, foiled the effort.

Ranger 4 also developed problems, missing its intended target near Copernicus and im-

(Continued on Page 3)

# What Do Astronauts Eat Before A Flight? Here's The Answer

Ever since the inauguration of manned space flight on May 5, 1961, the care and feeding of America's seven astronauts has excited public curiosity. Letters asking what astronauts eat have come in from all over the world, from school children, dieticians and grandmothers.

simply consumed a well-balanced diet during their training, everyone then wanted to know what went into the special preflight, low-residue diets. Children, in particular, have asked over and over, "does it taste good?"

The answer is yes. According to a recent release on the

Project Mercury low-residue diet, it is quite tasty, containing a great deal of protein. Any loss of weight on the part of the mission pilot is due to strenuous and energy-consuming activity, not the diet.

For 96 hours prior to a space flight mission astronauts are put on a diet of meat, rice, eggs, strained vegetables, sugar, small amounts of fruit juices and tea and coffee.

The menu varies of course, changing during the final 24 hours before take-off.

Allowable foods include carbonated beverages; white bread or soda crackers; rice, cream of wheat, noodles, macaroni and farina; cottage cheese; gelatin, sherbets, angel food or sponge cake and sugar cookies; eggs scrambled, poached, soft or hard boiled; butter or margarine not to exceed two tablespoons per day; strained fruit juices and canned peeled fruit (amounts of peaches or pears are limited); beef, liver, chicken, or fish; clear broth with rice or noodles; limited amounts of sugar and jelly; and strained vegetables such as tomatoes, peas, carrots (not more than one serving per day and baked or boiled potatoes.

Foods to be avoided include coarse or whole grain breads, and cereals, cheese other than cottage cheese, rich desserts, excessive fat, fried foods, fruits except strained fruit juice and canned peeled fruit, milk (a high residue food that may not even be used in cooking), tough cuts of meat, spices, condiments, and vegetables except those mentioned.

An extra serving of each item included in the meal is set aside and kept under refrigeration for a 24-hour period following the meal, to be available for study in the event that the astronaut develops gastrointestinal illness.

An effort is also made to assure that several people join the pilot for the meal so that an epidemiological study can be made quickly if necessary. Thus far, there has been no trouble.

A typical low-residue menu for one day consists of:

Breakfast: four ounces of orange juice, a half-cup of cream of wheat, two scrambled eggs, two or three slices of Canadian bacon, one or two slices of white toast with a teaspoon of butter and a tablespoon of strawberry jelly, and coffee with sugar.

Lunch: a cup of chicken soup with rice, a hamburger patty, a baked potato without the skin, two tablespoons of cottage cheese, bread, butter, a half-cup of sliced canned peaches and coffee.

Dinner: four ounces tomato juice, four ounces of baked chicken (white meat) with a cup of steamed rice and a half-cup of pureed peas, Melba toast and butter, lemon sherbet and sugar cookies, and coffee.



**CO-OP STUDENT** Horace Allen, one of 36 now working with Manned Spacecraft Center, conducts a series of tests on differential amplifiers at the instrumentation lab in the Rich Building. Allen, like the other co-op students, is alternating a semester of study with the same period of work as an MSC employee. He will receive his degree in 1965 from VPI.

## Co-Op Trainee Shows Calibre Of Students Working Here

"Most co-op students are not too closely supervised, and I believe this to be a good point because it allows independent students to develop into members of a team of workers and to show their abilities in varied fields."

That comment came from 20-year-old Horace H. Allen, an engineering student at Virginia Polytechnic Institute and typical of the 36 co-operative education students working with Manned Spacecraft Center.

As fully paid government employees, they are at the same time earning engineering degrees in one of 10 schools scattered over the United States. When they are through with the five-year program, alternating a semester or quarter of schooling with the same period of work at MSC, they will have not only a degree but two years of solid engineering experience. The government will have a job-trained, well-grounded, experienced employee with more maturity and developed abilities than the average graduate.

Allen's supervisor, Donald R. Smith, rates his work as "excellent" and has sent a letter of commendation to John L. Cain, director of the Office of the Cooperative Program. Smith said Allen renders unusually high output for his section.

As a student, Allen has maintained an excellent scholastic average at VPI as well as at Bluefield College, W. Va. Out of fourteen courses at Bluefield he made 12 A's and two B's; at VPI he has completed 11 courses with A's in all except three of them.

Born in Ontario, Canada, he now lives in Richlands, Va. where his family moved in 1957, three years after his father died. His mother is an elementary school teacher.

Allen's first co-op period was in January. Returning to

school in March, he came back to Houston for his second co-op quarter in June, and will be here until September. He will have four more work periods with MSC before graduation in 1965.

Presently Allen is a member of the signal conditioning group, instrumentation section, Electrical Systems Branch, working in the Rich Building. His primary work has been on DC differential amplifiers, and recently he has been engaged in type qualification of amplifiers produced by a private industry. At present he is developing testing procedures and equipment for mass flight qualification of these amplifiers.

"When I first arrived at NASA, my initial duties included reading various reports and other literature for a general insight into the program," Allen explained. "Next I got down to more specific reports dealing with our section, instrumentation."

"After about three weeks I was assigned to test and evaluate DC differential amplifiers. My duties included setting up the test equipment, running about 20 different tests on each amplifier and collecting the data produced. I used this data in compiling a report, including computations and graphs showing how the amplifier performed."

Commented co-op coordinator Mervin Hughes of MSC's Training Branch, "This program develops the best engineer we know how to make. We have the cream of the crop - talented, energetic young men who are making a great contribution to our work."

## Rocketdyne Gets F-1, J-2 Engine Production Contracts

NASA has signed three preliminary contracts with Rocketdyne Division of North American Aviation, Inc., for further development and production of the F-1 and J-2 rocket engines.

### Wage Board Employees Receive Pay Boost

Manned Spacecraft Center's Wage Board employees in the Houston area received pay increases effective August 5, according to an announcement made by Walter C. Stallard, Personnel Programs and Management Officer, last week.

The increases affect only those wage board employees assigned within commuting distance of Manned Spacecraft Center and range from five to 13 cents per hour.

The increases were approved by NASA Headquarters for the non-supervisory, leader, and supervisory categories.

**Grissom Promoted**  
Astronaut Virgil I. Grissom, formerly a captain in the United States Air Force, became Major Grissom July 15 on the occasion of his promotion.

## Moon

(Continued from Page 2)

packing on the back side of the moon about 15 degrees south and 135 degrees west (lunar latitude and longitude.) Ranger 5 will also be aimed at an area near Kepler and Copernicus, five degrees north and 30 degrees east, for possible pictures of the lunar surface. With the launchings of Rangers 6 through 9, the United States will be trying for high resolution TV pictures of the surface.

The Russian shot that struck the surface hit near Archimedes and Aristillus at 30 degrees north longitude, 0 latitude.

The portion of the composite map based on Russian findings is obvious from the names of craters, seas, and mountain ranges at the right of the chart above. Russian choices for such names were introduced at the Astronautical Union Meeting in California in 1960, at which time some were accepted for world-wide usage while others were not. The portions named by the Russians were not all named for Russian scientists or places.

Locations on the near side of the moon were named for the most part by early astronomers, who thought that the regions

Marshall Space Flight Center, manager of the projects, awarded letter contracts to the Canoga Park, Calif. firm, the ultimate value of which will be about \$289 million. Both engines are scheduled for use in Saturn C-5 and Nova rocket stages.

The contracts are for continuation of F-1 research and development, production of F-1 engines with supporting equipment, and production of 59 J-2 engines.

The F-1, using liquid oxygen and kerosene propellants and developing 1.5 million pounds thrust, is the world's largest known rocket engine. Its development was started in January 1959 and has reached the point of full-duration, full-thrust static firings. A cluster of five F-1's will power the first stage of the Saturn C-5 while a larger cluster will be used in the ground stage of the Nova.

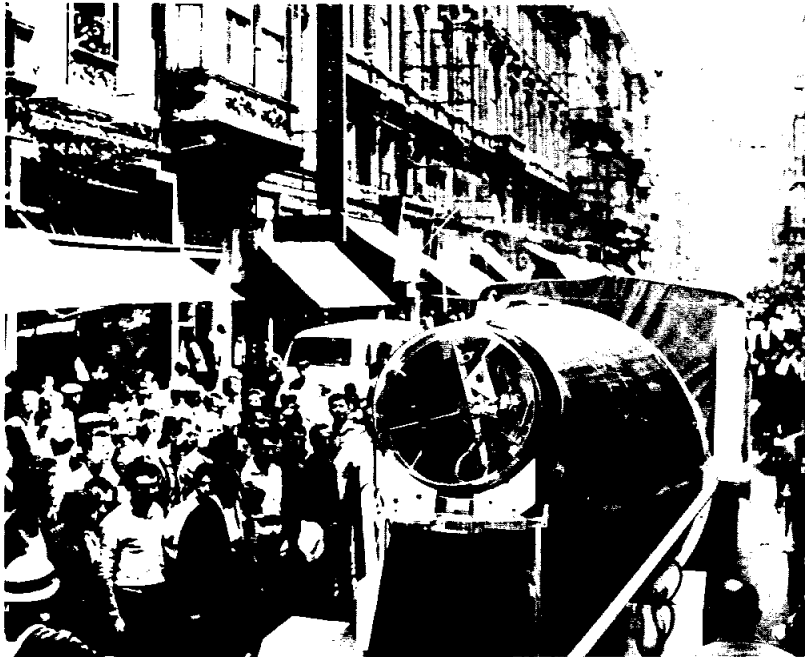
showing up darkly in their telescopes were beds of dried up oceans and seas. They named them accordingly, in Latin. "Mare Serenitatis," the Sea of Serenity; "Mare Imbrium," the Sea of Rains; "Oceanus Procellarum," the Ocean of Storms; "Sinus Roris," the Bay of Dew; "Lacus Somnorum," the Lake of Dreams. Peaks and mountain ranges are often named after those on earth, for instance, there is an "Alpine Valley."

Although scientists now doubt the existence of seas or oceans on the moon, the old names have stuck.

By the end of this decade, scientists hope to know the answer to some of the lunar puzzles. For instance, what do the strong ray patterns radiating from some craters, such as Tycho, represent? Is there a layer of fine dust on the surface, and is it a thin layer or several hundred feet deep in places? Are the dark "sea beds" caused by lava flow from volcanic action, or the impact of large meteorites, or both? Is it possible that there is subsurface water frozen under the moon's crust? There are dozens more questions to be answered.

Meanwhile, foresighted songwriters are looking for a good rhyme for "earthlight."

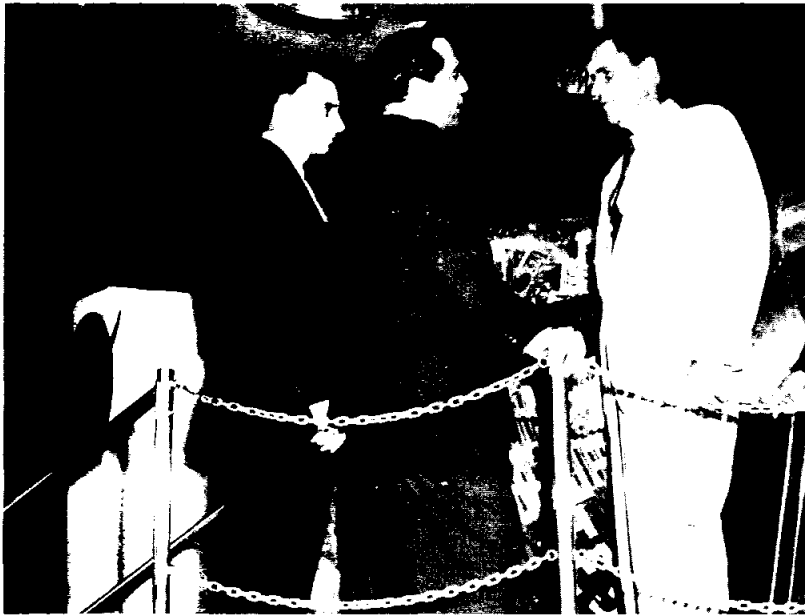
# 'Friendship 7' Tours Cairo, Istanbul, Karachi, C



A QUARTER MILLION PERSONS lined the 12-mile route from the airport to the city's exhibition grounds in Istanbul, Turkey, June 17.



MOVING ALONG at the rate of 600 to 1,000 persons an hour, the line which formed to see Friendship Seven was entertained during their wait by movies, still photos and a sound tape which answered the most-asked questions in their own language.



DR. HOMI J. BHABHA, chairman of India's Atomic Energy Commission inaugurated the showing of the spacecraft in Bombay. Left to right are Sidney Sober, Consul-in-Charge, American Consulate General; Dr. Bhabha, and G. Merritt Preston.



IN BOMBAY, INDIA thousands lined up near Brabourne Stadium June 24, to see the spacecraft, with the line extending around an entire circle of buildings.

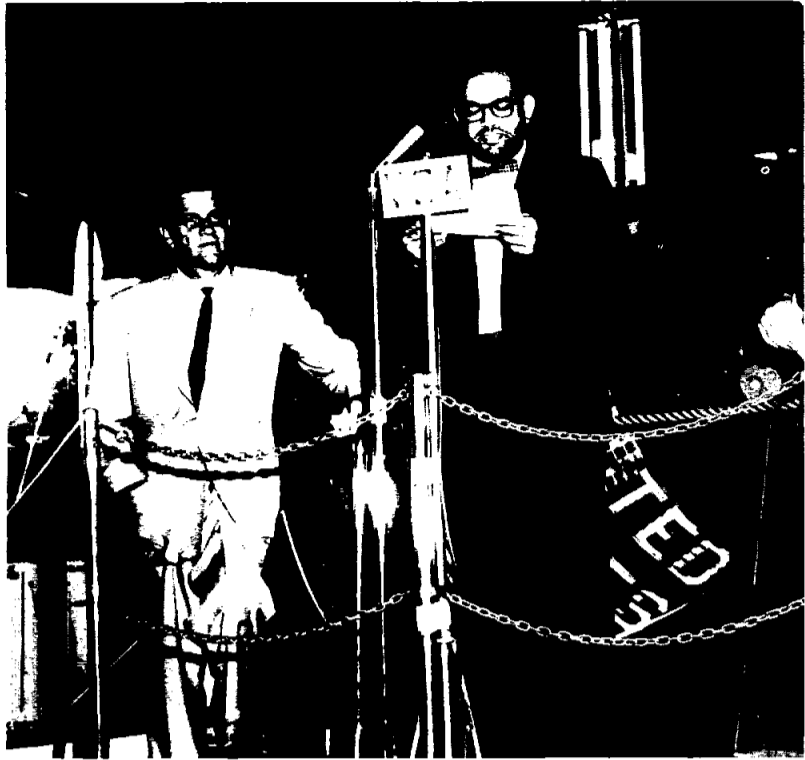


IN CAIRO, EGYPT, William M. Bland, chief of the Mercury Project Office (left) accompanied the Friendship Seven spacecraft as it was shown before over 50,000 people June 8-12, on the principal square in Cairo. Here he escorts President Nassar around the display.



A LINE OF WHITE-ROBED Ceylonese file past the Friendship Seven spacecraft, exhibiting deep interest in its construction. The display showed at Columbo June 29 and 30.

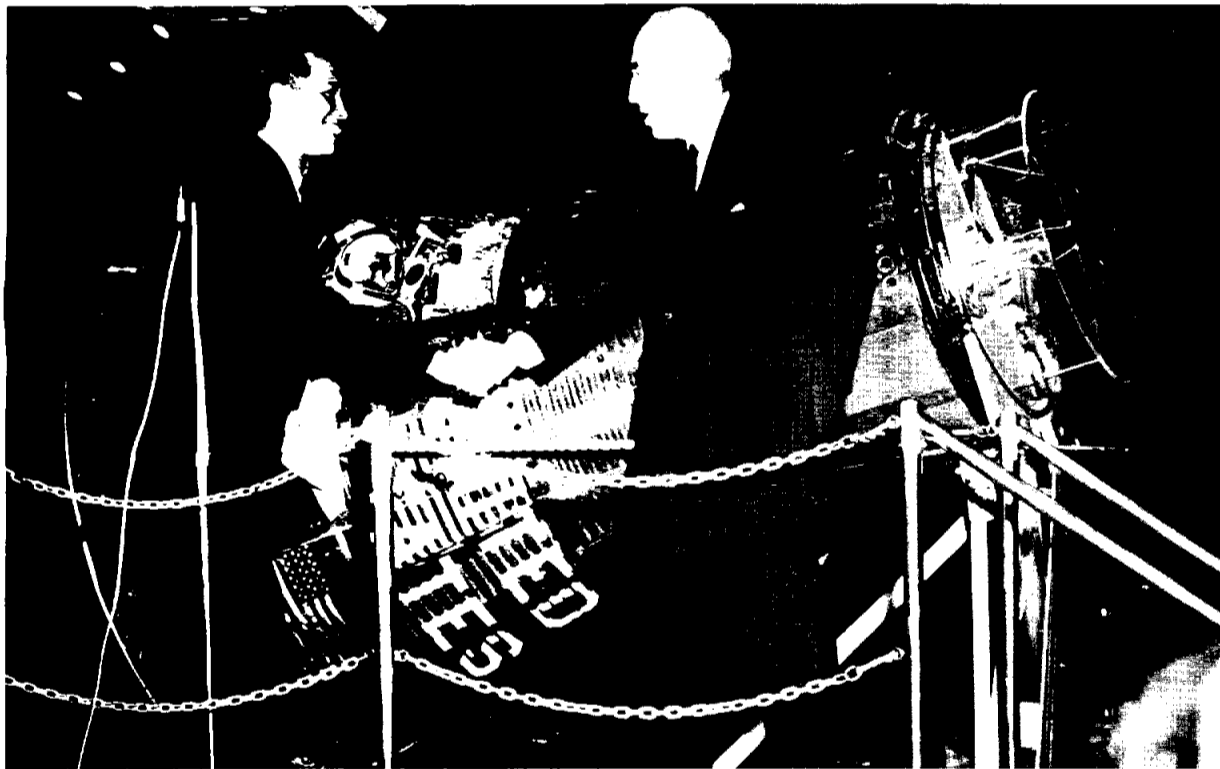
# Ceylon, Bombay, Djakarta, During June And July



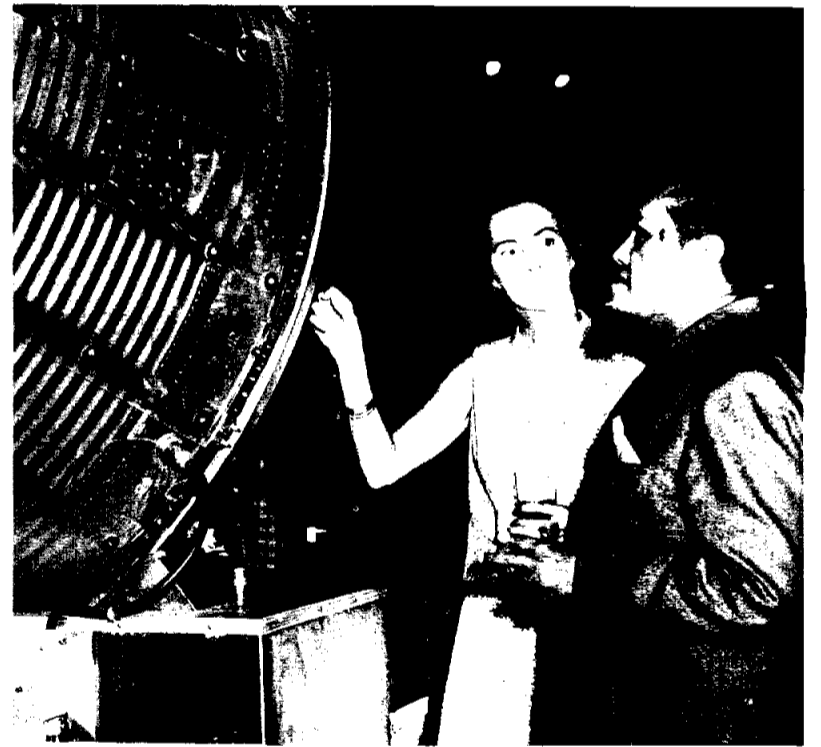
**AT KARACHI, PAKISTAN,** Tariqu Mustafa (right) Senior Scientific Officer of the Pakistan Atomic Energy Commission, opened the exhibition at the Pakistan-American Cultural Center June 19. At left is G. Merritt Preston, chief of MSC Pre-Flight Operations, who spoke at the opening ceremony.



**QUEUES STRETCHED** as much as five and six blocks during the 12-hour per day display June 19-22. An estimated 50,000 viewed the original Glenn spacecraft during the four days it spent in Karachi.



**U. S. AMBASSADOR HOWARD P. Jones** welcomes Professor Sarwono, president of the Council of Sciences of Indonesia to the display. More than 37,000 people saw the spacecraft in Indonesia.



**AT DJAKARTA, INDONESIA,** the chairman of the Nationalist Party, Dr. Ali Sastroamidjojo, inspects the spacecraft enthusiastically during the July 9-13 display.



**AT COLOMBO, CEYLON,** June 29 Miss Lanka 1962, Jennifer LaBrooy, (left) and Miss Ceylon 1962, Yvonne D'Rosario (right) examined the Friendship Seven spacecraft at the National Museum. Both are soon coming to the U.S. to compete for beauty titles.



**ONE OF THE OLDEST** modes of transportation meets the newest as this trumpeting Ceylonese elephant bids farewell to Friendship Seven at Katunayake airport after its three-day exhibition in Colombo. It was flown to Rangoon July 1.

The **SPACE NEWS ROUNDUP**, an official publication of the Manned Spacecraft Center, National Aeronautics and Space Administration, Houston, Texas, is published for MSC personnel by the Public Affairs Office.

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**Public Affairs Officer . . John A. Powers**  
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## Editorial

The tendency of man's technological progress to outdistance his institutions for coping with that progress is strikingly indicated by current developments in space. The new era in global communications opened by the brilliant initial successes of the Telstar satellite is the latest in an incredibly rapid series of feats by both the United States and the Soviet Union.

The clear lesson of these technological accomplishments is that space is now a full-fledged area of human activity for a wide variety of purposes, and will increasingly be employed for men's ends in the years immediately ahead. Yet the cosmos today is a lawless dimension and there is no universal agreement even on so elementary a question as where space begins.

Already there is strong controversy about some actual or potential human activities in space. The Soviet Union has strongly attacked what it charges is our use of satellites equipped with cameras for espionage purposes. Scientists in Britain and other foreign countries have protested against this country's plans to put copper needles into space and to explode nuclear weapons in the vicinity of the Van Allen belt. Our Government undoubtedly has misgivings about the unannounced uses to which some of the Soviet sputniks may have been put.

A heavy responsibility thus rests upon the space law subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space. That group has been meeting recently in Geneva. It would be useful, indeed, if it were able to submit at least a first set of legal principles for space to the next meeting of the General Assembly.  
 —New York Times

## On The Lighter Side

Yuri Gagarin, the Russian cosmonaut, may have been the first man in space, but at least one Russian seems to have preferred John Glenn's style.

Wendell-Northwestern, Inc. makers of special coins and badges, recently struck a space-age medal honoring John Glenn's flight Feb. 20.

As a result, for the first time in its history, the company received an order from a Soviet citizen, one Victor Aleshin, P. O. Box 735, Moscow Centre, Russia. Aleshin sent American stamps in payment.

"What puzzles us," said company vice president William Bryant, "is that several months ago we issued a medal commemorating Yuri Gagarin's space flight. We didn't get a single response from the Russians."

Want to hear a fowl story? Then hark to the saga of Charlie, Eunice and Adlai, a trio of ducks who flew all the way to Houston so that their master could join MSC.

They were assisted by Delta Airlines, traveling first class in a poultry crate designated "turkey-size." (Presumably, ducks traveling tourist would come in the chicken-size crate.)

Several incidents developed, the first when "Charlie" laid an egg shortly before departure: the second when Eunice and Adlai, a pair of white ducks, began pulling feathers out of black Charlie's head. Consultation with the curator of Hermann Park Zoo, who said that white ducks will not tolerate black ones, resulted in Charlie's being given to the zoo.

## EDITORIAL EXCERPTS

Los Angeles Times  
 July 15, 1962

RANGER ROCKETS  
 TO PHOTOGRAPH  
 MOON IN 1963

Six television cameras will be used in rockets next year to send back close-up pictures of the moon's surface, some of them in color.

Dr. William H. Pickering, director of the Caltech Jet Propulsion Laboratory, said the pictures will be used to help design a manned spacecraft to land on the moon.

Dr. Pickering said six-camera TV subsystems will be part of the payload of Ranger Spacecrafts 6 through 9.

The subsystems will include two wide-angle cameras, four narrow-angle cameras, a control programmer, camera sequencer, telemetry system, two-channel transmitting system and power supply.

Pictures will be transmitted to the lab's Deep Space Instrumentation Facility at Goldstone where they will be recorded on 35-mm motion picture film and magnetic tape, Dr. Pickering said.

Washington Star  
 June 28, 1962

SCHIRRA ONCE ELUDED  
 ERRATIC MISSILE IN AIR

CAPE CANAVERAL, Fla., June 28 (AP).—Ten years ago Walter Marty Schirra, Jr., unleashed a Sidewinder air-to-air missile at a drone airplane flying ahead of his jet over the California desert.

The missile went haywire

## MSC PERSONALITY

### Flight Safety Office Chief Bailey Began With NACA

"In on the ground floor and up with the building," might best describe the career of 51-year-old Frederick J. Bailey, Jr., the chief of MSC's Office of Reliability and Flight Safety Office.

He joined NACA at Langley Research Center in September of 1934, with the ink on his MIT degree scarcely three months dry. Soon after NASA was formed, he became technical assistant to the director of NASA Atlantic Missile Range Operations Office in April of 1959, and transferred into MSC in July of 1960, when AMRO was closed.

"I was stationed at the Cape, at Patrick AFB, and I still am, officially," Bailey said. "But I'll be spending more time in Houston than down there for the next year, so I have an office."

The office of Reliability and Flight Safety plans, directs and conducts reliability studies and design analyses and monitors testing programs to validate soundness of basic

and instead of homing in on the drone, it looped upward toward the plane, its infra-red sensors locked on the jet's exhaust.

For several minutes the pilot looped his plane right along with the Sidewinder, eluding the deadly rocket until it ran out of fuel.

The experience pointed up a major theory of the Project Mercury man-in-space program—that human ingenuity often is essential in tight spots. In effect, man is superior to machine in certain areas of space exploration, Mercury officials contend.

design: verifies emergency and escape provisions in the event of malfunction; monitors the final inspection of electrical systems and controls before flight; and evaluates the adequacy of flight control over ground range networks.

Bailey finished his 25 years at Langley Research Center as associate chief of Flight Research Center as associate chief of Flight Research Division. Beginning as a junior engineer, he distinguished himself in work on rotary wing aircraft (autogyros and helicopters), propellers, airplane performance measurement and



improvement, and application of radar and telemetry to flight research. In 1943 he was made head of the flight performance section, Flight Research Division.

Bailey was educated in Western High School in Washington, D. C., where he was born, and graduated from Middlebury College, N. H. in 1932 with a BS in Physics and Mathematics. In 1934 he graduated from Massachusetts Institute of Technology with a BS in Aeronautical Engineering.

He is married to the former Mary Frances Wiley of Newport News, Va. Mrs. Bailey and 15-year-old Rick will remain at Merritt Island, Fla. for the time being, where Mrs. Bailey teaches high school Latin. Sandra, the Bailey's 21-year-old daughter has graduated from Randolph-Macon College and will enter the University of Pennsylvania this fall for graduate work on a fellowship.

Stanley E. Jacobsen, Sammie A. Mooney, Arnold Farber, Edward Davis, and Charles D. Proctor.

Technical Services: David L. McCraw and Lesley G. Waldron.

Logistics: Robert E. Charles, Alvis M. Hale, and Goldie B. Marks.

Program Analysis and Evaluation: Robert M. Carpenter  
 Public Affairs: Ian D. McMahon, Alexine Wilkerson, Robert O. Workman, and Wilene Whisenhart.

Aerospace Medical: Capt. Howard A. Minners (USAF)

## WELCOME ABOARD

Manned Spacecraft Center acquired 78 new employees between July 9 and July 25. The 3 listed for Preflight Operations will be stationed at Cape Canaveral; the rest here in Houston.

**Mercury Project Office:** Marggo B. Seligman, Walter M. Winnette, Jr., Marie E. Jiminez, Rena B. Harrison, and Norman G. Foster.

**Gemini Project Office:** Patricia C. Carter, Sara A. Beckman and Sue J. Osborne.

**Apollo Project Office:** Harrison F. Rees, Dorothy R. Kubicek, Robert W. Young, Ross R. Seger, Donald K. Vaughn, Billie W. Barmore, Joseph M. Martin, Joseph H. Levine, and Joyce F. Seidel.

**Spacecraft Research Division:** Robert W. Schlundt.

**Space Physics:** Roy C. Stokes.

**Life Systems:** James J. Pridgeon, Edward W. Carter, Timothy A. Patrick, and Richard F. Hergert.

**Systems Evaluation and Development:** Jack G. Sheppard, John H. Painter, and Oliver L. Pearson.

**Preflight Operations:** William S. Criddle, Jerry M. Ward, and James R. Douthat, Jr.

**Flight Operations:** John A. Frere, Jr., James L. Wells, Jr., Donald B. Grammer, Lt. Jerry

C. Bostick, (US Army), Efen Calvillo, Virginia M. Hudson, and Lee Ann Z. Hill.

**Flight Crew Operations:** Louis D. Allen, Paul G. Hirsch, and Carl W. Kerns, Jr.

**Preflight Operations:** William S. Criddle, Jerry M. Ward, and James R. Douthat, Jr.

**Personnel:** Joan H. Mahoney  
**Steno Services:** Karen L. Taylor

**Procurement and Contracts:** John E. Jones, Jr., and Jack C. Jones.

**Financial Management:** James E. Bone, Jr., Emily A. Lamon, Stephanie E. Danaher, William A. Stansky, Donald D. Violette, Jr., and Jean E. Elder.

**Data Computation:** Ruth T. Miller, Jack S. Weedon, Charles P. Gomez, Emma Jo Tatum, and John E. Leonard.

**Center Operations:** Elwyn H. Yeater

**Facilities:** William F. Wallace, Cleo P. Dziedzic, and Percy P. St. Amant, Jr.

**Technical Information:** James E. Davis

**Administrative Services:**



**DRESSING PROCESS** for the British high-altitude suit begins with one-piece garment for warmth, put on like a child's snowsuit.



**E. N. WRIGHT** of Manchester, England, then climbs into the pressure suit legs and dons his boots.



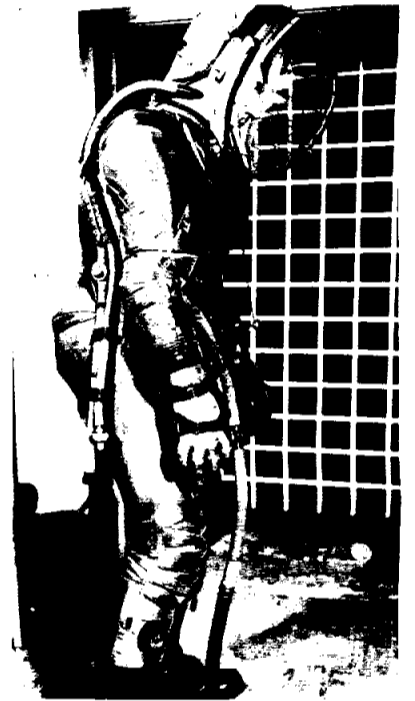
**ARMS, HEAD,** and torso are thrust into the upper half of the suit and helmet like a sweater.



**THE SUIT IS** pulled back on legs and body with one motion, and zipper cords maneuvered within reach.



**THE ZIPPING PROCESS** begins at the base of the helmet, goes down the back and around to the front.



**WITH HELMET** closed, gloves donned and air pressure turned on, the name "Frankenstein suit" seems more than appropriate.

## MSC Studies Britain's High Altitude Haberdashery

Life Systems' Crew Equipment Branch is taking a close look at another in a long line of suits these days which may someday have a bearing on what astronauts wear in space.

Unlike the three suits presently undergoing evaluation for Project Gemini, or the many Mercury suit variations tested, this one was not made by a U. S. manufacturer. It was not even made in the United States.

The suit is the British version of a high altitude pressure garment, developed for bomber pilots of the Royal Air Force. It is not a "space suit" in the accepted sense of the word, it was never intended for wear beyond the last reaches of the atmosphere.

Mercury suits, for instance, can be pressurized to five pounds whereas the British high-altitude suit was not originally intended for more than two-and-a-half or three-pound pressures.

But there are a number of features in the British suit

which interest NASA's research and development personnel and bring up some interesting ideas for further study.

The helmet on the British suit, for instance, resembles a large clamshell around the head of the wearer. Automatic sensors attached to the suit itself can sense instantly when cabin pressure in the plane drops sharply, as in the case of a puncture. Although the pilot normally wears his helmet open and dropped about his neck, a sudden loss of cabin pressure causes the helmet automatically to snap shut over his head and seal in one second.

This has an obvious advantage in the case of an astronaut who might have to remain in space, at least partially suited and helmeted, for as much as a week. Constant wearing of a helmet of the type now in use, even with the faceplate open, would be extremely uncomfortable. Removal of the helmet entirely could present a

worse problem, in that getting it on again and attached airtight to the suit takes too much time to give an emergency safety factor.

The British helmet, of course, is of the "soft" or fabric type, whereas the current Mercury helmet is of "hard" rigid construction material. Because of the long periods of wear necessary and the partial-don capability, Gemini helmets will probably be of the "soft" type.

In addition to the helmet, however, the British suit has what Charles C. Lutz, head of the suit section, and Harold Battaglia, who deals with testing of "state of the art" models, call "some good design features." This is particularly true of the shoulder and arm sections, where mobility and ease of movement are excellent.

The suit was recently demonstrated at MSC by one of its principle developers, E. N. Wright of Manchester, England. Wright has probably spent more time in the suit

than many people spend in the family car. Working before a movie camera, he went through the complicated process of getting into the suit, its undergarment, boots and interlocking gloves with all the speedy ease of a man dressing in street clothes and late to work.

The suit, manufactured by P. Frankenstein and Sons of Manchester, England, was secured for demonstration and research largely through the efforts of Wayne Corbett, in the general research branch of MSC Procurement and Contracts Division.

It is often referred to as "the Frankenstein suit," leading the uninitiated to believe this is a comment on its appearance. The clear panel over the pilot's face is composed of polyvinyl chloride, a pliable substance which balloons outward, as the suit is pressurized, to a point some several inches in front of the pilot's nose, giving him a bulbous, head-in-a-fish-bowl

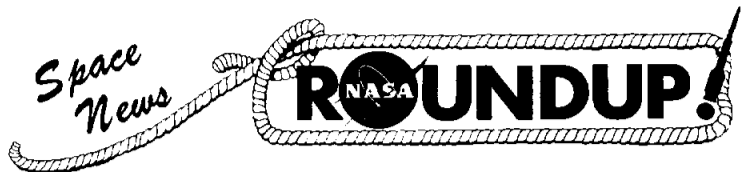
appearance like something out of a bad science fiction movie.

Since polyvinyl chloride tends to expand under air pressure, a restraining net covers the face panel. Personnel working with the suit say this net presents no problems insofar as vision is concerned. "After you've had the suit on for a while you don't even notice it."

The chief advantage of the face panel material is that when and if polyvinyl chloride is punctured, it does not tear. The hole will not seal itself but it will not get any bigger, either, allowing a rush of air to leave the suit, as many soft plastic materials do.

The British suit is entered from the back, through a long vertical zipper extending around to the front of the abdomen. Legs go in first, then arms, torso and head are thrust into the suit's upper half and the attached helmet as if the wearer were donning a pull-over sweater.

Wright makes it look easy.



SECOND FRONT PAGE

## Northrop-Ventura Gets Contract For 'Glidesail' Development

A National Aeronautics and Space Administration contract providing for the development of the "glidesail" controlled descent landing system has been awarded by the Manned Spacecraft Center to Northrop Corporation-Ventura Division.

A steerable parachute device, the glidesail system may be guided both in direction and angle of glide. Controlled by the pilot, it will be capable of executing full 360 degree turns and shifting from a gliding to a vertical descent within a matter of seconds. The glidesail is currently in the development and testing stages.

Derived from Northrop Ventura's now famous Ringsail parachute — which returned America's astronauts safely from space in Project Mercury spacecrafts, the glidesail design will enable future astronauts to control spacecraft during descent and to land in preselected areas free of hazard to vehicle and passengers.

## Friendship 7 Film Wins Festival Award

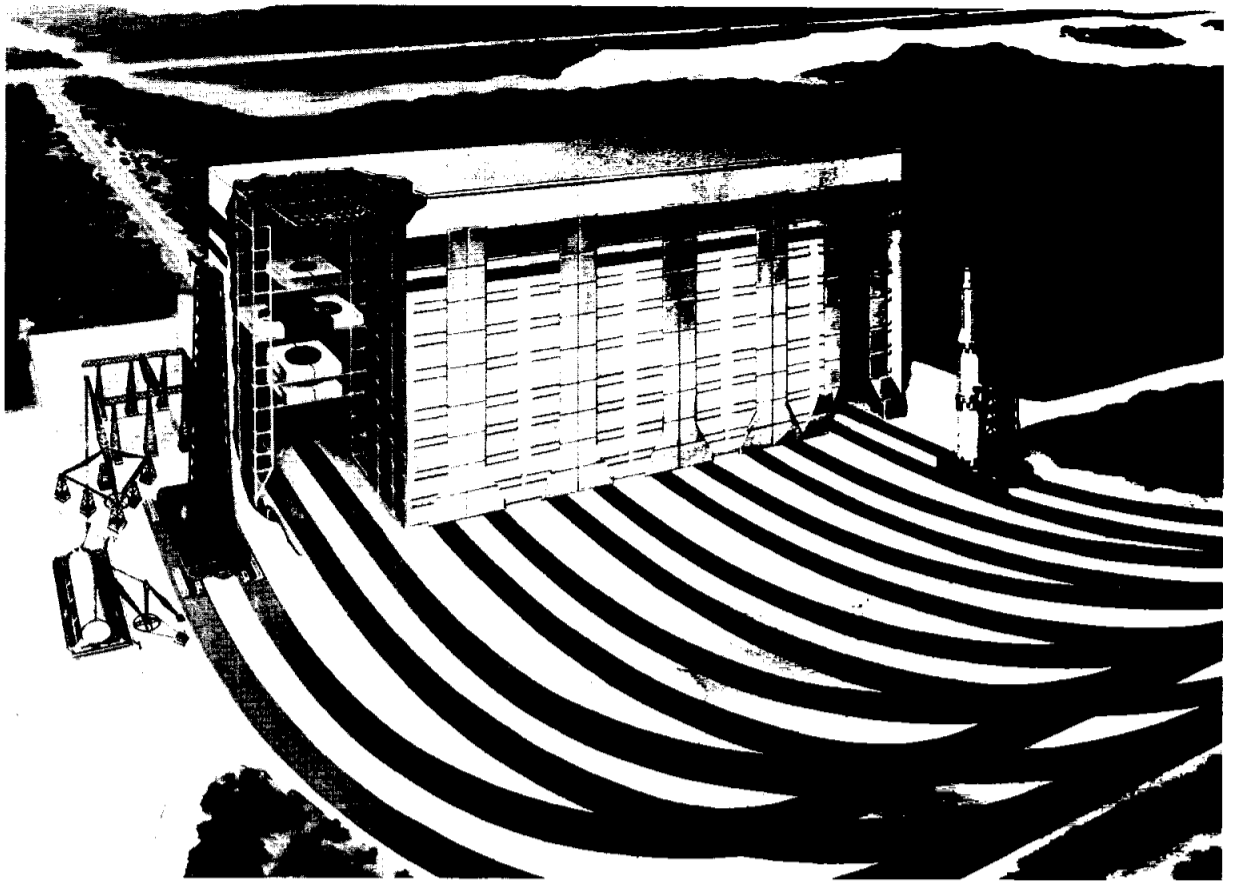
The jury of the Fourth International Festival of Films for Television in Rome has awarded a gold plaque for the best news documentary to the film "Friendship 7," produced by Manned Spacecraft Center.

The jury also created a special award, a silver cup, for the 13-film science series, "Planet Earth."

The festival was held June 11-24 in Rome and prize-winning films were shown to audiences throughout the day June 24.

"Friendship 7" was also shown to an audience of film directors and scientists at the festival, accompanied by a speech on the contributions of film-making to science.

Entered in the festival were 75 films from Canada, Germany, England, Japan, Italy, Pakistan, France and Austria in addition to the 19 from the United States.



**THIS IS THE ASSEMBLY BUILDING** for erection and checkout of six C-5's at once, if necessary. It will be in the rear area of Complex 39, and will be 48 stories high, two city blocks long and 230 feet deep. A crawler vehicle is shown leaving the bay at right to carry the C-5 in an upright position to the launch site two miles away.

## NASA Announces Plans For Saturn C-5 Launch Complex At Canaveral

Basic design plans for Complex 39, the launch complex for Saturn C-5 boosters, were announced July 22 by NASA. Land for the new NASA area is now being acquired northwest of Cape Canaveral, Fla.

The advanced Saturn launch vehicle, completely erected and checked out, will be carried to its launch pad by a 2500 ton crawler vehicle, emerging from the deep interior of a huge 48-story building with the 350-foot rocket standing erect on its back.

The crawler will move on eight tank-like treads to one of four planned launching pads, from which it is assigned to power the manned lunar landing mission before the end of this decade.

Plans for the new spaceport call for work to start in August when a request will go out to industry for detailed plans for the 48-story vertical assembly building in which the Saturn moon rockets will be put together and checked out.

Complex 39 is to be finished in 1965.

The assembly structure will be able to put together six advanced Saturns at once, in a space more than two city blocks long and 230 feet wide.

Four launching pads about 9,000 feet apart will be built along the beaches northward of the assembly building at a distance of from two to seven miles. They will be connected to each other and to the assembly building by a special heavy-load highway.

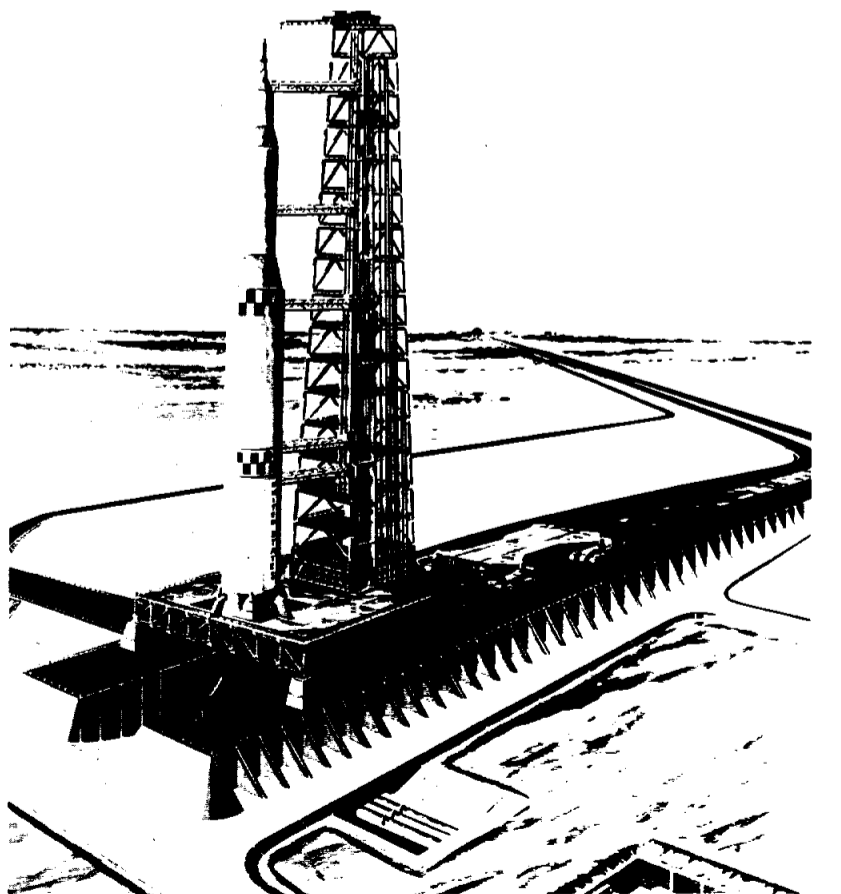
The Saturn C-5 is under the technical supervision of Marshall Space Flight Center in Huntsville, Ala. and will be assembled by the Boeing Company under contract.

Major elements of the 30,000 acre Complex 39 include the assembly building, the four launch pads spread along the Atlantic from False Cape north to Playalinda Beach; the roadways; an arming tower along the main artery to the roadway from which explosive

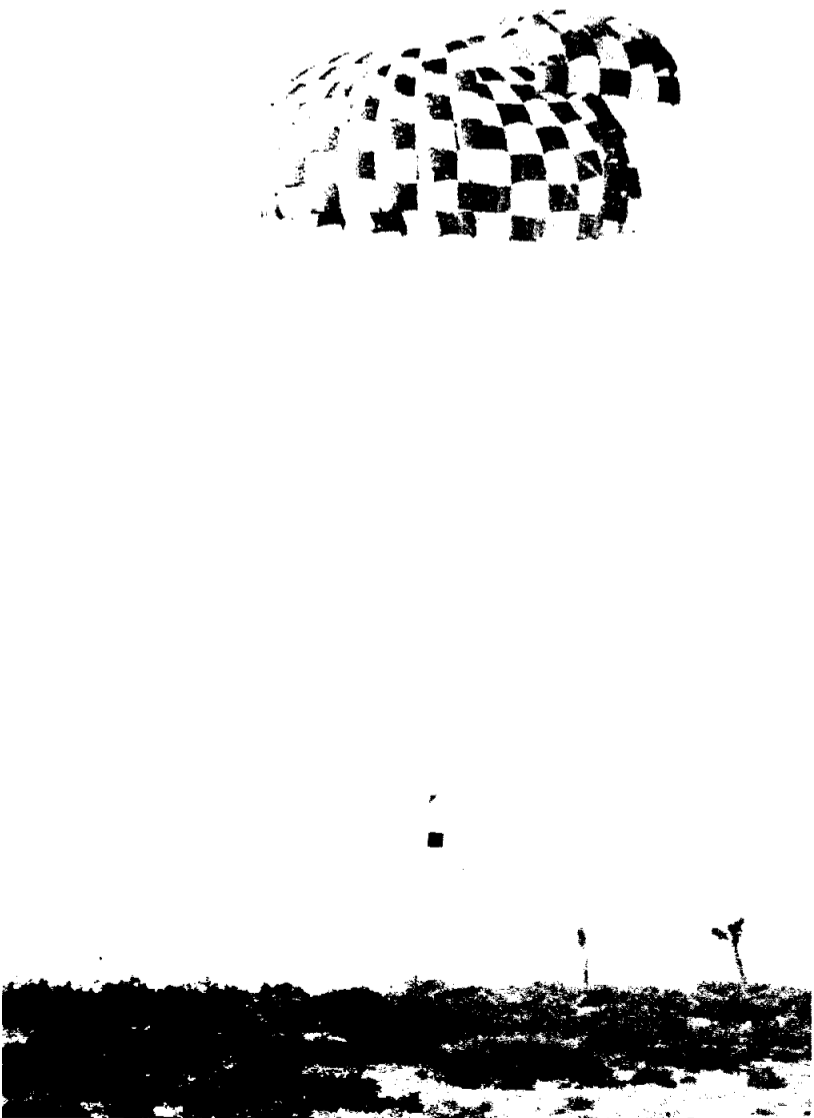
charges for flight can be attached to the C-5 after it leaves the assembly building; and a canal from the intracoastal waterway.

The Apollo spacecraft will be mated to the C-5 and the whole system checked out on a launch rack, which also supports its 400-foot umbilical tower. When checkout is com-

plete, the crawler, some 130 feet by 115 feet, will pick up the rack, C-5, spacecraft and tower and move away from the building. The whole load will weigh 3,000 tons, and will be balanced during the journey by four load-leveling hydraulic cylinders 90 feet apart, like the bases on a baseball diamond.



**ONE OF THE FOUR launch pads** in the Advanced Saturn C-5 Launch Complex 39 is depicted in this artist's conception. A launch rack carrying the 350-foot C-5 and its 400-foot umbilical tower has been mounted on six support blocks by a 2500-ton crawler vehicle shown behind the pad.



**DESCENDING TO EARTH** during a recent test drop, the glidesail controlled descent landing system displays the capability of steering its payload to a selected landing site.