

Space News

ROUNDDUP!



Special Management Committee Is Briefed on MSC Activities

The Management Advisory Committee for Manned Space Flight, chaired by Dr. Mervin J. Kelly of AT & T, is visiting MSC today for briefings on MSC programs and management.

The visit is part of a five-day tour of those NASA centers concerned with manned space flight. The committee's purpose is to review the management aspects of the overall manned space flight program.

Last Monday and again on Friday the committee will be at the Office of Manned Space Flight, NASA Headquarters, Washington. Tuesday they visited Marshall Space Flight Center in Huntsville, Ala., and will proceed to Launch Operations Center, Cape Canaveral, tomorrow. A short tour of facilities will be given the group at LOC, as it was at Marshall.

Formed by NASA Administrator James E. Webb and Office of Manned Space Flight Director D. Brainerd Holmes, the committee includes in addition to Dr. Kelly, Dr. Hector R. Skifter of Airborne Instruments, Dr. Arthur E. Raymond of Rand Corporation, Hendrik W. Bode of Bell Laboratories, and Maj. Gen. James McCormack (USAF-Ret.) of MIT, and will be accompanied by Clyde B. Bothmer, Holmes' executive assistant.

An all-day briefing in the director's conference room is scheduled to end this afternoon.

Four Invited To Italy Meet Of AGARD Panel

Four personnel of MSC have been invited to the 22nd annual meeting of the Flight Mechanics Panel, Advisory Group for Aeronautical Research and Development, NATO, in Turin, Italy, April 16-18.

They are Walter C. Williams, MSC Deputy Director; John B. Lee of the office of the assistant director for engineering and development; and John W. Kiker and James K. Hinson of the Systems Evaluation and Development Division.

Williams is a member of the Flight Mechanics Panel of AGARD.

Lee, Kiker and Hinson are co-authors of a paper on "Earth Landing Systems for Manned Aircraft," which will be presented at the meeting.

Glenn Receives 1963 Goddard Award



GLENN ACCEPTS the Goddard Trophy with smiles all-around at ceremonies in Washington's Sheraton Park Hotel. Left to right are Mrs. Robert H. Goddard, widow of the man for whom the trophy was named, MSC Director Robert R. Gilruth, Astronaut John Glenn and Vice President Lyndon B. Johnson.

Vice President Is Principal Speaker At Rocket Club

Astronaut John H. Glenn, Jr., was the recipient of the National Rocket Club's 1963 Goddard Trophy at the sixth annual Goddard Memorial Dinner held in the Sheraton-Park Hotel, Washington, D.C. March 22.

The award honors Robert H. Goddard, called the "father of American rocketry," and commemorates the "greatest achievement during the preceding year to advance missile, rocket and space flight programs."

The award was presented to Glenn by Vice President Lyndon B. Johnson after the citation was read by MSC Director Dr. Robert R. Gilruth, who was the Goddard award winner in 1962. Walter C. Williams, Deputy Director of MSC, was also on the dias.

The Vice President, in an address to the crowd of 1,200, called upon scientists and engineers to help save the nation's space program from budget cuts which could potentially cripple the program. He said that the technological community "which understands the stakes in space" must "help the public to understand those stakes" and "unless and until this is done the technological community cannot justifiably be impatient with those who are chosen to represent and express the public's own will."

Referring to planned events in space this year, the Vice President noted that the space program of the United States will be passing through a year of concentrated development which does not always produce "spectacular" events. He added that "it is possible that our efforts may be overshadowed by Soviet space shots," and urged that "we not be discouraged by publicized events but rather be stimulated to even greater efforts for the coming years."

The Vice President views the difficulties between the Congressmen and the technological community as "two cultures in revolution." He said that many scientists and engineers agree on one thing - "that nobody is more parochial, narrow and short-sighted

Saturn Ends Phase One Tests In Fourth Successful Shot

The mighty Saturn launch vehicle ended phase one of its test program Thursday in the fourth straight successful test firing, demonstrating in the process that it can function with one of its eight engines dead.

Saturn's inboard engine Number 5 was cut off deliberately after 100 seconds of powered flight to simulate a failure.

The fuel intended for the shutdown engine automatically dispersed equally to the other seven engines as planned, allowing them to burn two seconds longer than normal as the Saturn completed its ballistic flight to an altitude of about 77 miles before plummeting back into the Atlantic 300 miles southeast of the Cape Canaveral launch area.

NASA reported all aspects of the flight as normal.

The seven-minute flight was the last of the first-stage-only tests for Saturn. Next step is the firing of a Saturn with live first and second stages, set for next fall. In this flight the vehicle will build to its full thrust of 1.5 million pounds.

The sixth flight, scheduled late this year, will carry an unmanned model of the Apollo spacecraft into earth orbit.

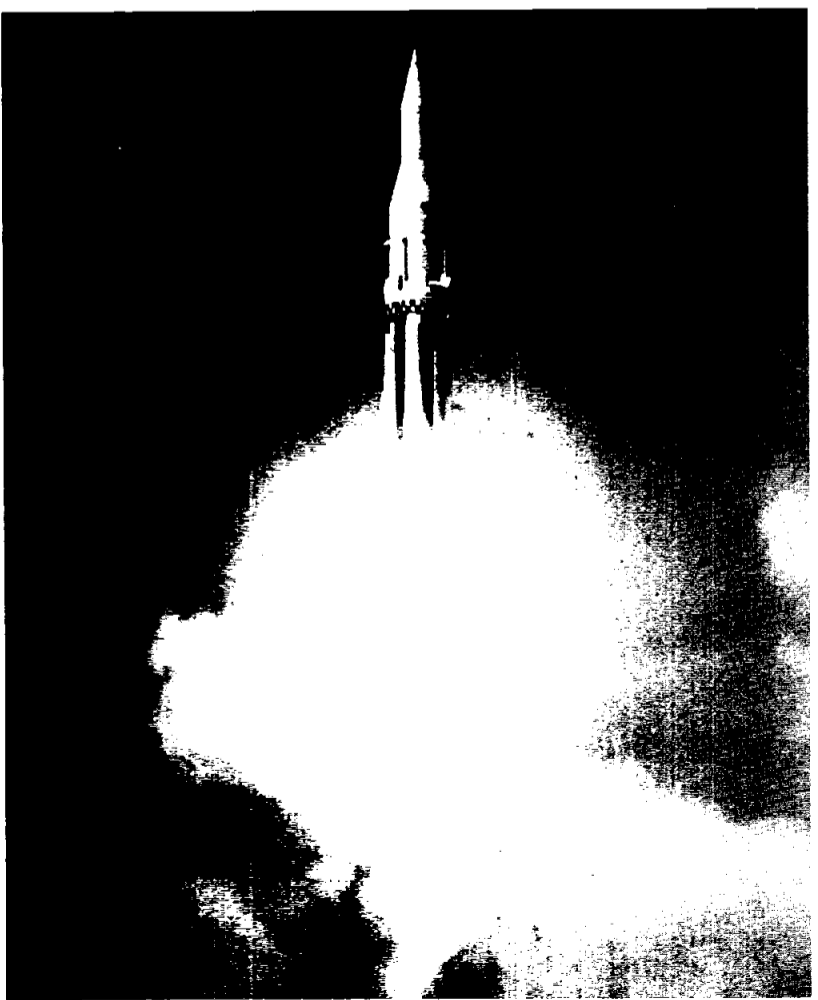
Peak speed attained in Thursday's test firing was about 3,600 miles per hour, with a thrust of 1.3 million pounds.

Trade Exhibit Opens Tomorrow With Ceremonies

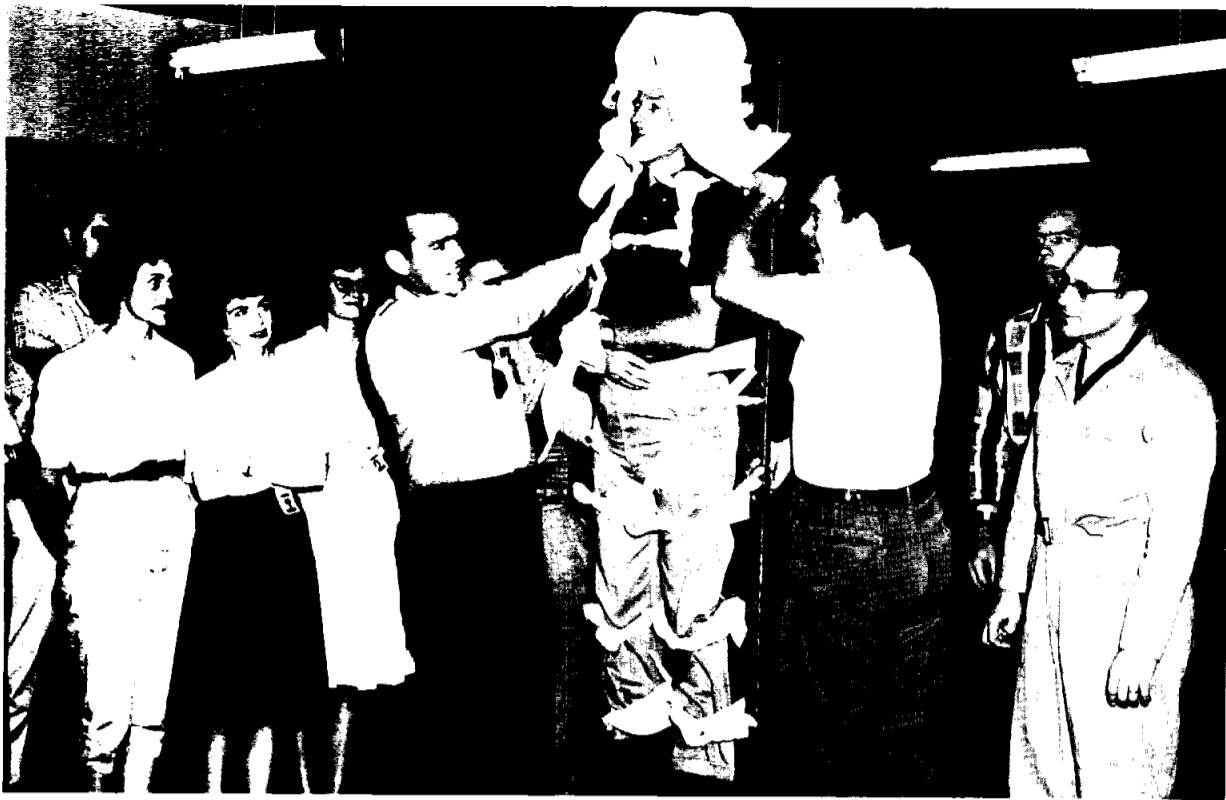
Approximately 100 education, business government, and civic leaders of Houston and the state have been invited to attend tomorrow's opening ceremony for the permanent Manned Spacecraft Center display which has been installed in the lobby of the World Trades Center in Houston.

Participating in the 10 a.m. ceremonies will be Mayor Lewis Cutrer; President Edward Fay of the World Trade Center Association; and Paul E. Purser, special assistant to the director of MSC. The program will be conducted in the WTC auditorium adjacent to the exhibit room.

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CARRYING DUMMY second and third stages for the last time, the mighty Saturn streaks upward in the last of its phase one tests Thursday. The next flight set next fall, will be made with a live second stage and the full 1.5 million pound thrust.



TRUSSED FOR MOVEMENT after simulated multiple fractures and spinal injuries, "victim" Charlie E. Rodgers, Jr. of the Technical Services Division is held aloft on a back board by Lesley G. Waldron, (left) Technical Services Division and Red Cross Instructor Frank Murray. Rodgers was acting as a patient for the Red Cross First Aid instruction course given to MSC personnel.

First Aid Attendants Complete Course — One Uses It Immediately

Nineteen employees of the Manned Spacecraft Center were certified as first aid attendants after completing a special 24-hour American Red Cross course of training last week at the Veterans Administration Building.

The course, arranged by Dr. Charles A. Berry and personnel of the Center's Medical Operations Office, will insure that trained first aid attendants will be immediately available in the event of accidents or injuries within all divisions and sites of MSC's sprawling operation.

An unexpected side light to the training occurred only hours after the first days instruction when Lawrence Frye of the Audio-Visual Branch, Public Affairs Office had an opportunity to use his new training. The first to arrive at an accident near the Minneapolis Honeywell Building, Frye cleaned and bandaged facial cuts of the victim before driving him to the Gulfgate Hospital for medical attention.

Fuel Contract

(Continued from Page 8)

engine will provide thrust for midcourse correction enroute to the moon and during lunar rendezvous. It also will be utilized for midcourse correction on the spacecraft's return trip to earth.

With the addition of the latest firms, major contracts totaling more than \$150 million have been awarded 20 companies in 12 states by North American Aviation's Space Division.

Credit unions currently hold only 0.5 per cent of the money saved by the U. S. Public.

The trainees attended on a voluntary basis and were issued American Red Cross first aid certificates which are valid for three years. A refresher course is required after this period for an extension of the certificate.

Douglas Systems Center Finished In California

First nine buildings at the 245-acre Douglas Space Systems Center in Huntington Beach Calif., will be ready for occupancy this fall.

At the center, Douglas scientists and engineers will develop and test the NASA Saturn S-IVB space vehicle and conduct research on advanced spacecraft systems. The center is to be fully developed over a 10-year span.

Actual construction of the multi-million-dollar center began last month with erection of steel for the first building.

A giant space simulator building. Designed for research and development testing of launch vehicles and spacecraft, the 30,000-square-foot laboratory will house a 39-ft. earth-orbit simulation chamber and two smaller very-high-vacuum chambers.

The Space Simulation Laboratory will be one of the first units of the Center to begin operation.

In addition to testing of spacecraft and vehicles, the Space Simulation Laboratory will be used for research in such other space fields as secondary power systems, physiological and psychological research, solar energy utilization, heat balance, structural and equipment sealing, materials research and bacteriology.

Basic instruction for the course was given by Frank Murray, American Red Cross special representative of safety services. Other instruction was given by Dr. Duane Catterson, Dr. Charles P. Bergholdt, and Nurse Lois Westerlage of the Center Medical Operations Office.

Attending the course were: Frye, Gene Waldron, C. E. Rogers, Paul A. Folwell, Wayland J. Rippstein, Charles J. Bauer, William S. Lee, Claude J. Bird, Grady Henderson, Fred Chalfont, Westley Brenton, Fred W. Hake, William C. Schneider, Alexandra Mapherson, Dorothy M. Colleps, Allan Bryant, Margaret Jackson, James M. Grimwood, and Judy Phifer.

NASA Asks Industry Study On Satellite Bio Testing

The National Aeronautics and Space Administration has asked industry to study the feasibility of using a series of earth satellites to conduct biological experiments upon plants and animals under an extended weightless environment.

NASA's Ames Research Center, Moffett Field, Calif., has asked for proposals on from two to four study contracts of six weeks' duration. These are of space vehicle systems that would be suitable in the event a flight program is authorized.

Phase I, the only phase now approved, envisions a study of a series of six bio-satellites, to be launched during a period of 18 months, with flight durations of from three to 30 days. A decision on the flight program will be made following an evaluation of the Phase I studies.

Each of the payloads of such bio-satellites would be recovered and returned to the experimenters for post-flight study. NASA has received about 60 suggestions of experiments that might be performed, and these are being evaluated.

Such a bio-satellite project would be suited to studying biological responses to periods of weightlessness more prolonged than those obtainable by rocket flights or other short-duration tests.

The bio-satellite project would fill a long-standing need of the scientific community for a recoverable earth-orbiting biological laboratory.

Typical experiments would be expected to have such objectives as determining:

1. The reactions of animals to prolonged periods of weightlessness.
2. The effects of weightlessness or removal from the

earth's rotation on the biological rhythms and cellular processes of plants and animals.

3. Whether the condition of weightlessness has an effect on the susceptibility of plant and animal specimens to radiation damage.

Trophy

(Continued from Page 1)

than politicians." He added, however, that what engineers and scientists think of politicians, politicians think of engineers and scientists.

For this reason, he said, the future of the United States, in space as well as a world leader, depends decisively upon "both mutual understanding and mutual trust, as well as mutual comprehension, between the community of technology and the community of public affairs."

The Vice President said that whether looked at from the vantage of the impatient space technologist wanting to keep his timetable, or the vantage of the politician concerned about costs, the present preoccupation with the dollar aspects of space is symptomatic of a failure of the two communities to understand one another's apprehensions and aims.

He concluded by saying, "In a day when machines can talk to each other and work with each other, it is neither too much to ask — nor too much to hope — that responsible men of the technological community and political community will, in the words of Isaiah, 'sit down to reason,' for there is more to unite them than to divide them. And these men can and will find their way to mutual understanding to assure our greater success in achieving the goals essential for our freedom."



SOME 30 PERSONNEL of the Graphics, Mail and Records, and Printing and Publications Branches of Administrative Services Division were presented with letters of commendation for outstanding work during the past year in ceremonies Thursday. Martin A. Byrnes, Center manager, and Roy C. Aldridge, Chief of the Admin. Services Division, made the presentation. Left to right are, (first row) Charles Biggs, William Der Bing, Roy Aldridge, Laverne Brazil, Rodney McSwiney, Joyce Patterson, Lynne McKinsey, Peggy Carlisle, Lynne Jones, and Martin A. Byrnes. (Second row) Roy Magin, Erwin Wright, Betty Schick, Marie Wilmeth, William Nunery, Charles Ritchie, and Harry Porter. (Third row) Frank Matthews, Chester Jenkins, Clarence Myers, John Thiel, Adolphus Pastell, John Roach, Robert Adams, Stanley Richards, Stanley Jacosen, Cecil Raines, Ivan Atamanchuk, Nicholas Jakir, and Homer Scott.

Pendulum Apparatus Goes Into Operation At Downey

A giant four-armed pendulum is in full swing at Downey, Calif., helping check out early models of the National Aeronautics and Space Administration's three-man Apollo spacecraft.

Towering 143 feet, the space-age steel impact test structure is the latest NASA facility placed in operation at North American Aviation's Space and Information Systems Division.

The Apollo spacecraft is being developed by North American's Space Division for NASA's Manned Spacecraft Center.

The pendulum, which supports 10 tons in motion while in operation, swings 8500-pound full scale instrumented Apollo spacecraft at controlled speeds and angles, dropping them into a water tank or special land impact area.

Apollo is designed to land on earth or water, using three giant parachutes for a soft landing.

Numerous Apollo drop tests are scheduled for the pendulum. Some will investigate how water impact affects the spacecraft's dynamic stability, crew system response and how well crew couches absorb the impact on the Apollo spacecraft. Information obtained from instruments contained within the spacecraft is relayed and recorded on oscillographs and magnetic tapes for scientific evaluation.

The information is being used to confirm and define the design for the crew couches and determine how other spacecraft equipment will withstand the shock imposed in landing.

Cooper, Shepard Test Spacecraft For MA-9 Flight

MA-9 Astronaut Gordon Cooper and backup pilot Alan Shepard took turns in their Mercury spacecraft at Cape Canaveral week before last for a series of hangar simulated flights.

The tests, held in Hanger S's White Room and designed to approach actual flight conditions, began Wednesday and ran through Saturday.

Cooper and Shepard were checked through normal lift-off, separation, turn around, orbit mode, retro-firing, re-entry, deployment of parachutes and landing bags, and impact.

The tests serve a four-fold purpose:

(1) To verify proper operation of all individual systems.

(2) To insure that all systems operate properly through all predictable mission profiles.

(3) To demonstrate intra-system compatibility when all systems are operating concurrently.

(4) To verify proper operation of the spacecraft systems when configured as near flight conditions as practical.



ED MICHEL (left) and Bob Nanz of the Life Support and Life Sciences Sections, Crew Equipment Branch, watch the reactions of secretary Donna Aiken closely as she gives some "space food" the taste test. She pronounced it quite tasty. Food developments resulting from space-oriented research may someday revolutionize the selections on the shelves of the nation's supermarkets.

Know How To Boil Water? Fine. You Can Consider Yourself A Cook

A bride of the future need not worry about lack of cooking skills. According to a space researcher on food to be eaten in space, all she will need to know is how to boil water.

This is not a conspiracy to deny mothers-in-law their favorite pastime; nor is it meant to encourage new husbands into thinking they will be eating better meals after the honeymoon has eclipsed.

Future food for long space trips, as to Mars, may be a combination of synthetic ingredients and freeze-dehydrated foods. These could be in the form of tablets, powders or bite-size morsels to conserve space. Reconstituted with a little bit of water, delicious, eye-appealing foods could grace the astronaut's console.

Other plausible ideas consider the production of edibles from waste products in what is technically considered a "closed ecological system." Wastes, including expired air, would be broken down to basic chemicals such as carbon dioxide and water, then to a further breakdown of hydrogen, carbon and oxygen—then recombined in proper amounts to make carbohydrates, and amino acids. Still another method would be to carry along algae which absorb carbon dioxide and release oxygen for spacecraft occupants to breathe. Astronauts could eat algae to supply their bodies with valuable nutrients.

"On trips to a distant planet which would take a year or longer, a closed system of some sort will have to be considered," an MSC researcher explained.

As manned space flights progress in duration such as the upcoming MA-9 flight extension to one day in space, foods aboard the spacecraft no longer become an "experiment." They

become fuel for the astronaut. He needs to eat to keep up his energy to operate as a vital "system" with the spacecraft. His food becomes a part of his life-sustaining equipment.

Edward Michel and Robert A. Nanz of the Manned Spacecraft Center's Crew Systems Division, in a sense, are space nutritionists. As the calorie-counters for the astronauts, they concern themselves with problems peculiar to the space environment. For example, currently they are evaluating a mouthpiece which will reclose the container automatically to prevent spillage. Nothing could be messier in a weightless environment than to have pea soup turn into a green sea should the astronaut accidentally knock the container against a cabin wall.

Keeping cookies from crumbling, the problem Astronaut Carpenter complained about when cookie crumbs floated around his cabin, could be resolved with a new packaging technique. Now a neatly packaged oatmeal cookie can be popped into the mouth, wrapper and all. The wrapper is made of methyl cellulose and melts instantly in his mouth, yet, looks and feels like an ordinary cellophane candy wrapper. Methyl cellulose is a synthetic gum used in many of the new commercial synthetic products, such as whipped toppings for desserts.

Tubes of pureed foods are being replaced with freeze-dehydrated foods for astronaut diets. The method of preparation—first frozen, then dehydrated—is not new, but packaging the foods for space is new. Freeze-dehydrated foods, already commercially available for campers, preserve much of the texture, taste, color and flavor of the foods being processed. There are

soups available on grocery shelves which have been freeze-dehydrated.

Housewives are not unique in their concern about "what to do with the leftovers?" In the spacecraft, leftover food must be treated quickly or it could upset the astronaut's balanced life-supporting atmosphere. To cope with uneaten food, the astronaut could drop a disinfectant tablet into the food to control spoilage.

Astronauts are often invited to the laboratory of Michel and Nanz for lunch to taste-test new items in the menu, or to evaluate a new container or packaging technique. As the choices on the menu enlarge, astronauts on future flights can "special order" their favorite foods. Present favorites are creamed chicken, strawberries and fruit cake cubes.

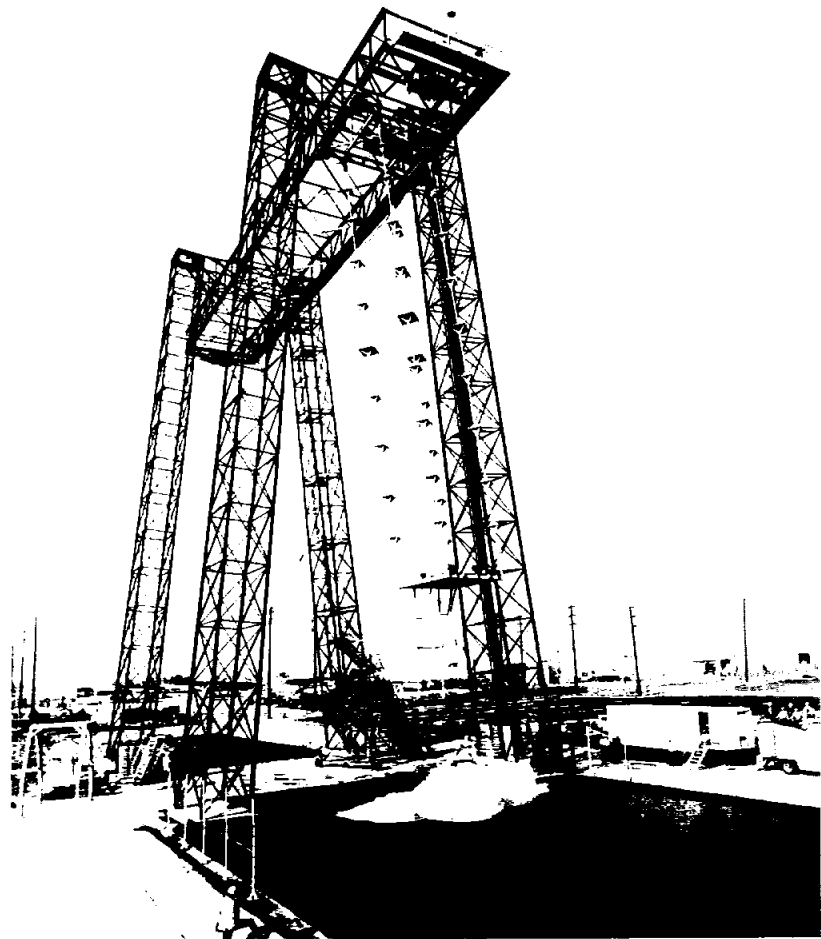
Atlas Erected On Cape Pad

Astronaut L. Gordon Cooper's Atlas launch vehicle was erected on the launching pad March 22 in preparation for sending him on the longest orbital ride ever taken by an American.

The Atlas arrived at Cape Canaveral March 18 and was hoisted onto Pad 14 three days later. Installation was completed March 22. The next project is the mating of Cooper's spacecraft with the Atlas, scheduled for this month.

Cooper is to make up to 22 trips around the world in a little more than 36 hours, splashing down in the Pacific near Midway Island.

One-third of the 21,000 credit unions in the U. S. serve industrial employees.



PENDULUM FOR APOLLO, an impact test facility, from which NASA's unmanned Apollo test command modules are swung and dropped on land or water, is in operation at Downey, Calif. The Apollo command module is suspended below the steel platform and the huge "arm" swings the capsule, releasing it at controlled angles and speeds to simulate impact which later manned Apollo spacecraft will undergo upon return to earth.

OMSF Leads NASA's Manned Space Exploration Projects

The Office of Manned Space Flight, with almost 400 employees, is the largest of the four technical program offices of the NASA Headquarters organization.

Its director, D. Brainerd Holmes, is responsible for planning, programming and directing NASA's manned space flight efforts, including Projects Mercury, Gemini, and Apollo. In addition to his duties as OMSF director,

deputy director, OMSF programs. There are also seven directors of various technical areas who report to Holmes through the deputies responsible for the areas. Clyde Bothmer is executive assistant to Holmes.

As deputy director OMSF Programs, Low is responsible for general management of the development, procurement, testing and operation of all spacecraft systems, launch vehicles, engines and propulsion systems for manned flight projects development, operation of flight crew training facilities, mission and recovery control centers, and medical and health efforts needed to support all steps in the development and execution of manned flight programs, including operational medical support of flight missions.

To carry out these functions, there are directorates for spacecraft and flight missions, launch vehicles and propulsion, and space medicine.

The post of spacecraft and flight missions director is currently held by Low in addition to his duties as OMSF deputy director. Assistant directors are: John H. Disher, Apollo spacecraft development; Daniel D. McKee, manned satellites Mercury and Gemini; Harper E. Van Ness, manned space flight operations; and Fred Ireland, information and control systems and human factors.

On April 1, Robert F. Freitag joined NASA as director, launch vehicles and propulsion. A. O. Tischler is assistant director for propulsion, and John K. Holcomb is assistant director for launch operations. The post of assistant director for vehicles is vacant.

Brig. Gen. Charles H. Roadman is director of space medicine. Deputy director is Dr. George M. Knauf and assistant directors are Dr. Joseph A. Connor, development test and evaluation; Dr. David H. Stoddard, medical operations; and James P. Nolan, Jr., plans and programs.

Dr. Joseph F. Shea, deputy director, OMSF Systems, is responsible for the overall system engineering of NASA

manned space flight program development and implementation of a program that will insure over-all integration, reliability assessment and checkout of all elements essential to manned space flight programs. This includes compatibility of spacecraft, launch vehicles and ground operational support systems; implementation of long range studies; and preparation of a long range plan review of on-going programs,

ing; and James E. O'Neill, design practices and reliability.

Director, systems studies, is Dr. William A. Lee. William E. Taylor is assistant director, engineering studies, and Douglas R. Lord, is assistant director program planning. Posts of assistant directors for human factors studies and exploration studies are vacant.

Director for integration and checkout is James E. Sloan. Assistant directors are Philip

by NASA.

Also under a NASA contract, General Electric's Apollo Support Department is providing engineering services, design assistance. Development manufacturing, installation and maintenance support to NASA in the areas of integration, checkout and reliability assessment.

William E. Lilly, director of program review and resources management, is responsible for providing financial, administrative and business management support and services for the Office of Manned Space Flight. Assistant directors are William P. Risso, plans and resources, and Rodolfo a Diaz, facilities.

Kano Gets Side Benefit From Tracking Net

A side benefit of the fact that one of the NASA Mercury Tracking Stations is located in Kano, Nigeria is the helping hand extended toward the Nigerian hygiene school located there.

The school trains health inspectors who serve all over northern Nigeria in hospitals and leprosy clinics. The course lasts three years and graduates about 50 personnel each year.

Col. Vance H. Marchbanks, Jr., director of base medical services at George AFB, Calif. spent the early flights, including MA-6, as medical monitor for Kano tracking station. While there he noticed that the school library urgently needed medical books.

He wrote to approximately 200 physicians with an appeal for books no longer in use in their personal libraries, and contacted a number of medical publishers as well.

Results so far include some 200 books, 50 of them new ones from medical publishers, which have been mailed to the school. Its principal is reported quite pleased with the school's representative new medical library.

Capt. Edward L. Beckman, USN, MA-7 medical monitor in Kano, assisted the project by taking a load of books with him when he went to Kano and soliciting books from his colleagues at the Naval Medical Research Institute at Bethesda, Md.

"Operation Textbook" has contributed a tangible benefit for better relationship between Kano residents and NASA personnel at the station and, through NASA, to better relationships with the free world.

Classified material should not be removed from MSC except for the purpose of attending official conferences, transmission to authorized persons, or for other necessary official purposes.



D. Brainerd Holmes
Director, OMSF

Holmes is also a deputy associate administrator of NASA. In the latter post he is responsible for the institutional matters of the NASA centers primarily engaged in the manned space flight program. These are the Manned Spacecraft Center, George C. Marshall Space Flight Center, Huntsville, Alabama, and Launch Operations Center, Cape Canaveral, Florida.

To assist in management of the manned space flight program, OMSF Director Holmes formed the management council and serves as its chairman. Members of the council are the deputies and directors in the OMSF, directors and senior officials of the MSC, MSFC and LOC. The council meets once each month in Washington or at one of the three centers to review the status of the program and discuss fundamental policies.

Reporting to Holmes are two deputies, Dr. Joseph F. Shea, deputy director, OMSF Systems and George M. Low,



Dr. Joseph F. Shea
Deputy Director
OMSF Systems

to identify and evaluate possible alternative courses of action that may become desirable because of unanticipated technical developments. In other words, the Office of Systems is to assure that the technical status of the manned space flight program is sound.

John A. Gautraud is director for systems engineering. Assistant directors for systems engineering are Richard J. Hayes of the MSC and Arthur Rudolph of Marshall Space Flight Center, Huntsville, Ala. Others are E'don W. Hall, design and performance; Michael I. Yarymovych, flight systems; James H. Turnock, Jr., communications and track-



George M. Low
Deputy Director
OMSF Programs

S. Selvaggi, integration; Jack F. Underwood, checkout and Richard H. Myers, reliability.

Assisting the Office of Systems, under contract to NASA, is Bellcom, Inc. Bellcom was formed by the American Telephone and Telegraph Company in response to a NASA request early in 1962 for the company to assist in the systems engineering effort for manned space flight. Bellcom provides skilled and experienced assistance to enable NASA systems engineers to exercise responsibility and authority in an effective manner. However, final decisions of technical, engineering and procurement matters are made

Editors Note This is the eleventh and final article in a series of features depicting the activities of other NASA installations. The information concerning the Office of Manned Space Flight was supplied by OMSF, NASA Headquarters, Washington, D. C. The Space News Roundup hereby extends a word of thanks to the public information staffs of the installations featured, without whose excellent cooperation the series would not have been possible. With the next issue, the Roundup returns to a series on MSC's industrial family, begun in the issue February 20.



William E. Lilly
Director
Program Review and
Resources Management



James E. Sloan
Director
Integration & Checkout



Robert F. Freitag
Director, Launch
Vehicles & Propulsion



Brig. Gen. Charles Roadman
Director
Space Medicine



REPORTING to their boards instead of desks, these four scientific illustrators and Section Chief Jerry Lyons (standing) are members of the General Illustration Section of Graphics. Left to right are Barbara Matelski, Lyons, Tommy Walton, Jim Cooper and Colin Kennedy.

Graphics Branch Handles Center's Scientific Art Work

Frustrated artists who create extravagant doodles on desk pads, in between toiling over typewriter or slide rule, might find some solace in the fact that 19 MSC personnel make their living that way—drawing pictures.

Technically, they are called "scientific illustrators." Their jobs combine the creative urge with blueprint precision, a fine eye for detail and a scientific background.

This is the Center's Graphics Branch, a part of the Administrative Services Division charged with providing artists' concepts, technical illustrations and figures, exhibit designs, patent drawings, story boards, flip charts, and artwork and lettering for movie slides for MSC's 3,000 personnel in both administrative and technical support areas.

Lights often burn late in the branch office. "We don't operate on a backlog," says branch chief Roy Magin. "Immediate response on demand is the rule."

Work coming into the section goes first to Stan Jacobsen, head of the Production Control and Contract Services Section. The section "parcels it out" to either the Scientific Illustration or General Illustration Sections, or, if the sections are already overloaded, to a contractor. A half-million dollar contract for graphic arts was recently awarded to Hayes International Corporation, Birmingham, Ala. for such services, and the contractor plans to establish a facility in Houston. Jacobsen's section also handles control of funds, bookkeeping, coordination with the

photo lab on slide work and inspection and supervision of contractual work.

The General Illustration Section, under Jerry Lyons, handles basic technical figures, organizational and other charts, flip charts for use by speakers, art work for slides such as those used on the Control Room's screens, story boards, illustrations and covers for in-house publications, and the like.

Much of their work goes into lettering for such items as flip charts, for lettering is a part of graphic art as well as pictures.

Graphics has a hand in the many animated color movies produced under the supervision of the Audio-Visual Branch, Public Affairs Office. They produce the original story board, showing the sequence of events desired in the movie and the design of the hardware. The story board is then followed by a professional animator, producing the movie itself under contract.

The Scientific Illustration Section has the primary function of illustrating artists' concepts of proposed and existing hardware. Such drawings range from detailed line drawings to artistic, full-color representations so realistic you can almost reach out and pick them up. "We need a well-rounded technical background in order to picture the engineer's ideas from working drawings, Tech Services models, oral ideas or penciled notes," explained Section Chief Bill Der Bing. "Some of these items never existed before—and don't actually exist when we draw them."

Even plain illustrations of events-to-come on the space exploration calendar often require background research. A full-color illustration of a lunar landing, for instance, requires a solid background in the formation of the moon's crust as well as a good idea of what the lunar excursion module looks like.

Der Bing's group also furnishes copy and art material and monitors the design of exhibits such as the one opening tomorrow at the World Trade Center in downtown Houston.

Graphics designed, for instance, the diorama model of the Clear Lake installation displayed in the lobby of Farnsworth and Chambers Building last winter, and the site model now on display at Houston International Airport.

Der Bing's group handles perspective cutaway drawings showing structural details of inventions by MSC employees. These drawings are required, among other things, to accompany the specifications of the invention when a patent is applied for.

The Graphics Branch also plans, in the near future, to deploy a graphics supervisor to each of the project offices to handle the requirements of that office.

The branch maintains a central "morgue," or file of all completed artwork, much of which can be re-used.

Working with brush and pen, instead of typewriter and slide rule, the Graphics Branch is nevertheless an indispensable part of the technology of the space age.



GRANT LATHE (seated) and Chuck Biggs discuss a futuristic technical illustration intended for the cover of a magazine. To be technically accurate, such illustrations often require an engineering background and specialized research as well.



BILL CRUMPLER and Section Chief Bill Der Bing of the Technical Illustration Section discuss a cutaway illustration showing the fine detail and blueprint accuracy required in Graphics' work.



INCOMING WORK orders start with Stan Jacobsen and Lynn McKinsey in the Production Control and Contract Services Section, which has the job of distributing the work as necessary and overseeing contractual jobs, as well as the bookkeeping.

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.

Director Robert R. Gilruth
 Public Affairs Officer John A. Powers
 Chief, Internal Communications . Ivan D. Ertel
 Editor Anne T. Corey

On The Lighter Side

Those of our readers who think they're pretty well up on Canaveralese might try this sample from a United Press International release. Scoring by literal translations only, a rating of 20 makes you an aerospace engineer, 13 is pretty good, seven is barely passing, and below seven . . . tch, tch.

"Man is going to the moon this decade, but only after he gets the LEM, SM, CM, and LES assembled and connected to the S-1C, S-11, and S-IVB. This will be done in the VAB at MILA adjoining AFMTC. There still will be the matter of linking the IU, A-11 and S-IVB to the LUT GSE. LCC will feed this vital information to the NASA IMCC at MSC. Then he can blast off for the moon. Assuming, of course, that everything is A-OK at T-time."

* * *

Letters come to MSC carrying some strange addresses, but the topper for general confusion arrived at the Public Affairs Office last week and began bouncing between the Industrial and Internal Communications Branches. It came from a New York packaging publication, and was addressed (honest) to, "Mr. Nasa Manned, Pub. Affairs Off., Comm. Br., Spacecraft Center, Houston 1, Texas." And it began, "Dear Mr. Manned . . ."

We would hazard a guess that somewhere, a secretary misread her shorthand.

* * *

Almost every typist has a favorite story about the consequences of a garbled sentence or a letter left out, and one of the more interesting examples turned up in letter received by Roy Aldridge of Administrative Services last month from the Space Science Board of the National Academy of Sciences, Washington, D. C. "Dear Sir," said the letter, "We would very much appreciate it if you could supply us with a director of your installation." We suspect the intended word was "directory," but Aldridge sent the letter down to Telecommunications with a straight-faced note attached: "Tell them we only have one, and we'd like to keep him."

* * *

The optimism with which many theoretical space projects are usually viewed is balanced occasionally by a view from the opposition.

"If we should receive communications from outer space during current communication research with huge listening antenna, should we attempt to answer it?"

This question, put to a scientist from Cal Tech during a television interview elicited an interesting answer:

"Probably not."

"In all history," the theorist went on, "the first meeting between two alien societies has inevitably been followed by conflict—with the weaker group losing."

"There may be societies in space so advanced they they would view our earth society with the same interest—and with the same concern for our welfare—as we view houseflies!"

The moral to this little story is:

If you hear a voice from outer space, don't answer, just hang up. The caller may have a big fly swatter.

—Spaceport News

WELCOME ABOARD

During the period March 8, 1963, to March 31, 1963, Manned Spacecraft Center acquired 50 new employees.

Apollo Project Office: Jaroslav F. Valek, L. Ly M. LaCara, and Henry Carleton.

Resident Office, White Sands, N.M.: Jones E. Corwin, Manuel Gonzales, Jr., Benjamin C. Ingels, Jr., D. E. Nogales, and Rita S. Frost.

Spacecraft Technology Division: Mary Ann Sullivan.

Space Environment Division: Diana S. Colonna and Anton M. J. Gehrels.

Crew Systems Division: Wilirie M. Beeson and Rufus Hessberg.

Systems Eval. and Devel. Division: James D. Medlock.

Preflight Operations Division: Robert B. Rabren, James B. Kirkpatrick, Molly H. Patterson, Donald A. Nelson, Edwin K. Blevins, James F. Hughes, Gordon I. Turner, and Edgar A. Dalke.

Flight Operations Division: Libbie L. Hightower, and David C. Williams.

Flight Crew Operations Division: Virginia A. Martin, Gordon W. Harvey, Richard B. Benson, Jr., and John P. Mitchell, Cape.

AMR Operations Office, Cape: Thyra K. Shankles.

Instrumentation and Electronics Systems Division: Myron L. Curtner, II.

Personnel Division: Herman A. Pope, Ronald S. Lester, Robert W. Johansen, Byron A. Brown, Kristine L. Smith, Emily A. Fults, Martha S. Edelman, and Molly H. Patterson.

Financial Management Division: Shirley A. Way.

Administrative Services: Nancy A. Goddard, Delmar A. Kimbark, Rose E. Edwards, and Cyril E. Baker.

Technical Services Division: Luther G. Kaiger, Jerry H. Fleming, and William J. Holton.

Logistics Division: Henry

MSC PERSONALITY Bill Bland Got Into Mercury Project On The Ground Floor

An easterner gone westerner who has been with Project Mercury since its inception is second-in-command of the project.

William M. Bland, Jr., one of the original members of Space Task Group, and now deputy manager of Project Mercury, was born in Portsmouth, Va. in July, 1922.

He received his BS degree in mechanical engineering with an aeronautical option from North Carolina State College, Raleigh, in 1947. A month later he joined NASA and has been here ever since.

Bland is author and co-author of 20 NASA technical reports covering investigations of stability and control characteristics of supersonic aircraft and missile configurations and aerodynamic characteristics of various shapes at hypersonic velocities.

He began his career with the Pilotless Aircraft Research Division (PAR) at Langley Research Center, and much of this research was done primarily with the use of rocket-propelled test vehicles launched from Wallops Station.

In the process of this work, Bland contributed directly to the development of the multi-stage, high-velocity rocket-propelled flight research vehicles.

While working at Langley he became one of the earliest contributors to the concept that was to become the Mercury spacecraft. His contributions included development of the mockup, the Mercury couch, conduct of initial centrifuge tests to verify the couch design, and the design of the Little Joe solid-propellant launch vehicle.

As one of the original members of Space Task Group, he was appointed head of the Systems Test Branch, Flight Systems Division where he

Cross, and Ruby L. Phillips.

Business Mgr. Office Resident Office, Bethpage, N. Y.: Samuel A. Gentile.

remained until the branch was renamed Project Engineering Branch and transferred to the Engineering Division, in 1960.

During this time he directed the Mercury engineering activities on the Atlas, Redstone and Little Joe programs and was also manager of the Little Joe flight test program conducted from Wallops Station, Va.

He has served on both the



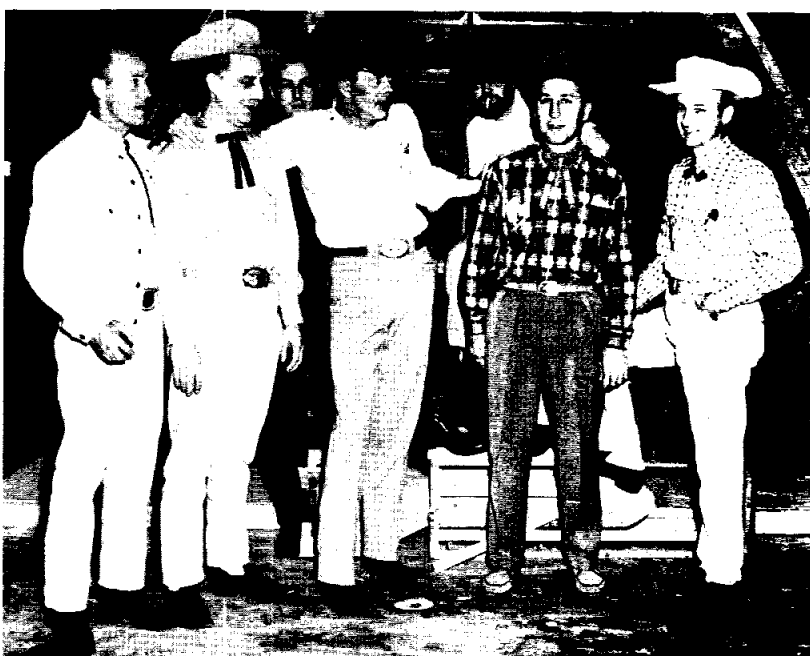
William M. Bland, Jr.

Mercury and Apollo technical evaluation panels.

Bland was named deputy manager of Project Mercury in January of last year. He directs the engineering activities of the project, including detailed operation of spacecraft systems, analysis of flight test results, and preparation of engineering evaluation reports. His office duties with Mercury have resulted in a heavy travel schedule both stateside and overseas. In 1961, Bland estimates he traveled 32,000 miles. The following year, he doubled that figure. And he estimates he will travel another 20,000 miles this year.

Bland is married to the former Betty Johnson of Hampton, Va. and the couple has two children, Virginia Louis, 9, and William, III, 6. Residents of Houston, they are members of the Westbury Methodist Church.

Bland's hobbies include gun collecting (he has about 30 "good ones"), a family volleyball league, and at present—house hunting.



TECH SERVICES held a "Go-Texan" day during the Fat Stock Show last month, with employees reporting to work in Western garb. All day long, men in ten gallon hats and cowboy boots circulated around Mercury spacecraft and Apollo mockups, presenting a strange contrast between past and future. Left to right are Charlie Rogers, Orrin Wohig, Russell Smith, Wes Brenton, Jim Osburn, Joe Sigfried and Jim Clarke.

The appropriate automatic downgrading group marking must be stamped on all classified material initiated by NASA after September 1, 1962. Material classified as SECRET will be assigned to Group 3. Material classified as CONFIDENTIAL will be assigned to Group 4.

University Meet Proceedings Now In Booklet Form

The two-volume report of the proceedings of NASA's University Conference on the Science and Technology of Space Exploration has been broken down and republished as sixteen separate reports.

Now available from the Government Printing Office, each publication develops the "state of the art" in one of the sixteen fields of aerospace covered by the delivery of technical papers at the NASA Conference in Chicago last November.

The publications may be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

Exhibit

(Continued from Page 1)

The "ribbon-cutting" will precede the opening of the exhibit to public view at noon, the display, featuring representative objects of the Manned Spacecraft Center's space flight programs, in an 800-square foot area, will be open to the public seven days a week initially.

Designed and constructed for MSC by Atkins and Merrill, a contracting firm specializing in exhibit construction, the display is arranged so that it may be changed periodically to keep pace with technical advances in the Mercury, Gemini and Apollo spacecraft projects conducted by MSC.

Joseph Kratovil Is Named Chief Of Financial Mgt.

A top manager of financial matters has been added to the management roster of the Manned Spacecraft Center. He is Joseph A. Kratovil, named Chief of the Financial Management Division in late February.

Kratovil fills the position left vacant by Rex Ray, who died last October.

With North American Aviation, Inc., in its Columbus (Ohio) Operating and Autometrics Division, for 12 years, Kratovil has extensive experience in preparing and analyzing budgets, financial operating plans, cost estimates and in providing all aspects of fiscal services.

He served as the Manager of Contracts and Pricing in the Systems Division at Autometrics; Chief of Proposals and Pricing in Minute Man Systems Management Division; and in various positions of the Division of Management Control and Scheduling at Columbus.

Kratovil will serve as the financial advisor to Director Robert R. Gilruth and his staff, and will develop and operate a financial management system for the Center.

Kratovil holds a Bachelor of Science degree in mathematics from Western Reserve University and has done graduate mathematics work at the Case Institute of Technology, both in Cleveland, Ohio. He also has a Bachelor of Laws and Letters degree from Franklin University Law School in Columbus.



CENTRAL DATA Office Building at Clear Lake is taking on shape and character with the installation of the exterior wall panels. Scheduled for completion in early September of this year, the two-story facility will provide office space for the Technical Information and Computation and Data Reduction Divisions, together with computer rooms and data storage.

McDonnell To Provide MSC With 13 Flight-Rated Gemini

A single contract for \$456.6 million—one of the largest ever made by the National Aeronautics and Space Administration—has been awarded to the McDonnell Aircraft Corporation in St. Louis to provide the Manned Spacecraft Center with 13 flight-rated Gemini spacecraft, associated equipment and services.

The contract breaks the record amount set by the \$418.8 million Saturn contract signed early in March.

The formal contract defines a letter contract under which the McDonnell firm has been underway with the development of the Gemini spacecraft since December 15, 1961 under MSC's technical management.

More than 50 percent of the contract dollars will be subcontracted by McDonnell to suppliers throughout the United States.

The two-man Gemini missions to begin in 1964 will develop the docking and rendezvous techniques in space in preparation for the later Apollo lunar mission.

Also defined in the contract for delivery to MSC are:

Sixteen launch vehicle adapters—"transition" pieces between the Titan II launch vehicles and the spacecraft, which store life-supporting supplies, propellents, fuel cells, and some communications equipment in the lower section, and containing four retro rockets for reentering the atmosphere in the upper section.

Nine target vehicle docking adapters to be mounted on the lockheed-built agena rendez-

vous rockets, which will "lock-on" the Gemini spacecraft when a successful docking maneuver is achieved.

Three trainers—two missions simulators (one to be delivered to Cape Canaveral, Florida; the other to Houston) in which Gemini astronauts can "fly" complete missions for training, and a "dynamic" simulator (with a maneuverable compartment) in which a Gemini astronaut can practice docking maneuvers.

Six boilerplate spacecraft of heavy sheet metal which will be used for paraglider, parachute, ejection seat, and landing impact tests; and four "static articles"—spacecraft of flight-rated structure which will be used only in ground test evaluation of structural loading through vibration and impact tests.

Checkout and preparation services at the launch operations center at Cape Canaveral; post-flight spacecraft services; trainer maintenance; test programs services; spare parts supply and services; preparation of information for documentation to be used by flight controllers of MSC's flight operations division, and assistance in the checkout, servicing, and fueling of the spacecraft prior to flight.

The paraglider, a "flyable" device deployed prior to landing of the Gemini spacecraft, is being developed by North American Aviation, Inc. its Housing, including cable reels and control systems, will be provided under the McDonnell contract.

The main parachute system will be the primary landing system for the Gemini spacecraft until the paraglider is developed.

Evaluator

(Continued from Page 8)

Steel arcs over the subject's chair will measure the suit-clad astronaut's reach within his immediate area. Cards, mounted on the arcs, will reveal how far he can turn his head to read an instrument placard. A form board with forms and sockets will measure his finger dexterity, palm movement and wrist action in a glove-encased hand, and will also measure "success" of a particular shape design of the "form."

The astronaut's freedom of movement in a space suit will be recorded through reaction time to operate typical controls. Along a display of rotary switches, toggle switches, and push-button switches, lights will stimulate a response and will remain lighted until the proper action is activated.

A control stick adapted from a helicopter control design, will be used to measure the subject's coordination. He will be required to center cross-hairs and to hold the aligned position as long as he can.

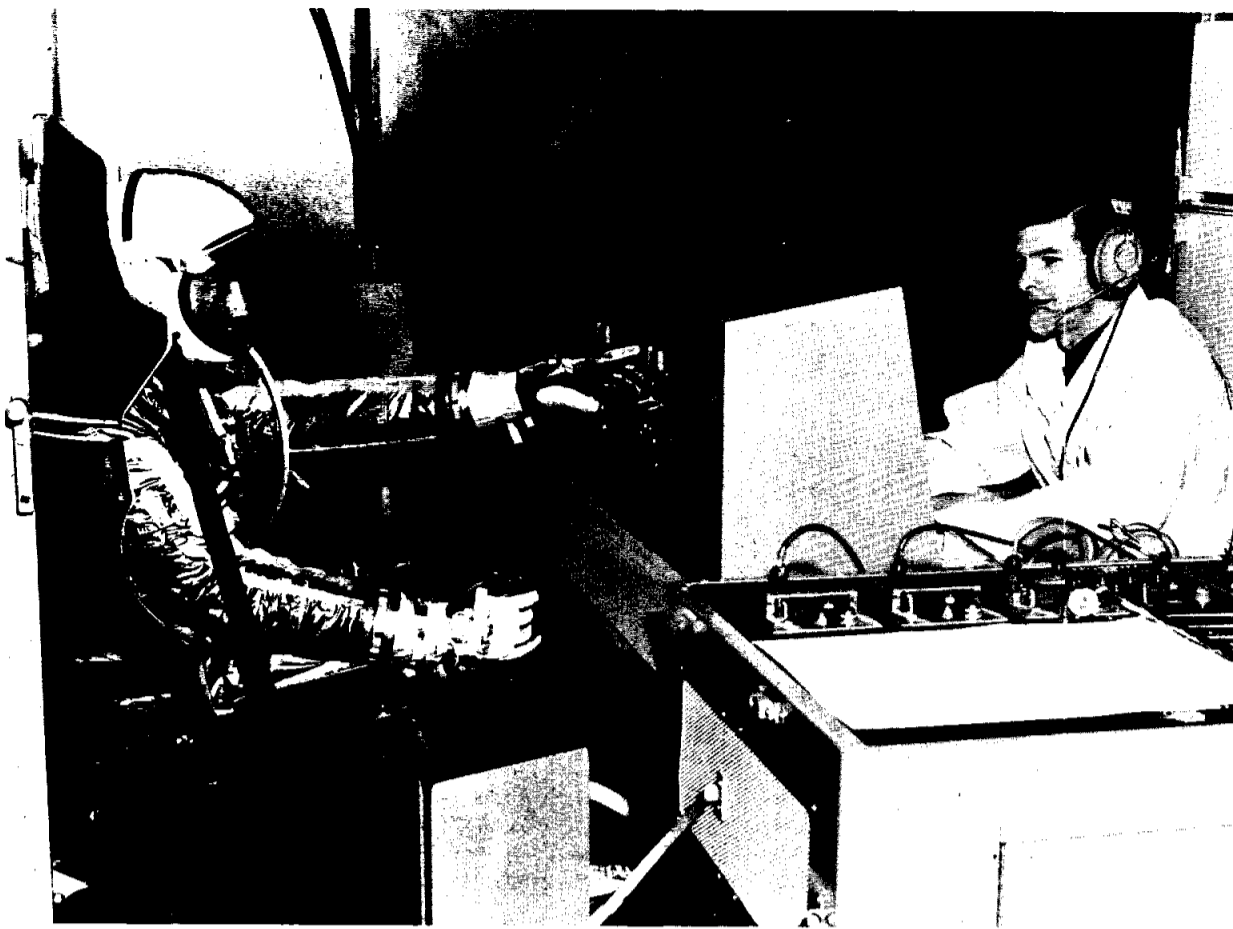
Beckman To Make Four CO² Sensing Systems For MSC

Beckman Instruments, Inc., has received an order from the NASA Manned Spacecraft Center, Houston, Texas, for four additional carbon dioxide sensing systems, similar to those furnished for previous Project Mercury space capsules, but modified to meet the requirements of forthcoming extended orbital flights.

In anticipation of increased humidity and high temperatures within spacecraft during longer flights, preamplifiers and sensors for the new instruments have been constructed to withstand 100% relative humidity at temperatures up to 150° F.



THE FIRST FLIGHT-RATED Apollo boilerplate service module and adaptor arrived at MSC for vibration testing in March and was shown to news media in a press briefing at Ellington AFB. It was built by North American Aviation's Systems Division, principal contractor for Apollo command and service modules.



SPACE-SUITED JOSEPH J. KOSMO of MSC's Crew Systems Division responds to "cockpit inputs" from Richard Sandridge (right) one of a series of tests which will help to evaluate the suit for mobility under operating conditions. The specially-built testing and evaluating device will be used to set standards for the development of MSC space suits at Crew Systems Division.

Space Suit 'Evaluator' To Assist In Establishing Efficient Design

A new space suit performance device, built and designed under contract to the Manned Spacecraft Center, will be used to help evaluate space suit and spacecraft cockpit design.

A test operator's console, a physiograph and a molded couch assembly facing a subject's testing board, comprise the equipment built by the Applied Psychological Services of Wayne, Pennsylvania, under a NASA contract.

The testing equipment will also be used by crew performance engineers for evaluating and setting standards on manually operated spacecraft cock-

pit equipment, design of actuating switches, knobs and dials, lay-out of instruments and equipment display, and other aspects of the spacecraft interior.

The Crew Systems Division of MSC intends to perform a battery of tests to establish a set of normative standards to aid in the development of space suits.

A device called a flexometer will measure the extent an astronaut can bend his wrists, elbows, knees and other joints while wearing a space suit.

(Continued on Page 7)

Eight High School Students Win NASA Writing Awards

Two girls were among the eight final winners announced Saturday in MSC's space-oriented writing contest among Houston and Harris County high school students.

They were selected from 30 semi-finalists including 14 girls, who entered the finals at San Jacinto High School. The semi-finalists in turn came from more than 5,000 contestants representing 90 junior and senior high schools.

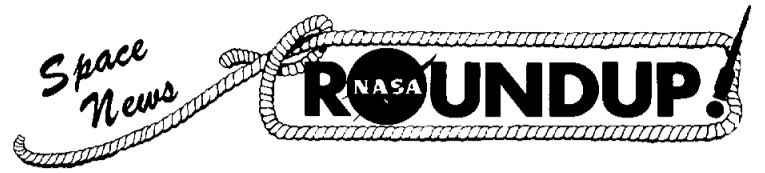
Winners were: Carol Orr, Landrum Junior High School, and Davy Thornton, Spring Branch Junior High School, for the best technical paper of 1,500 words on space-related sciences or manned space exploration by a junior high school

student; Barbara Monroe, Bellaire Senior High School and William Voelke, Sam Houston Senior High School, in the senior high school division of the same category; Matthew Vallie, Carver Junior High School and John Taylor, Black Junior High School, editorial paper on the theme "Why are we going to the moon?" of 1,000 words, by a junior high school student; and Mike Rosenthal, Lamar Senior High School and Lynn Berry, Aldine Senior High School in the senior high school division of the same category.

A certificate, plaque and pin will be awarded to the winners with the opportunity to meet an astronaut and a special tour and briefing at MSC. Winners will also be MSC guests at the opening of the World Trade Center exhibit in downtown Houston tomorrow.

A committee of MSC officials, members of the Chamber of Commerce and the Houston Engineering Council, and representatives of educational institutions made the winning selections.

Effective March 19, James A. Chamberlin, formerly manager of Project Gemini, became senior engineering advisor to MSC Director Robert R. Gilruth. Charles W. Matthews, formerly chief of the Spacecraft Technology Division, was named acting manager of Project Gemini. Maxime A. Faget assumed the position of acting chief of the Spacecraft Technology Division in addition to his duties as assistant director for engineering and research.



SECOND FRONT PAGE

Philco IMCC Pact Signed For Total Of \$33.8 Million

The contract definitizing the terms and conditions of Philco Corporation's role in implementing the Integrated Mission Control Center at Manned Spacecraft Center's site at Clear Lake was signed last week.

The contract amounts to \$33,797,565, including the fixed fee.

Philco will provide the "pulse" of the IMCC—all the complicated internal electronic flight information and control display equipment, with the exception of the real-time computer complex which will be built and maintained by IBM. Some associated equipment will be purchased directly by MSC.

Philco will assist MSC in maintaining and operating the IMCC for one year after acceptance is made by the Houston space center.

The IMCC at Clear Lake will take over the function performed by the Mercury Control Center at Cape Canaveral, Florida. The IMCC will monitor and control the two-man Gemini missions in which U.S. astronauts will rendezvous and dock in space, and, on a later mission, spend two weeks in space. It will also control Apollo flights which will ultimately land a U.S. astronaut on the moon.

The work by Philco will be conducted at four locations: in Houston; at the Western Development Laboratory, Palo Alto, California; at the Philco Communications and Electronics Division, Philadelphia, Pa.; and the Aeronu-

tronics Division of Ford Motor Co., Newport Beach, Calif.

Philco was selected from seven qualified bidders.

Firms Selected To Build Fuel Tanks For Apollo

Two companies, one in the midwest and the other on the west coast, have been selected to build fuel propellant components for the National Aeronautics and Space Administration's Apollo spacecraft. Amount of the contract is being negotiated.

General Motors Corporation's Allison Division, Indianapolis, Ind., was named to build the service module's fuel and oxidizer tanks.

Airite Products, Inc., Los Angeles, a division of the Electrada Corp., will build the tanks to contain helium needed to pressurize the fuel and oxidizer tanks.

The two companies will do the work for North American Aviation's Space and Information Systems Division, principal contractor on the Apollo spacecraft for NASA's Manned Spacecraft Center.

The Apollo service module

(Continued on Page 2)



OSCAR SIMPSON of Philco Corporation (left) and **Bill Douglas** of MSC look on as **James Stroup** of Procurement (seated) signs the contract for the Integrated Mission Control Center at Clear Lake.