



## MSC Manages Tri-Country Earth Resources Program

The first cooperative international research programs to develop techniques and systems for obtaining and using earth resources data from aircraft will be carried out by Brazil and Mexico with the United States.

The programs, to be carried out over the next three years are designed to develop techniques for acquiring, interpreting and using data to provide scientific and technical experience which would be useful in the development of earth resources survey techniques and to familiarize personnel with the reduction and analysis of remotely sensed data.

More than 25 Brazilian and Mexican scientists began the programs February 8 at MSC. The Test and Operations Office of MSC's Science and Applications Directorate is managing the program which brings together experts in the fields of remote sensing as well as experts in fields such as agriculture, forestry, geography, hydrology and oceanography.

The international program was developed under the direction of the NASA's Office of the International Affairs and the Office of

### Gilbert Named NASA Counsel For Procurement

Porter H. Gilbert has left his post as MSC Deputy Chief Counsel to take over the position of Assistant General Counsel for Procurement Matters at NASA Headquarters. Gilbert was named to the new position by NASA General Counsel Paul G. Dembling, succeeding Neil Hosenball who became Deputy



General Counsel last October 11.

Gilbert, 45, entered federal service in 1951 as an attorney-adviser with the Air Materiel Command at Wright-Patterson AFB, Ohio and transferred in 1961 to the NASA Space Task Group, forerunner of MSC.

He received an AB in economics from Berea College, Berea, Ky. and an LL.B from the University of Kentucky College of Law. He is admitted to practice in Kentucky and is a member of the Federal Bar and American Bar Associations.

A successor has not been named to Gilbert's position in the MSC legal office. MSC Chief Counsel J. Wallace Ould said the deputy counsel functions will be handled by himself and three assistant counsels—Henry W. Flagg, Jr., Carlos R. Garza and Richard J. Wieland.

Space Science and Applications with the cooperation of the Space Commissions of the respective countries. Management of the program was assigned to MSC which has been carrying out an aircraft earth resources program for the past two years.

Agency level technical agreements for the new projects were reached between the Brazilian National Commission for Space Activities (CNNE) and the NASA and between the Mexican National Commission for Outer Space (CNEE) and the NASA and confirmed by government exchanges of notes.

The programs will seek to tify promising applications of remotely-sensed earth resources data in Brazil, Mexico and the United States. Compatible data management systems will be developed to facilitate exchange of data between the two countries and the United States.

Both agreements provide the programs will be divided in four phases over the next three years: 1) an initial cooperative study and research program and establishment of research teams structure by Brazil and Mexico, 2) selection of test sites by user agencies in Brazil and Mexico, procurement of instrumented aircraft, and establishment of data processing centers in both countries, 3) NASA aircraft flights over selected test sites and 4) operational flights by aircraft of each country over its own country.

The agreements specify the establishment of Brazilian, Mexican and United States research teams with responsibility for coordinating the functions of the cooperating teams being assigned to a program manager for each country.

The US Department of Agriculture, the US Geological Survey and the US Navy Oceanographic Office will be participating with the NASA in carrying out the US responsibility under the agreement.

No exchange of funds between the research teams is contemplated. Data acquired in the course of the joint programs will be made available to the participating teams and to the world scientific community.

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### WAY-OUT S-IVB—

## Apollo VI Launch Planned No Earlier Than March 21

Apollo VI, the second flight test of the first two stages of the Saturn V launch vehicle, will lift off KSC Launch Complex 39 no earlier than March 21, it was announced last week by NASA Headquarters.

Saturn V's S-IC first stage and S-II second stage had their maiden flights in the Apollo IV mission November 9, 1967. The Apollo VI stack was moved by crawler transporter from the Vehicle Assembly Building to

Launch Complex 39A on February 6 and immediately went into prelaunch testing.

Apollo spacecraft 020 command and service modules will undergo a flight profile similar to that of Apollo IV in which re-entry in excess of lunar return velocity will follow an apogee of some 12,000 nm. The severe heating will test for a second time the heatshielding and the redesigned command module crew hatch for manned flight.

As in Apollo IV, the third stage S-IVB will perform a full-duration lunar injection burn of some five and a half minutes in the Apollo VI mission. The command and service modules will separate after S-IVB shutdown, and a four-minute retrograde burn of the service propulsion system will limit spacecraft apogee to 12,000 nm. The S-IVB will coast out to an apogee of some 279,000 miles in an elliptical earth orbit with a period of 16 days.

The S-IVB injection burn of Apollo IV last November was purposely made inefficient through a combination of radial and out-of-plane attitudes to limit apogee to 9769 nm. Apollo VI's S-IVB injection burn will be in-plane posigrade to achieve the stage's apogee in excess of lunar distance, but on a trajectory not necessarily toward the moon—depending upon actual launch day and position of the moon relative to injection point over the Eastern Test Range.

The Apollo VI command module will be recovered in the Pacific.

### Shakedown Cruise



TEST STACK—Apollo spacecraft 105 is shown atop a flight article Spacecraft Lunar Module Adapter (SLA) in the Bldg 49 Vibration and Acoustic Test Facility following a series of low-frequency vibration tests last month in support of the first manned Apollo mission.

### Sideline Quarterbacks



OILER BACKERS—Houston Mayor Louis Welch, left, has appointed MSC Astronaut Office chief Alan B. Shepard, Jr. head coach of the Houston Oilers Civic Committee to promote attendance and support of the team during the 1968 season. The mayor said, "I have always felt professional football is good for Houston, good for business and commerce, and good entertainment for all—citizens and visitors alike." Preferred-seating season tickets may be ordered on a first-come first-served basis from the Committee at 748-2499. The Oilers will play home games in the Harris County Domed Stadium.

**Regional Audit Service Awards**



**Robert H. Voigt**  
30 Years Service  
Both of NASA Regional Audit Office-MS



**Wayne S. Fagan**  
15 Years Service  
Both of NASA Regional Audit Office-MS

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**Chorus Adds Four Singers For Performance of *Requiem***

Four outstanding Houston-area singers have been added to the Bay Area Chorus for the March 31 Astronaut Memorial Concert performance of Mozart's *Requiem*. They are Diane Tabola, soprano, and Tommy Clark, tenor, soloists from Christ Church Cathedral; Robert Bennett, bass, choirmaster and organist at St. Luke's Methodist Church, Houston; and Phyllis Hand, contralto who has been soloist with the Houston Symphony.

MSC employees in the chorus are Beverly Duncan, Earl Gilbert, Clarke Hackler, Eddie Bernard, Vicki Jones, Gerry de Vezin, C. Mac Jones, Warren Gillespie, Herbert A. Tiedemann, Gordon Spencer, Jim Bone, Lawrence Roberts and Paul H. Kloetzer.

The Chorus will be accompanied by the Houston Symphony in the *Requiem* performance in the MSC Auditorium.

All MSC employees are invited to attend and the concert will be open to the public.

**Credit Union Holds Drawings For Free Shares**

The MSC Credit Union Monday will start a new contest in which the prize will be a \$5 share.

Each payday, the Credit Union will draw an account number coupon from a hopper and deposit a \$5 share to the winner's account. To be eligible to win, shareholders must have deposited one or more \$5 shares during the two-week period before payday. A coupon with the shareholder's account number will go into the contest hopper for each share deposited.

Credit Union officials say the contest "is an opportunity to open a savings account or activate a dormant account and be a winner, for *someone* is going to win \$5 each payday."

Winning names and account numbers will be announced in the *Roundup*.

**Toastmasters Have Vacancies In Memberships**

MSC and contractor employees who would like to improve their ability to talk on their feet are invited to join the MSC Toastmasters Club. The Club has several vacancies in its membership, but also has an upper limit to permit better participation.

MSC Toastmasters meet at 6 pm each Wednesday at the Ramada Inn on NASA Road 1 across from MSC.

Toastmaster group-participation activities include mastering the art of effective speaking, developing poise and self assurance before an audience, and learning how to prepare for conducting and participating in meetings.

MSC Toastmasters public relations director W. A. Greene can be reached at Ext 6161 for details on membership.

**MSC Aircraft Flys Test Run Of Spectrometer**

One of MSC's aircraft flew a test-run over Houston and the Gulf of Mexico Monday with a unique instrument which one day may find a role in the nation's earth resources program. A new down-looking infrared grille atmospheric spectrometer which is designed to measure atmosphere at various altitudes was installed in MSC's four-engined Lockheed Electra last week.

Dr. Brian Tinsley of the Southwest Center for Advanced Studies at Dallas, Texas, designed the instrument. Dr. Thomas Barnett of MSC's Space Physics Division of the Science and Applications Directorate, as co-investigator for the experiment, is in charge of recording and analyzing the data.

The aircraft is one of two being used in MSC's earth resources aircraft program. Dr. Tinsley's experiment, which has been funded by the NASA, is one of numerous experiments currently being performed in the MSC aircraft program.

Dr. Tinsley's experiment scheduled to be run at 30,000 feet is designed to record the vertical temperature structure of the atmosphere below. The instrument measures infrared emissions above the various types of terrain. Monday's flightplan called for the MSC aircraft to cruise above Houston and the Gulf of Mexico at 30,000 feet altitude. This is the first of several test runs designed to check out the instrument and associated data recording equipment.

Dr. Tinsley's experiment might find future application as a satellite instrument which could look at the atmosphere from much higher altitudes and have "extremely high value in weather forecasting."



**JOIN THE COST REDUCTION TEAM**

**NHA-ISA Fund Drive Starts Monday at MSC**

MSC Associate Director Wesley L. Hjernevik February 19 met with program office and directorate chairman to kick off MSC's annual campaign for the

National Health Agencies and International Service Agencies.

Hjernevik emphasized that the ten health agencies in the campaign to fight disease and disability along a broad front through research, education and service. The International Service Agencies help people around the world by providing food and medical attention and instruction and tools to enable them to build a better life.

Starting Monday each MSC employee will be asked to contribute to the campaign. The solicitation periods has been shortened to two weeks.

**AFGE Meets March 11**

Lodge 2284 of the American Federation of Government Employees March 11 will meet in the Bldg 30 Auditorium at 5 pm to hear a report on the February 23-25 Educational Seminar on Employee/Management Relations held by the AFGE 10th District in Waco.

**Co-op of Month**



**CONSCIENTIOUS** — University of Florida electrical engineering major Charles Phillips during his work cycle is assigned to the RF Communications Section of IESD where he is involved in design and prototype construction of VHF telemetry transmitters. His supervisors comment that he "has demonstrated outstanding capabilities in completing assigned tasks . . . His ingenuity, zeal, determination and explicit work on the problems involved have greatly aided the section in accomplishing these tasks."

Last year's MSC participation in the NHA-ISA campaign was 80%, but with conscientious support of each employee the 1968 campaign can have 100% participation.

**Alvin JC Offers Nursing Course**

Alvin Junior College offers a two-year program for earning an Associate Degree in nursing which makes the graduate eligible to take the Texas Test Pool Examination, thereby qualifying as a Registered Nurse.

Nursing Director Mary Alice Metcalf, RN is taking applicants for the 1968-70 nursing class beginning in September. The RN course is open to men and women 18 to 48 who are high school graduates and who are interested in caring for the sick, helpless and mentally disturbed. The two-year tuition and associated costs run less than \$1200.

Mrs. Metcalf at Alvin-OL 8-5313 will send a nursing program catalog to anyone requesting information on the course.

**Tax time approacheth . . .**



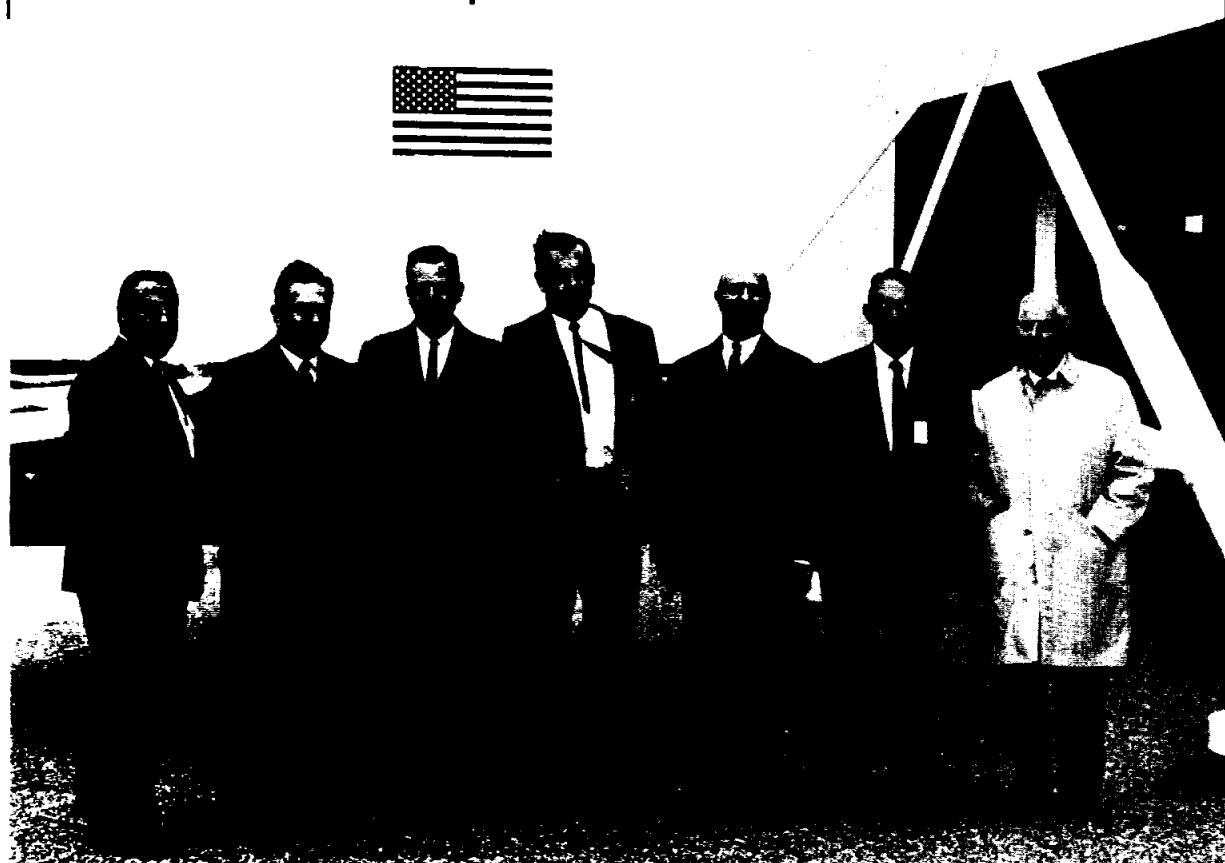
see us if you need money to pay the IRS (LOANS)

See us if the IRS is paying you (SAVINGS).

**MSC Federal Credit Union**  
In Bldg 11 Cafeteria



## Space Historians



**ADVISORY COMMITTEE**—Seven members of the NASA Historical Advisory Committee gathered recently at MSC for the committee's fourth annual meeting. The committee is responsible for reviewing NASA historical programs in progress, recommending policies and means of accomplishing historical studies, and suggesting areas for historical research. Left to right are NASA Headquarters historian Dr. Eugene M. Emme, American University School of Public Administration dean Earl DeLong, A. Hunter Depree of University of California-Berkeley History Department, Robert L. Perry of Rand Corporation Economics Department, Committee chairman Prof. Melvin Kranzberg of Case-Western Reserve University, University of Texas History Department chairman Joe B. Frantz, and James L. Cate of University of Chicago History Department. Not present at the meeting were Raymond L. Bisplinghoff, head of the Massachusetts Institute of Technology Astronautics and Aeronautics Department, and Louis Morton of Dartmouth College History Department.

## OMSF Management Beefed Up by Mueller

In a realignment aimed toward strengthening the overall management of the NASA Office of Manned Space Flight, Associate Administrator for Manned Space Flight Dr. George E. Mueller has appointed two deputy Associate Administrators to handle management and technical aspects of OMSF functions.

Named to the posts were OMSF Deputy Associate Ad-

ministrators—Management Frank Bogart and OMSF Deputy Associate Administrator-Technical Harold T. Luskin.

Bogart will have direct supervision over activities of MSF Program Control, Management Operations and Field Center Development Offices and will provide guidance to the OMSF Public Affairs Officer and Legal Advisor.

Luskin will act as technical director and chief engineer of MSF programs and will assume broad responsibility for technical soundness of program content and implementation. He will exercise direct supervision over activities of MSF Mission Operations and Space Medicine Offices and will provide guidance to the MSF Experiments Office and Bellcomm. Luskin will assume his post effective March 18. He was formerly chief advanced design engineer at Lockheed-California Company.

Directors of the Apollo, Apollo Applications and Advanced Manned Missions Programs and directors of OMSF field centers—MSC, Marshall Space Flight Center and Kennedy Space Center—will continue to report directly to Mueller.

"It is my plan," said Mueller, "that the Deputy Associate Administrator for Manned Space Flight (Edgar M. Cortright) and the management and technical deputies will share with me the responsibility for the overall planning and direction of MSC programs."

## Earth Resources

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During their stay at MSC, program participants will attend courses on the following subjects: 1) fundamentals and physical principles of remote sensors, 2) photography, television and photogrammetry, 3) radiometry, spectrometry, and passive microwave, 4) scanners, target signatures, and ground measurements, 5) radar and lasers and 6) data processing interpretation.

Upon completion of the 12-week technical course the participants will then depart on a six-week field trip to various government and university centers to observe and study use of resource data in the fields of agriculture, forestry, geography, geology, hydrology and oceanography. Upon completion of the field trip they will return to MSC for further study.

NASA has contracted with the Institute of Science and Technology of the University of Michigan, Ann Arbor, Michigan to conduct the remote sensing techniques course at MSC.

## Credit Union Hours

Bldg 11 Cafeteria:

Mondays, Tuesdays and paydays  
10 am-4:30 pm

All other days—10 am-2:30 pm

Bldg 3 Cafeteria:

Wednesdays—11:30 am-1 pm

(For share deposits, loan payments by cash or check. No checks will be cashed and no loan applications will be accepted by Credit Union Representative.)

## MSC Computer Specialists Conduct Texas Tech Course

MSC experts in computer technology will present a 15-hour orientation course on computers and computer applications for administrators of the Texas Technological University at Lubbock this month.

The purpose of the course will be to familiarize administrators of the university with potential uses of computers as management and educational tools. It will cover computer uses in such areas as resources man-

agement and financial administration, inventory and maintenance control, research and development, and data banks for student information.

The course will be conducted by Eugene H. Brock, Chief of MSC's Computation and Analysis Division; Thomas F. Woods, Chief of the Information Processing Technology Branch; and James L. Raney, Head of the Simulation Development Section.

As Chief of MSC's Computation and Analysis Division, Brock is responsible for the development and management of a high-speed digital computation, data reduction, and mathematical and engineering analysis capability to support the manned spaceflight programs of the Center.

He holds a BS in Mathematics from Texas Technological University, BS and MS in engineering from Texas A & M University; and has completed academic requirements for his doctorate at Arizona State University.

As Chief of MSC's Information Processing Technology Branch, Woods is responsible for Systems Programming on large-scale general purpose computers, smaller process control applications, and pilot trial of new techniques and hardware. Woods joined NASA in 1959. He holds a BS in Aeronautical Engineering from Boston University.

Raney, Head of the Simulation Development Section, manages the development and testing of computer programs for astronaut ground based simulators at MSC. He holds a BA in mathematics from the University of Texas.

## AIAA Awards Haley Medal To Grissom

Virgil I. Grissom March 26 will receive posthumously the American Institute of Aeronautics and Astronautics annual Haley Astronautics Award. The award, named for the late Andrew G. Haley, is made for an "outstanding contribution by test personnel who undergo personal risk in the advancement of spaceflight."

The Haley Astronautics Award consists of a \$500 honorarium, a medal and a certificate of appreciation.

Grissom was selected for his achievements in the Mercury and Gemini programs and for prelaunch testing and simulations for the first manned Apollo flight. He was spacecraft commander of the prime crew killed in a flash fire in the command module January 27, 1967 during a pad test.

The award ceremony will be held at a luncheon of the Second AIAA Flight Test, Simulation and Support Conference at the International Hotel in Los Angeles.

## Firehouse With a Head on It



**FOAMFINGER**—An MSC fireman squeegees against a seemingly overwhelming flood of high-expansion foam in the MSC Fire Station during a demonstration last week. The foam acts as a smothering and cooling agent for all types of fires and can be used to completely fill a room to snuff out a fire. The foam is mixed with water at the ratio of one gallon of foam to 1000 gallons of water and is nontoxic.