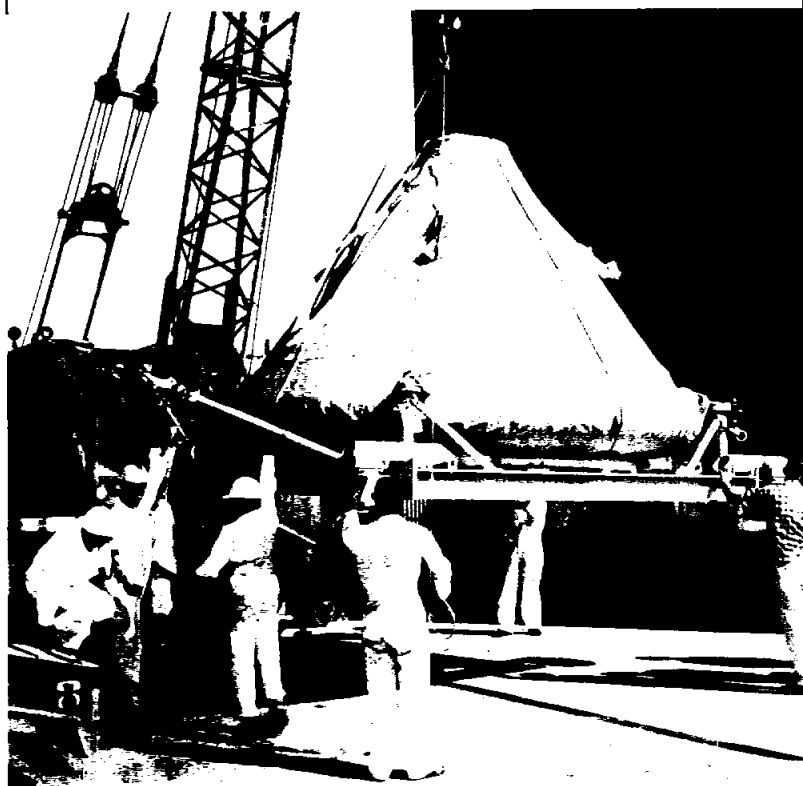


Apollo BP-23 Readied For Launch



APOLLO BOILERPLATE 23—The Boilerplate-23 model of the Apollo command module is shown being loaded on a truck prior to its transfer from the White Sands Operations Vehicle Assembly Building to the launch pad. There the mated launch escape system, command module, service module adapter, and the Little Joe II launch vehicle will undergo final checkout for the maximum "Q" abort test which is scheduled next month at White Sands Missile Range, N. M.

Astronaut's Fatal Crash Attributed To Collision With A Snow Goose

A snow goose—weighing about eight pounds, with a wingspan of more than 24 inches—caused the fatal crash of Astronaut Theodore C. Freeman on Oct. 31, 1964, it was announced November 16, two weeks after the crash.

Despite loss of power of both engines in his T-38 aircraft, after colliding with the goose, Freeman attempted to land his damaged aircraft at Ellington AFB. In the last few seconds, he headed for an open field, probably to avoid Ellington buildings, and ejected. There was not time for his parachute to deploy fully.

These were the principal findings which were reported to Dr. Robert R. Gilruth, director, Manned Spacecraft Center, on November 14.

Dr. Gilruth accepted the report, commended the team of investigators, headed by Donald K. Slayton, assistant director for Flight Crew Operations, on its thoroughness and instructed the group to transmit the report to the Air Force Operational elements, other NASA Centers, and aviation agencies.

The clinching piece of evidence establishing the line of flight and the point of bird impact fell into place November 12 when investigators found pieces of the forward canopy glass and the bird's wings about three miles southeast of Ellington. That was

about four miles from the point the plane crashed, one mile south of Ellington.

Experts at the Smithsonian Institute in Washington, D.C., identified bird remains as that of a snow goose. The Federal Bureau of Investigation assisted in identifying bird blood inside the cockpit wreckage. The Northrop Corporation, maker of the aircraft, and General Electric Company, which manufactures the T-38's engines, assisted in the investigation.

Freeman, pronounced dead at the scene, died of massive internal injuries and a skull fracture.

Investigators pieced together the following history of the flight:

Freeman took off at 10:01 a.m. on the first of two training flights he planned that day. The weather was scattered clouds at 2,000 feet, seven miles visibility and hazy. At 10:38, he radioed the tower requesting landing instructions. On receiving instructions, he executed a "touch and go" landing. During this maneuver, the tower advised him to break out of the traffic pattern in order to permit other planes to take off.

MSC Windshield Decals To Be Standardized—

New Employee Identification Badges Recognized At All NASA Centers

A new dual-purpose uniform employee identification badging system for all NASA facilities has been instituted to replace the current badges and ID cards.

The new identification cards will serve as a dual purpose badge/ID card. It will have a detachable clip so that it can be carried in a billfold for identification during non-working hours.

Taking of the color photographs in the west hall area of the Auditorium for the badges began on November 9, and will continue through December 16. All MSC employees will be issued the new identification prior to Jan. 31, 1965.

The new badge, which will admit a NASA-MSC employee to any NASA facility, will be recognized on a reciprocal basis at all NASA Centers and/or facilities.

Color coding for the bearer's security clearance will be changed on all MSC employee badges. The new colors will be as follows:

Top Secret—Yellow, broken with four vertical white stripes;
Secret—Red, broken with two

vertical white stripes;

Confidential—Blue, broken with one horizontal white stripe.

Uncleared (but investigation in progress or completed)—**Black**, unbroken border.

Badges of contractor employees at the Center will not be changed at this time.

The ID badges of some MSC employees will be coded with an alphabetical designation to indicate authorization to enter certain areas here at the Center and at Cape Kennedy.

The code designations are shown on the upper half of sample ID card printed in this issue. The codes and their meaning follow:

Code "R" identifies those who have a job-related requirement to enter the Mission Operations Wing of Building 30, during non-operational and non-mission simulation periods. This code will not permit access to this area during mission operation and simulation periods, as a more restrictive access control system will be implemented under such conditions.

Code "S" will identify those having a continuing requirement to enter the Space Environmental Simulation facility in Building 32, prior to and during tests.

Code "T" will be used to assist in identifying those having a requirement to enter the MSC Thermochemical Test Facilities area, prior to and during test operations. Building 350 is not considered to be within the confines of the Thermochemical Test area for the purpose of Code "T" requirement.

Code "U" will be used to designate authorized entry into the Crew System Laboratory,

Building 7, and will also be used to control entry into the operational portion of the Flight Acceleration Facility, Building 29, when the latter is completed.

Code "H" and Code "J" will be for launch, hangar and guid-



ance facilities used by Air Force contractors at the Air Force portion of Cape Kennedy, in support of NASA Programs. Code "H" will be for Atlas/Agena, and Code "J" for Titan/Gemini.

MSC employees who are required to travel to Cape Kennedy and visit the latter two areas between operations, named above, should have their new badges coded to indicate such entry requirement. These code designations will not be used immediately prior to and during actual missions, as a more restrictive access control system will be adopted during such times.

In addition to the badging, the "old style" MSC vehicle decals which were positioned in the

(Continued on Page 3)



CAUSE OF ASTRONAUT'S CRASH—Shown are the wings of a snow goose which impacted the canopy of the T-38 aircraft of Astronaut Theodore C. Freeman on October 31, causing the crash which took his life. The wings and pieces of the shattered canopy glass were found November 12, about three miles southeast of Ellington AFB, and approximately four miles from the crash site. Parts of the bird were also found in the wreckage.

Educational Challenges Being Met By MSC

(Editor's Note: The following article provides an insight into what NASA, and particularly the Manned Spacecraft Center, is doing to provide educators, students, and employees, with up-to-date information on the manned space effort and related areas.)

Are secondary school teachers interested in going to the moon to escape the frustrations of dealing with teenagers?

A person merely dropping by the two-day conference (November 16-17) held at the NASA Manned Spacecraft Center and observing over 300 local area teachers deeply engrossed in space science exhibits and presentations on manned space exploration might have gotten this idea.

But a look at the printed program of the conference reveals that it was a career and guidance clinic. If science educators and counselors are frustrated, they are seeking a more constructive solution to their problem than that of escape.

The national space agency's Manned Spacecraft Center, decided to hold the clinic in response to the many requests it receives to provide up-to-date information on the manned space effort and to help educators in formulating a space science program of study that will equip students to live and work more effectively in the space age.

The National Aeronautics and Space Administration has a two-fold interest in education. The law by which Congress created the space agency in mid-1958 placed upon it the obligation to "provide for the widest practicable and appropriate dissemination of information."

It also obligated the agency to carry out a program of space exploration that requires the best efforts of thousands of well-educated persons, many of whom are highly trained in scientific and engineering disciplines. To see that there is a continuing supply of such trained professional workers thus became a high-priority goal of the agency.

Educators, on the other hand, were presented with a staggering challenge to keep informed on research and development

activities and achievements in the field of space, to keep study curricula in the space sciences updated to include the latest information, and to offer meaningful and effective guidance or counseling to students seeking to choose life careers.

The clinic is just one attempt of the space center to meet the interrelated needs of the space agency and the educators.

Before looking at some of the other educational programs and services of the Manned Spacecraft Center, let us take a quick look at the overall educational effort conducted by NASA. There is an educational programs and services office in the national headquarters in Washington, D.C., which gives supervision, guidance, and support to the educational officers of nine space centers located throughout the United States.

In their role of providing guidance and help to education, the NASA Headquarters and Center educational offices conduct many educational activities, among which are the following:

The furnishing of informative publications to requestors;

A motion picture depository and distribution program which embraces space exploration films of general interest, technical films, and a space biology series;

A spacemobile program which consists of 25 spacemobiles carrying cargos of rocket and satellite models, mechanical and electrical equipment, and other space science exhibits which assist the lecturers accompanying the unit in conveying to the public the vital importance of a broad-based national program of space exploration;

A large inventory of educational space exhibits on display throughout the United States;

Educational television shows;

The maintenance of speakers bureaus to meet the requests of thousands of civic, technical, and educational groups for speakers knowledgeable concerning the space program.

The awarding of grants and contracts to universities is certainly a vital part of NASA's educational program. However,



CAREER AND GUIDANCE CLINIC SPEAKER—Dr. Albert Piltz (center), specialist for Science, U. S. Office of Education, and one of the featured speakers at the recent Career and Guidance Clinic here at MSC, is shown with Paul E. Purser (right), special assistant to the MSC Director, and Eugene Horton (left), chief, Educational Programs and Services, Public Affairs Office.

it will be considered separately inasmuch as it is administered by another headquarters office set up for that specific purpose only.

The above listing of NASA's educational activities is not intended to be all-inclusive, but it is a good indication of the serious attention given to education by the national space agency. Following is a summary of some of the educational activities of the public affairs office at the Houston center.

The number of information requests processed and filled at MSC during the first 10 months of 1964 averaged 850 per month.

MSC speakers supplied each month to requesting groups averaged 48 in number.

Four spacemobiles gave several presentations daily throughout the 8-state area serviced by MSC, reaching an average personal audience of 80,000 monthly, with approximately an additional 100,000 viewing the spacemobile presentations on television.

A cooperative program with the Houston Independent School District made possible the development of teaching materials for the use of schools.

Manned spacecraft and explorations were set up and manned for special events throughout the United States.

An average of over 500 requests for films were received and filled each month.

Many conferences and tours of the center were conducted for various groups.

As mentioned earlier, the national headquarters office of the space agency awarded grants and contracts to universities for research projects, for the building of facilities to accommodate research, and for financing technical students in pre-doctoral training programs. Fifty one universities are currently participating in the NASA research program; and in the current fiscal year, 1,250 pre-doctoral training grants have been given to students seeking advanced de-

grees in 140 colleges and universities throughout the U.S.

Among the grants made to local area universities are those made to the University of Texas, Texas A. & M. College, Rice University, and the University of Houston. Let's take a look at these specific grants:

The University of Texas has been awarded contracts totaling \$789,000 for scientific studies in the fields of atomic systems, plasma, solar radiation, effects of zero gravity on human cells, guidance theory, and for the construction of a parabolic antenna. In addition, it received two pre-doctoral training grants totaling \$290,000.

At Texas A. & M. College, grants totaling \$587,000 have been awarded for research on interdisciplinary space studies and neutron activation techniques. An additional grant of one million dollars was awarded recently for the building of an activation analysis research laboratory, and A. & M. received three pre-doctoral training grants totaling \$642,000.

Rice University has been awarded a facilities grant of 1.6 million dollars for the building of

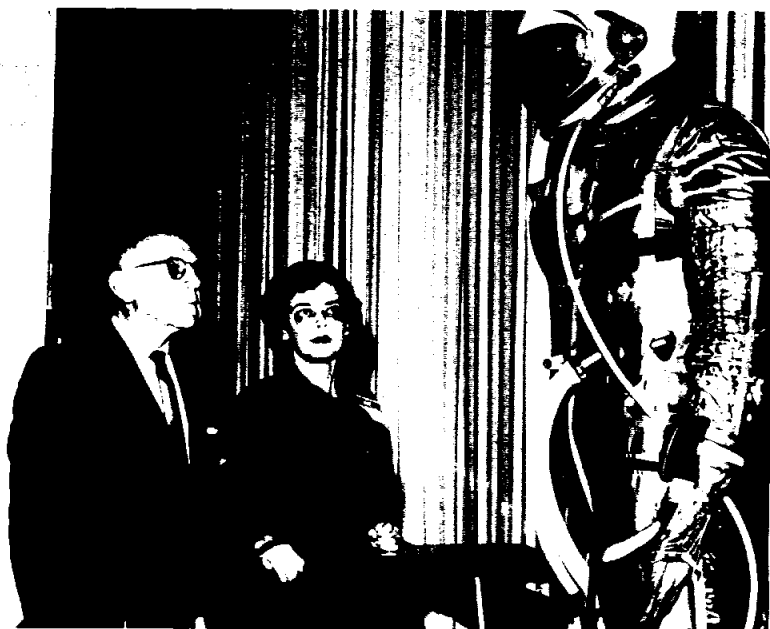
a new space science and technology building. Rice has been the recipient of a grant for research on the physics of solid materials and the annual average value of this contract is approximately \$300,000. Scientists at Rice are conducting a study of the aurora and airglow under a \$260,000 NASA contract, and Rice University has three pre-doctoral training grants totaling \$672,000.

The University of Houston has two research contracts from NASA totaling \$156,000 and two pre-doctoral training grants totaling \$354,000.

In addition to the program of university grants and contracts administered by the national headquarters, MSC has several center programs aimed at attracting scientific and engineering talent upon graduation.

The Management Intern at MSC is a graduate student with his master's degree or equivalent training in business administration, management, or other related field. He spends his first year working in different offices at the Center to familiarize him-

(Continued on Page 3)

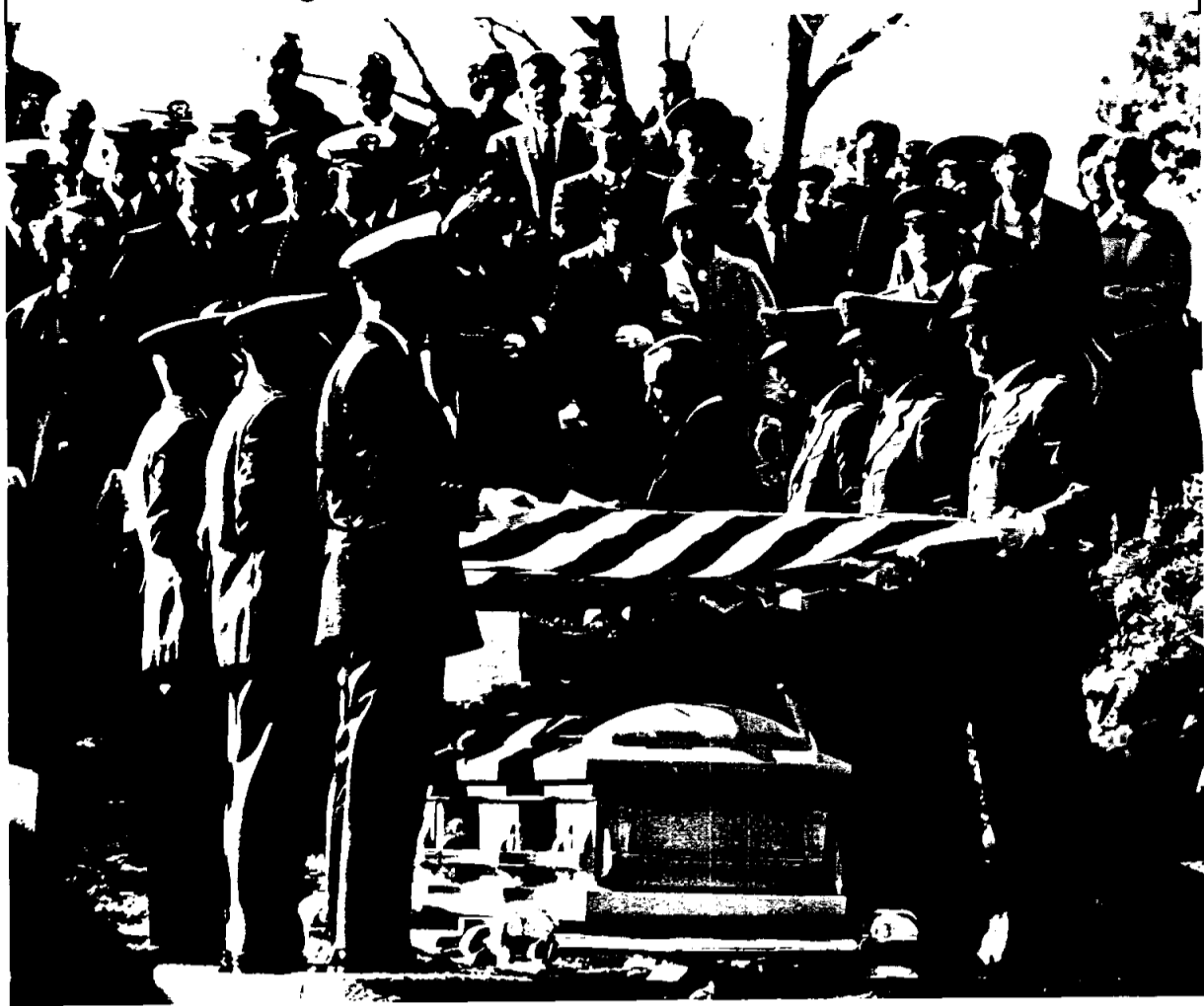


CLINIC SPEAKER—Dr. Frank E. Sorenson (left), director of summer session, University of Nebraska; and Mrs. Valencia Foley, counselor, Hartman Junior High School, Houston, look over a spacesuit display in the MSC Auditorium. Dr. Sorenson was one of the speakers at the MSC Career and Guidance Clinic here last week.



PASADENA TEACHERS—Two of the educators that were in attendance at the recent Career and Guidance Clinic here at MSC, are shown as they examine the interior of a Mercury spacecraft. They are (l. to r.) Jim R. Davis, Queens Intermediate School, Pasadena; and Eugene Tegeler, Pasadena High School.

Arlington Tribute To Astronaut Freeman



FULL MILITARY HONORS—Astronaut Theodore C. Freeman was buried November 4 in Arlington National Cemetery with full military honors. Pallbearers hold flag above the casket as they prepare to fold it for presentation to the astronaut's widow. In attendance at the services were America's other 29 astronauts, paying tribute to one of their own.

(Continued from Page 2)
self with the overall Center operation, then is assigned to a permanent position.

There are 210 students from 31 colleges in the co-operative student program at MSC. Starting in the second year of college, students are eligible to participate in the cooperative program. They spend a semester working at the Center as engineering aides, receiving on-the-job training. Then they return to their college for six months of formal academic training. This continues until they graduate. While they are working at MSC, they are paid a salary which they can use to defray the cost of their education.

The Summer Interns are engaged in another MSC educational program. During the summer of 1964, MSC employed 41 interns comprising 31 top engineering and science students and 10 administrative students in their junior or senior year or in graduate study. They attended

seminar programs and worked at the Center during their summer vacation period, returning to the campus for a full school term in the fall.

At present MSC has an apprentice program for ten young men being trained for technical areas.

The Center employee is not neglected in this educational emphasis. There are 346 MSC enrollees in graduate study programs at the University of Houston and Rice University this semester. During fiscal year 1964 over 2,500 employees of the space center participated in some kind of educational program, two-thirds of it in-house.

MSC recognized the importance of skills other than technical. During the past year over 200 supervisors were trained in some phase of management.

Participants in the Career and Guidance Clinic heard an address on "The Impact of Space Research on Science Education" by Dr. Frank E. Sorenson of the

University of Nebraska. MSC speakers discussed scientific programs being carried on at NASA, and the career possibilities of the Space Age. A highlight of the clinic program was an address of "The Management of a Complex Technical Program" by Dr. Joseph F. Shea, manager of the Apollo Spacecraft Program Office.

Dr. Albert Piltz, specialist for science of the U.S. Office of Education delivered an after dinner address on "Scientific Literacy—What We Can't Live Without." He emphasized the importance of a liberal, well rounded education both in the humanities and sciences, and noted that science today is taught in the public schools to prepare two overlapping groups—the science consumers and the science producers.

He stated, "The very nature of science in modern life necessitates the development of scientific literacy for everybody, but for those who seek careers in science we have the additional requirement of specialized scientific training and basic research and development."

It was suggested by him that the development of literate citizenry in science can be achieved with carefully planned kindergarten through Grade 12 programs in the Nation's schools.

Paul E. Purser, special assistant to the Director of the Manned Spacecraft Center, summed up the purpose of the clinic by stating, "It is our hope that through this discussion of the challenges in education which confront and affect both educators and representatives of government, we will develop more effective ways to train and utilize the human resources of our country."

MSC Employee Dies In California While Attending Apollo Design Review

Walter E. Smith Jr., 27, an employee of the Manned Spacecraft Center's Instrumentation and Electronic Systems Division, died of a cerebral hemorrhage on November 19 in Downey, Calif.

Subsystem manager for power distribution and sequencing on the Apollo command and service module, Smith was attending a design review on the spacecraft inverter at the North American plant at the time of his death.

He is survived by his wife, Gail W., who lives at 8447 Park Place Blvd., Houston.

Smith was found unconscious in his motel room last Wednesday. He was taken to Downey Community Hospital where he died at 2:45 a.m. the next day.

Funeral services were held Monday at St. Christopher's Catholic Church in Houston. Burial will be in Florida.

A 1960 graduate of The Citadel, Charleston, S. C., Smith

came to MSC in October, 1962. He served in the U.S. Army from August, 1960, to March, 1961, as a second lieutenant, and was employed as plant engineer for the Hartsville Cotton Mill, Hartsville, S.C., before coming to MSC.

AIAA Chapter To Hear Address By Dave Lang

The local AIAA Chapter will hear a talk on contractor-government relationships in connection with procurement, by Dave W. Lang, chief of the MSC Procurement and Contracts Division, at a dinner meeting, Monday, December 7, at the Flintlock Inn.

A social hour at 5:30 p.m., will precede the 6:30 dinner meeting and program. The dinner will be \$3.50 per person and reservations may be made by calling Don Gregory at Ext. 2283, or Charles Appleman, local AIAA president, at MI 9-2733. Deadline for tickets is December 4, and only 120 tickets will be sold.

ID Badges

(Continued from Page 1)
center of the windshield are being replaced. The new type must be in place on the lower left corner of the windshield by Jan. 31, 1965. The new decal may be obtained at the same time the employee reports for the ID badge photograph.

To obtain the decal the following information is necessary: vehicle make, year, model, color,

and license number.

Security officials announced that badges will be processed as soon as possible and should be ready for issuance in approximately two to three weeks after the photograph has been taken. New badges may be picked up in the lobby of Building 2, and at that time the old badge and ID card must be turned in.

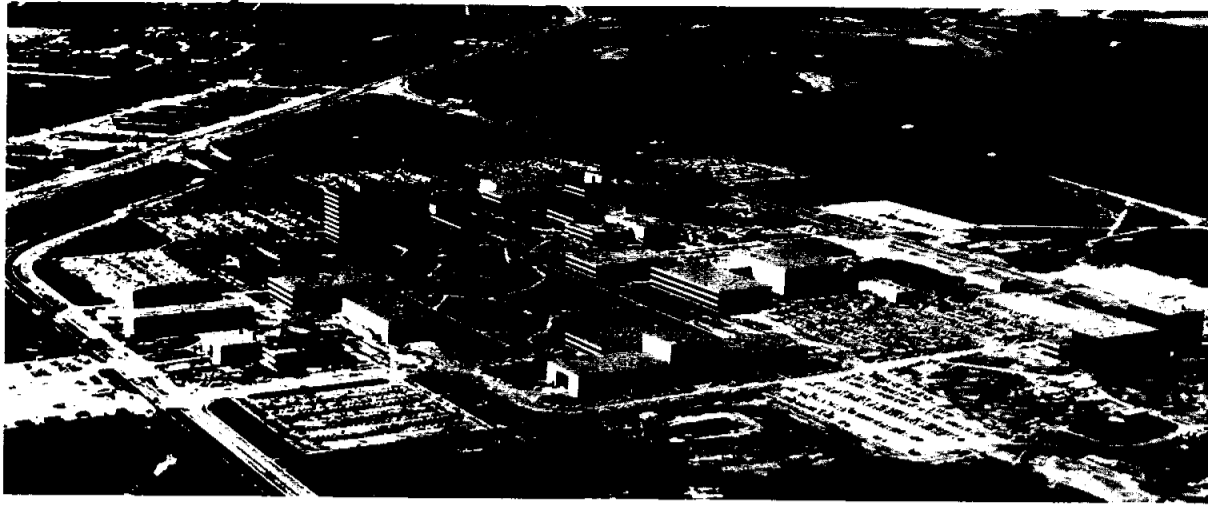
An alphabetical listing on a board in the lobby of Building 2 will be used to show the range of badges which are ready for issuance.



EMPLOYEE EDUCATIONAL COUNSELING—Dr. Lawrence R. Daniel, head of Mechanical and Aerospace Engineering Department, Louisiana State University, counsels MSC employees on job-related graduate study. Dr. Daniel has served the past two years as an educational consultant at MSC to advise employees on university training that will increase their job performance. As a result of these sessions, employees plan a continuing program of part-time study at local universities.

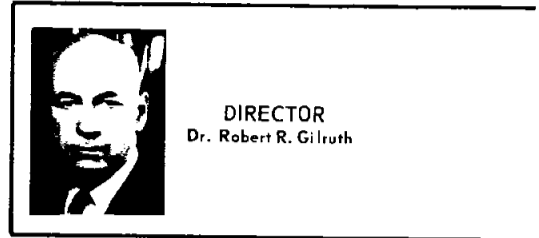


FIRST NEW MSC BADGE—William D. Antrim poses for the picture in full color that will appear on his new NASA-MSC badge. He was the first to be photographed for the new badges that eventually all MSC employees will be wearing prior to Jan. 31, 1965. A uniform type badge is to be issued by all NASA centers and installations, and will be recognized on a reciprocal basis.

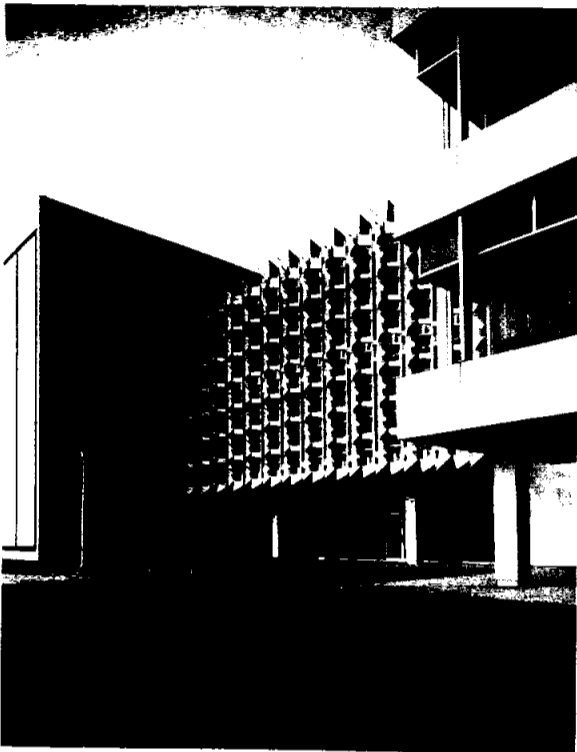


MANNED SPACECRAFT CENTER, LOOKING SOUTHWEST

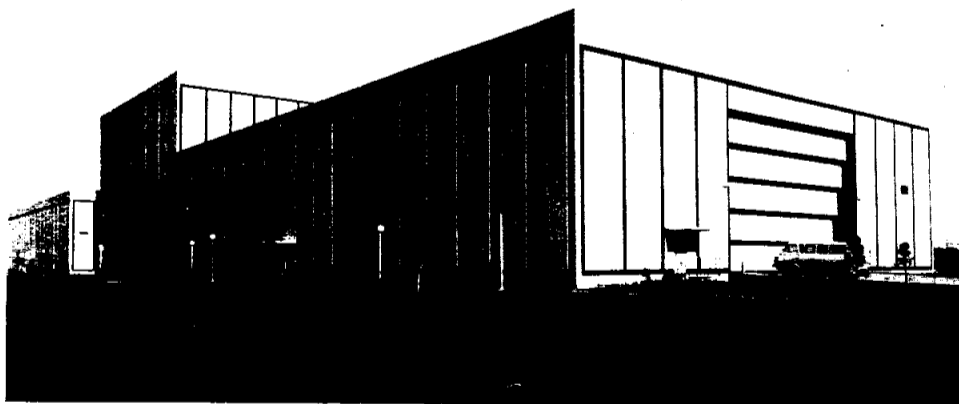
MANNED SPACECRAFT CEN



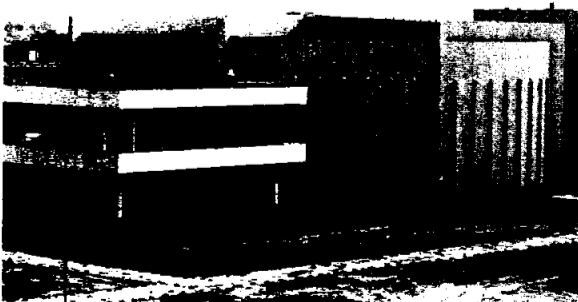
DIRECTOR
Dr. Robert R. Gilruth



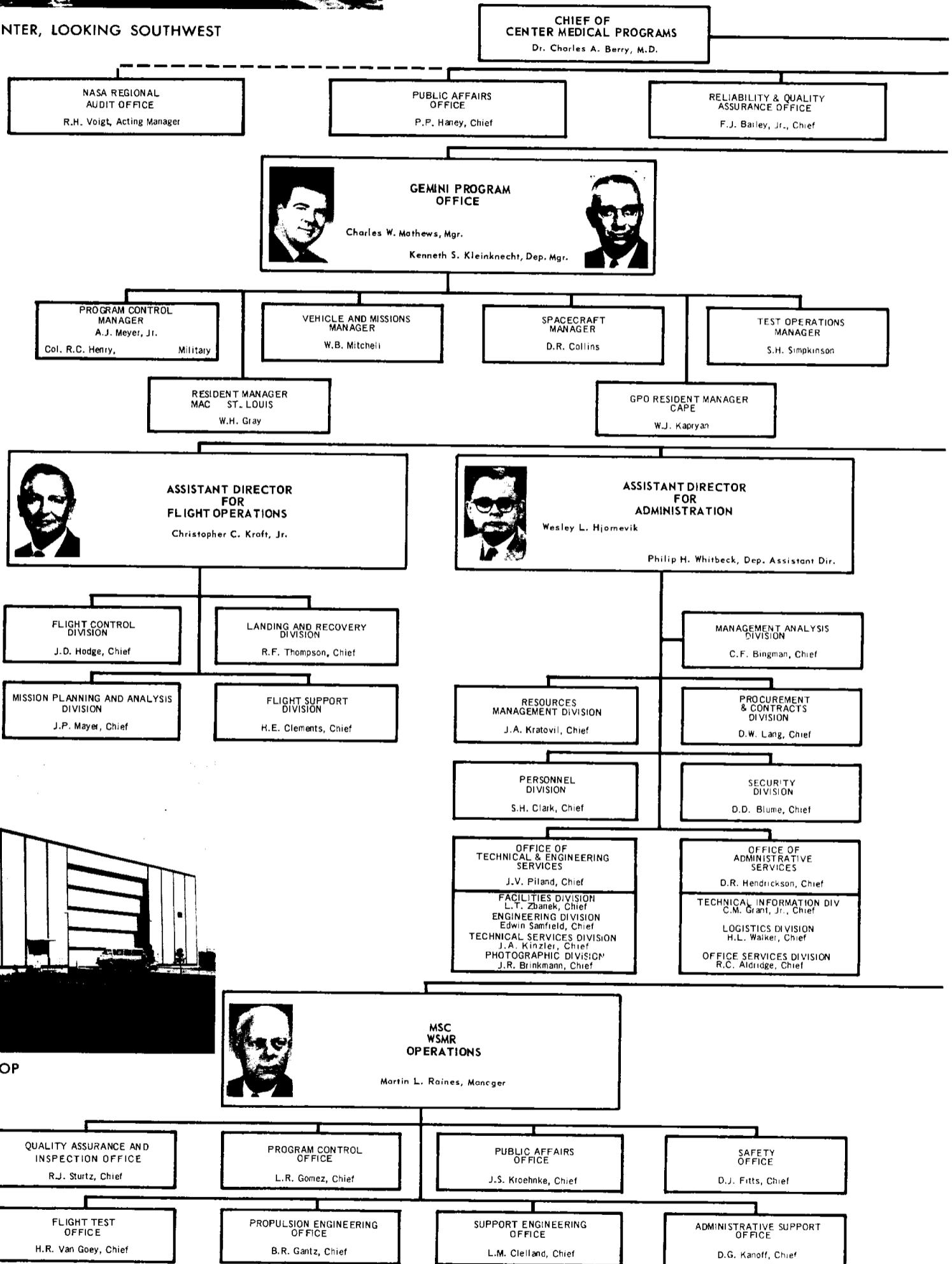
ENTRANCE TO MANNED SPACEFLIGHT CONTROL CENTER



TECHNICAL SERVICES SHOP



FLIGHT ACCELERATION FACILITY



MSC Awards Ceremony Recognizes Outstanding Employees

The Manned Spacecraft Center Sixth Anniversary Honor Awards Ceremony was conducted November 19 in the MSC Auditorium, with recognition of awards that had been presented during the year, plus presentations of special awards.

Awards presented during the ceremony included: the Presidential Citation, to Parker L. Carroll, Procurement and Contracts Division, and the Group Achievement Award to the Facilities Division.

Forty-nine recipients of non-federal awards were recognized along with the recipients of federal awards.

Recognition went to six, for 30-years federal service, and 129 for 20-years of service.

Sustained superior performance awards to 27 recipients, along with 201 quality salary increases were recognized.

Ten suggestion and 16 invention and contributions awards were also recognized at the ceremonies.



PRESIDENTIAL CITATION—Parker L. Carroll, Procurement and Contracts Division (right) receives the Presidential Citation for his outstanding contribution to greater economy and improvement in government operations. He also received the Special Service Award.



INVENTION AWARDS—For their invention "Radial Module Space Station," Aleck C. Bond (left) presents awards to (l. to r.) Willard Taub, Advanced Spacecraft Technology Division; Edward H. Olling, ASTD; Robert H. Mason, ASTD; and David Brown, Structures and Mechanics Division.



GROUP ACHIEVEMENT AWARD—The Facilities Division was presented the Group Achievement Award for diligence and success in overall direction of the construction for the NASA Manned Spacecraft Center facilities. Holding the award are (right center) Leo T. Zbanek, chief, Facilities Division and his deputy, I. E. Campagna. Dr. Robert R. Gilruth (left) and George M. Low made the presentation.



THIRTY YEAR AWARDS—Receiving 30-year awards for government service, are (l. to r.) Leona L. Kempainen, Apollo; Fred G. Sanders, Logistics Division; Donald K. Ipson, Procurement and Contracts Division; and Adam E. Cook, Office Services Division. James A. Caudel is presented a 30-year service award by Charles W. Mathews (far right), Gemini Program manager. Caudel is supervisor of Quality Control Manufacturing Inspection, Quality Inspection and Reliability Office at McDonnell Aircraft in St. Louis, Mo.



EXCEPTIONAL SERVICE AWARD—At the Sixth Annual NASA Honor Awards ceremony, October 15, in Washington, D. C., Dr. Robert C. Seamans Jr., NASA associate administrator presented the NASA Exceptional Service Award to Wesley L. Hjernevik (right), assistant director for Administration, Manned Spacecraft Center. The award was presented, "For his exceptional ability in establishing and operating an effective business management organization in the newly created Manned Spacecraft Center, and particularly for his role in the design and construction of the Center's facilities within the prescribed time and budget limitations."

Test Your Security I. Q.

1. The Group Category Marking for automatic downgrading and declassification is required to be placed on: (a) Classified documents distributed outside of MSC; (b) All classified documents; (c) All classified report-type documents.

2. Which of the following affords the minimum protection for Confidential material transmitted through the U. S. Mail system? (a) First Class Mail; (b) Certified Mail; (c) Registered Mail.

3. Parking on streets within MSC is permitted under which of the following conditions? (a) When curbing is not painted yellow; (b) When there are no vacant spaces in adjacent park-

ing lot(s); (c) Only when signs designating "Authorized Parking" are clearly posted.

4. Under which of the following conditions are firearms permitted within the confines of MSC? (a) When authorized by the employee's Division Chief; (b) When authorized by the Chief, Security Division; (c) When designated as a courier for classified documents.

5. Which of the following categories of thefts are required to be reported to MSC Security Division? (a) Thefts of government property; (b) Thefts of personal property with a value in excess of \$5.00; (c) All thefts occurring within MSC.

(Answers on page 5-A)



SHARE INVENTION AWARD—Awards were presented to (l. to r.) Richard S. Johnston, chief, Crew Systems Division; Matthew I. Radnofsky, assistant chief, Apollo Support Office, CSD; and Gerard J. Pesman, Environmental Physiology Branch, CSD, for their invention, "Shock Absorbing Support and Restraint Means."

EAA Insignia Design Contest Reopened, \$25 Bond Is Prize

The contest to design an insignia or emblem for use by the MSC Employees Activities Association for use on letterheads, posters, etc. . . . has been re-

opened, with the person submitting the winning design, to receive a \$25 Savings Bond. The majority of the sketches submitted for consideration were variations of the NASA insignia, which is not permitted to be used in this manner.

NASA Management Manual Instruction 6-5-1A, Dec. 12, 1963, quotes from Title 18, USC Section 701, National Aeronautics and Space Act of 1958 to the effect that persons who manufacture, sell, or possesses any badge, identification card, or other insignia, of the design prescribed by the head of any department or agency of the United States for use by an officer or employee thereof, or any colorable imitation thereof, or photographs, prints, or in any manner makes or executes any engraving, photograph or impression in the likeness of any such badge, identification card, or any colorable imitation thereof, except as authorized under regulations made pursuant to law, shall be fined not more than \$250 or imprisoned not more than six months or both.

The chairman of the committee handling this contest said those who submitted such entries are invited to submit again, by Jan. 5, 1965.

Everyone at MSC is eligible to submit their idea for a try at winning the \$25 Savings Bond.

Aero Club Meeting To Be Held Nov. 30, Bldg. 30 Auditorium

The Aero Club here at MSC will hold a meeting at 5 p.m., Monday, November 30, in the auditorium of Building 30.

All club members and others interested in flying are urged to attend. Information regarding the aero club may be obtained by calling Bill Kuykendall, Ext. 3101, or Jack Joerns, Ext. 4471.

To Be Held December 11—

MSC Christmas Dance Ticket Sales Begin

Ticket sales for the MSC Christmas Dance are scheduled to begin today and continue until the day of the dance or until 800 tickets have been sold, whichever is sooner, Charles H. Pace, chairman of the dance committee, announced.

The dance will be held from 8 p.m., until midnight, Friday, December 11, at the Sylvan Beach Pavilion in LaPorte, which has a capacity of 800 people.

This semi-formal dress affair will feature music by Nick Navarro and his 11-piece orchestra. Tickets will be \$2.50 per

person, which includes admission and set-ups. Parking is free and tables will be set for parties from four to 20 people on a "first come-first served" basis.

Tickets will be available from any Employees Activities Association representative. A roving ticket salesperson will be in the MSC Cafeteria each day during the noon lunch period and will be identified by a red badge. Tickets may also be purchased from the receptionists in Buildings 2, 4, 16, and 30.

Holiday decorations in a bright Christmas atmosphere will deck the pavilion. The decoration

committee is headed by Maggie Taylor.

Additional information on tickets etc., may be had by calling Charles Pace, Ext. 5141, or Mary Sylvia, Ext. 3959.

Credit Union New Car Loan Rates Lowered

Roy Aldridge, president of the MSC Federal Credit Union, announced that the interest rate on new car loans and loans secured by deposits were reduced to 3¾ per cent on Nov. 12, 1964.

This action by the Credit Union Board of Directors was taken to assure that the Credit Union was offering members interest rates below the current fees charged by banks and other lending agencies.

As an additional bonus, the Credit Union also insures the loan. In the event of death the debt is automatically cancelled. Credit Union Loan payments may be accelerated without penalty.

Additional information may be had by calling Joe Murray, Credit Union manager, Ext. 2066.

EAA Children's Christmas Party To Be Held In MSC Cafeteria

A Christmas party for MSC employees' children will be held this year here at the Center, with Santa and refreshments for the children, and coffee for the parents.

The party will be held in the MSC Cafeteria from 3:30 to 5:30 p.m., Saturday, December

12, for children from age 3 thru 12. Each child is to bring a gift for their own age and sex, with a maximum cost of one dollar. The age and sex should be noted on the outside of the package.

Refreshments will be furnished by the MSC Employees Activities Association, which is also directing the arrangements for the party.

Additional information may be obtained by calling Mary Sylvia, Ext. 3959.

Charm School Enrollees Sought

A charm school for women here at the Manned Spacecraft Center is scheduled to be held once a week for 25 weeks, beginning in January, for those interested in taking the course.

The classes will be limited to 30 girls and will meet from 6 to 7:30 p.m., each Tuesday or Wednesday in Building 2.

Subjects to be covered in the course include hair styles, make-up, poise, clothes selection, current fashions, personality, voice techniques, and others.

Those interested in taking the course may call Suellyn Johnson, Ext. 4971; Judi Liles, Ext. 3036; or Jan Shrum, Ext. 3671.

Duplicate Bridge Winners Announced

At the November 3 Master Point Game, master points were won by Bob and Terry Hodgson, who were first North-South, and Richard Baldwin and Clarke Hackler, first East-West. Wayne and Elizabeth Brewer and Max Cone and John Stanfield tied for second place North-South. East-West second place winners were Louise Tinner and Howard Ates.

On November 10, Edith and Richard Reid were first North-South and Tom Moore and Richard Baldwin, East-West. Second place North-South was taken by Art Manson and Evelyn Huvar, with East-West second going to Betsy Mason and Leona Kempainen.

November 17 results were North-South, Max Cone and John Stanfield, first; Louise Tinner and Howard Ates tied with John and Betty Herrmann, second; East-West, Richard Baldwin and Clarke Hackler, first; Paul Swanzy and Ray Lynch, second.

MSC BOWLING ROUNDUP

MSC MIXED LEAGUE		
Standings as of Nov. 16		
TEAM	WON	LOST
Celestials	28	12
Eight Balls	27	13
Dusters	26	14
Virginians	25	15
Alley Cats	23	17
Shakers	21	19
Falcons	19	21
Gutter Nuts	17	23
Chugg-a-Lugs	16	24
Hawks	16	24
Play Mates	14	26
Goof Balls	11	29

High Game Women: Barnes 200, Taylor 174, Morris 169.

High Game Men: Morris 230, Schmidt 221, Sargent 220.

High Series Women: Barnes 541, Gassett 450, Morris 428.

High Series Men: Spivey 574, Morris 570, Sargent 564.

High Team Game: Celestials 836, Eight Balls 823, Dusters 803.

High Team Series: Eight Balls 2321, Celestials 2315, Alley cats 2227.

High Series Women: S. Swain 584, 548, J. Foster 538.
High Series Men: J. Garino 642, B. Jones 628.

MIMOSA MEN'S LEAGUE		
Standings as of Nov. 12		
TEAM	WON	LOST
Fabricators	28	16
Pseudonauts	25	19
Green Giants	24	20
Whirlwinds	23	21
Alley Oops	23	21
Turkeys	23	21
Sizzlers	20	24
Roadrunners	19	25
Spastics	18	26
Technics	17	27

High Game: Hecht 244, Amazon 233, Blalock 225.

High Series: Keggin 607, Folwell 604, Sandars 586.

High Team Game: Fabricators 990, Green Giants 928, Alley Oops 919.

High Team Series: Fabricators 2641, Pseudonauts 2631, Green Giants 2591.

MSC COUPLES LEAGUE		
Standings as of Nov. 17		
TEAM	WON	LOST
Wha Hoppen!	33	11
Hi-Ho's	29	15
Schplitz	24	20
Crickets	23	21
Pinsplitters	23	21
Sandbaggers	22½	21½
EZ-Go	21½	22½
Alley Cats	20	24
Goofballs	17½	26½
Bowlernauts	17½	26½
Thinkers	17	27
BLTZF	16	28

High Game Women: S. Swain 234, D. Donatto 223.

High Game Men: L. Townsend 236, J. Garino 235.

NASA 5 O'CLOCK MON.		
Standings as of Nov. 16		
TEAM	WON	LOST
Suppliers	22	14
Foul Five	21	15
Sombreros	18	18
Computers	18	18
Hot Shots	17	19
Alley Gators	12	24

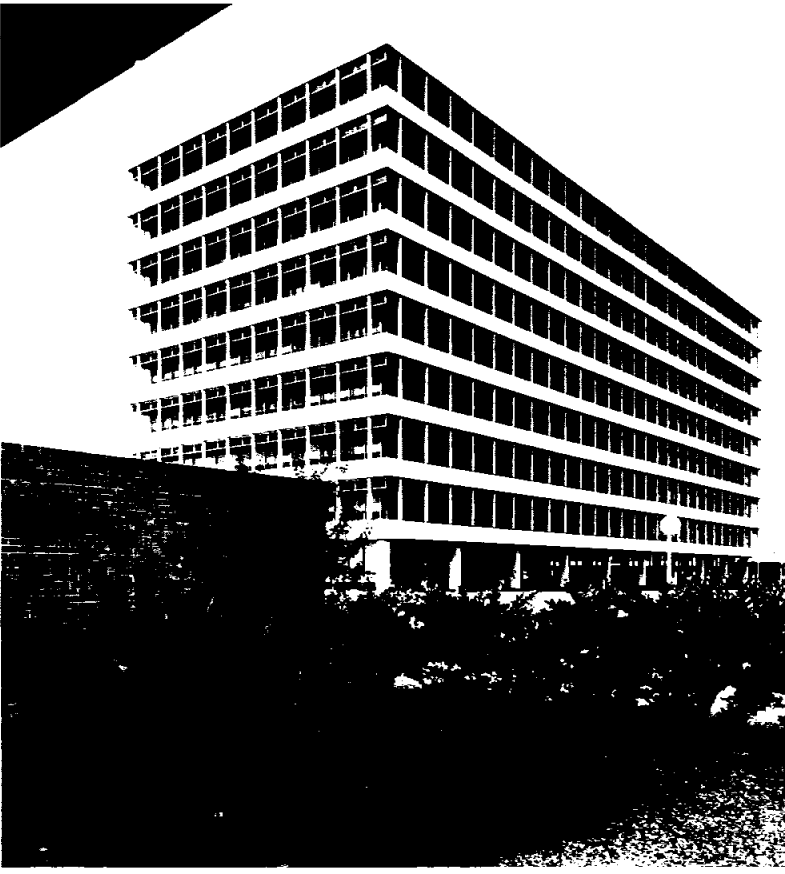
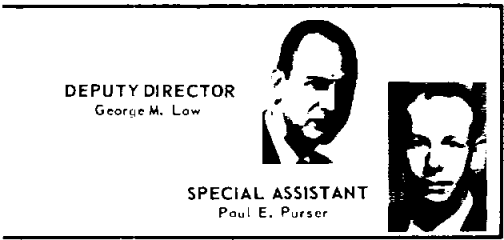
High Game: H. Erickson 224, C. Eckert 219, E. Gorecki 212.
High Series: H. Walker 557, R. Linberger 537, G. Carter 531.
High Team Game: Computers 880, Suppliers 845, Foul Five 832.
High Team Series: Hot Shots 2326, Computers 2306, Foul Five 2304.

ANSWERS

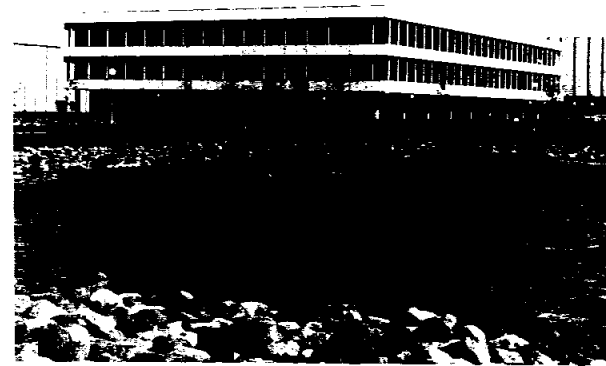
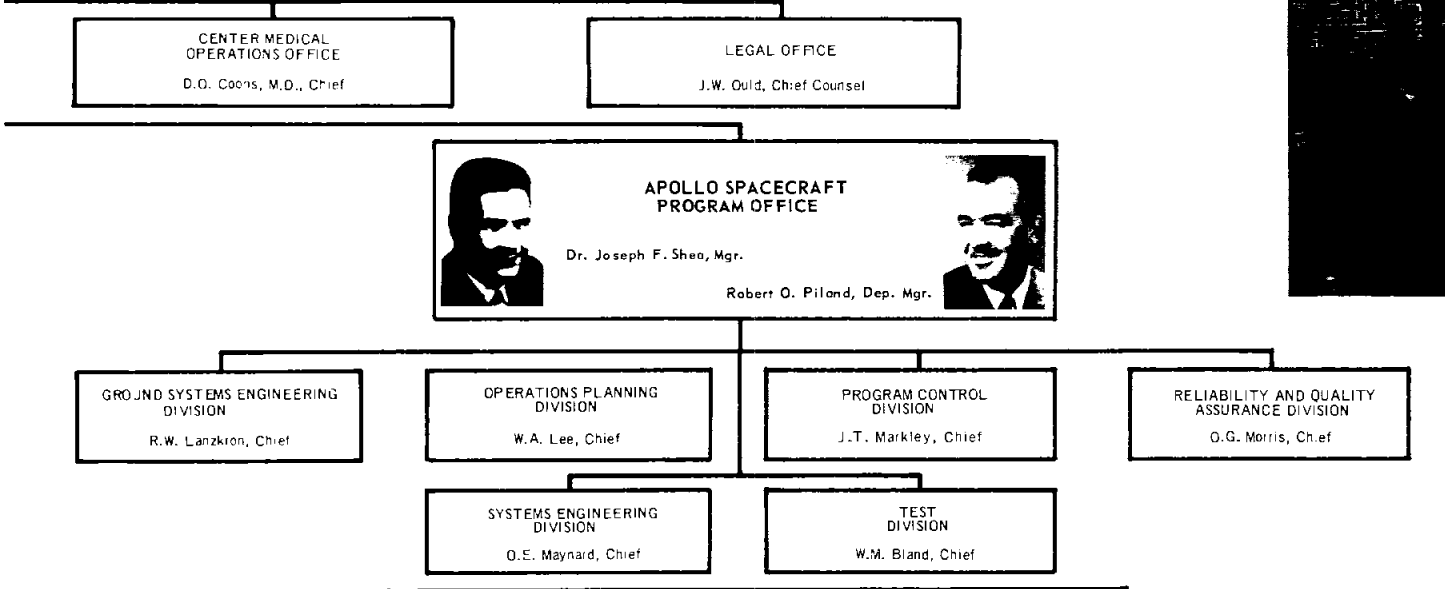
TO SECURITY QUIZ

1. B. 2. B. 3. C. 4. B. 5. C.

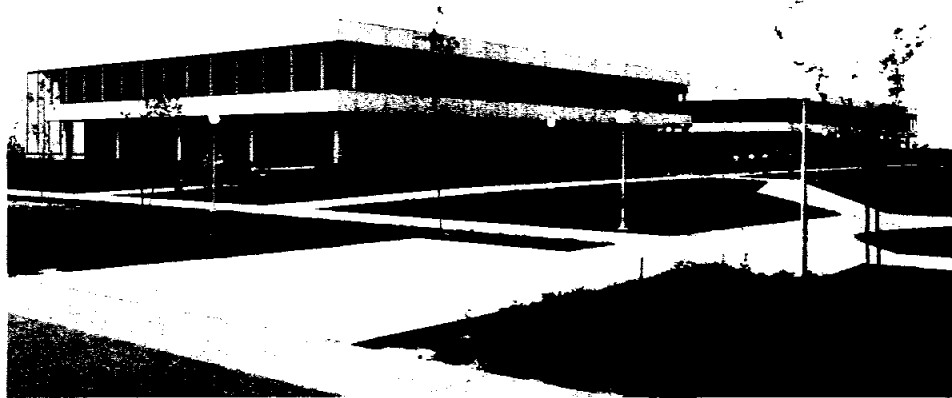
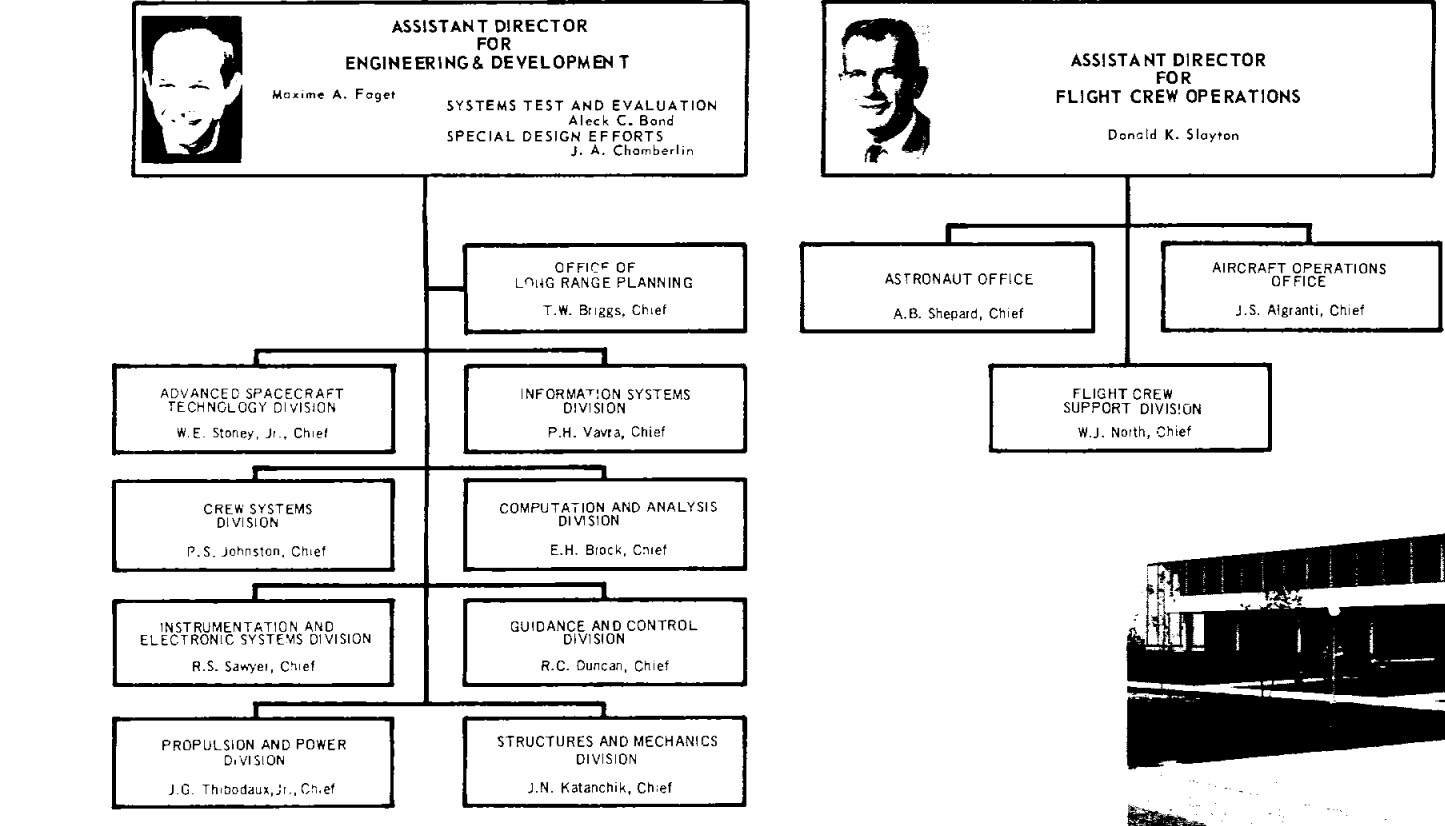
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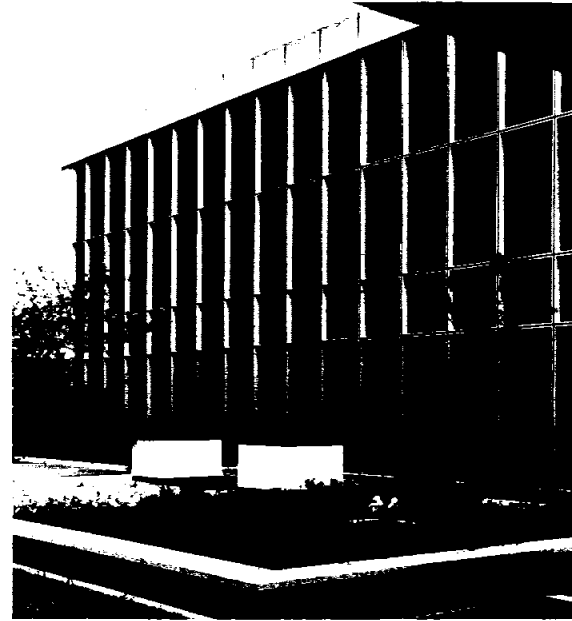
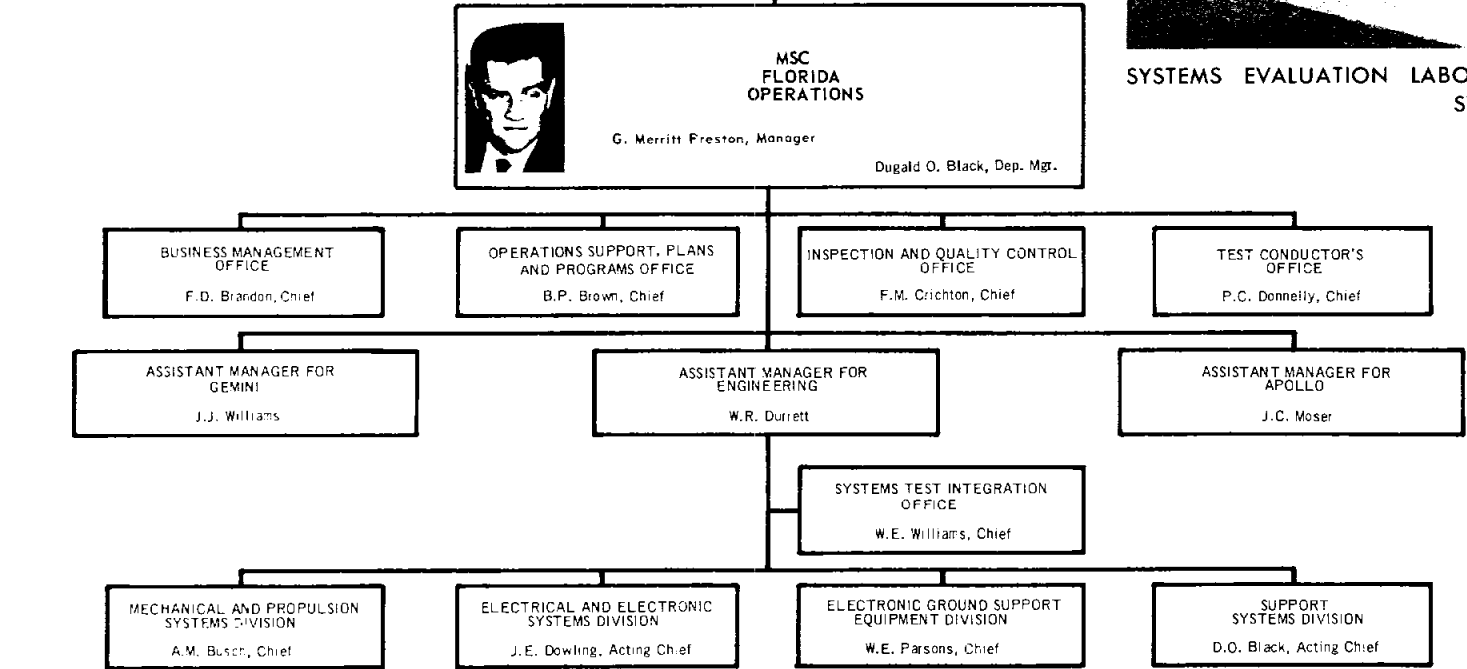
PROJECT MANAGEMENT BUILDING



FLIGHT CREW OPERATIONS BUILDING



SYSTEMS EVALUATION LABORATORY (L), INSTRUMENTATION AND ELECTRONIC SYSTEMS LABORATORY (R)



AUDITORIUM

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	Paul Haney
Chief, News Services Branch	Ben Gillespie
Editor	Milton E. Reim
Staff Photographer	A. "Pat" Patnesky

On The Lighter Side



**NO, THAT'S NOT A NEW BOOSTER..
IT'S MY COFFEE THERMOS!!!**

Space News Of Five Years Ago

Nov. 27, 1959—The Arnold Engineering Development Center tested the Grand Central solid-fuel rocket motor used to propel the Mercury spacecraft escape system. The purpose of the test was to verify altitude ignition and to determine the combustion-chamber-pressure-time curve.

During the month of November, 1959—The first manned development tests were completed at the AiResearch Manufacturing Division, Garrett Corporation. Tests were conducted in the altitude chamber to determine proper functioning of all systems valves and components. A McDonnell subject was

clothed in a Mercury-type pressure suit for these tests. Data indicated that the system functioned satisfactorily.

—Between November 1959 and January 1960, 10 developmental full pressure suits were delivered to the astronauts and other subjects . . . The general design of the Mercury couch was completed, and couches were molded for the astronauts and medical personnel associated with the program.

Dec. 4, 1959—Little Joe 2 (LJ-2) was launched from Wallops Island to determine the motions of the spacecraft-escape tower combination during a high-altitude abort, entry dynamics without a control system, physiological effects of acceleration on a small primate, operation of the drogue parachute, and effectiveness of the recovery operation. The primate passenger, "Sam," an American-born rhesus monkey, withstood the trip and the recovery in good condition. All objectives of the mission were met.

Dec. 7, 1959—Tenney Engineering Corporation was chosen by the Space Task Group to construct the Mercury Altitude test chamber in Hangar S at Cape Canaveral.

—Administrator of NASA, Dr. T. Keith Glennan, offered the services of the U. S. Worldwide Tracking Network in support of any manned space flight the U.S.S.R. might plan to undertake, in a speech before the Institute of World Affairs in Pasadena, Calif.

Dec. 8, 1959—Two Thiokol retrorockets for the Mercury spacecraft were tested at the Arnold Engineering Development Center test facility. The test objectives were to evaluate ignition characteristics.

Welcome Aboard

During the last reporting period, a total of 82 persons joined the Manned Spacecraft Center. Of these, one was assigned to Van Nuys, Calif., ten to MSC-Florida Operations, one to Downey, Calif., two to White Sands Operations, and the remaining 68 here in Houston.

Legal Office: Leona J. Whitaker.

Central Medical Operations Office: Edna S. Hoot.

Public Affairs Office: Malcolm D. Anderson, William C. Fleming IV, Barney M. McMahon, Wayne H. Paris, and Milton J. Wilson.

Resident Business Management Representative Downey (Van Nuys, California): Regina H. Thorson.

Procurement and Contracts Division: Cheryl D. Dean, Judy K. Eckles, and Jacquelyn E. Phillips.

Management Analysis Division: Albert V. Towns.

Personnel Division: Charlotte A. Maltese, Mary A. Bryson, Thelma C. Cole, Dorothy J. Thompson, Betty L. Midgett, and Stella A. Villarreal.

Resources Management Division: Robert R. Hutchins, Paul L. Ponder, and Modena B. Reed.

Security Division: Jerrene C. Ramsey.

Photographic Division: Bill M. Blunck, Betty J. Bostick, and Charlotte A. McKinney.

Facilities Division: Patricia C. Larsen, and Barbara S. Quinn.

Technical Services Division: Vincent P. Cenatiempo, Robert E. DeVault, Christine A. Giamalva, Beverly R. Lewis, Edward L. Moseley, Joe N. Thomas, Lloyd J. Wakefield, and Thaddeus E. Walker.

Office of Technical & Engineering Services: Sharon L. Whatley.

Flight Crew Support Division: David R. Brooks, Marion W. Hix, Alyce E. Jernigan, and Maurice R. Walters.

Computation & Analysis Division: Mansell B. Rainbolt.

Instrumentation and Electronic Systems Division: Frank L. Baiamonte, Eugene S. Bills, and Donald B. James.

Guidance and Control Divisions: Eva A. Lee, W. Thad Lee, Abel J. Legendre Jr., Carey F. Lively Jr., and Delores J. Norris.

Structures & Mechanics Division: Samuel V. Glorioso.

MSC PERSONALITY

Apollo Division Chief Recalls Exciting Boyhood Experience

Dr. Rolf W. Lanzkron, chief, Ground Systems Engineering Division, Apollo, recalled recently, what he described as a "thrilling and somewhat dangerous experience," when as a boy of nine years, he and an older brother eluded the Gestapo in Germany and escaped across the border into Holland in 1938.

Lanzkron's Jewish extraction necessitated this type of exit from his native land during the Nazi reign in Germany. His parents had been able to leave

earlier, and he and his brother were able to go by boat to Israel where the family was reunited.

He was born in Hamburg, Germany, and received his early schooling in Naaleh Jerusalem, Israel. He served in the Israeli Army from 1948 to 1951.

In 1951 Lanzkron came to the United States and entered the Milwaukee, Wisc., School of Engineering, where he received a BS degree in 1953.

His course of study in electrical engineering, specializing in control systems and guidance, led to a masters degree from the University of Wisconsin in 1955, and a doctors degree from that same school in 1956.

In his present position as chief of the Ground Systems Engineering Division, Lanzkron serves as the primary point of coordination and control for all systems specification, design, and development associated with the Apollo spacecraft program ground support, checkout, bench maintenance, and handling and servicing equipment, and special test units.

His duties include monitoring the activation of Apollo facilities at MSC, White Sands, and the Atlantic Missile Range. He also arranges for transporting all Apollo hardware from the contractor's facilities to the test sites, as well as defining maintenance and support concepts for Apollo.

Lanzkron assumed his present responsibilities in March of this year and officially assumed his present title in July. Prior to his present job he was named manager in December 1963, of Acceptance Checkout Equipment—Spacecraft Project Office, a duty he still fulfills, and prior to this he was deputy manager, Systems Integration Division, a job he assumed in July 1963.

Before joining NASA and MSC in January 1963, he was chief of Integral System Engineering at Martin Aircraft Company in Baltimore, Md.

Prior to this he was with the UNIVAC Division of Sperry Rand in St. Paul, Minn. from 1956 to 1958, where he worked on advanced computer design.

Lanzkron has authored about a dozen technical papers in the mathematical and electrical engineering fields. He is a member of the Institute of Electrical and Electronic Engineering; American Institute of Aeronautics and Astronautics; The Mathematical Association of America, Inc.; and Sigma Xi.

He is married to the former Virginia Yarri from Shreveport, La., and the couple has a son, Paul Joshua age 2. The family resides in Houston.

He enjoys a game of chess, and when time permits, some heavy reading, along with pursuing his hobby as a philatelist.



DR. R. W. LANZKRON

and William W. Lofland.

Advanced Spacecraft Technology Division: Norberto R. Gonzalez, and Melinda S. Hoyland.

Flight Control Division: Robert L. Carlton, John A. Kamman, and Frances B. Waranus.

Mission Planning and Analysis Division: Maynard R. Huntley, Ronald J. Mayes, William T. Nixon, and Rita S. Smith.

Flight Support Divisions: Russell D. Nickerson, and Jimmy C. White.

Gemini Program Office: Don R. Coryell, Mallie J. Harnage, W. Dale Parker, Muhammed A. Rahman, and William H. Shaw.

Apollo Spacecraft Program Office: George W. S. Abbey, Milton W. Steinhil, and Robert W. Williams (Downey, Calif.).

MSC-Florida Operations (Merritt Island, Fla.): Lloyd Bostwick, Irvin J. Burtzloff, Beatrice R. Gardner, John C. Irvin, Nathan R. Koenig, Richard C. Proffitt, Anne J. Sheraka, Clara K. Smith, Roy J. Smith, and Edward M. Vonusa.

MSC-White Sands Operations (Las Cruces, N.M.): Jean S. Brown, and George W. Merrill.

'In The Valley Of The Moon'

(Editor's Note: What does a seven year old girl's imagination tell her about the possibility of life on other planets . . . or the moon? Here is what Linda, the seven year old daughter of A. W. Wardell, Reliability and Quality Assurance Office here at MSC, had to say in a story she wrote for a school assignment.)

"Once upon a time there lived on the moon, in a moon flower, a weird little man and a weird little woman. One day the weird little man went out to look for plants to eat. All of a sudden he saw a very large plant. He

reached out to get it but it got him. When it became dark his wife worried about him. She went out to look for him. She thought he must have gotten many plants. Just then she spotted the big plant. She said, 'He has overlooked a big plant.' She reached out to get it but it got her. Soon an astronaut came in a space ship. He saw the plant and tried to touch it but it burned him. He took his knife and cut it down. Out rolled the little man and woman. The astronaut took them to earth and kept them as his pets."

SPACE QUOTES

LOOKING AHEAD IN SPACE. Deputy Administrator Dr. Hugh L. Dryden, The Third 1964 Bicentennial Marshall Woods Lecture, Brown University, Providence, R. I., Oct. 21, 1964.

"The course beyond the immediate future depends not only on the scientific and technological potentialities involved but on the decisions of men and nations. Significant expenditures of skilled manpower, natural resources, and money must be made if space exploration is to continue beyond the moon, and the determination to commit these to space must be wisely made by responsible leaders, not only in the United States but throughout the world. At the present time many of these technological possibilities are under study, but as of today no commitments have been made to develop hardware for any of them . . ."

Docking In Trainer Almost Like Actual Space Maneuver

The blackened interior of a long, high ceilinged building here at the Manned Spacecraft Center is where the astronauts will work to perfect the docking maneuver of two vehicles in space before they try it for real on one of the upcoming Gemini orbital flights.

Known as the Translation and Docking Simulator (TDS), the trainer, located in Building 260, simulates all the motions required to dock an actual Gemini spacecraft and Agena vehicle in space.

It has been designed to simulate the responses to the thrust of the Gemini Orbit Attitude and Maneuver System (OAMS) thrusters, which will move the vehicles in orbit.

Visually the view is identical to the out-of-the-window view of the operational spacecraft, and simulated solar light gives a visual presentation of the light angles and shadows that exist in orbit.

The control panel indicators, displays and hand controllers are identical to the actual spacecraft.

All trainer instruments and

controls related to docking respond or feel the same as the operational vehicle, and the Agena and spacecraft move exactly as operational ones will in response to signals from the crew.

The computer-controlled drive systems produce accelerations and velocities that the various thrusters would produce in orbit. This motion is similar to maneuvering a twin engine boat with engines only. Add to this the ability to go up and down in the water like a submarine, as well as forward, back, right or left, roll over, pitch up and down and yaw at the same time, and you have the motions the simulator will create.

The end result—the motion is smooth and the feel is the same as that which would occur while

in orbit, except for weightlessness.

Forces generated when two vehicles touch in orbit, somewhat like two floating balloons touching in mid-air, will be minimized by the docking mechanism of the Gemini and Agena, to prevent them from bouncing apart and drifting from each other.

When the trainer's two vehicles touch during a docking, a series of signals are fed to the computer which make the vehicles respond much as they would in actual orbit. These signals are in addition to commands from the flight crew.

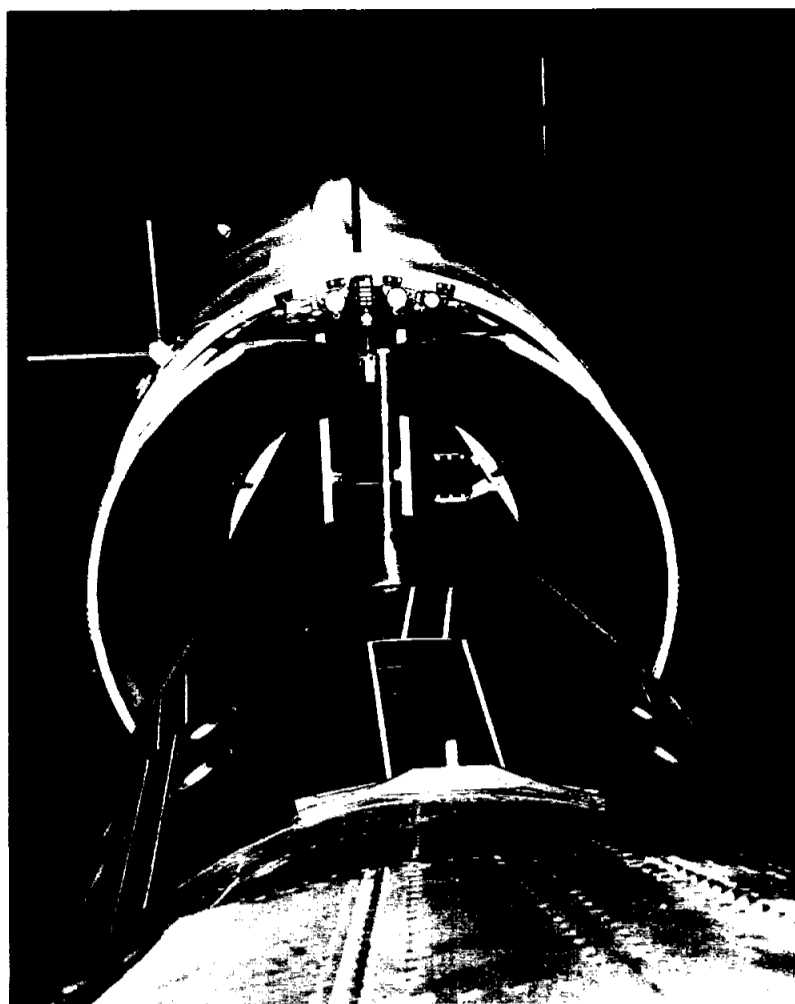
The trainer which was built by McDonnell Aircraft, has as its basic parts, the spacecraft assembly, the control console, the auxiliary rack, and the analog computer.

The spacecraft assembly consists of the crew station, roll pitch and yaw gimbals and the lateral carriage. The trainer has a lateral (side to side) movement of plus or minus 23 feet, yaw or roll of plus or minus 45 degrees, and pitch of minus 40 or plus 50 degrees.

The trainer provides a six-degree-of-freedom motion from the drive systems and six additional degrees of freedom on the Agena docking mechanism.

The Agena assembly consists of 15 feet of the forward end of the Agena rocket, with the docking adapter included, mounted on a carriage that travels between two vertical tracks which allow 32 feet of motion. This entire assembly is mounted on a set of horizontal tracks that permits the carriage to be driven a distance of 100 feet.

The control console is the control point of the trainer as



GEMINI-AGENA DOCKING—The Gemini spacecraft (foreground) is lined up on the Agena in the background as the two vehicles prepare to complete a docking maneuver.

well as the monitor point for the performance of the flight crew training.

Electronic equipment in the auxiliary rack drives the indicators and servo valves, and amplifies the feedback signals from the drive system for proper operation.

The six degrees of freedom equations are programmed on a General Purpose Analog Computer. When the computer receives information as to which thruster has been fired by the flight crew during a docking maneuver, it sends signals to the servo drive systems so that the

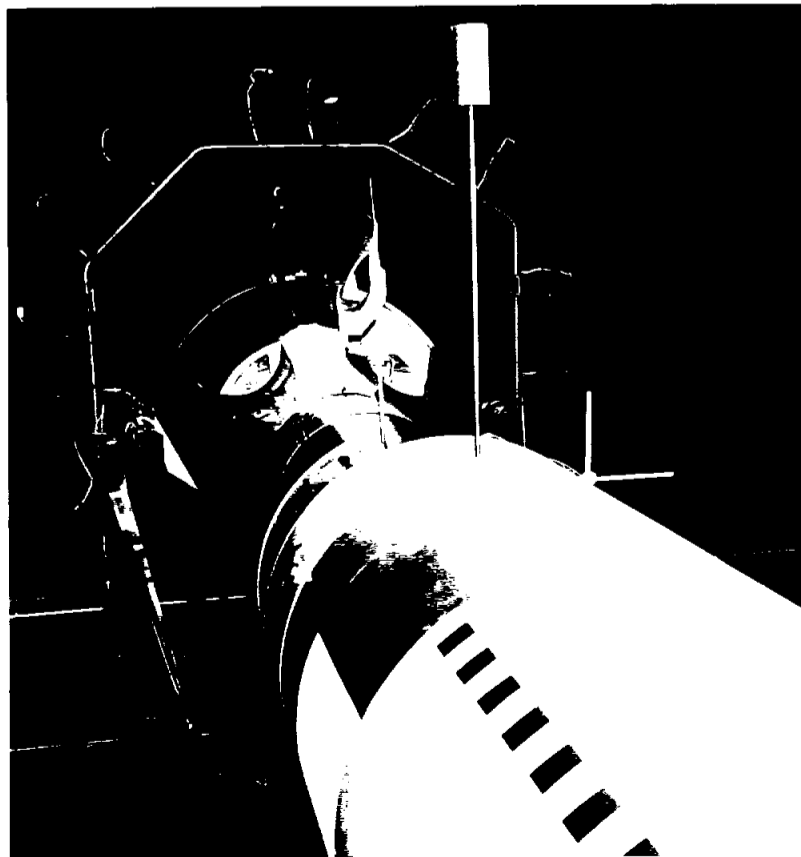
trainer motion corresponds to the thruster being fired.

Air bearings are used for yaw and lateral motions of the Gemini crew station and the longitudinal motion of the Agena target vehicle.

The air bearing is essentially a flat-bottomed metal plate with a shallow central pocket in the bottom surface into which air is forced continuously with sufficient pressure to lift the loaded metal plate or loaded bearing, one to three thousandths of an inch. The bearing and its load is then free to move over a film of air.



GEMINI DOCKING TRAINER—Astronaut Richard F. Gordon Jr., enters the crew station, prior to making a trial run in the Gemini Translation and Docking Simulator, as Astronaut Clifton C. Williams Jr. looks on.



SOLAR LIGHTING—In this view, with the Agena vehicle in the foreground, the crew station is framed in the bank of lights that provide the light angles and shadows that will exist in orbit.



MONITORING CREW PERFORMANCE—Lynn C. Taggart, Flight Crew Support Division, monitors a docking maneuver of Gemini and Agena, as the two vehicles come into view on the TV screen in the upper left of the photo. The console contains the switches, indicator lights and control dials which operate the trainer, control the computer and monitor safe operating conditions.

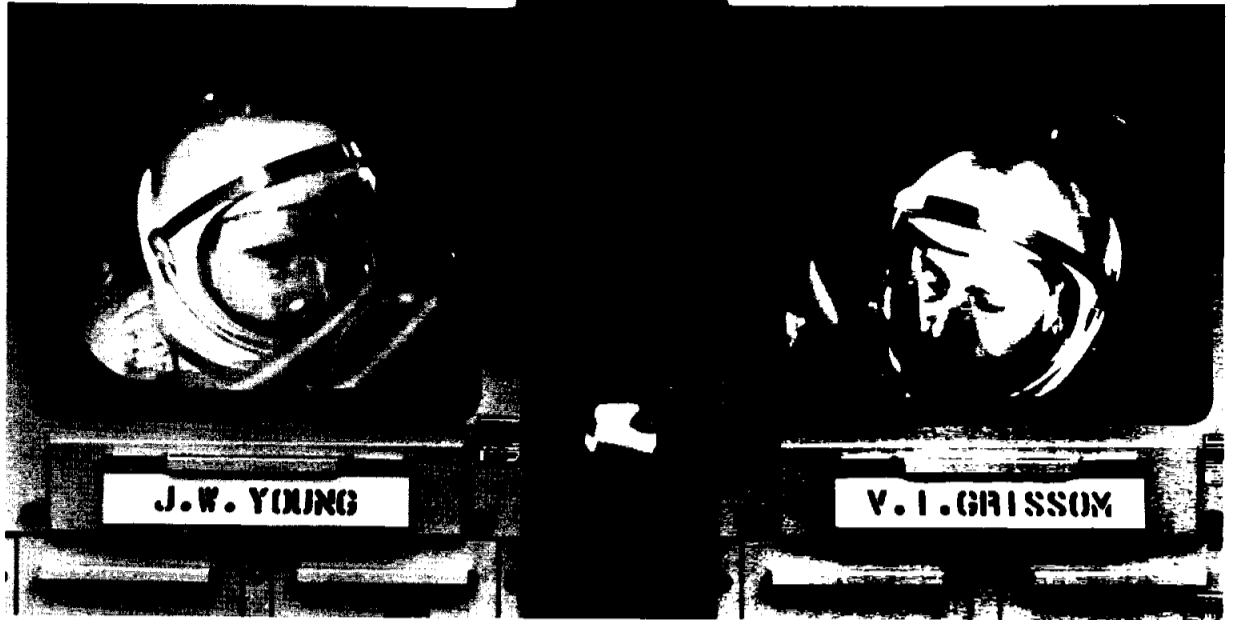
Space News
ROUNDUP!
 SECOND FRONT PAGE

Center Impresses Veteran Actor



SWAPPING AUTOGRAPHS — Veteran actor Edward G. Robinson was impressed by what he saw during a recent visit to the Manned Spacecraft Center. He is shown here swapping autographs with Astronaut Scott Carpenter. Robinson and his party were taken on a tour of the Center facilities.

Gemini Spacecraft-3 Tested In Altitude Chamber



GEMINI ALTITUDE CHAMBER TESTS — Prime crew Astronauts John W. Young and Virgil I. Grissom, in the cabin of Gemini Spacecraft-3, are seen on television monitors during altitude tests that took place last week at McDonnell Aircraft in St. Louis.

Texas Governor Addresses MSC Educational Conference

Governor John B. Connally visited MSC on Monday, and welcomed out-of-state university educators who attended a Conference for Summer Session Administrators, November 22-24, sponsored by NASA, in cooperation with the University of Colorado.

The purpose of the conference, attended by more than 100 educators from throughout the United States, was to provide an opportunity for university administrators to learn more about the national space program and explore ways of incorporating new space science knowledge

into the university curricula.

The keynote speaker at the conference was Breene M. Kerr, deputy assistant administrator of the Office of Technology Utilization of NASA Headquarters, whose subject was, "Maximizing the Nation's Return on Research and Development." Kerr was introduced by Dr. Robert R. Gilruth, director of MSC.

Astronaut Edwin E. Aldrin Jr. addressed the Monday evening dinner session. Other noted speakers on the conference program included Dr. William A. Owens, director of Summer Sessions at Columbia University; Dr. Arnold L. King, vice president of the University of North Carolina; Dr. John R. Little, dean of Summer Sessions at the University of Colorado, who acted as a co-host of the conference; and Dr. Lee A. DuBridges, president of The

Tomorrow Is Legal Holiday

Tomorrow is Thanksgiving and a legal holiday for MSC employees.

All offices at the Center will be closed and employees will be excused from duty without charge to leave or loss of pay.

California Institute of Technology, who concluded the conference with an address on "Space and the Future."

Spacecraft Engineering Book Editors Honored



PRESS RECEPTION — Paul E. Purser, Norman F. Smith, and Maxime A. Faget, (left to right), of MSC, editors of the new book, "Manned Spacecraft: Engineering Design and Operation," were honored at a press reception during the recent AIAA/NASA Manned Spaceflight Meeting in Houston, by the publishers, Fairchild Publications, Inc., New York, to mark the publication of the book, and to present the editors with special Morocco leather-bound souvenir volumes in tribute to their contributions to the book. Some 49 aerospace scientists, engineers and technicians of MSC contributed chapters to the book. David Marion-Davis, (right) is Fairchild's Houston Bureau chief.

COST REDUCTION CORNER

Prior to the beginning of the FY 64, the Public Affairs Office had published Standing Instructions delegating authority for approval of over-time to the Branch Chiefs and authorizing over-time in accordance with NASA Management Instructions 17-5-18.1, MSC Management Instructions 27-5-2 and MSC Management Instructions 24-5-1.

Beginning of FY 65 in keeping with the cost reduction program, a goal of a 10% savings in over-time was established. To accomplish this the Public Affairs Officer published a directive requiring that over-time be restricted to performing operational functions only, that all such over-time be approved in advance and that each Branch Chief submit to the Public Affairs Officer a report and justification of all over-time performed at the end of each pay period.

In addition a meeting of branch chiefs was called where they were made aware of the 10% reduction goal and urged to take necessary action to fully implement the new directive.

Albert M. Chop is credited for this savings of \$8,309.00.

'Lost' Documents Need A Home, Are They Yours?

Lost—a home for North American Aviation documents that were received in the Apollo Document Distribution Office, October 20.

The distribution office has no record of a request for the following documents which they received, and would like to see that the proper home is found.

Drawings and specifications include the following series: LB 0170, MA 0109 and 0110, MB 0200 and 0210, ME 496 and 901, V17-331527 and V17-910210.

Anyone knowing the whereabouts of the requester, please call the MSC Apollo Distribution Office at Ext. 3158.