

GT-1 MATING AND CHECK-OUT—Gemini spacecraft No. 1 (left) is hoisted to the top of service structure, Pad 19, for mating to the Titan II launch vehicle at Cape Kennedy. The first Gemini-Titan (GT-1) space vehicle is shown (right) during electrical and electronic interference tests with the launch-vehicle erector lowered. During these interface tests, all electrical and electronic equipment aboard the Gemini spacecraft and launch vehicle were exercised to determine if interferences existed. These tests are part of the integrated systems tests and compatibility checks being conducted with the Gemini-Titan combination, the launch complex, the Atlantic Missile Range, and the NASA world wide tracking network. This is the first time the erector has been lowered since the Gemini spacecraft was mated to the launch vehicle last month.

April 7 Earliest Date For GT-1 Mission

The first Gemini-Titan flight, scheduled for no earlier than April 7, will be an unmanned orbital test to demonstrate the satisfactory operation of the launch vehicle system and spacecraft-launch vehicle structural compatibility.

The spacecraft, equipped with instrumentation, communications, electrical and coolant systems, will not be separated from the second stage of the launch vehicle and the two components will orbit as a combined vehicle.

No recovery is planned and the estimated life of the orbiting vehicle will be about two weeks.

GT-1 will be launched from Launch Complex 19, Cape Kennedy, Fla., with the combined orbital package of spacecraft, adapter, and second stage of the launch vehicle being placed into a 99-183 statute mile elliptical orbit.

It will be tracked by

NASA's worldwide network for approximately one orbit, or until after depletion of electrical power on board the spacecraft.

The overall height of the GT-1 is 108 feet. The first stage of the launch vehicle including the engines is 70 feet tall and the second stage is 19 feet. The spacecraft and adapter make up the remaining 19 feet.

Total lift-off weight of the GT-1 will be approximately 300,000 pounds.

The Gemini launch vehicle is a Titan II ICBM with several modifications. The first and second stages are 120 inches in diameter, the adapter is 120 inches at the base and 90 inches at the top, where it connects to the spacecraft. The spacecraft tapers to a 31 inch diameter at the top.

Gemini launch vehicle has two J-7 engines in the first stage with 430,000 pounds of thrust at lift-off, and one J-5, 100,000 pound thrust engine in the second stage.

Ultra-High Vacuum Chamber To Test Apollo Components

Answers to questions on how space flight equipment performs in the hard-vacuum environment of space between the earth and the moon will be sought in an ultra-high vacuum chamber to be built here at the Manned Spacecraft Center.

Components of Apollo moon mission spacecraft will be tested for periods up to 30 days in the proposed chamber in a vacuum as near that of space between the earth and the moon as can be simulated by present technology.

Industrial firms specializing in the design and construction of environmental test equipment have been asked to submit technical proposals for the chamber to the Center by May 1.

Environmental simulation people at the Center require that the chamber be capable of testing components ranging up to six feet in diameter, six feet high, and weighing up to 2,000 pounds. Vacuum pumps must be able to evacuate the atmosphere in the chamber to the desired simulated space environment.

(Continued on page 2)

Gemini Aeromedical Flight Monitors Complete Training Course At MSC

A five day training course for aeromedical monitors who will man the remote tracking stations during the up-coming Gemini missions, was completed here at Manned Spacecraft Center March 20.

The group was welcomed by Dr. C. A. Berry, chief, Center Medical Programs

Office and a series of lectures was delivered by MSC representatives.

These doctors, who will monitor the physiological telemetry data during the Gemini flights, are on loan to NASA from DOD and represent the U.S. Army, Navy, and Air Force; other doctors include the Royal Australian Air Force, and the Australian Civil Aviation Agency. NASA Hq also has a doctor participating with the group.

While here at MSC, the doctors were familiarized with flight schedules and mission planning; aeromedical support from the flight control and flight crew viewpoints; aeromedical operations philosophy; Gemini missions, objectives and profiles; their duties during pre-flight and post flight activities; the Gemini spacecraft systems; the Gemini survival equipment, flight crew

equipment, space suits; and the MCC and related equipment.

The training course was conducted by the Flight Operations Branch, Flight Control Division at Ellington AFB.

Doctors attending the course were: from the U.S. (Continued on page 2)

Walter Williams Resigns To Join Private Industry

Walter C. Williams resigned his position on March 16, as Deputy Associate Administrator for Manned Spaceflight Operations, to accept a job as vice president and general manager of manned spaceflight for the Aerospace Corp., El Segundo, Calif. His departure from NASA will probably be sometime this month.

Williams has served with NACA and NASA for 24 years.

Prior to being named to his present position last October by Dr. George E. Mueller, NASA Associate Administrator for Manned Space Flight, Williams was deputy director for Opera-

(Continued on page 2)

Clear Lake Move Another Step Nearer Completion

The work force of NASA employees at the Manned Spacecraft Center's Clear Lake site is now over 2,000 with the move of the Advanced Spacecraft Technology Division.

The ASTD group occupies portions of the Spacecraft Research Office and Laboratory, a complex of two connected buildings con-

(Continued on page 2)



WALTER C. WILLIAMS



RECENT MSC VISITORS—The Thunderbird Angel Flight from the Oklahoma State University Air Force ROTC toured the Manned Spacecraft Center last week. The girls, students at OSU, posed for the Roundup photographer on the steps in Bldg. 12.

Chamber

(Continued from page 1)

ment within a 24-hour period.

In addition to the hard vacuum of cislunar space, the chamber will be capable of subjecting test objects to simulated solar irradiation up to intensities of 140 watts per square foot, approximately the same as at earth orbit altitude.

Among other NASA requirements for the chamber are ease of operation and maintenance, economy and a flexibility for upgrading the chamber for tougher jobs as new technology develops.

The Space Environment Simulation chamber will be housed in a building to be constructed adjacent to environmental test facilities now under construction at Manned Spacecraft Center.

Monitor

(Continued from page 1)

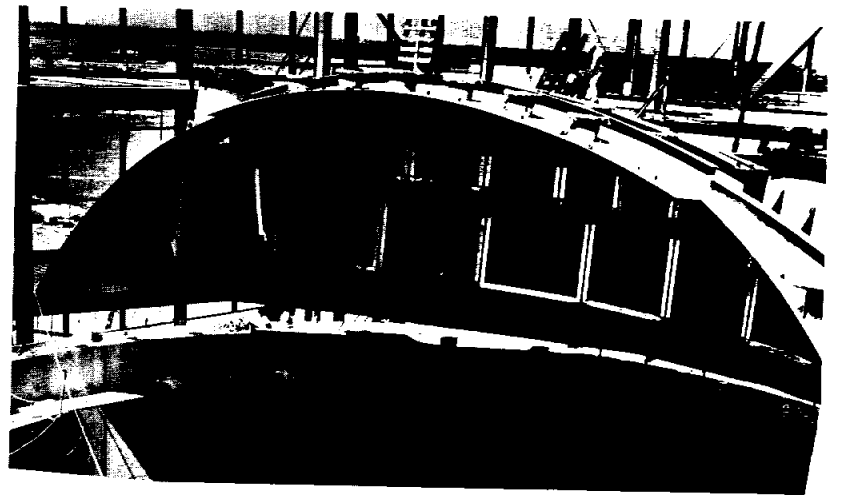
Navy, Captains Edward L. Beckman, Victor G. Benson, Commanders Channing L. Ewing, William R. Winter, Lieutenant Commanders George T. Humbert, Edmund P. Jacobs, and Joseph P. Kerwin, Lieutenants James B. Boorstin, James W. Brough, Clyde G. Jeffrey, and Robert J. Kelly.

Representing the U. S. Army were: Lieutenant Colonels Harold R. Chappell and Dwight F. Morss Jr., Majors George L. Allen, O'Neill Barrett, James E. Hertzog, Joseph A. Ionno, LeRoy G. Jones, Quitman Jones, Joseph E. Kmiecik, Harold S. Nelson, William P. Nelson, James W. Ransone, and Roland H. Shamburek.

From the U.S. Air Force were: Col. Raymond A. Yerg, Lieutenant Colonels Evan R. Goltra Jr., John W. Ord, and Fred A. Ritzinger, Majors Robert R. Burwell, Richard M. Chubb, Samuel P. Chunn, W. Dye, Clyde Kratochvil, Robert H. Lang, Paul F. Nugent, William H. Shea, Howard R. Unger, and Gerald D. Young, Captains Richard A. Davison, Lawrence J. Enders, Duane Graveline, Charles H. Sawyer, William H. Walter, James R. Wamsley, Charles L. Wilson, and James F. Wittmer.

Australians included: RAAF Squadron Leaders Murray Alston and L. N. Walsh, and Dr. John C. Lane, Australian Civil Aviation Agency.

NASA HQ representative was Dr. S. Vinograd.



HALF-CAPPED CHAMBER—A 60-ton segment of the top of Chamber A of the Space Environment Simulation Laboratory is shown as it was lowered into place last week. A 40-ton section was later lowered to finish capping the top. When completed the chamber will simulate altitudes of 75 miles and accommodate a full size Apollo spacecraft.

Move

(Continued from page 1)

taining about 80,000 square feet of space. One structure is a two story office wing and the other is a high bay laboratory.

This complex is designed for research and development in the area of space communications, instrumentation, structures and mechanical systems. Work on guidance and control equipment and aerodynamic stability testing also will be done here.

The building will house analog and digital computer equipment used by the research groups. A mock-up area is set aside in the laboratory for scaled models of spacecraft and boosters to be used in communications and instrument testing.

One-third of the 60 facilities that ultimately will comprise the space center

have been certified by the United States Corps of Engineers as operational or ready for occupancy. The balance are in various stages of construction or awaiting budget action by Congress.

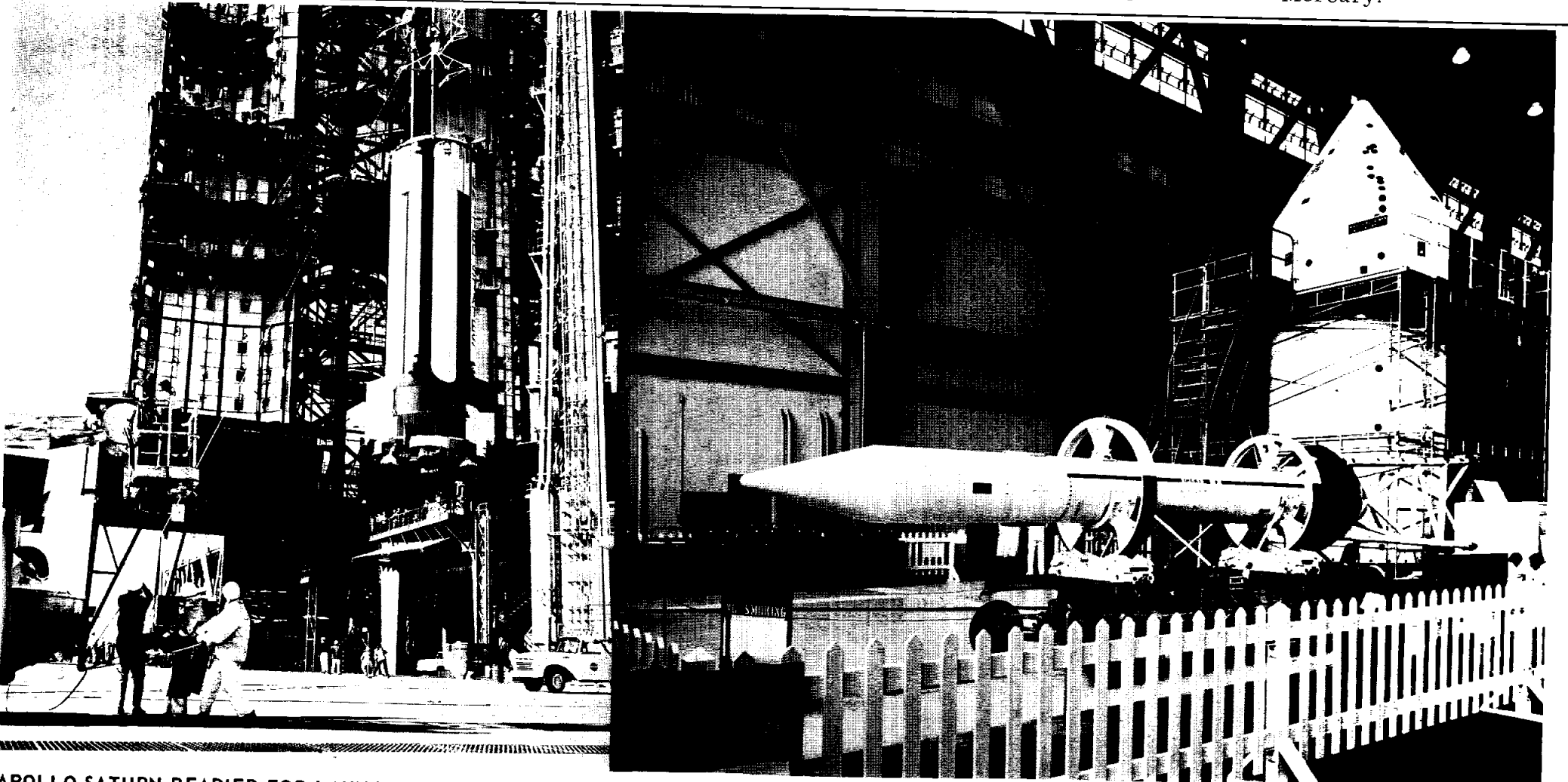
Williams

(Continued from page 1)

tions to Dr. Robert R. Gilruth at MSC.

In the past he has managed the operational phases of advanced research type aerospace projects, including the X-15 aircraft and Project Mercury.

During this time, he made many outstanding contributions in the field of high-speed flight research and was awarded the NASA Distinguished Service Medal for his outstanding technical leadership as Director of Operations for Project Mercury.



APOLLO-SATURN READIED FOR LAUNCH—The S-1 first stage (left) consisting of eight H-1 engines developing 1.5 million pounds thrust, is erected in Gantry 37B at Cape Kennedy, Fla. This is the sixth flight of the Saturn configuration, but it is the first flight carrying the Apollo boilerplate spacecraft. The S-IV second stage

booster will be mated to the S-1 first stage, to launch into orbit the Apollo boilerplate command module shown (far right) in Hangar AF prior to moving it to Pad 37 for mating to the Saturn SA-6 launch vehicle. The Apollo escape rocket and tower are shown in the right foreground. The Launch is tentatively scheduled for May.

First Orbiting Gemini Spacecraft Will Have Windows, But No Lookers

There will be windows on the first Gemini spacecraft to go into orbit even though no one will be inside to look through them, it was recently reported.

The sophisticated window arrangement will be necessary because the first orbital Gemini spacecraft is a structural shell. It duplicates the shape, weight and center of gravity of the final Gemini vehicles that will later carry two men into space.

But because the spacecraft is a shell, and won't be recovered, it will not carry the computer that astronauts will use in later missions. A mock-up will be carried instead. The computer contains special blocks of a unique glass that store information--glass memories.

The precisely engineered glass panels for the spacecraft windows are made by Corning Glass Works for McDonnell Aircraft Corporation, Gemini prime contractor. Corning also makes the glass memories, for International Business Machines Corp., manufacturer of the on-board Gemini computer.

The job of the eye-shaped windows--one for each astronaut--is to withstand the temperatures and stresses just as well as the vehicle's metal walls, yet remain transparent. Each window consists of three panels, made from two glass compositions. They are perfectly ground and polished, and carry special optical coatings to reduce reflections.

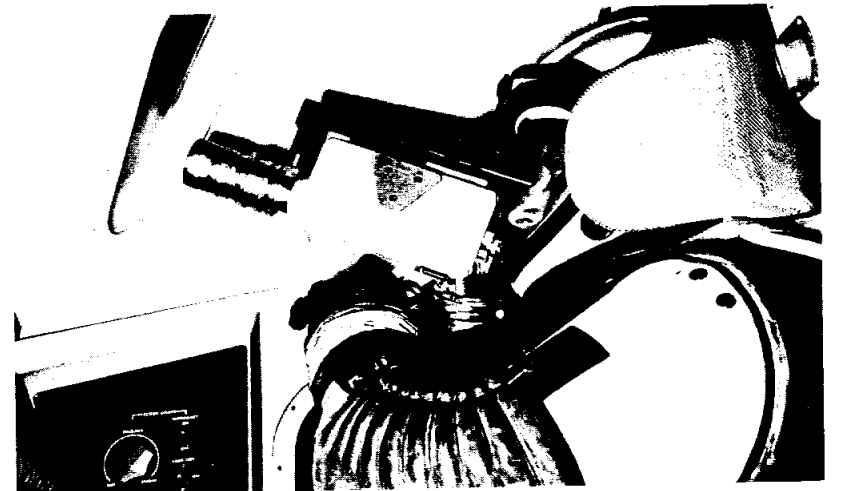
The glass memories store information by converting electrical pulses to ultrasonic signals, sending them through the glass medium, then changing the signals back to electrical pulses. Because ultrasonic pulses move at the speed of sound instead of

the speed of light, they are effectively delayed--or stored--in the glass for re-launch vehicle under the aerodynamic stresses that will occur during the launch



GEMINI WINDOW--Each of the eye-shaped windows on the Gemini spacecraft consists of three panels like this one. Size of the window is about eight by 17 inches. The outer panel is resistant to high temperatures, the inner panel is specially strengthened to resist mechanical shock, and the middle panel performs both functions.

quired periods of time. One of the reasons glass memories were selected for the computer is that they are solid, and don't get rattled under vibration and shock. The first orbital mission is designed to check the compatibility of the spacecraft with the Titan II phase of Gemini missions. This test will verify the Gemini design for future missions. These will include long duration two-man orbital flights, rendezvous and docking in space with another orbiting vehicle, and re-entry of both the spacecraft and its astronauts.



SPACE TV CAMERA--Space-suited engineer peers through scope of space television camera in Apollo command module. Camera is working experimental model similar to those which will shoot scenes of American astronauts enroute to the moon.

Apollo Portable Television Camera To Send Back "Live" Pictures Of Moon

Viewers on earth may get their first "live" television close-up of the moon by virtue of a hand-held television camera being developed by the Radio Corporation of America for the Apollo manned lunar mission.

A four and one-half pound operating prototype, built by RCA's Astro-Electronics Division, Princeton, N.J. now is being put through tests in Downey, Calif., by the Space and Information Systems Division of North American Aviation, Inc., Apollo systems contractor for NASA.

Believed to be the world's first space-qualified camera with integrated circuitry (a system that compacts microminiaturized components to reduce size and weight), it will be capable of showing "real time" (live) television from space.

Smaller than a carton of cigarettes, the TV camera will use a 70 degree wide-angle lens for on-board viewing or a nine to 35 degree zoom lens for scenes taken through a window at distant objects. It may be mounted in two positions in the Command Module, and installed in stations for different angles of the astronauts and spacecraft during liftoff, earth orbit, lunar trajectory, and lunar orbit.

Television transmission from Apollo will be received at a designated earth station, video-taped, scan-converted for commercial TV, and released within minutes to the public.

Weight Engineers To Hold Conference In Dallas, May 18-21

The 23rd national conference for the Society of Aeronautical Weight Engineers will be held May 18-21 in Dallas, Tex.

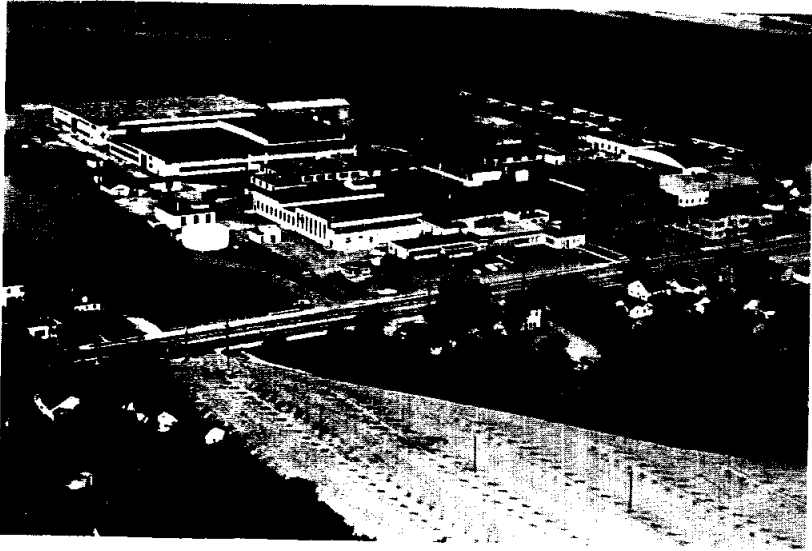
The meeting is open to SAWE members, applicants, students, engineering faculty, military personnel and government employees engaged in aerospace engineering and management functions.

Engineering and design sessions for aircraft, spacecraft and missiles, and electronics will be held.

Inquiries may be made to Robert G. Farr, executive secretary, SAWE, 8428 Lurline Ave., Canoga Park, Calif.



RECENT AERIAL OF MSC--This aerial photo of the Manned Spacecraft Center, taken late last month, was shot looking southeast toward Clear Lake. Entrances from FM 528 highway are in the lower right corner of the picture, with the back entrance near the top center on the edge of the lake. Most of the buildings in the main complex are completed and a large scale landscaping project is under way for beautification of the surrounding grounds.



AERIAL VIEW of Aeronca's Middletown, Ohio plant located adjacent to the Middletown Municipal Airport.



S. J. KUDERER
president, Aeronca Manufacturing Corporation

RICHARD B. FIALHO
Operations manager, Aeronca's Middletown Division



AFT CREW compartment outer-face sheet of Apollo spacecraft is shown in place on the pre-fit fixture.

Apollo's Brazed Steel Honeycomb Skin

The development and production of a space vehicle structural skin capable of withstanding the forces of compression, shear and vibration have utilized the best of man's technical abilities for more than ten years... to compound the basic problems, engineers have had to consider the factors of heat and cold.

Each Apollo command module which participates in flight, for test purposes or lunar landing in the future, will be wrapped in a brazed stainless steel honeycomb skin which has been developed to overcome the forces of destruction and to safeguard the "human-payload" for mission accomplishment.

The "special" skin that

covers the command module represents a major hurdle in manned space flight. It was back in 1954 that an Aeronca engineer insisted that his company take immediate steps to develop techniques for honeycomb production.

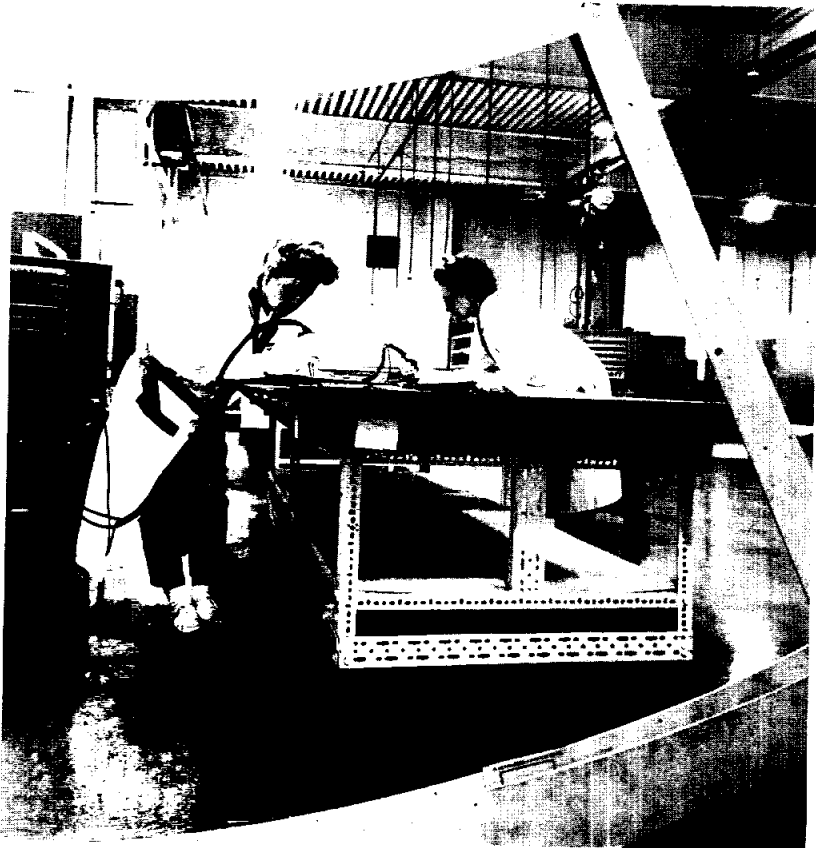
While several other organizations had already made moderate strides in the research and application of the "sandwich" materials, none had explored the area of brazed stainless steel honeycomb shapes for aircraft production.

The B-58 was one of the first manned aircraft to require the extremely light weight and high strength advantages of the new brazed stainless honeycomb. Some of this honeycomb

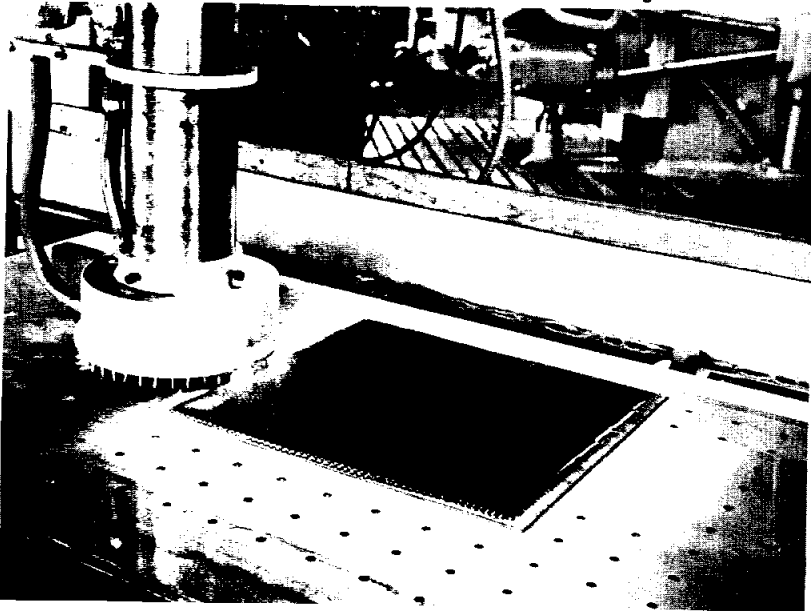
was produced by Aeronca. Following orders included the RS-70 wing panels as well as various configurations for the F4-B and the A2F.

"Our materials and techniques have changed considerably since our first production runs of stainless honeycomb panels," says Richard B. Fialho, operations manager for Aeronca's Middletown facility. "We have made significant changes in the Apollo skin chemistry since we received our contract in July 1962 from North American Aviation's Space and Information Systems Division."

Originally, the Apollo command module was fabricated from 45 separate sandwich panels, including the four large segments



CLEAN ROOM employees are shown tackwelding honeycomb cells into position prior to final core inspection and brazing.



MACHINING PROCESS - Anocut tool is shown machining stainless honeycomb to exact tolerances prior to sandwich fabrication.



APOLLO SKIN X-RAY - Every square inch of the Apollo skin area is inspected by X-Ray to determine "total brazing."

The Spotlight On MSC Secretaries....

To better acquaint you with the faces that go with the friendly voices on the other end of the telephone, the Roundup presents four more of the personable secretaries of MSC.

EVELYN J. LOPEZ (upper left) was born in Tacoma, Wash. She is secretary to J. Thomas Markley, chief, Program Control Division, Apollo Spacecraft Program Office. In February 1962 she joined MSC as a secretary in the Planning and Resource Division. She completed her early schooling in Tacoma and attended Florence State College in Florence, Ala., for three years. She is presently attending night classes at the University of Houston where she is majoring in home economics education.

Prior jobs held by Evelyn were in Huntsville, Ala., as a student employee, for two summers at the NASA, George C. Marshall Space Flight Center. She resides in Houston and her outside interests include bridge playing and water skiing.

LYDIA M. MAY, (lower left) secretary to Roy C. Aldridge, chief, Office Service Division, joined MSC in January 1962, in her present position. She was born in Crowley, La. and completed high school in Pasadena, Tex. Prior to joining MSC, she was with the Air Force Field Petroleum Office in Houston. Her other places of employment have included: Central Scientific Co., Houston Lighting and Power, and Tennessee Gas

Transmission, all of Houston. Lydia is married to John F. May who is employed by Tubular Lining Corporation. The couple has two children, Patricia Marie 5, and Cynthia Diane 3, and the family resides in South Houston. Her spare time interests include reading and sewing.

LEONA L. KEMPAINEN (upper right) is secretary to Dr. Joseph F. Shea, manager, Apollo Spacecraft Program Office. She joined NASA in Washington, D. C. in September 1958 as a secretary. Leona was born in Minneapolis, Minn. where she completed her high schooling. She has taken various extension courses from the University of Minnesota, and American University, Washington, D. C. She entered government service with the Corps of Engineers, St. Paul, Minn., in 1934. She transferred to Washington in 1939 where she held jobs from administrative assistant to Administrator of Wage and Hour Division, Department of Labor, to administrative assistant to Special Assistant to the President, the White House in 1957-58, just prior to joining NASA. She also served as secretary to the U.S. Ambassador to Costa Rica in 1951-53. Leona lives in Houston and enjoys duplicate bridge along with reacquainting herself with the Spanish language, sightseeing and attending the theater.

MYRTLE A. RICHARD (lower right) is secretary to Warren J. North, chief, Flight Crew Support Division. She joined NASA in September 1962 and worked in the Apollo Spacecraft Project Office, and the Systems Engineering Division before accepting her present job on February 17 of this year. Myrtle was born in Pauls Valley, Okla. and completed her early schooling in Sulphur, Okla. She then attended Oklahoma State University (Oklahoma A & M). Her husband, Louie G. Richard, is also employed by NASA and is in the same division. The couple has two children, Lou Ann and Billy Kyle and reside in LaPorte. Before joining MSC, Myrtle was with National Archives and Records Service in Ft. Worth for six years and prior to that was a secretary for five years at Oklahoma State University. Her outside interests include reading, good music and fishing.



NASA Employees 30-Day European Tour Forms And Information Now Available

The eighth annual 30-day tour of Europe which will leave New York for London and return from Paris has been scheduled for August 31 to September 29 by the NASA Employees Association.

The land tour, covering nine countries, costs an additional \$564 per person. All NASA employees and dependents are eligible.

The round trip economy jet flight, based on a minimum of 25 traveling together will cost \$356 per

person. More information and forms to fill out for the trip are available from Mary Sylvia in Rm. 881, Bldg. 2.

New Hours Announced For Cafeteria

Additional hours of operation for the MSC Cafeteria have been announced by the NASA Exchange Council.

The open hours are Monday through Friday: Breakfast 7 to 8 a. m.; lunch, 11 a. m. to 2 p. m.; dinner, 5 p. m. to 7 p. m.; and on Saturday, brunch will be served from 10 a. m. to 2 p. m.

National Secretaries Association Seminar Attended By Forty-Two MSC Women

Forty-two secretaries from the Manned Spacecraft Center attended a seminar March 21 in Houston, sponsored by the Houston Chapter of the National Secretaries Association, in cooperation with the University of Houston.

Speakers included representatives of the University of Houston, University of St. Thomas, Texas A & M and local firms.

Door prizes were awarded with MSC secretaries Judith Wyatt winning a portable typewriter; Alma Hurlbert, jewelry, and Annette Lackland, a cigarette box.

EAA Group Formulates Future Employee Affairs

The General Assembly of the MSC Employees Activities Association (EAA) met March 18 and discussed and formulated future programs for MSC employees.

Items discussed included the World Fair trip which is scheduled for June, (the "Kick-Off" meeting was

Effort Is Made To Coordinate MSC Bowling

An effort is being made to coordinate the bowling activities at MSC so that everyone interested in the sport will have an opportunity to participate.

Financial assistance for prizes may be made available by EAA if a coordinating group can be organized.

Currently a survey is being made of the existing leagues to determine interest as to time, place, type of league, and etc..

Interested parties, not presently members of a NASA league, and desiring more information are asked to contact Jim McBride at Ext. 7559.

Teams Organizing For MSC Softball, Play Begins In May

Teams are now being formed for the EAA sponsored MSC Softball League which will begin play the first part of May, it was announced this week.

Teams will not be allowed to enter the league after the schedule is completed, so teams are urged to form as early as possible.

If individuals want to join a team and need additional information they should contact Ragan Edmiston at Ext. 2504, soon.

A women's softball league will be formed if enough interest is shown, Edmiston stated.

held early this week at Ellington), the Spring Dance in the State Ballroom of the Hotel America this Friday beginning at 8 p. m., plans for weekly bingo parties and trips up the Houston Ship Channel on the "Sam Houston", with the first trip scheduled for June 20.

It was announced at the meeting that EAA space jewelry sales will cease until an accurate inventory can be made.

The annual picnic for Fall, and the Christmas party which is tentatively scheduled for December 11, at Sylvan Beach, were discussed by the assembly.

Recently Organized Rod And Gun Club To Hold First Meet

The MSC Sportsmens Association met March 9 for the purpose of organizing a Rod and Gun Club in which membership is open to all MSC employees.

A meeting of the group is scheduled for 7 p. m., April 14, in Rm. 661, Bldg. 2, at Site One. A sound film "Calling Wild Animals" will be shown. Visitors are welcome for the film showing.

More information on the new Rod and Gun Club may be obtained by calling David Bell of the Energy Systems Branch at Ext. 7797.

CALENDAR OF EVENTS

APRIL 3--EAA Spring Dance, State Ballroom, Hotel America, 8 to 12 p. m.

APRIL 14--Party Bridge, 7:15 p. m., EAFB Officer's Open Mess.

APRIL 14--MSC Rod and Gun Club, Bldg. 2, Rm. 661, 7 p. m.

MSC

at work...



DAN CARTER JR., equipment specialist, Crew Systems Division, Environmental Control System Laboratory, prepares for a centrifugal water separator test.



SIMS T. VETUSKI, fabric worker, Crew Systems Division, Personal and Survival Equipment Section, sews a piece of cloth for survival equipment.



ROBERT ADAMS, offset pressman, Office Services Division, Printing and Publications Branch, turns out a printing job on the offset press.



EDWARD DAVIS, driver-messenger, Mail and Records Branch of Office of Administrative Services, prepares to make a mail distribution run.

MSC BOWLING ROUNDUP

MSC MIXED LEAGUE

Standings as of March 20.
Team Won Lost

Alley Oops	73	35
Eight Balls	69 1/2	38 1/2
Celestials	65	43
Five Flushers	63 1/2	44 1/2
Snap Shots	63 1/2	44 1/2
Pricers	59 1/2	48 1/2
Space Mates	54	54
Virginians	54	54
Little Splits	53 1/2	54 1/2
Hardley Ables	47 1/2	60 1/2
Core Dumps	47	61
Aborts	47	61
Gab	31	77
Decigones	31	77

High Game Women: C. Barnes 213, 213, M. Lewis 211.

High Game Men: A. Farkas 246, B. Harris 240, Pavlosky 236.

High Series Women: C. Barnes 554, 545, 545.

High Series Men: P.

Petersen 640, A. Chop 632, 606.

High Team Game: Alley Oops 984, 938, 930.

High Team Series: Alley Oops 2658, 2636, 2597.

MSC MEN'S LEAGUE

Standings as of March 19.
Team Won Lost

Pseudonauts	27	9
Lunar Lights	24	12
Turkeys	24	12
Overshoots	19	17
Spastics	18	18
Fizzlers**	15	17
Asteroids	14	22
Whirlwinds	13	23
Tecnic**	12	20
Cosmonuts	10	26

**Postponed match

High Game: J. Garino 266, B. Harris 263.

High Series: J. Keggin 650, J. Strickland 621.

High Team Game: Tur-

keys 940, Cosmonuts 883.

High Team Series: Fizzlers 2673, Spastics 2488.

MSC COUPLES LEAGUE

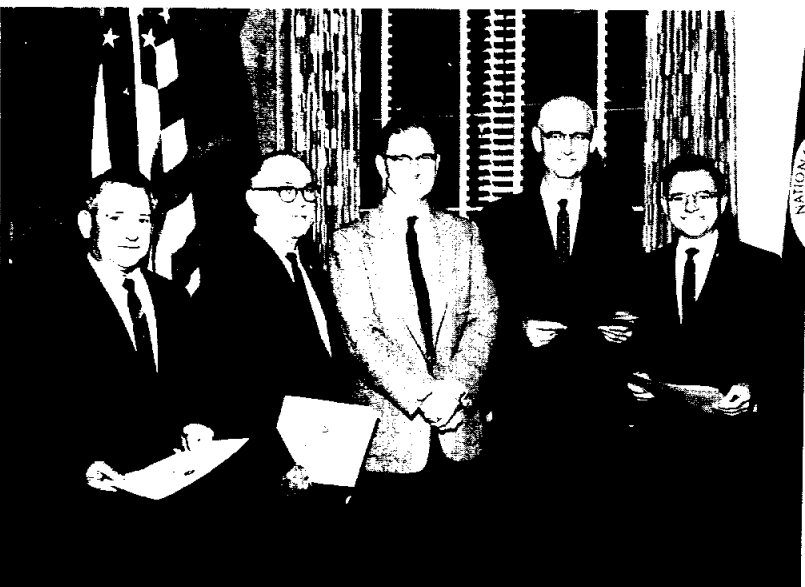
Standings as of March 17.
Team Won Lost

Ridgerunners	24	8
Lame Ducks	23	9
Shucks	17	15
Hackers	16 1/2	15 1/2
Goofballs	15	17 1/2
Four Aces	13 1/2	18 1/2
Bowlernauts	13	19
Schplitz	13	19
Spare-O's	13	19
Piddlers	12	20

High Game Women: C. Clyatt 215, 198, M. Jordon 191.

High Series Women: C. Clyatt 515, J. Sands 513.

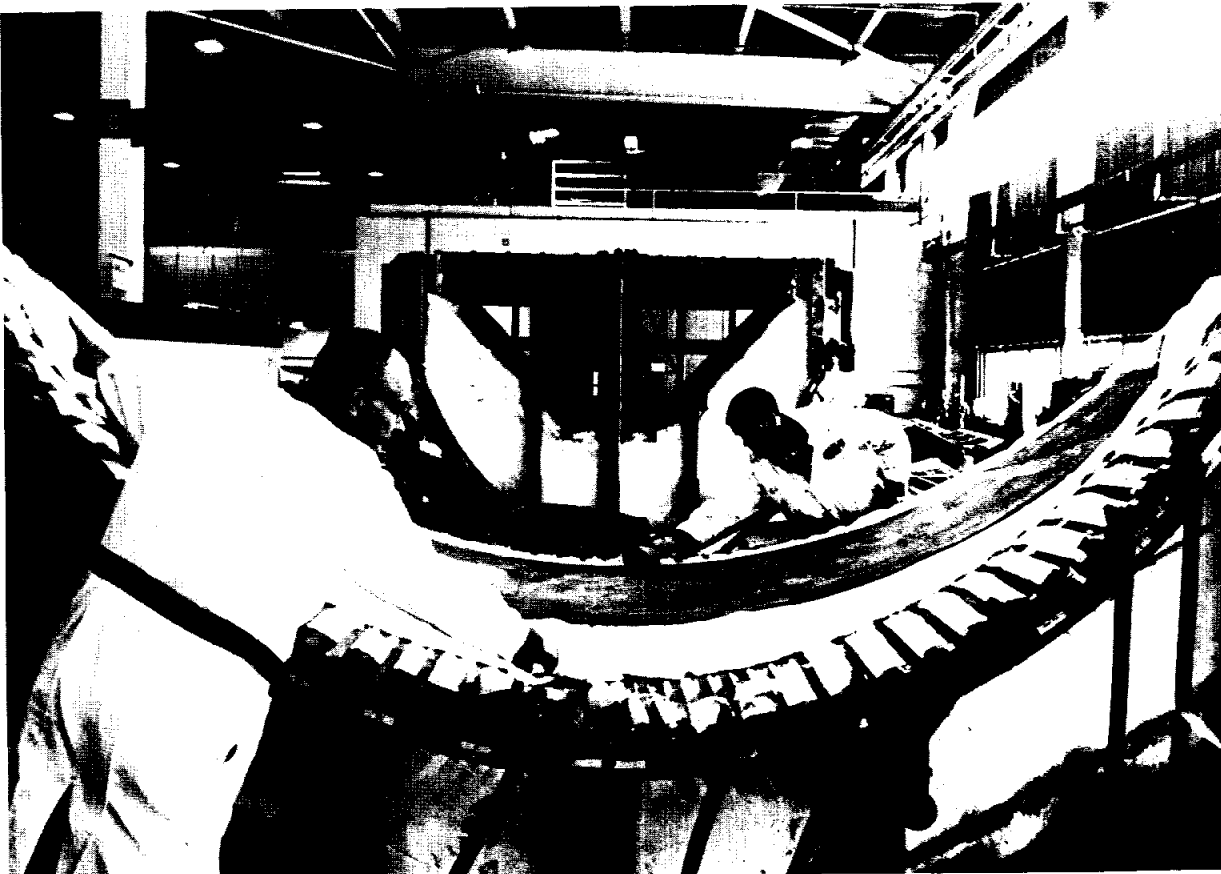
High Series Men: H. Brasseaux 564, H. Maples 560.



SERVICE AWARDS - W. H. Gray, (center) resident representative of MSC at McDonnell Aircraft, St. Louis, Mo., recently presented 20-year government service awards to (l. to r.) A. J. Eaton, J.A. Caudel, (Gray), W. S. Bartels, and A. Hobokan.



HONEYCOMB - An Aeronca employee prefits honeycomb core for an aft crew compartment of the Apollo spacecraft.



PREPARING a ceramic brazing fixture prior to accepting a retort for electric blanket brazing.

s Supplied By Aeronca

that comprise the aft heat shield. Subsequent deliveries of panel units now incorporate a new steel formulation from Armco. In addition, the number as well as shapes of the individual panel members have undergone several modifications as the program has progressed.

"Delivery of perfect panels", says Aeronca's program manager George Irwin, "has been, and will continue to be, a must. The selection of the hexagonal shaped cells for the honeycomb core causes certain inherent problems in brazing. We have chosen the X-ray method to determine 'total brazing', and our cost factors as well as delivery schedules look better."

The Apollo program within Aeronca's brazed honeycomb section involves more than 300 people. Many of the skilled technicians have played an important role in the aerospace industry since well before World War II. They have helped to produce complete aircraft as well as aircraft components for virtually every type of military and commercial plane in the business.

Aeronca's transition from the light plane field to the sophisticated areas of present day development has been a natural. Since 1928 Aeronca has been a "working" member of the aviation industry. For many years, it maintained leadership as a light plane manufacturer.

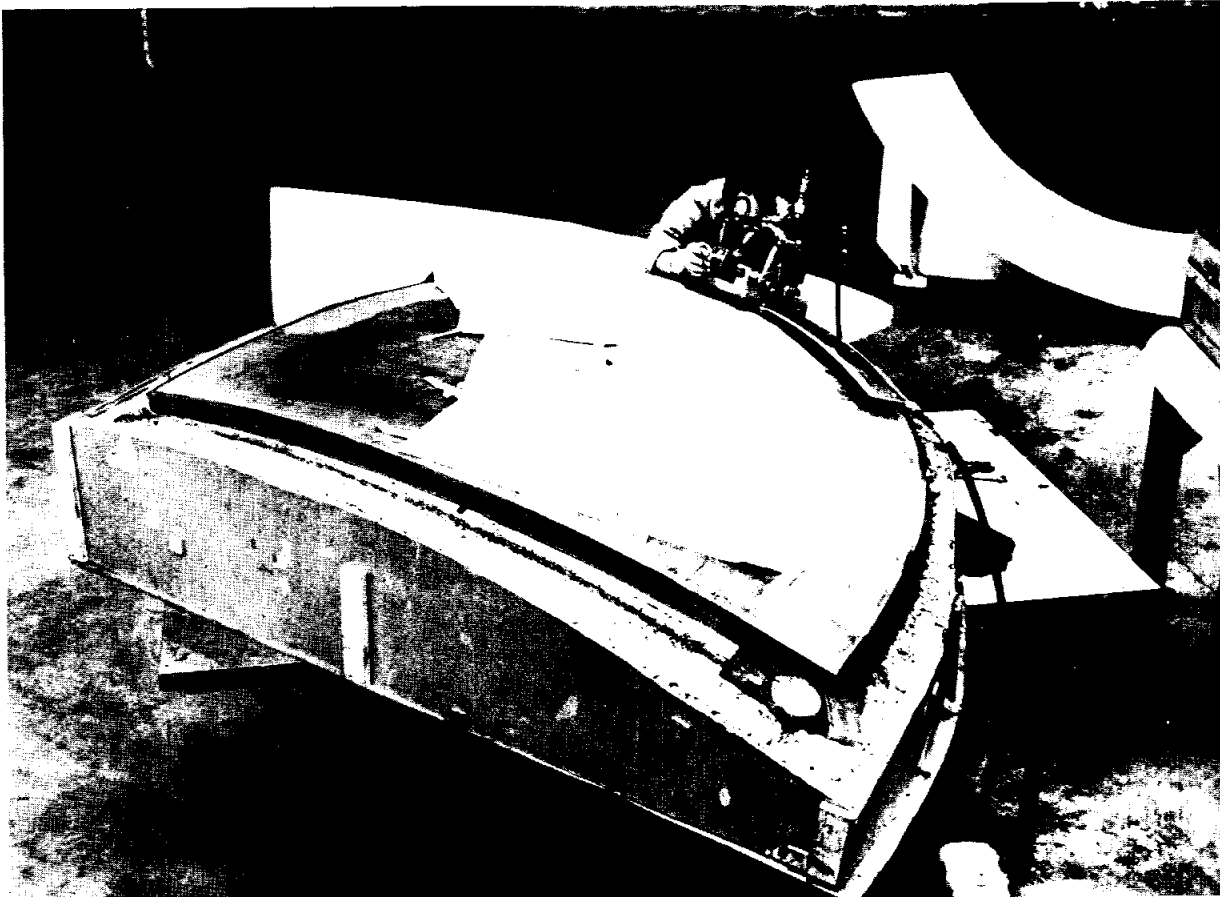
While Aeronca's honey-

comb production facilities are located in Middletown, Ohio, other divisions concerned with the aerospace industry include the Aerospace Division in Baltimore and the Aerocal Division in Los Angeles. Total divisional capabilities cover systems concept, structural design, structural analysis, structural fabrication of complete antenna reflector systems ... from the drawing board to final operation. This includes static and dynamic computer analysis of complex redundant space plane type structures and range testing.

"While the ability of our organization today is virtually complete in the areas of honeycomb or sandwich materials production, we look to improved techniques which will provide superior skin structures at an ever decreasing cost factor," says S. J. Kuderer, Aeronca's president.



GEORGE IRWIN
program manager, Brazed Structures, Aeronca's Middletown Division



AFT HEAT SHIELD - The panel section shown is one-quarter segment of the aft heat shield. Operator is trimming section to final net dimensions.



BRAZING RETORT - An individual panel segment is shown in a brazing retort. The worker is tacking honeycomb core to a brazing foil. The panel section shown is part of the Apollo forward compartment heat shield.

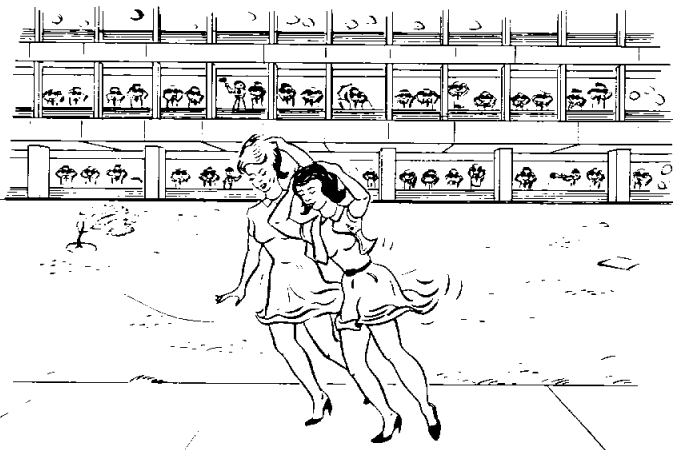
EDITOR'S NOTE: This is the twenty-fourth in a series of articles designed to acquaint MSC personnel with the Center's industrial family, the contractors who make MSC spacecraft, their launch vehicles and associated equipment. The material on these two pages was furnished by the Public Relations Department, Aeronca Manufacturing Corporation.

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 Bureau Ben Gillespie
Editor Milton E. Reim

On The Lighter Side

Test Subjects Under Observation
In MSC's Giant 'Wind Tunnel'



"DO YOU HAVE THE FEELING WE'RE BEING WATCHED?"

WELCOME ABOARD

Eighty-one new employees joined the Manned Spacecraft Center during the period March 1 through March 22. Eleven of these were assigned to the White Sands Missile Range in New Mexico; eight were assigned to the MSC-Florida Operations, Cape Kennedy, Fla.; one to St. Louis, Mo.; and one to Bethpage, N. Y. The remaining 60 were assigned here in Houston.

STRUCTURES AND MECHANICS DIVISION: David R. Cook.

MSC-FLORIDA OPERATIONS (Cape Kennedy, Fla.): Elias L. Williams, Joseph F. Thompson, Carol S. Graham, Harold L. Smith, Lloyd Evans, Judith A. Sargent, Charles D. Gay, and Kenneth Thomas Sory.

PHOTOGRAPHIC DIVISION: James C. Stamps.
TECHNICAL SERVICES DIVISION: Alfred A. Scioneaux, Richard Muniz, Lawrence M. Magers, Edgar R. Harlowe Jr., and Arthur E. Lizza.

WHITE SANDS MISSILE RANGE (New Mexico): Thomas M. Matuszewski, Christal C. Grisham, Robert J. Colston, Norman Vinson, Martha B. Larson, David L. Pippen, Jack E. Kohanke, George F. Koepke, James L. Hopfinger, Florentino Gutierrez, and Miles H. Osburn.

ADVANCED SPACE-CRAFT TECHNOLOGY DIVISION: Gary L. Gutschew-

ski, and Anton M. J. Gehrels.

PERSONNEL DIVISION: Lee S. Lieberman, E. Dee Sisson, and Nancy L. Rainier.

CREW SYSTEMS DIVISION: Lillian D. Dickerson, Louise Y. Perdue, and John E. Woosley.

ENGINEERING DIVISION: Robert P. Burt, Richard W. Dyer, and Donald T. Hamilton.

FLIGHT CREW SUPPORT DIVISION: Jack C. Joerns, Nita G. Russell, Donald W. Lewis, and John B. Cotter Jr.

APOLLO SPACECRAFT PROGRAM OFFICE: Dixie L. Wood, Judy A. Levasar, Patricia W. Hardy, Lorice B. McAnally, and Harry T. Briggs (RASPO, Bethpage, N. Y.).

PROGRAM ANALYSIS AND RESOURCES MANAGEMENT DIVISION: Evon A. Collins, James S. Evans, Henry W. Fancher, Lloyd Arnold, and William B. Hill.

OFFICE SERVICES DIVISION: Rodney H. Sanborn.

TECHNICAL INFORMATION DIVISION: Julie H. Nott.

COMPUTATION AND ANALYSIS DIVISION: Herman Hines, and George W. Chesleigh.

AIRCRAFT OPERATIONS OFFICE: Thomas A. White, and Clifton A. Rogillio.

GUIDANCE AND CON-

MSC Asks Industry Develop Interphone For Gemini Rescue

Gemini astronauts may not have to resort to hand signals for communicating with rescue teams parachuted into the landing area, as did some of the Mercury astronauts.

Manned Spacecraft Center of the National Aeronautics and Space Administration in Houston is asking equipment manufacturers to come up with a lightweight, salt waterproof recovery interphone.

Rescue crews will plug into the Gemini spacecraft for direct voice communications instead of using clumsy hand signals or round-about radio relays. The interphone will be a speaker-microphone system rather than a head set.

Pararescue teams have the job of securing flotation gear to the spacecraft after water landings and for monitoring the safety of the flight crew.

The Recovery Interphones will be used in water landings prior to installation of flotation gear, and aboard ship after the spacecraft has been hoisted to the deck in preparation for opening the spacecraft's hatches.

For dry land postlanding operations, the interphones will be used to talk with the astronauts before the hatches are opened.

TROL DIVISION: David Edward Steele, and Robert C. Duncan.

PROCUREMENT AND CONTRACTS DIVISION: Sally C. Garcia, Oscar E. Krause, and Sandy L. Kefner.

SECURITY DIVISION: John H. Lancelot.

GEMINI PROGRAM OFFICE: William J. Bolster, Linda J. Drysdale, and John H. Nelson (ORR, St. Louis, Mo.)

CENTRAL MEDICAL OPERATIONS OFFICE: Paul J. Walter, Dolores B. O'Hara, and Joan B. Ivie.

FLIGHT CONTROL DIVISION: Lynwood W. Croom, David H. Owen, Charles S. Harlan, and James L. Cole.
LOGISTICS DIVISION: Sybil M. Tobias.

OFFICE OF ASSISTANT DIRECTOR FOR FLIGHT OPERATIONS: Jane F. Mitchell, and L. Louise Burkhardt.

INSTRUMENTATION AND ELECTRONIC SYSTEMS DIVISION: Asa H. Yeamans.

FACILITIES DIVISION: Fredric C. Toole.

MISSION PLANNING AND ANALYSIS DIVISION: James C. McPherson.

GROUND SYSTEMS PROJECT OFFICE: Donald H. Hay.

PROPULSION AND ENERGY SYSTEMS DIVISION: Donald J. Lewis.

MSC PERSONALITY

J. R. Brinkman, Photo Chief, Well Versed In Photography

John R. Brinkman, chief, Photographic Division at MSC, has served nearly 20 years with NACA and NASA and has accumulated a wealth of experience in the technical and general photography fields.

The photographic division, which he heads, maintains a technical photographic laboratory which is considered one of the most diversified and best equipped in existence. From this laboratory will come the photographic instrumentation and general coverage of the forthcoming Gemini and Apollo space flights.

Brinkman joined NACA and the Langley Aeronautical Laboratory in November 1945 as a laboratory technician in both still and motion picture photography. He remained in this field of research instrumentation and scientific photography until 1954.

He was then transferred to the Instrument Research Division at Langley as a research instrumentation photographer. When the Photographic Division was organized at Langley in 1957 he was promoted to section head and in 1958, became chief of the new General Photography Branch formed at that time.

In January of 1962, Brinkman was transferred to MSC as chief of the Photographic Division. The MSC division has the capability of meeting requirements ranging from simple flash photography to complicated instrumentation photography. In addition to the in-house capability, the division monitors contracts valued at over \$400,000 per year.

Brinkman's past responsibilities have included the planning and direction of activities providing full photographic coverage for such projects as: Little Joe, Shot-Put, Echo, Scout, Dyna-Soar, Rebound, Trailblazer, and Mercury.

He has been influential in recommending film standards for adoption by the American Standards Association, as well as changes in photographic policies for other government agencies and private industry.

One of the newer areas covered by the Photographic Division under Brinkman's direction is overall coordinating responsibility to insure compatibility of TV systems located in various MSC testing laboratories.

Brinkman was born in Marshfield, Wis., and attended the University of Wisconsin for two years before joining the U. S. Air Force in 1942. He served as a navigator-bom-

bardier and also received instruction in mapping and reconnaissance photography. He was discharged from active duty in 1945. Since then he has flown as



JOHN R. BRINKMAN

a radar-navigator crew member in B-57's at Langley AFB and in T-33's and F-86's which were used as photography chase planes on the escape tower ejection and deployment of the capsule drogue and main parachutes on Mercury.

He is a member of the Society of Motion Picture and Television Engineers, and the Society of Photographic Scientists and Engineers.

Married to the former Helen D. Cash of Williamsburg, Va., the couple has four children, Carol Ann 19, John R. Jr. 17, Mike L. 13, and Jean R. 9, and reside in Seabrook, Tex.

His spare time interests include hunting, fishing, baseball, golf, sailing and yard work.

Robert H. Goddard Essay Contest Deadline Is Nov. 1

The opening of the Robert H. Goddard Historical Essay Award competition for 1964 has been announced by the National Rocket Club of Washington, D. C.

This annual nationwide competition, with a \$200 prize, is open to any U. S. citizen and the entry deadline is November 1.

Essays may treat with any significant aspects of the historical development of rocketry and astronautics, and will be judged on their originality and scholarship.

Information, on how to submit essays, may be obtained locally by writing to James M. Grimwood, Public Affairs Office, Manned Spacecraft Center, Houston, Tex.



VANTAGE POINT—Astronauts Gordon Cooper and Virgil Grisson observe the lower section of the Grand Canyon along with NASA Geologist Dr. Ted Foss, from a high vantage point along the rim of the Canyon.

Grand Canyon Geological Trip Completed By All 29 Astronauts

As part of a course in geology at MSC for astronauts to gain knowledge which will aid them in the selection of lunar surface samples, field trips to the Arizona Grand Canyon were completed the middle of March.

The last group of astronauts to make the trip to the Grand Canyon included: L. Gordon Cooper, Virgil I. "Gus" Grisson, Walter M. Schirra Jr., Donald K. "Deke" Slayton, Frank Borman, Charles Conrad Jr., James A. Lovell Jr., James A. McDivitt, Thomas P.

Stafford, Edward H. White II, and John W. Young.

This is the first of several field trips which will be undertaken in the course which also includes about 58 hours of classroom instruction and is scheduled for completion by July 1.



AN EXPLANATION of the rock formation is given by Dr. Al Chidester to (l. to r.) Astronauts Walter Schirra, Frank Borman and Edward White.



CANYON CROSSING—Crossing the footbridge near the bottom of the Grand Canyon are (front to rear) Dr. E. Dale Jackson, Astronauts Donald Slayton and James McDivitt, and Vern Fryklund.

Hatch Act Election-Year Questions Answered For Federal Employees

Many election-year questions are addressed to the Civil Service Commission, which is responsible for Hatch Act enforcement. Some of the questions deal with Federal employees' rights and restrictions under specific provisions of the Hatch Act. Others deal with the Federal Government's attitude toward cooperating with local authorities in an effort to get citizens to register and vote.

The following questions and answers have been prepared for the guidance and information of employees.

REGISTRATION VOTING Q. WHAT IS THE COMMISSION'S GENERAL PHILOSOPHY WITH REGARD TO THE INDIVIDUAL'S PARTICIPATION IN REGISTRATION?

A. The Commission, over the years, has expressed the view that it believes all citizens should be encouraged to register and to vote, and that no impediment should be permitted which would hamper an individual from participating in registration activities and voting.

Q. MAY A FEDERAL EMPLOYEE PARTICIPATE IN A REGISTRATION DRIVE CONDUCTED BY A POLITICAL PARTY WHICH IS NOT CARRIED OUT ON BEHALF OF SPECIFIC CANDIDATES?

A. Yes, with certain qualifications. If the Federal employee is engaging in registration activities for the purpose of encouraging the registration of voters on a partisan political basis, such activity would violate the Hatch Act. The employee must see to it that his role in the drive is wholly non-partisan in character and that he impartially registers voters for the party of their choice without attempting to influence the individual being registered.

Q. IN MOST STATES A REGISTRAR IS APPOINTED BY THE COUNTY CLERK OR CLERK OF THE COURT. CAN A FEDERAL EMPLOYEE ACCEPT SUCH APPOINTMENT?

A. Yes, if in doing so he gets permission from his agency and the work does not interfere with his agency's business. This is a matter for each agency to decide.

GENERAL RESTRICTIONS

Specifically, an employee covered by the Hatch Act cannot run for any office as a partisan candidate or campaign for any partisan candidate or engage in any partisan political management. By partisan candidate is meant one representing a National or State political party such as the Democratic or Republican Party. He may not run for office, even as an independent, in an election in which partisan political designations are used, unless he lives in one of the communities to which the Civil Service Commission has given partial exemption.

Q. WHAT EMPLOYEES ARE PROHIBITED BY THE HATCH ACT FROM ACTIVE PARTICIPATION IN POLITICS?

A. Employees of the executive branch of the Federal Government and the Government of the District of Columbia, including temporary and part-time employees. The political activity of employees of any State or local agency whose principal employment is in connection with a Federally-financed activity is also restricted.

Q. WHAT IS THE PENALTY FOR VIOLATION OF THE HATCH ACT BY A FEDERAL EMPLOYEE?

A. The most severe penalty for violation is removal. The minimum penalty is suspension without pay for 90 days.

Q. PLEASE EXPLAIN FOR EMPLOYEES AFFECTED BY THE HATCH ACT WHAT THEIR RESPONSIBILITIES AND RIGHTS ARE UNDER THE ACT.

A. They have the right to vote and to express their political opinions, but are forbidden to take an active part in partisan political management or in partisan political campaigns. In connection with Federal

employee's right to vote, the Commission emphasizes that political-activity restrictions do not relieve employees of their obligation as citizens to inform themselves of the issues and to register and vote.

Q. MAY A FEDERAL EMPLOYEE SERVE IN AN UNOFFICIAL CAPACITY AT THE POLLS AS A CHECKER, CHALLENGER, DISTRIBUTOR, OR WATCHER, OR IN ANY OTHER POST IN BEHALF OF A PARTISAN POLITICAL CANDIDATE OR PARTISAN POLITICAL PARTY?

A. No. He may not assist such candidate or party in any way.

Q. MAY A FEDERAL EMPLOYEE USE HIS AUTO TO TAKE VOTERS TO THE POLLS ON ELECTION DAY, OR LEND IT, OR RENT IT FOR THIS USE?

A. Generally, no. However, the employee's auto may be used to transport himself and members of his immediate family to the polls. In addition, members of a car pool may stop at the polling place to cast their votes on the way to or from their places of employment.

Q. MAY EMPLOYEES COVERED BY THE ACT ATTEND POLITICAL RALLIES AND JOIN POLITICAL CLUBS?

A. Employees covered by the Hatch Act can attend political rallies and join political clubs, but they cannot take an active part in the conduct of the rally or operation of the club. Other things they are prohibited from doing are becoming involved in soliciting or collecting political contributions, distributing campaign material, and selling dinner tickets, or otherwise actively promoting such activities as political dinners.

Q. MAY HE MAKE A CAMPAIGN CONTRIBUTION TO HIS PARTY?

A. Yes, but he cannot be required to do so. The contribution cannot be made in a Federal Building or to some other employee who is prohibited by Federal law from accepting contributions. Of course, as a Federal employee, he cannot solicit political contributions.

Q. MAY A GOVERNMENT EMPLOYEE'S WIFE WHO IS NOT A GOVERNMENT EMPLOYEE HELP A FRIEND CAMPAIGN FOR POLITICAL OFFICE?

A. Yes. The Act does not restrict the activities of an employee's wife or of other members of his family in any way.

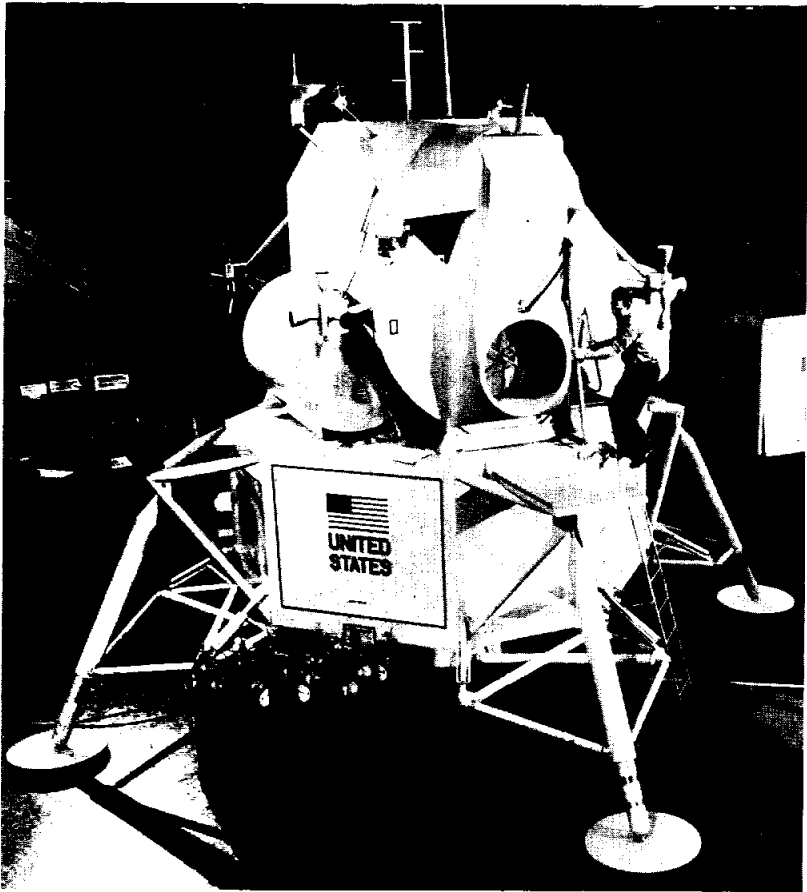


COLLECTING SAMPLES—Astronauts (l. to r.) John Young, Charles Conrad, James Lovell and Thomas Stafford collect rock samples during geological training in the Grand Canyon of Arizona.

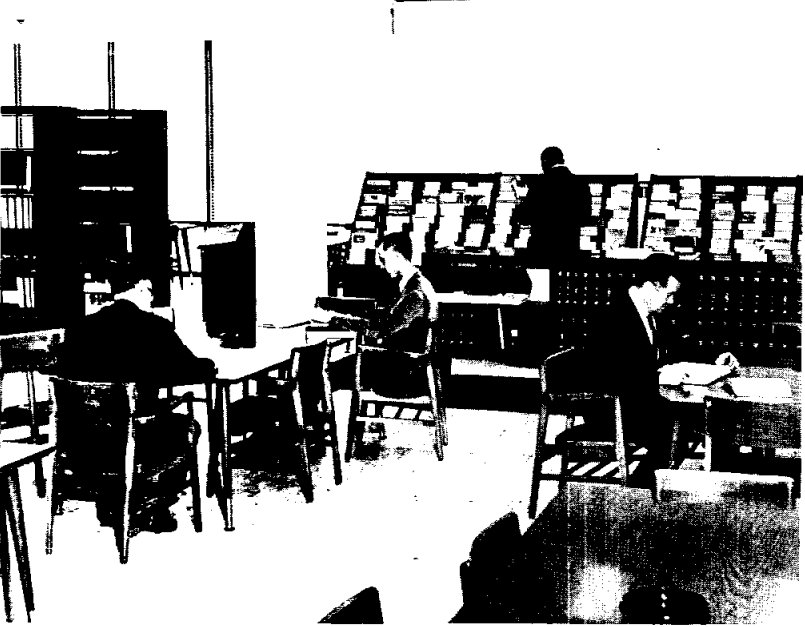
Space News

ROUNDUP!

SECOND FRONT PAGE



LATEST LEM MOCKUP--The Apollo TM-1 (Lunar Excursion Module) is displayed at the Grumman Aircraft Corp., Bethpage, N. Y. A Grumman engineer climbs the ladder to the entry platform.



READING ROOM--The MSC Technical Library now has a reading room, a feature it did not have prior to location here at the Clear Lake site. Periodical racks are shown on the right, with the shelves on the left.



NEW LIBRARIAN--Charles M. Grant (left), chief, Technical Information Division, discusses library duties with Albert P. Bradley, who recently joined NASA as head of the Technical Library Branch.

McDonnell Unveils 'Docking Trainer', Complex Unit To Be Installed Here

A complex full-scale "docking trainer" in which astronauts can master techniques of joining their Gemini spacecraft with a target vehicle--while both craft are orbiting the earth in the Stygian darkness of outer space--was unveiled last week by McDonnell Aircraft.

The electro-mechanical, computer-controlled Translation and Docking Trainer (TDT), as it is officially known, was designed and built by McDonnell for the Translation and Docking Simulator Facility (Bldg. 260) here at the Manned Spacecraft Center.

In the darkened facility at MSC, astronauts will "fly" the trainer as it simulates the motions of both the orbiting two-man Gemini spacecraft and the Agena D target vehicle in the final 100 feet before the two craft join together following rendezvous in outer space.

The first Gemini unmanned orbital flight from Cape Kennedy is scheduled for sometime this month. Actual docking in space will not be attempted until later flights in the Gemini program. McDonnell Aircraft is the prime contractor for Gemini, America's second-generation spacecraft. The first-generation Mercury spacecraft were also built by McDonnell.

Two Gemini mission simulation trainers have been designed and built by McDonnell for NASA use at the Manned Spacecraft Center and Cape Kennedy.

Vehicular components of the docking trainer are

Technical Library's Large Selection For Employee Use

The Technical Library staff of Manned Spacecraft Center was one of the first groups to locate at the Clear Lake site, moving in last December.

Located in Bldg. 16, the library is part of the Technical Information Division which is headed by Charles M. Grant Jr.

Over 6,792 books are contained in the library and nearly 500 periodicals (quarterly, monthly, weekly, and some daily) are available for the reader. In addition, some 50 to 60,000 technical reports are also available from the library.

The library is open to all MSC employees.

Albert P. Bradley, head librarian, Technical Library Branch, recently joined MSC. He holds a BS degree in physics and a Masters degree in Library Science from the University of Texas.

Bradley came to MSC from Atomics International, Canoga Park, Calif., where he was classification coordinator.

mockups of the two craft destined to make history with the first docking maneuver in United States space exploration; (1) the steel T laid out on the floor. The spacecraft, mounted in a carriage 16 feet high, moves laterally for a distance of 50 feet, on tracks



A GEMINI DOCKING TRAINER in which astronauts can master techniques of joining their Gemini spacecraft with an Agena D target vehicle while both craft are orbiting the earth was unveiled last week by McDonnell Aircraft prior to its delivery to the NASA Manned Spacecraft Center at Houston. The spacecraft (upper right) is shown in a docking maneuver with the target vehicle.

Gemini spacecraft; (2) the Agena D target vehicle. The Agena D is represented by about 15 feet of the forward end, including the McDonnell-designed cone-shaped docking adapter, or collar, into which the nose of the Gemini will fit.

Five and a half tons of moving parts are present in the two aluminum vehicles, their welded-steel support structure and their drive systems. (The Gemini mockup has 4000 pounds of moving parts, the Agena D 7000 pounds). The vehicles move back and forth, at right angles to each other, on separate sets of tracks that form a huge

that form the top of the T. The Agena travels 32 feet up and down in a vertical carriage that moves on a 100-foot section of track that forms the stem of the T.

The docking trainer is designed to represent, as closely as possible, the physical surroundings of a real Gemini. The view out the two windows of the simulated spacecraft is the same as that of the real vehicle. The command astronaut sits in the left seat. A special portable ladder, 16 feet high and equipped with a railed platform at top, rises to crewstation level.

NFFE Meetings Scheduled

The National Federation of Federal Employees will meet individually with interested employees during the week of April 6, to discuss the advantages available to members of NFFE.

To facilitate the presentation of this message from NFFE, the conference rooms of several of the MSC buildings, plus the cafeterias at Ellington AFB and the Clear Lake Site, will be utilized.

All employees have the right to participate or refrain from participating during their lunch period and after working hours in accordance with the following schedule:

April 6, Rich Building, Room 125, 11:30 - 12:30.

April 7, HPC, Room B-153 (Employees from HPC, Stahl & Myers, and Office City may attend), 11:30 - 12:30.

April 8, Ellington Cafeteria, Building 367, 4:30 - 5:30.

April 9, Clear Lake Site Cafeteria, Building 3, 11:00 - 12:00, 4:30 - 5:30.

April 10, Clear Lake Site Cafeteria, Building 3, 11:00 - 12:00, 4:30 - 5:30.