

# Space News **ROUNDUP!**

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MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

OCTOBER 15, 1965

## Lightweight Gemini Suit In Qualification Tests

First details of a lightweight Gemini suit proposed for use in Gemini VII flight were announced this week at the Manned Spacecraft Center.

### Gemini VI Teams Train In MCC-H, Deploy To Sites

Remote-site flight controllers deployed from Houston this week to their tracking stations at Guaymas, Hawaii, Carnarvon, Canary Islands and aboard the ships Coastal Sentry and Rose Knot.

Their departure followed many hours of drill in the Mission Control Center-Houston in the simulated remote site training facilities—Simulated Network Simulations (Sim Net Sims), as they are called to differentiate between in-house simulations and full network simulations when the tracking stations are actually manned.

The three teams of flight controllers in Mission Control continue their Gemini 6 training with launch abort and reentry simulations as the October 25 launch date draws near.

Flight Directors for the three teams of flight controllers in Mission Control are Christopher C. Kraft, Jr., Red Team; Eugene F. Kranz, White Team; and John D. Hodge, Blue Team.

Console positions in Mission Control follow, listed by Red, White, and Blue teams, respectively:

Assistant Flight Director: Charles S. Harlan, Manfred H. "Dutch" von Ehrenfried, and William E. Platt. Operations and Procedures Officer: Jones W. Roach, Lawrence L. D. Armstrong, and William Molnar, Jr. Flight Surgeon: Dr. Charles A. Berry, Dr. A. D. Catterson, and Dr. D. Owen Coons. Spacecraft Communicator: Elliott M. See and John Young, Red team; Eugene A. Cernan, White team; and Charles A. Bassett, II and Virgil I. "Gus" Grissom, Blue team. Booster Systems Engineer: Charles S. Harlan. Tank Monitor: Clifton C. Williams. Guidance, Navigation and Control Engineer: Arnold D. Aldrich, Gerald D. Griffin, Gary E. Coen. Electrical, Environmental and Communications Engineer: Richard D. Glover, Thomas R. Loe, and John W. Aaron.

Agena Systems: (two teams only) Melvin F. Brooks and James E. Saultz; Bruce H. Walton and Robert C. Carlton.

(Continued on Page 2)

The suit, currently undergoing qualification tests, has not yet been approved for use by Gemini VII pilots. It weighs 16 pounds, including an aviator's crash helmet which is worn under the soft helmet. The Gemini suit currently in use weighs 23.5 pounds and uses a fiberglass shell helmet.

The suit can be completely taken off during flight. It can also be worn in the partially doffed mode, in which the gloves and boots are removed and the helmet is unzipped at the neck and rolled back to form a headrest behind the neck.

The new suit has two layers of material. The inner layer is the pressure retaining neoprene-coated nylon bladder and outer layer is 6 ounce HT-1 nylon. Small sections of link net are used in the shoulders for improved mobility. The Gemini suit for the Gemini VI flight has four layers of material.

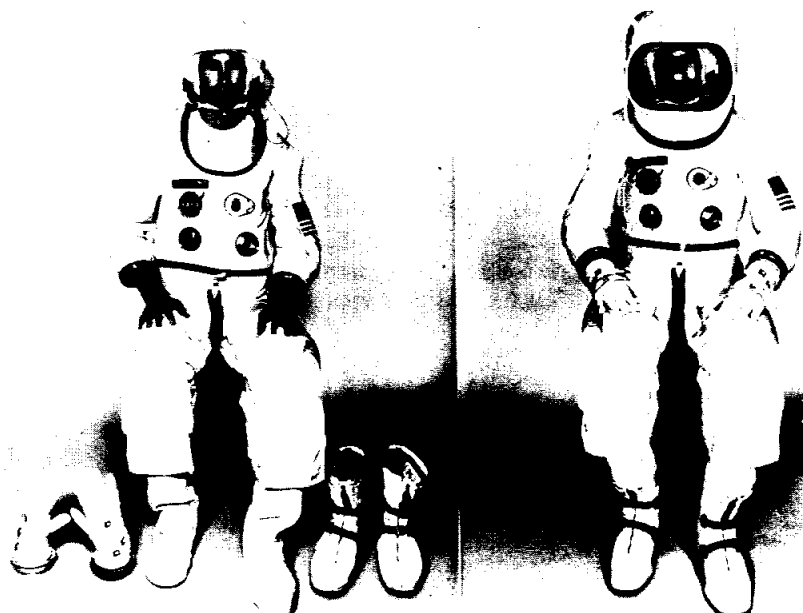
Other weight savings were effected in eliminating the large rotating neck bearing and the helmet tie-down system. The ventilation system for the suit is

external, with ducting travelling down the outside of legs and arms to enter the pressure bladder at the extremities.

Due to the proven reliability of the Gemini environmental control system on previous flights, even shirt sleeve operation would be possible in the spacecraft. However, other considerations such as blast protection, ventilation, and emergency pressurization were the basis for the lightweight suit approach which is being considered.

Dick Johnston, chief of Crew Systems Division, presented a paper at the American Institute of Aeronautics and Astronautics in St. Louis on October 13 which dealt in part with the lightweight suit. He also discussed basic and extravehicular Gemini suits, the Apollo extravehicular mobility unit for lunar use, and the concepts of post Apollo suits, such as the all metal space suit.

The suit was developed by the Gemini Support Office of Crew Systems Division, and was built by the David Clark Co., Worcester, Mass., present contractor for the basic and extravehicular Gemini suits.



LIGHTWEIGHT SUIT—Crew Systems Division Suit engineer Fred Spross demonstrates the proposed Gemini lightweight suit in the unpressurized mode, left, and in the pressurized mode, right.

### Gemini VI Ready For Launch; Spacecraft VII Taken To Cape

Gemini VI activities are proceeding on schedule for an October 25 launch.

The readiness of the spacecraft and other vehicles involved in the United States' first attempt at rendezvous and docking was

confirmed this week during a review at Kennedy Space Center. The Flight Readiness Review followed a simultaneous launch demonstration of the Agena Target Vehicle and the Gemini spacecraft.

At the same time, the Gemini VII spacecraft was moved to Cape Kennedy to begin a final series of flight preparations. Spacecraft VII was flown to KSC from the McDonnell Aircraft Corp., St. Louis, on Oct. 9.

Gemini Launch Vehicle No. VII will be flown to the Cape around the time of the Gemini VI launch and will be erected on the launch complex shortly thereafter.

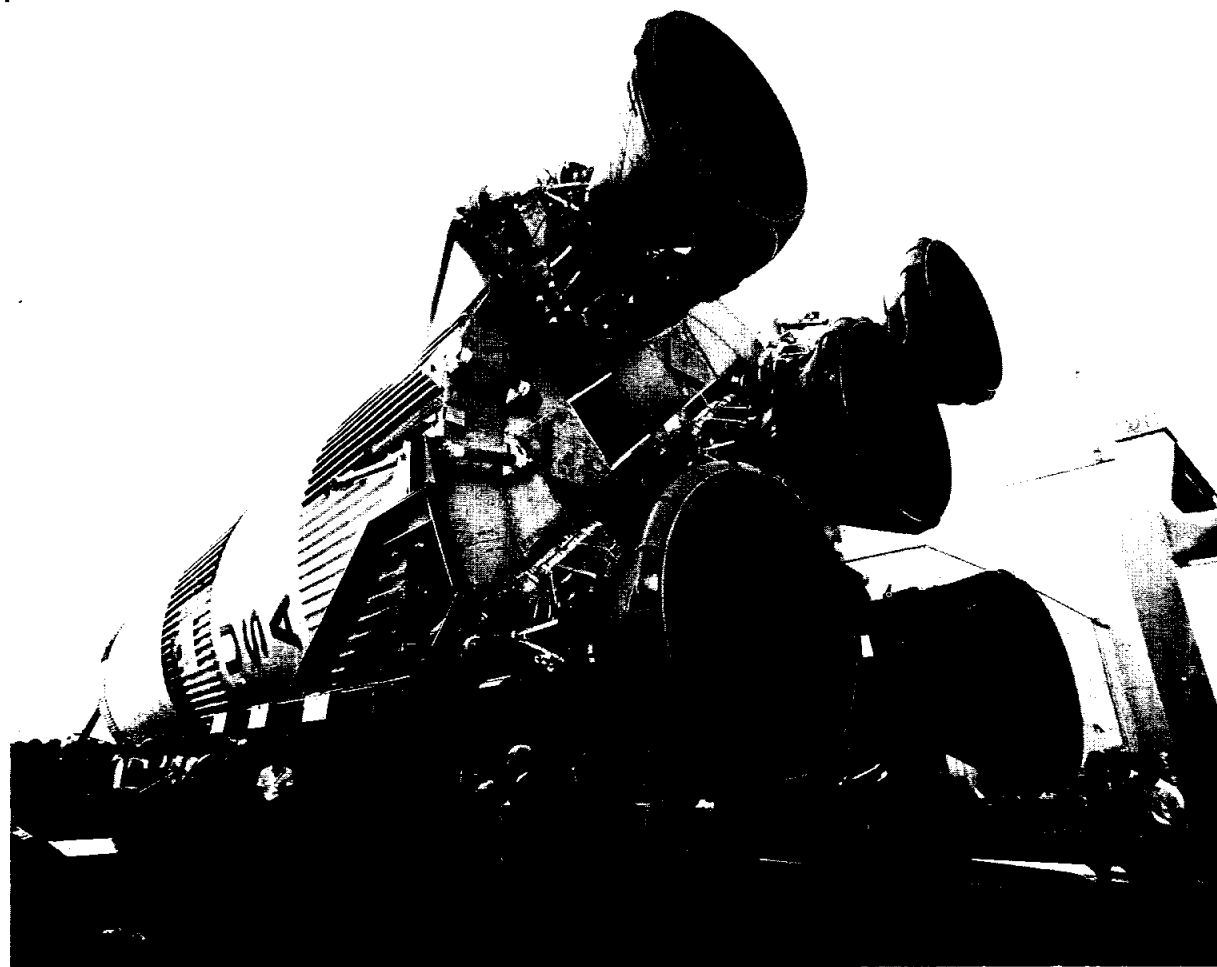
In the Gemini VI mission, an Atlas Standard Launch Vehicle is scheduled to lift off of Launch Complex 14 at 9 a.m. CST and place the Agena in orbit about 9 minutes later. The Gemini Launch Vehicle is scheduled to leave Launch Complex 19 one hour and 41 minutes after Atlas-Agena lift-off, putting Astronauts Walter M. Schirra, Jr., and Thomas P. Stafford into orbit.

Both the prime crew and the backup crew, Astronauts Virgil I. Grissom and John W. Young, are at the Cape for final mission training sessions.

If both launches are on time, rendezvous and docking is expected about 5½ to 6 hours after spacecraft launching and during the latter part of its fourth revolution.

The mission is nominally scheduled to last two days. If mission objectives are accomplished during the first day, however, the mission may be ended then.

### Meet The Big One



SATURN V BOOSTER ROLL-OUT—The first Saturn V S-1C stage was rolled out September 27 from the assembly shop at Marshall Space Flight Center. The booster will be captive fired early next year, and is scheduled for launch from Kennedy Space Center in 1967. The S-1C stage is 138 feet long and 33 feet in diameter. Each of the five F-1 liquid oxygen-kerosene engines develop 1.5 million pounds thrust. MSFC Director Wernher von Braun presided at the roll-out ceremony.

## Certified Performance



**SUPERIOR PERFORMANCE**—Camille D. Lackey, First Aid Station, Center Medical Office, was presented a Superior Performance Award recently by her supervisor Shell E. Martin, left. At right is Dr. D. Owen Coons, Chief, Center Medical Office.

## Adams To Head Research Office

Dr. Mac C. Adams was sworn in October 4 as associate administrator for Advanced Research and Technology at National Aeronautics and Space Administration Headquarters by Dr. Robert C. Seamans, Jr., Associate Administrator.

Dr. Adams, who succeeds Dr. Raymond L. Bisplinghoff, took charge of the major NASA program office responsible for the technical base on which the nation's present and future space and aeronautics progress rests. The OART has management control of five NASA research centers and about 12,000 employees.

Dr. Adams joined NASA from the Avco Corp., Wilmington, Mass., where he was vice president and assistant general manager for space systems. He held research engineering and executive positions with Douglas Aircraft Co., Ingersoll Rand Co., and the National Advisory Committee for Aeronautics, predecessor of NASA.

Dr. Adams joined Avco-Everett Research Laboratory at its inception in 1955, serving as technical director and later as deputy director. In 1960, he became Associate Technical Director of the Research and Advanced Development Division, Wilmington, Mass., thence to vice president and technical director, and finally to assistant general manager for Space Systems.

Dr. Adams received his B.S. degree in mechanical engineering in 1946, and his M.S. and Ph.D. in aeronautical engineering, in 1949 and 1953, from Cornell University.

Dr. Bisplinghoff who assumed the OART post Aug. 1, 1962, has become special assistant to James E. Webb, NASA Administrator, where he will work on policy and technical problems in the area of advanced technology.

## Flight Controllers

(Continued from Page 1)

Flight Dynamics: Clifford E. Charlesworth, Edward L. Pavelka and Jerry C. Bostick. Retrofire Officer: John S. Llewellyn, David V. Massaro and Thomas F. Carter. Guidance Officer: Charley B. Parker, William E. Fenner, and Kenneth W. Russell. Network Controller: Capt. Walter J. Arellano, Lloyd White; Ernest L. Randall, Lt. Richard G. Ayers; Capt. Andreus A. Piske, Capt. George D. Ojalehto. Support Control Coordinator: Ledrieu L. Linson, James E. Mager and Philip N. Barnes. Maintenance and Operations Supervisor: John W. Hatcher, Earl V. Carr and Bobby B. Dye. Public Affairs Officer: Paul Haney, Al Chop and Terry White.

Tracking station flight controller assignments are listed for each station by Spacecraft Communicator, Gemini Systems, Agena Systems and Aeromed console positions respectively:

Canary Islands: Arda J. Roy, Jr., Joseph Fuller, Jr.; Charles L. Gruby and George P. Contois; Lt. Col. Roland Shamburek, MC/USA, Lt. Clyde G. Jeffrey, MC/USN.

Carnarvon: William D. Garvin, Ted A. White; Harry Smith and Thomas E. Weichel; Lt. Cdr. George F. Humbert, MC/USN, Wing Commander W. J. Bishop, RAAF.

Hawaii: Charles R. Lewis, Dale L. Klingbeil; Hershel R. Perkins and Paul D. Nering; Capt. Charles H. Sawyer, MC/USAF, Maj. O'Neill Barrett, MC/USA.

Guaymas: Keith Kundel, Gene F. Muse; Willard D. Robinson; Capt. William A. Walter, MC/USAF, Cdr. Andrew W. Stephenson, Jr., MC/USN.

Coastal Sentry: Edward I. Fendell, James F. Moser; Harold V. Berlin, and George W. Emerson; Maj. James R. Wamsley, MC/USAF, John J. Droscher, MD.

Rose Knot: James R. Fucci, Floyd E. Claunch; Robert D. Legler and Luis J. Espinoza; Maj. Gerald D. Young, Jr., MC/USAF, and Cdr. Clarence E. Gossett, MC/USN.

## Cost Reduction Symbol, Top Suggestions, Win Cash Awards In MSC Ceremony

Awards totaling \$3005 were presented October 7 to 24 MSC employees by Center Director Dr. Robert R. Gilruth in a presentation ceremony.

Top award of \$500 went to Stanley R. Richards, Administrative Services Division, whose entry won the NASA-wide Cost Reduction Symbol Contest. (See July 23, 1965, Roundup) — Richards also received a personal letter of congratulations from NASA Associate Administrator Dr. Robert Seamans. Dr. Gilruth said Richards' winning entry "will be an integral part of the Cost Reduction Program in NASA."

Dr. Gilruth also presented a \$840 suggestion award to Melvin

D. Woolsey. The award was accepted for Woolsey by David M. Hickman, Instrumentation and Electronic Systems Division. Woolsey is in graduate study at the University of Tennessee.

In presenting the other 22 awards, Paul E. Purser, special assistant to the Director and Chairman of the MSC Awards Committee, said that during the first twelve months of operation, the MSC Suggestion Program has had the highest participation rate in the NASA. "These indications are considered to be the marks of a very healthy program," said Purser.

Purser expressed his appreciation to the MSC work force for their response to the Suggestion

Program and for the enthusiasm shown by the Suggestion Committee chaired by Joseph N. Kotanchik. Said Purser, "People from all parts of the Center who have time out to evaluate the suggestions deserve a big hand, for not only have the suggestors profited, but the only reason that these suggestions were accepted was because the whole Center profited."

Other Suggestion Awards presented were as follows: Rexford H. Talbert, Computation and Analysis Division, \$385 for suggesting use of less expensive tape in recording space flight air-to-ground transmissions; Bill R. Gantz, White Sands Test Facility, \$375 for suggesting that liquid air used at WSTF be mixed locally rather than bought



**WINNING ENTRY**—Stanley R. Richards, right, received a \$500 cash award for his winning entry in the NASA-wide Cost Reduction Symbol Contest. Center Director Dr. Robert R. Gilruth made the presentation.



**NAPLES** **BEHRENDT**

mixed from vendor: Joseph F. Naples, Technical Services Division, \$200 for suggesting a new fabrication procedure for vacuum forming of "deep-draw" items; and Edward J. Behrendt and Tom V. McGrath, Photographic Technology Laboratory, split \$200 for suggesting a special air channel for pre-drying estar-base film.

Other cash Suggestion Awards went to: Robert W. Langdon, Resources Management Division, \$75; Edward J. Behrendt and William A. Willis, Photographic Technology Laboratory, \$50; Behrendt, a third award of \$40; Ernest L. Weeks, Jr., Propulsion and Power Division, \$25; Donald F. Hughes, Crew Systems Division, \$25; Junior M. Mitchell, Technical Services Division, \$25; Craig Pemberton, Technical Services Division, \$25; Robert S. Sayers, Flight Crew Support Division, \$25; Ivy H. Schneider, Advanced Spacecraft Technology Division, \$25; Roy Laird, Center Medical Office, \$25; Edna S. Groda, Resources Management Division, \$25; and Dave W. Corbett, Technical Services Division, two awards of \$25.

Awards of \$15 each went to: Vera A. Vick, Administrative Services Division; Alphonse M. Thiel, Administrative Services Division; Virginia W. Engle, Flight Control Division; Richard W. Grow, Technical Services Division; Madeline B. Kline, Resources Management Division, and James A. Null, Propulsion and Power Division.

## Two Contracts Awarded For Apollo Parasail Development

The technology developed in the steerable parachute program using a Gemini boilerplate is now planned for application to Apollo-type spacecraft, it was announced at Manned Spacecraft Center last week.

"The identical method used in the first parasail test series will be applied to demonstrate the technology for vehicles of the weight and size of Apollo," said Maxime Faget, Assistant Director for Engineering and Development, "We are using the knowhow acquired in the parasail program in the development of a new system."

The last test drop using the Gemini boilerplate was conducted successfully at Fort Hood, Texas, on July 30. The vehicle landed within forty feet of the target point, using two small braking rockets to cushion its descent.

In the new test series, two most promising types of gliding parachutes will be developed. Northrop Ventura of Van Nuys, California, has been awarded a contract for \$302,797 to develop a cloverleaf gliding chute and Pioneer Parachute Co., Manchester, Connecticut has been awarded a \$186,997 contract for design and development of a

large controllable parachute.

Initial flight testing will be done with a half scale model of an Apollo boilerplate. The results of these tests will determine which type of parachute will be used with a full scale Apollo boilerplate.

The half scale model will use only the chutes and turn motors. The full scale models will test all the components of the gliding parachute-landing rocket system.

Three contracts for analytical studies have already been awarded. Bendix Aerospace, South Bend, Indiana, has received a \$116,000 contract for a computer study on landing dynamics of the Apollo command module. North American Aviation, Downey, California, has been awarded \$67,000 for a study on mechanical system impact design, and Hayes International, Birmingham, Alabama, has received a study contract for \$88,987 for soil erosion characteristics caused by landing rocket firings.

The Landing Technology Branch of Structures and Mechanics Division, Engineering and Development Directorate, is responsible for technical supervision of the program.

## The Lens As a Tool—

## Space Photography Aids Many Natural Sciences

U. S. astronauts aren't just the world's most experienced space travelers.

The NASA Manned Spacecraft Center pilots are among the world's most accomplished photographers.

And through photography, they have extended their talents into the diverse fields of oceanography, astronomy, meteorology, geology and cartography.

Ever since Col. John Glenn roared into space with a camera aboard the Mercury spacecraft, "Friendship 7," back in 1962, Americans have been treated to extraordinary views of an earth man is only beginning to understand.

Today, after seeing hundreds of photographs taken by NASA's busy astronaut-photographers, scientists the world over are proclaiming their value. Praise has mostly been summed up in a single word:

More.

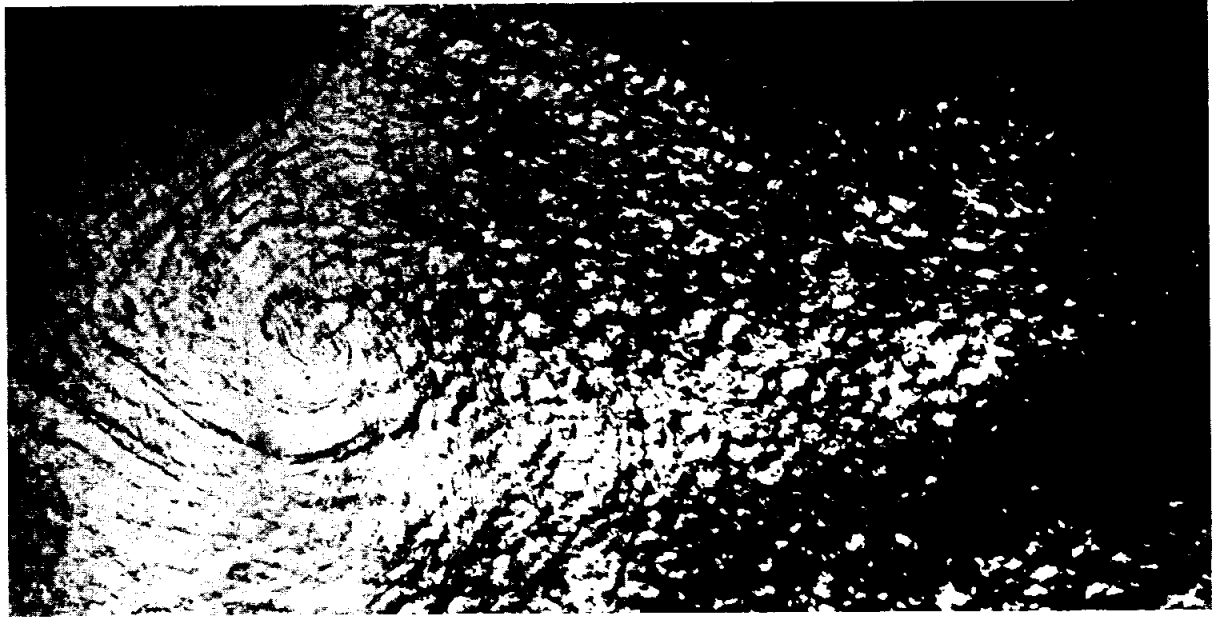
Geologists in Mexico, for instance, may discover their

country anew through spaceborne photography. Pictures taken by Gemini pilots James McDivitt and Edward H. White have shown geologic faults not identified in more than a century of study.

Mexico's Agua Blanca fault zone, so obvious in photos taken from space, was only recognized by geologists in 1956, and even then it took aerial reconnaissance to find it.

The Pinacate volcanic field in Mexico has been known for centuries, yet its boundaries are not shown on maps as recent as 1960. Gemini photos taken this year identify the field clearly.

Oceanographers from the Mediterranean to the Gulf of California have identified bottom topography from photographs taken by Mercury and Gemini astronauts. They have noticed sediment distribution from rivers into gulfs, and are studying the possibility of limited depth mapping through space-taken photos.



**METEOROLOGY**—A South Atlantic tropical storm forming behind Hurricane Betsy was photographed by the crew of Gemini 5. The storm apparently failed to mature and present any danger to land masses. Much knowledge of global weather system development has been gained from orbital altitude photography in the U.S. manned space flight program.

Weathermen, too, are interested in tracing patterns defined in orbital altitude pictures.

But more than just photographs are involved. On-the-spot reports by astronauts, such

as those provided by L. Gordon Cooper and Charles Conrad from Gemini V, are equally valuable.

Cooper and Conrad reported Hurricane Doreen in mid-Pacific during their 65th revolution of the earth when nobody knew where the storm was. Their information was transmitted to the ground, and the weather bureau in San Francisco published an advisory to sea and air traffic the same day.

Astronomers have known about a mysterious glow in the sky for years, and they call it gegenschein—"counter glow." It has baffled them, and defied every attempt at photography from the earth.

Cooper and Conrad photographed it for the first time during their eight-day flight in August. Milky haze on their film indicates that gegenschein is reflections from back-lighted particles in space, particles of

comets or asteroids, but not particles from earth.

Zodiacal light, a tinge of light near the horizons at sunset and sunrise, has also been photographed by American astronauts. This phenomenon is caused by reflected sunlight from dust particles.

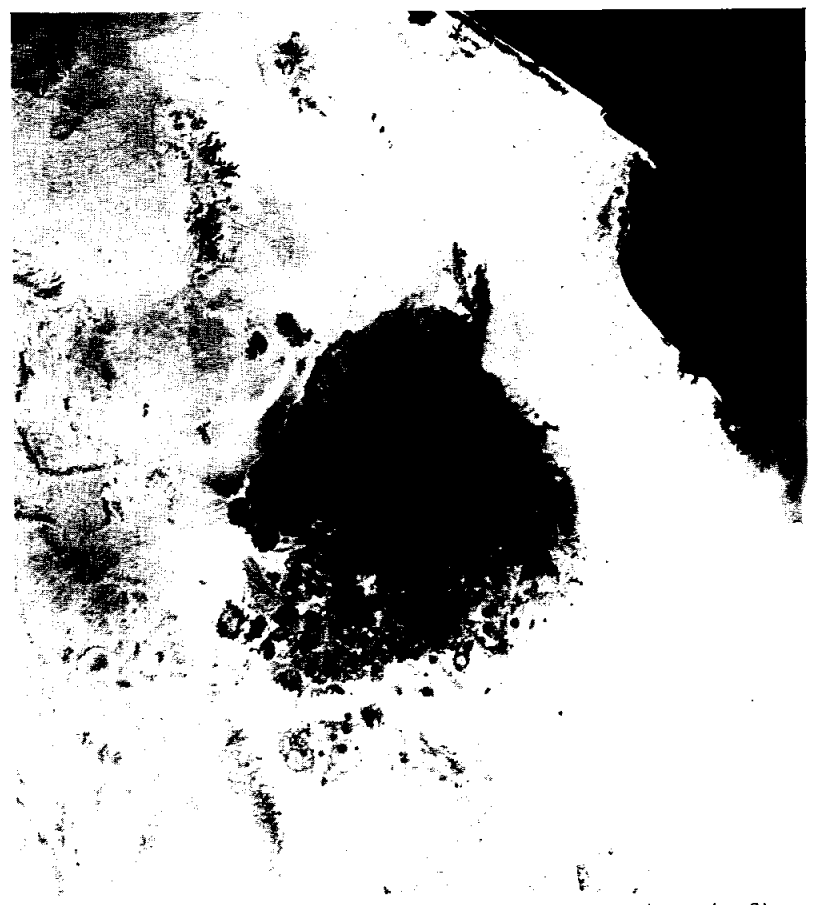
There is more to space photography than meets the lens. There is the promise of accurate mapping of places on earth where civilized man has never set foot.

There is potential for determining water temperatures and depths using spaceborne instruments—not simple cameras—and cloud heights, using spectrographs and cameras from space.

And, with man capable of aiming a camera wherever it will do the most good, spaceborne cameras can photograph the moon and stars to get pictures without the distortion ground-based cameras pick up from earth's atmosphere.



**OCEANOGRAPHY**—Shallow ocean floor shelves bordering continents or island groups are readily apparent in photographs taken from space. This photograph of the Great Bahama Bank, Bahama Islands, was taken by the crew of Gemini 4. The light area at left is shoal water, while the darker portion of the water is deep water.



**GEOLOGY AND MAPPING**—Large geologic features such as the Sierra del Pinacate volcanic field in the state of Sonora in Mexico are difficult to map from low altitudes or from the ground. The extent of the volcanic field was not fully known until this photo was made by the Gemini 4 crew.

# Douglas S-IVB Stage On All Saturn Series

At Santa Monica and Huntington Beach, Calif., the Douglas Aircraft Company's Missile & Space Systems Division is producing upper stages for the Saturn IB and Saturn V vehicles that will power the Apollo spacecraft toward the moon.

The Douglas S-IVB, which will serve as the second stage of the Saturn IB and third stage of the Saturn V lunar launch vehicle, has more than twice the propellant capacity and power of its predecessor, S-IV, which formed the second stage of the highly successful Saturn I.

Douglas S-IVB stages are included as part of every Saturn launch vehicle starting with the Saturn I series.

The 58-foot high, 21.5-foot-diameter S-IVB is powered by a single Rocketdyne J-2 engine developing 200,000-pounds thrust.

In its Saturn IB configuration, the S-IVB stage will deliver a manned Apollo spacecraft into low earth orbit for check-out and test of the Apollo systems.

Later, in the Saturn V configuration, the S-IVB will provide the final thrust to send the Apollo capsule into earth orbit, then restart to propel the astronauts into a trans-lunar trajectory.

During flight, pitch and yaw control of the S-IVB will be accomplished by gimbaling the J-2 engine. Roll control will be maintained through the firing of separate small attitude control rockets. Stage propellant capacity will be about 230,000 pounds.

Assembly and checkout of the S-IVB is accomplished at the Douglas Space Systems Center, located on a 245-acre site in Huntington Beach. Fabrication of components and sub-

assemblies is accomplished at the company's Santa Monica, Calif., location, as well as by scores of subcontractors throughout the United States.

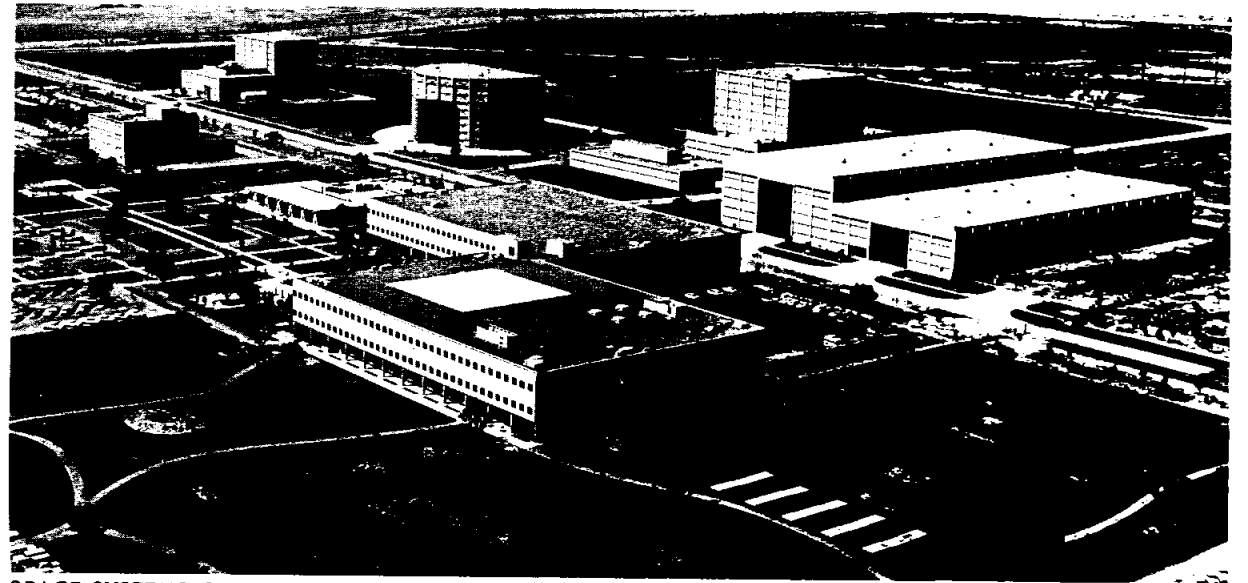
The Space Systems Center, Huntington Beach, is an ultra-modern facility which was developed by Douglas at a cost of \$25 million in private capital. It is currently undergoing an extensive expansion program, valued at more than \$7 million, to provide additional engineering, manufacturing, and test capabilities. These additional facilities will be utilized by Douglas for continuing work on Saturn and for newer programs such as the U. S. Air Force Manned Orbiting Laboratory.

Basic configuration of the S-IVB is cylindrical, with an insulated common bulkhead separating the forward liquid hydrogen tank from the liquid oxygen tank. The common bulkhead design consists of two aluminum domes with a layer of fiber glass honeycomb bonded between to form a rigid "sandwich." The design was developed by Douglas for the S-IV program.

Sections of the aluminum alloy hydrogen tanks, milled on the inside in a waffle-like pattern, are received from Santa Monica and welded together to form the cylindrical tank section.

In the Space Systems Center Manufacturing Building, assembly is performed on the S-IVB thrust structures, on the forward and aft skirts, and on the interstages of the S-IB and S-V configurations of S-IVB. Also performed in this building is the installation of electrical modules in the skirt assemblies and sub-assembly of wiring harnesses.

From the Manufacturing Building, the S-IVB moves to



**SPACE SYSTEMS CENTER**—Douglas Aircraft Company's new facility is viewed against the northern horizon in Huntington Beach, Calif. Buildings visible are (from left) the Space Simulation Laboratory, Systems Integration Laboratory, hemispherical Structures Laboratory, the 115-foot-high Tooling Tower Complex behind the Production Test Laboratory, and the Manufacturing and Assembly Building, located behind the 360,000-square-foot Engineering Complex. Immediately to left of Engineering Complex is the cafeteria. Employment at the Space Systems Center will be 2600 by the end of the year and approximately 10,000 by the end of 1970.

**EDITOR'S NOTE:** This is the fourth in a series of articles being presented to acquaint the employees of the Manned Spacecraft Center with the contractors who make the Saturn launch vehicles and related equipment that will be used in the Apollo program. The material on these two pages was furnished by Missile & Space Systems Division, Douglas Aircraft Company.

the Vertical Assembly Towers, which have been designed specifically for assembly, checkout, and related operations on the S-IVB.

This 115-foot-high building contains six positions, including two assembly towers for automatic welding and component installation, a hydro-static tower with a test tank that contains 105,000 gallons of water, a clean and degrease tower, and two checkout towers. An adjacent structure is used for installing insulation inside the liquid hydrogen tank.

Largest single component on the S-IVB is the Rocketdyne J-2 engine, which is installed in the Vertical Assembly Building. The J-2 engine is attached to the S-IVB thrust structure and a complete vehicle and engine integrated checkout performed. This test is controlled entirely by a computer which issues all commands and performs hundreds of checks at electronic speeds.

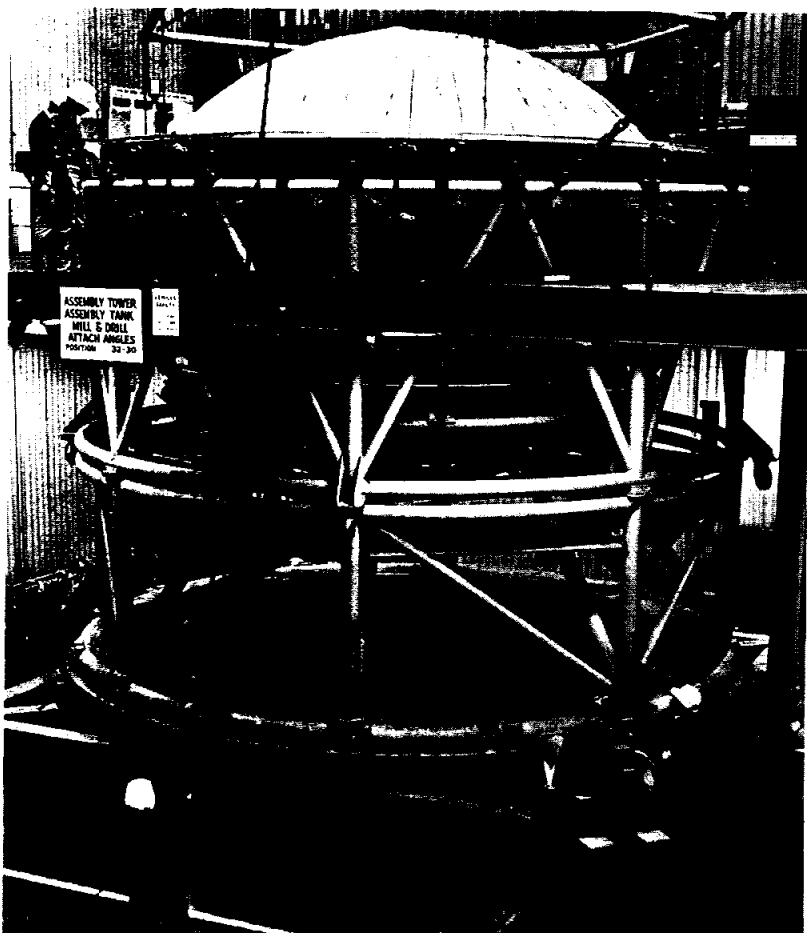
Other facilities include the Structures Test Laboratory containing five test pads surrounding a central reaction tower, for application of stresses up to 1 billion-inch pounds of bending moment and eight million pounds of vertical load; the Space Simulation Laboratory with its 39-foot diameter vacuum chamber capable of simulating conditions found at an altitude of more than 400 miles; the Systems Integration Laboratory housing computer facilities for checkout of S-IVB electronic circuitry; and the 20,000 square foot Production Test Laboratory for engine and component testing and electrical modifications.

After the S-IVB has been completely checked out, it is shipped from Huntington Beach to the Douglas Sacra-

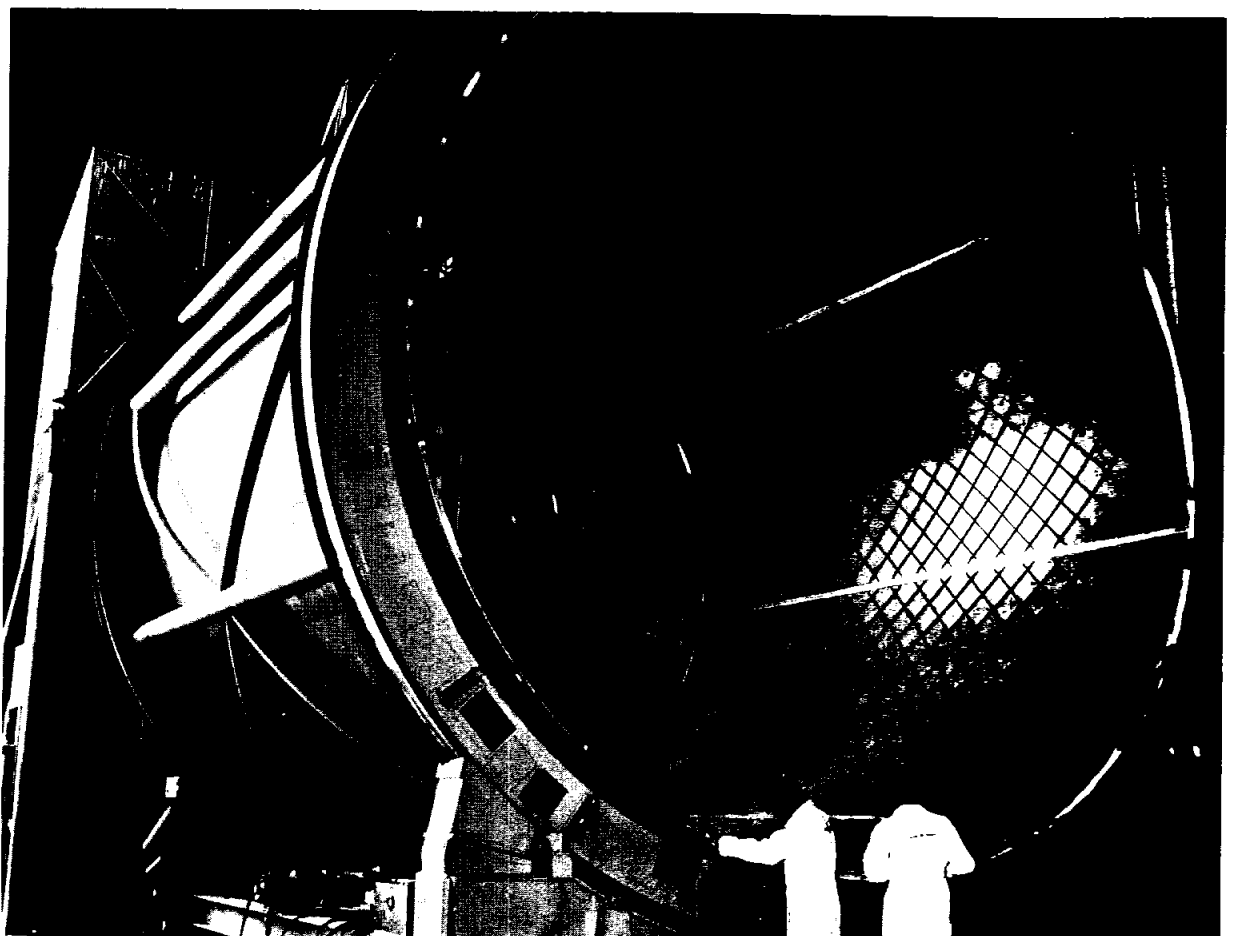
mento Test Center. Moving by truck and barge, the booster arrives at the Beta test complex in Sacramento where it is mounted vertically for firing tests. Following completion of a pre-firing checkout, the stage is loaded with propellants and fired for a full-duration period, approximately 8 minutes.

Once the acceptance firing has been successfully accomplished, the vehicle receives a final checkout prior to official acceptance by NASA representatives and shipment to Cape Kennedy.

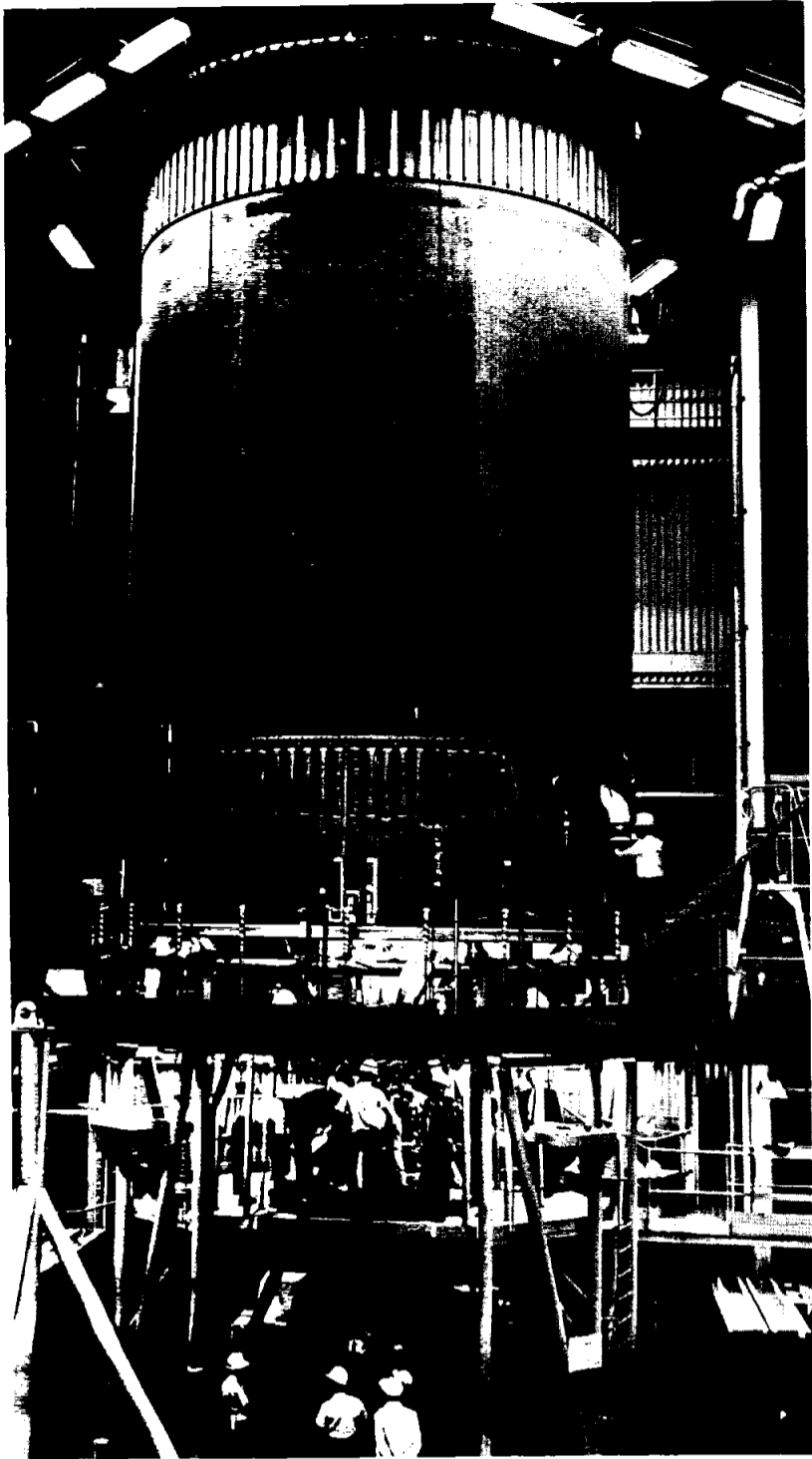
The first flight vehicle of the S-IVB/SIB configuration was turned over to NASA in ceremonies held at Sacramento August 31, and then began its trip to the Cape to become part of the first Saturn IB.



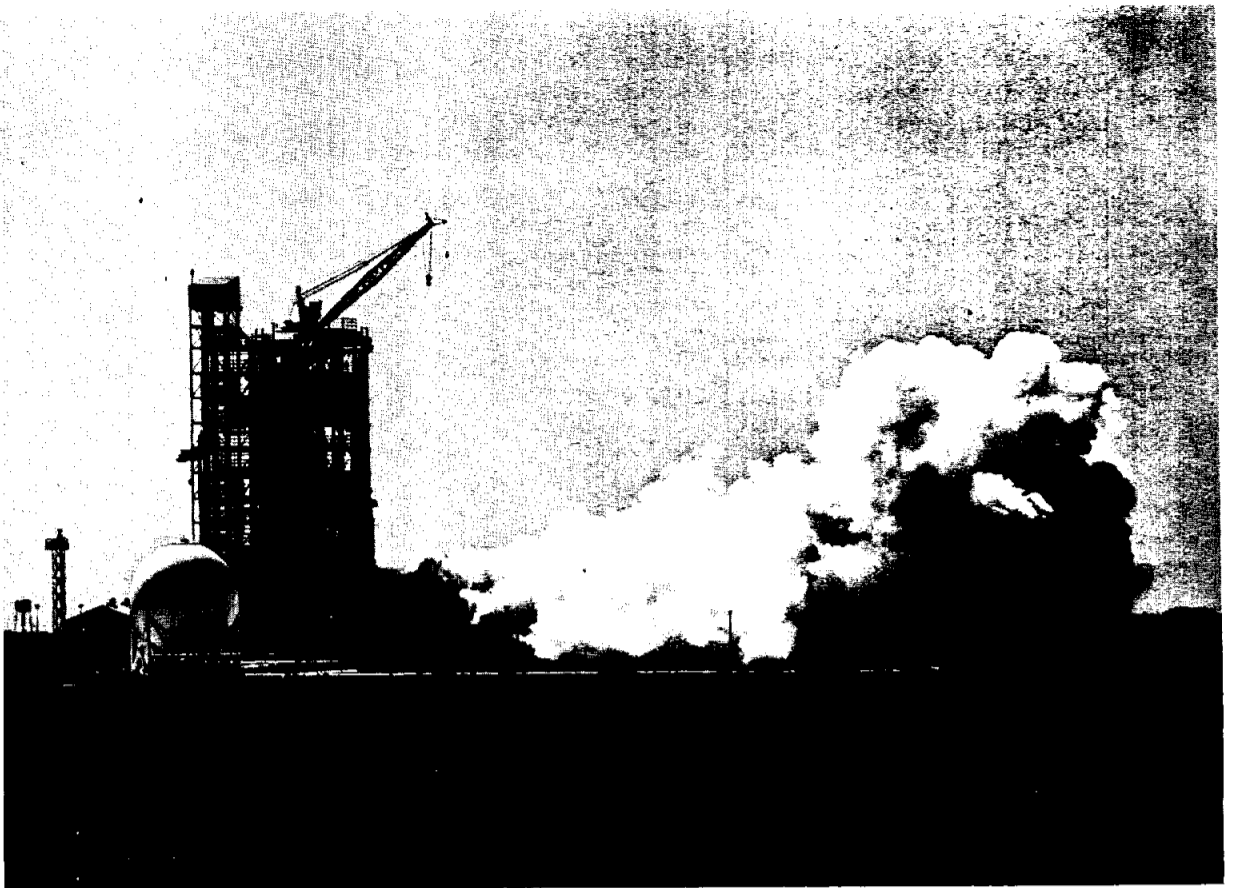
**FLIGHT HARDWARE**—Workers at Douglas Space Systems Center, Huntington Beach, lower liquid oxygen tank into assembly jig prior to joining it to hydrogen tank cylinder. Hardware is first produced by Douglas for use on NASA's giant Saturn V booster. White foam padding protects common bulkhead from damage during assembly.



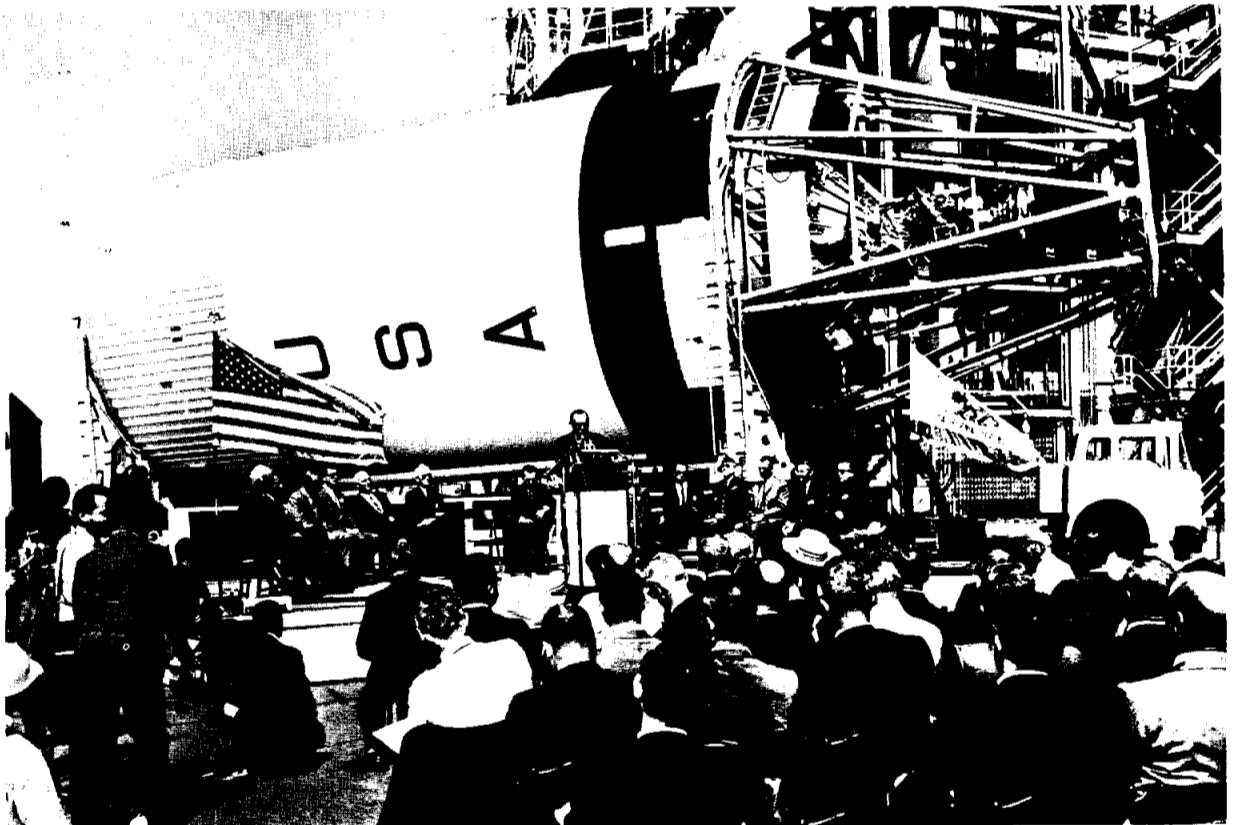
**MASSIVE TANK**—Assembly of first S-IVB for Saturn V is progressing rapidly at Douglas Space Systems Center, Huntington Beach. Workmen are shown inspecting newly trimmed end of liquid hydrogen tank cylinder section in preparation for welding attach ring that will join cylinder to end closure. Milled waffle pattern reduces weight of aluminum alloy walls while retaining maximum structural strength.



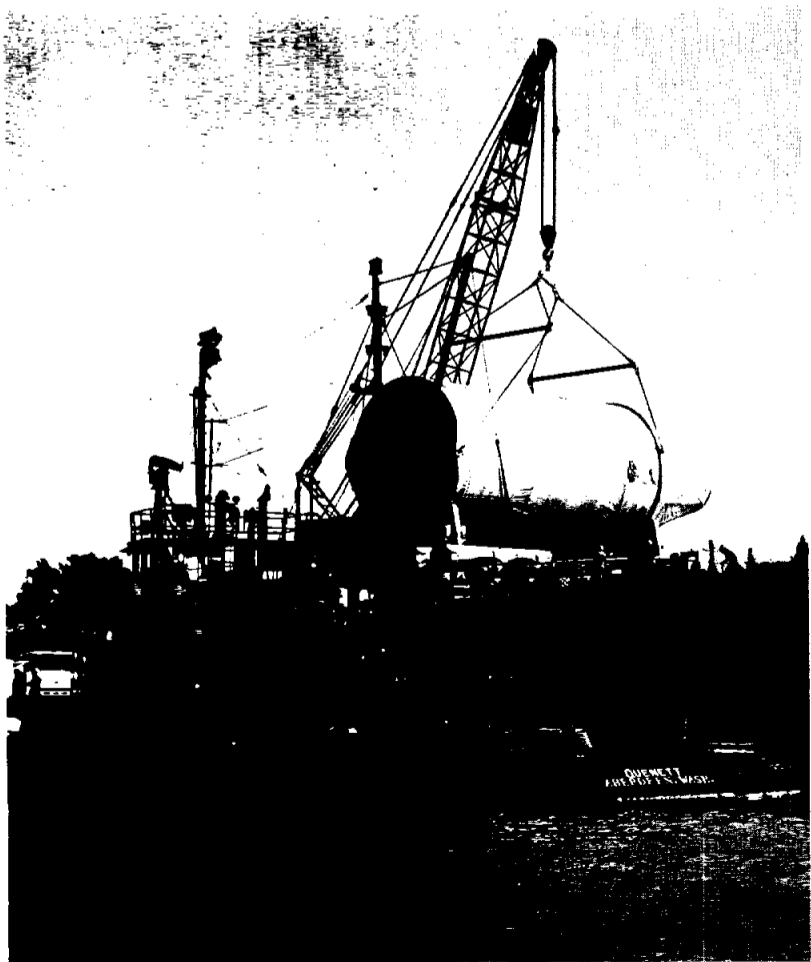
**FINAL CHECK**—Technicians swarm over completed Saturn S-IVB stage at Douglas Space Systems Center performing final steps prior to shipment to Sacramento Test Center for acceptance firing. Vehicle is shown mounted in Vertical Assembly Tower at Huntington Beach, Calif., one of new buildings \$25 million dollar space facility built by Douglas with private capital. Stringent quality standards are applied at every step during fabrication of S-IVB.



**SATURN S-IVB POWER**—S-IVB upper stage of National Aeronautics and Space Administration's Saturn IB rocket spouts flame and smoke during successful pre-flight test of almost 8 minutes at Douglas Aircraft Company's Sacramento (Calif.) Test Center. Firing demonstrated readiness of Douglas-built S-IVB for first launch of two-stage Saturn IB expected early next year. The IB is an advanced, more powerful version of the Saturn vehicle which recently orbited the Pegasus satellite. Douglas Missile & Space Systems Division produces the S-IVB at Santa Monica and Huntington Beach, Calif., under contract to NASA's Marshall Space Flight Center.



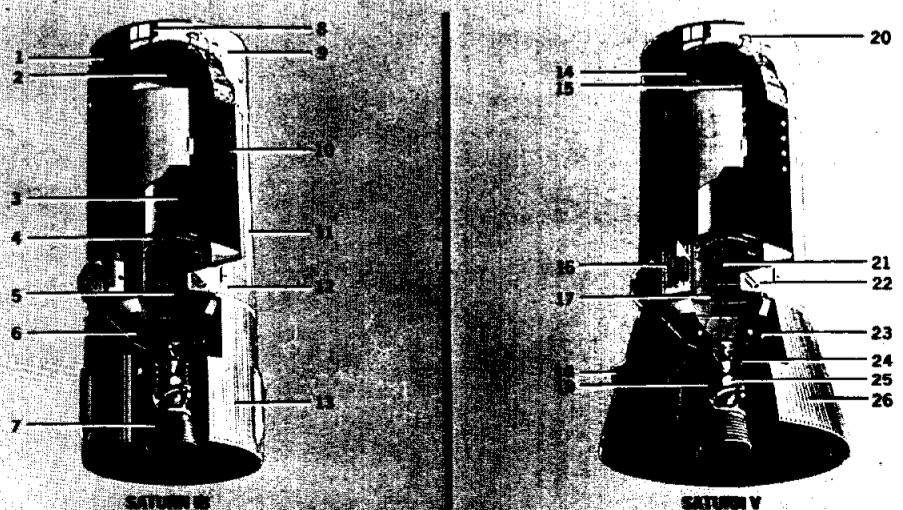
**FIRST FLIGHT VEHICLE**—Official turnover ceremonies for first Saturn S-IVB flight vehicle were held recently at Douglas Sacramento Test Center. California Governor Edmund G. Brown (at rostrum) turned over completed flight stage to NASA representatives headed by Brig. Gen. E. F. O'Connor, (sixth left), while Donald W. Douglas, Jr., (left of rostrum) and other dignitaries look on.



**AT SACRAMENTO**—Crane lifts Saturn S-IVB stage from barge after trip up Pacific Coast from Seal Beach. Site is Courtland dock on Sacramento River, from which the vehicle will be hauled overland by special trailer to test stand at Douglas Sacramento Test Center. Entire stage is protected by heavy cover from time it leaves Douglas Space Systems Center, Huntington Beach, until it arrives at test site.

**SATURN S-IVB CUTAWAY**  
SATURN IB/SATURN V

704-1030



- |                            |                            |                                      |                              |
|----------------------------|----------------------------|--------------------------------------|------------------------------|
| 1. FORWARD SKIRT STRUCTURE | 9. ELECTRICAL MODULE PANEL | 14. INSTRUMENTATION PROBE (HYDROGEN) | 20. HYDROGEN VENT            |
| 2. P.A. PROBE (HYDROGEN)   | 10. ANTENNA RANGE SAFETY   | 15. PRESSURIZATION LINE              | 21. P.A. PROBE (LOX)         |
| 3. HYDROGEN TANK           | 11. COLD HELIUM SPHERES    | 16. APS MODULE                       | 22. ULLAGE ROCKET            |
| 4. ANTI-SLOSH RAFFLE       | 12. PUMPS                  | 17. INSTRUMENTATION PROBE (LOX)      | 23. AMBIENT HELIUM SPHERES   |
| 5. LOX TANK                | 13. LOWER THERMAL PANEL    | 18. HEUNG ROCKET                     | 24. LOX FEED LINE            |
| 6. THRUST STRUCTURE        | 14. AFT AIRCRAFT           | 19. HYDROGEN FEED LINE               | 25. ENGINE RESTART SPHERE    |
| 7. J-2 ENGINE              |                            |                                      | 26. AFT INTERSTAGE STRUCTURE |

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Public Affairs Officer . . . . . Paul Haney  
Editor . . . . . Terry White  
Staff Photographer . . . . . A. "Pat" Patnesky

## Space News Of Five Years Ago

OCT. 17, 1960—A second powered free flight of the X-15 (No. 2) research airplane accomplished most planned objectives.

A Project Mercury weather support group was established in the office of Meteorological Research of the United States Weather Bureau at the request of NASA.

OCT. 18, 1960—Lunik III provided man's first look at 70 percent of the backside of the moon, two weeks after launch, by transmitting automatically taken pictures.

The spacecraft checkout facility at Marshall Space Flight Center was transferred to Cape Canaveral.

OCT. 21, 1960—The President by executive order indicated that the Development Operations Division of the Army Ballistic Missile Agency would be transferred to NASA, subject to the approval of Congress.

OCT. 26, 1960—Soviet Union released photo of the far side of the moon taken by Lunik III.

## Out Of Texas' Past . . .

(EDITOR'S NOTE: To acquaint MSC employees with the rich historical background of the Galveston Bay area, and of Texas in general, a series of historical articles prepared by the Historical and Library Services Branch will appear in the Roundup.)

History has failed to record the exact date on which Jean Lafitte, pirate hero of the Battle of New Orleans, abandoned Galveston Island at the invitation of the United States Navy in 1820 or 1821. Indeed, historians disagree on the spelling of the famous buccaneer's surname. Jean sometimes signed himself Lafitte; the Texas State Historical Association prefers Laffite.

But legend, stepchild of history, pictures the gentleman privateer standing sadly on the quarterdeck of his flagship *Pride*, watching her sails fill with smoky wind from the burning "Maison Rouge" and other buildings that had been his headquarters since 1817. And the corsair is quoted: "I have buried my treasure at the Three Trees."

That cryptic (and perhaps apocryphal) statement has inflamed the imagination of treasure hunters for almost a century and a half. Did Laffite mean the site of the Battle of Three Trees, eight miles west of Galvez Town, where he killed 60 Kromk Indians for having eaten three of his men?

Or did he mean three curiously blazed trees that stood on the north shore of Clear Lake near the present Lakewood Yacht Club?

Or three blazed trees that stood near the mouth of Cedar Bayou?

Some of Laffite's own men returned to Three Trees ("Laffite's Grove") and dug up a locked iron chest. So runs another legend. Blasting it open, they discovered the body of their captain's beautiful Creole mistress, Marie. Or was she an octoroon named Jeannette?

Jesse Ziegler, Houston historian who was reared in Galveston, said that as a boy he often saw treasure hunters digging near Three Trees by lantern-light at night. Mrs. Ivy Ifrey reported similar diggings along Cedar Bayou. Almost all accounts of Laffite's Galveston activities state that his vessels often entered Clear Lake.

Perhaps the rarest of all Laffite treasure stories is one discovered by a contract employee in the Historical and Library Services Branch, concerning an alleged treasure cache on Sydnor's Island, in Old River, near Channelview.

Carl Stimson, former Harris County surveyor, ran a line across the island in 1918 for a group of Germans who forbade him to make field notes. Stimson made notes anyway. Later he was told that the Germans were testing a new invention: a seismograph for locating oil-bearing sands.

Paul Nelson, of Houston, said Sydnor's Island was owned by his uncle Lafayette Lee early in the century. Lee raised hogs on the 1145-acre paradise and spent his spare time hunting a Laffite treasure cache. Shortly before his death Lee told his nephew that he actually had found a chest filled with gold coins, had dug it up, then reburied it.

As a result of that story the legend of "Lafayette's treasure" was born.

Oldtimers on the San Jacinto called the island "Sidney's," and many of them still call the country around the former San Jacinto Ordnance Depot "the Audience." Thus Mrs. Roy Thayer, of Bear Bayou, told the investigator employed at MSC:

"That old building you found on Sidney's Island—different ones call it a Spanish fort, but it ain't. It was old Colonel Sidney's plantation house. I was raised up at the Audience, and when I was a girl folks dug for Lafayette's treasure on that old island."

## Welcome Aboard

During the last reporting period, 72 new employees joined the Manned Spacecraft Center.

Audit Office: Richard O. Jones.

Administrative Services Division: Joan W. Lybyer.

Procurement and Contracts Division: Diane V. Tatum.

Technical Services Division: Nancy L. Shaw.

Management Services Division: Nina E. Lamb and Michael G. Simmons.

Engineering Division: Linda K. Askew and Delores A. Wilkins.

Personnel Division: Mary J. Goodrum.

Resources Management Division: Carl C. Hall and Juanita K. Snyder.

Flight Crew Support Division: Judy C. Boen, George R. Boersig, Kay R. Ellenburg, Donald R. Garrett, Max H. Harris, and William D. Hetter.

Assistant Director for Engineering and Development: Helen V. Patterson.

Crew Systems Division: Harry O. Erwin, Jane C. Rider, and Thomas B. Willen.

Computation and Analysis Division: Henry P. Decell and Max E. Harris.

Instrumentation and Electronic Systems Division: Robert L. Chick.

Guidance and Control Division: Walter Manning and Frank Weaver.

Propulsion and Power Division: Dale L. Connelly.

Structures and Mechanics Division: Calvin Schomburg and Robert M. Tobin.

Advanced Spacecraft Technology Division: Dan D. Swint.

Assistant Director for Flight Operations: Connie S. Love, Shelia A. Nice, Mary G. Ragsdale, Victor J. Snyder, and Richard Weise.

Flight Control Division: Robert A. Birdsall, William F. Buchholz, Carroll Buford, Donald R. Butler, Richard A. Gardner, William A. Fretwell, Lloyd V. Howard, Harold Hunter, J. Edward Lorenz, David R. Lund, Leonard Swank, and Walter W. Wells.

Landing and Recovery Division: Dennis G. Mannering, Harold V. J. Neher, Wayne H. Oldfield, and Robert L. Tweedie.

Mission Planning and Analysis Division: David M. Box, Thomas M. Cary, Dale H. Fessenden, Jackie E. Hills, Michael J. Oles, John Thomas Parker, James L. Reece, and Michael T. Sellers.

Flight Support Division: Antonio I. Chavez, Robert L. Dean, Carlos A. Hernandez, Alexander Metzner, Robert G. Tracy, and Thomas E. Brewer.

Center Medical Office: Norman W. Pincock (Cape Kennedy).

White Sands Test Facility: Linda K. Bates, Celina H. Jenkins, Donald J. Merkley, Kenneth L. Rose, Burton B. Tarkington, and Beatrice L. Vogann.

## Christmas Card-and-Stamp Money Can Finance Many Good Works

There are 59 more shopping days until Christmas.

Too early to think about the family gift list—what to get for the wife, or for the children?

Perhaps. But it is not too early to think about the youngsters for whom Christmas may be just another day on the calendar, or about families who have a hard

time getting a minimal diet—much less anything special on December 25.

Christmas card mailing lists are rummaged from the bottoms of desk drawers and updated about this time of year in preparation for what in some instances may be felt obligatory exchanges of cards within the branch or division.

One way to offset this annual ritual of Christmas card exchange is to not send any cards at all, but to use the money that would have been spent for cards and postage for a constructive purpose.

Example: Last year, the employees of Instrumentation and Electronics Systems Division raised \$200 in lieu of exchanging Christmas cards. With the money, they bought sports equipment for some 60 youngsters ranging from eight to 16 who live at Boys Harbor in LaPorte. Homer C. Bredehoeft, Boys Harbor executive director, said, "I am sure they shopped around and got a good deal on the equipment, because it looked more like \$500 worth." A surplus of \$25 was also presented to Boys Harbor.

Example: Also last year, Crew Systems Division employees raised \$130 of would-be Christmas card money which they presented to the Seabrook Volunteer Fire Department. The Department used the money to provide food, clothing and Christmas gifts to needy families in the Seabrook area.

With a little imagination, several constructive and beneficial uses could be found for card-and-stamp money.

The possibilities are endless.

## SPACE QUOTES

SPACE EXPLORATION IS FIRMLY ESTABLISHED ACTIVITY. Administrator James E. Webb, Hampton County, South Carolina, 26 June 1965.

"Along with . . . large rockets and sophisticated spacecraft, we have been building the spaceyards and spaceports of the future—a network of large-scale facilities, proving grounds, launch facilities, test equipment, and tracking and data acquisition systems needed in support of the program not only for the immediate future, but for many years to come."

"We believe we are creating new national resources of lasting value in these facilities, in the industrial management capabilities we are developing, and in the growing number of scientists and engineers who are working at the forefront of knowledge in many fields. These are capital investments that will pay dividends, great dividends, many of which we cannot at present even foresee."

## On The Lighter Side



Peek-a-boo, Hell! Open the Hatch!

**EAGER EATERS**

**MSC Picnic Statistics Show Eating Top Sport**

Post-event analyses of everything from elections to spaceflights seem to be in vogue these days, so there's no real reason why the recent blast known as the Annual MSC Picnic should be an exception. The data have not been massaged and reduced by a professional statistician, but perhaps, nonetheless, they are interesting.

The coefficient of chicken consumption was .922 lbs/person—or, 5400 people ate 4984 pounds of chicken. Those same 5400 people ate 180 pounds of roast beef, 120 dozen eggs, 1400 pounds of potatoes and 108

pounds of pimento. And as if that were a starvation diet, they topped that off with 5800 servings of cotton candy, 4000 bags of popcorn and 7000 snow cones. Seventy-six kegs of adult beverage were also consumed.

Not having foundered, some portion of the 5400 had energy enough to dance, enter egg-tossing and sack races, and otherwise gambol about Galveston Country Park.

One four-year-old boy made a half dozen trips to the Information Booth to complain that his parents were lost. Committeemen Marvin Cohn, Maggie Taylor and Marilyn Bocking kept the tyke entertained by showing him the sights of the picnic until his parents were found.

First-place winners in the Children's Dance Contest were the children of Will Brugger of Procurement Division. Trophies for the dance contest were given out by Astronaut Bill Anders, who also greeted 56 Employee Activities Association guests from Boys Harbor in LaPorte.

No modern-day picnic would be complete without at least one rat-fink on the scene. Rat-fink favors were passed out to the children by Capt. E. M. Vallerie of the Air Force Systems Command Field Office, who doffed his sun-tans for size 48 blue-jeans, a black ruffled slip, a derby hat and clown make-up.

Music for dance contests and for just plain dancing was provided by Forrest Sealey's combo, the High Hopes. Specialty acts a go-go by the Shindiggers, Charlotte Maltese, Suellyn Johnson, Karla Garnuch, Pat McBride and Sharon Brennan; the Kon-Tiki Dancers, Debbie York and Frances Wright; and singing by Betty Midgett rounded out the entertainment.



**Lost May Be Found**

Enough personal items to start a pawn shop have been turned in to the Lost-and-Found Office of the Security Branch. Prescription glasses, a light meter, and various pieces of men's and women's jewelry may be identified and claimed in the Lost-and-Found, Room 162, Building 2, or call W. A. Larsen at Extension 3333 with any questions.

**Flag Football League Schedule Has 16 Games Left In October**

Games through the end of October in the MSC/Ellington AFB Flag Football League are as follows:

- October 18:
  - 6:30 p.m. — 747th AC&W Squadron vs. IESD
  - 8:30 p.m. — Guidance and Control vs. ASPO
- October 19:
  - 6:30 p.m. — Structures and Mechanics vs. General Electric
  - 8:30 p.m. — ISD vs. 747th AC&W Squadron
- October 20:
  - 6:30 p.m. — Lockheed Electronics vs. Guidance and Control
  - 8:30 p.m. — IESD vs. 2103rd Communications Squadron
- October 21:
  - 6:30 p.m. — ASPO vs. ISD
  - 8:30 p.m. — General Electric vs. Lockheed Electronics
- October 25:
  - 6:30 p.m. — ASPO vs. 2103rd Communications Squadron
  - 8:30 p.m. — ISD vs. Lockheed Electronics
- October 26:
  - 6:30 p.m. — Lockheed Electronics vs. IESD
  - 8:30 p.m. — Guidance & Control vs. Structures and Mechanics
- October 27:
  - 6:30 p.m. — Structures and Mechanics vs. ISD
  - 8:30 p.m. — IESD vs. ASPO
- October 28:
  - 6:30 p.m. — General Electric vs. Guidance and Control
  - 8:30 p.m. — 2103rd Communications Squadron vs. 747th AC&W Squadron

All games are played at Ellington on the field across from the swimming pool.

**New Regulations Cover Personal Property Loss**

Under new regulations issued by NASA, employees who suffer personal property loss or damage incident to their service with NASA may, under certain conditions, be reimbursed for the loss or damage up to a maximum amount of \$6,500.

NASA Management Instruction 2080.1, issued under the authority of the Military Personnel and Civilian Employees' Claims Act of 1964 (31 U.S.C. 240-242), contains the rules and procedures for the submission and settlement of such claims.

**"CQ, Calling CQ. Do You Read?"**

Radio theory classes for employees interested in getting their novice or general class radio licenses will be offered by the MSC Amateur Radio Club. The Club's October meeting will be held in Building 336, Ellington AFB, Monday, October 18, at 7:30 p.m.

The three-hour classes will be held at 7 p.m. each Thursday at the same location. Lieut. Col. Bob Andrews at Extension 2126 is handling registration.

The Club also has available code practice records and tapes.



MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

**EMPLOYEE NEWS**

**Buy New Flying Machine**



APOLLO FLYING CLUB — President Don Campbell and Flight Operations Chairman Herman Lauterbach take delivery on the NASA-White Sands Test Facility Flying Assn. aircraft, a 1966 model Cessna 150 Commuter. The association, with 21 charter members from NASA and NASA contractors at the Apollo propulsion test site near Las Cruces, formally started operations Oct. 1. Lauterbach, a rated instructor, will give flying lessons to club members. Center of operations for the association is Las Cruces Municipal Airport.

**At White Sands**



SERVICE AWARD — Presentation of the 15-year length-of-service award to George P. Demchok of the White Sands Test Facility Propulsion Engineering Office is made by B. R. Gantz.

**Scientific Russian Class Draws 37**

Thirty-seven Manned Spacecraft Center employees who want to be able to *gavariit parusskii* have enrolled in a six-to-nine month introductory course in Scientific Russian held three days a week at Ellington AFB.

Aimed toward developing a reading and translation capability, the class is taught by Mrs. Jeannette Godwin of the University of Houston language department.

The course is a non-credit course slanted toward scientific and engineering Russian vocabulary. Class hours are from 4:00 to 5:30 p.m. Monday, Wednesday and Friday in the Employee Development building at Ellington. The first session was held on September 27.

**MSC BOWLING ROUNDUP**

**Dupe Bridge Club Changes Location**

The MSC Duplicate Club has moved its playing quarters to Building 336 at Ellington AFB. The playing time, 7:30 pm, and the date, Tuesday, remain the same.

Results of the September 14 game: North-South, Bill DeGeorge and John Gordon, first; Bob Arnett and Leona Kempainen, second. East-West, Bud Parschall and Charlie Brown, first; Sara and Bill Stewart, second. Sept. 21 winners were: North-South: Bob and Terry Hodgson, first; Mr. and Mrs. Robert Wake, second; East-West, Sue Shrader and Emer St. Leger, first; Henry Rotter and Irma Joe Morgan, second.

**MSC COUPLES LEAGUE**  
Standings as of October 5

TEAM	WON	LOST
Bowlernauts	15	5
Four Friends	12½	7½
Idgits	12	8
Almosts	12	8
Sociables	11	9
LBD	11	9
Intimidators	11	9
Aces	10	10
Eight Balls	9	11
Spastics	7½	12½
Fireballs	5	15
Fabulous Four	4	16

High Game Women: Betty Durkee 222, Vera Lantz 206.

High Game Men: Ron Durkee 245, Frank Morgan 225, Joe Garino 225.

High Series Women: Betty Durkee 542, Shirley Yeater 529.

High Series Men: Frank Morgan 607, Ron Durkee 593.

**MIMOSA MEN'S LEAGUE**  
Standings as of October 7

TEAM	WON	LOST
Whirlwinds	13	3
Chizzlers	12	4
Alley Oops	8	8
Foul Five	8	8
Green Giants	8	8
Technics	8	8
Road Runners	7	9
Goobers	6	10
Agitators	5	11
Fabricators	5	11

High Game: E. Patterson 260, F. Morgan 255.

High Series: E. Patterson 677, J. Pavlosky 668.

High Team Game: Alley Oops 1058, Fabricators 1055.

High Team Series: Chizzlers 3008, Technics 2978.

# Space News ROUNDUP!

## SECOND FRONT PAGE

### Management Seminar Held For MSC Women

A five-day management seminar aimed toward providing management training for MSC women and to pointing out some of the obstacles facing women as they advance into executive positions was held September 27 through October 1.

The seminar was directed by the University of Houston. Out-

line for the seminar was prepared by Dr. Nelda Lawrence, professor of Business Education and Office Administration at University of Houston and by Kathryn Walker, MSC Personnel Division. Dr. Lawrence also arranged for outside speakers. MSC Deputy Director George Low spoke on the last day.

Participants in the seminar were all GS-12 and above, the only absentee being Velma DeBusk, who was in Washington receiving the Administrative Management Society's Paperwork Management Award at the time of seminar. (See picture this page.)

Almost one-fourth, or 882 of the Manned Spacecraft Center's work force are women, and 91 of these are in professional positions such as contract specialist, mathematician, technical publications editor, fluid and flight mechanics engineer, theoretical simulation techniques engineer, budget analyst and many others.

### Budget Bureau Chief Tours MSC Facilities

Charles L. Schultse, director of the Bureau of the Budget, and members of his staff visited Manned Spacecraft Center October 10 for a general orientation briefing and tour of MSC facilities.

The Bureau of the Budget group was the guest of NASA Administrator James E. Webb and Dr. Robert R. Gilruth, MSC Director, for the visit. The group, accompanied by Mr. Webb and members of his staff, arrived at 2 p.m. Sunday and remained overnight, departing for Cape Kennedy early Monday morning.

The group toured astronaut training facilities in Building 5, crew systems development areas in Building 7, large pressure chambers in Building 32 and the Mission Operations Control Wing of Building 30.

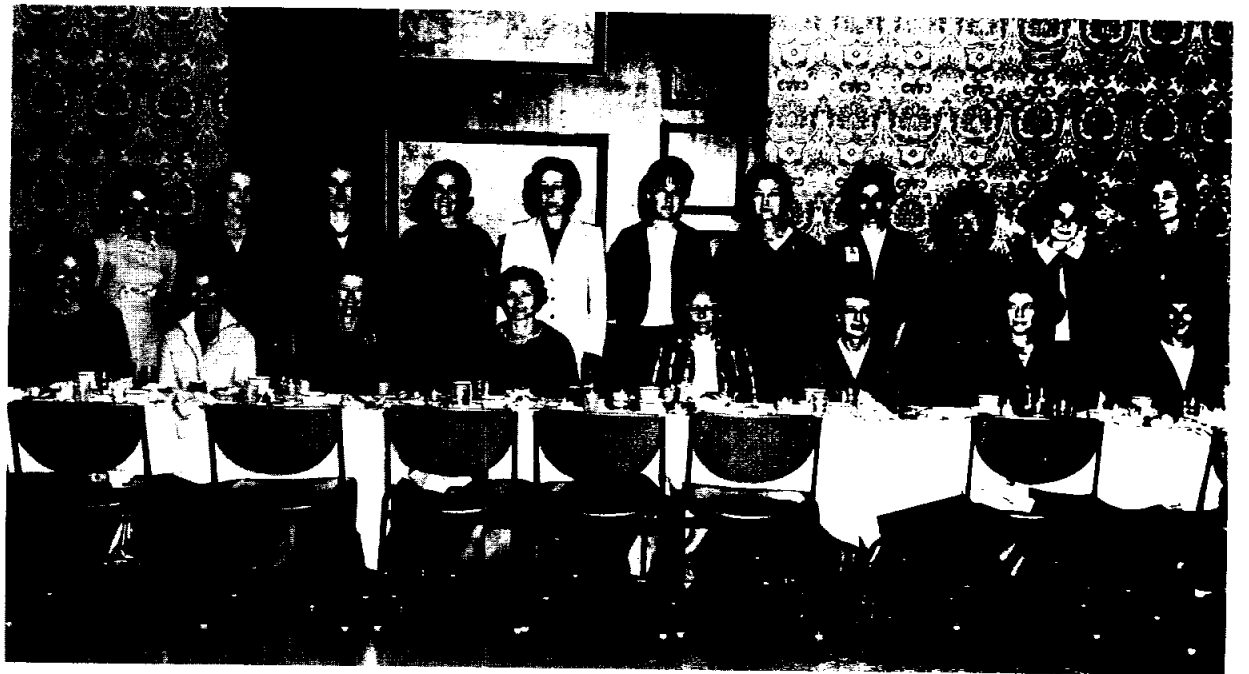
MSC officials were hosts to the visitors at dinner in the MSC cafeteria Sunday night.



### Finds Better Way



**STREAMLINING PAPERWORK**—Velma DeBusk, chief of Mail and Records Management Branch, was nominated to receive the Administrative Management Society's Paperwork Management Award at a Washington Banquet in September. She was one of 22 managers recognized by the Society for cutting government paperwork costs. Her methods of disposing of Project Mercury records will be followed by subsequent flight programs. She is shown here with the award plaque being congratulated by Paul E. Purser, special assistant to the Director.



**WOMEN MANAGERS**—Attending the MSC Management Seminar for Women were, front row, left to right: Dorothy Lee, Advanced Spacecraft Technology Division; Hilda Bolling, Procurement Division; May Meadows, Structures and Mechanics Division; LaRue Burbank, Mission Planning and Analysis Division; Eva Lee, Guidance and Control Division; Margaret Jackson, Crew Systems Division; Illien Austin, Texas Highway Department, and Shirley Hunt, Mission Planning and Analysis Division. Back row, left to right: Rowena S. Nau, Computation and Analysis Division; Dr. Nelda Lawrence, University of Houston; Retha Shirkey, Management Services Division; Patricia Jordan, Management Services Division; Rita M. Rapp, Crew Systems Division; Martha Lewis, Computation and Analysis Division; Trelia Welch, Social Security Administration; Emily Stephens, Structures and Mechanics Division; Elizabeth Rogers, Resources Management Division; Daisy Fields, Status of Women Coordinator, NASA Headquarters, and Kathryn Walker, Personnel Division.

### Benefit Association Offers Two Plans Of Group Insurance

The NASA Employees Benefit Association has distributed to all employees information about two new group insurance plans now under consideration.

The first of these, a Travel Accident plan, provides around-the-clock coverage for personal as well as business travel. Wives or husbands of employees may also be insured under an optional feature of this plan. If sufficient enrollments are received, the new Travel Accident plan will be effective November 1 and will replace the old plan.

Dependent Group Life Insurance which provides coverage for the spouse and dependent children is the second plan under consideration. Employees throughout NASA have been asked to complete a survey questionnaire to determine interest in the plan. If there is sufficient interest, the plan will probably become effective during the first half of calendar year 1966.

In announcing the new plans, W. Kemble Johnson, President of the MSC Chapter of the Employees Benefit Association, said, "These plans are in line with the Association's continuing policy of assisting employees to provide for their security and protection by making available low-cost group insurance."

Johnson said he believes these plans can provide significant coverage at minimum cost and recommends that all eligible employees give them careful consideration.

### French Heads Alumni

John C. French, deputy chief of the Flight Safety Office, has been elected president of the Houston Area Chapter of the Alumni Association of the Carnegie Institute of Technology.

French was Chapter vice president last year.

### Performance Sustained



**PERFORMANCE AWARD**—Judith B. Banks, Secretary to the Administrative Assistant, Center Medical Office, was recently presented a Sustained Superior Performance Award by Dr. D. Owen Coons, Chief, Center Medical Office.

### Princely Visit



**ROYAL VISITOR**—Crown Prince Harald of Norway, left, is shown a compressed-gas space gun similar to the one used by Astronaut Ed White in Gemini 4 EVA by Special Assistant to the Director Paul E. Purser during the Prince's visit to MSC October 9. Looking on is Miss Karen Guldzik, secretary in the Norwegian Embassy, Washington, D.C.