

MARTIN MARIETTA

news

DENVER DIVISION

NUMBER 7/1977





Walter O. Lowrie



John D. Goodlette



James D. Porter



Albert R. Schallenmuller

NASA honors Viking project contributors

"Everyone in the division was touched by that program (the Viking) in some way at some time," C. B. Hurtt, division vice president and general manager, said in opening ceremonies held to honor individuals and groups for their significant contributions to the Viking project. "Everyone here made some contribution to land the two spacecraft on Mars."

Seven groups and 70 individuals from Martin Marietta and 10 subcontractor/consultant representatives were singled out for recognition. Plaques, medals, and lapel pins were awarded.

The highest award for a civilian not in federal service was presented by NASA to three Martin Marietta executives. Walter O. Lowrie, vice president and Viking project manager for the division, received the distinguished public service medal at the ceremonies here. Laurence J. Adams, president of Martin Marietta Aerospace, and Thomas G. Pownall, executive vice president of the Martin Marietta Corporation, both present at the ceremonies here, received their medals in a similar gathering at the Langley Research Center.

All awards were presented by Dr. John E. Naugle, associate administrator of NASA. He was assisted by James S. Martin, formerly NASA's manager for Project Viking and now vice president, advanced planning and programs, for Martin Marietta Aerospace.

Dr. Naugle, in reminiscing about the 12-year program that led to the successful landing on and exploration of Mars, said Viking was much like the little boy who, when he was good was very, very good, and who, when he was bad was very, very bad.

"Viking never let us relax," he said, "but the people, like those here today, did a great job in solving the problems.

"We have fulfilled a dream," Dr. Naugle

continued, "and today we are honoring the heroes who made the dream come true."

Dr. Naugle said one of the first surprises in the project came after the request for proposal was issued in early 1969. The best proposal had come from Martin Marietta. The feeling, he said, was that those people at Martin Marietta were accustomed to building large rockets and couldn't build something as complex as Viking.

"I was brought up in this part of the country," he said, "and I knew the people here could do the job. We are extremely grateful, extremely proud of what you have done."

The same feeling of pride was expressed by others who spoke at the ceremony.

Martin said, "I'm proud to have been a part of this team. This (division) is one of the best outfits to work with in my government experience. You are super engineers, super in manufacturing, super in all ways. You were always open, candid, and honest."

Martin reported all four Viking spacecraft—two orbiters and two landers—are still healthy and performing tasks assigned to them.

U. S. Representative Timothy E. Wirth was represented on the program by his mother, Mrs. Virginia Wiebenson. She ex-

plained Congressman Wirth was "deeply involved in Washington with the 1978 budget."

"Tim is most interested in and impressed with the achievements of this remarkable organization," she said.

Noting that we are all concerned with scarce and dwindling resources, Mrs. Wiebenson read from a telegram sent to the division by the congressman.

"This ceremony recognizes a very scarce but at the same time, renewable resource. The kind of resource I'm talking about is the dedication, the expertise, and pride of workmanship which characterize the individuals honored today. And, I might add, which characterize the entire Martin Marietta work force in Denver.

"These qualities are the real resource on which our community and our country are built. They are the qualities on which our future depends," the congressman said in the telegram.

He added, "It is a distinct pleasure to represent a congressional district which is home to such an outstanding group of individuals."

J. Donald Rauth, president of the Martin Marietta Corporation, concluded the program, saying, "I want to share my personal feeling of extreme pride—pride in the extraordinary accomplishment of our people. We have never forgotten for a moment that the most important ingredient in the project was the people—the talented people dedicated to excellence.

"You people," he said, "have achieved a performance that must become the standard for measuring excellence in this industry."

Groups honored were:

Lander Design and Development Team—
For developing and producing the Viking

MARTIN MARIETTA NEWS
Published by Public Relations
MARTIN MARIETTA AEROSPACE
Call Ext. 5364 with suggestions
or information for articles.

Denver Division
P.O. Box 179
Denver, Colorado 80201
May 1977

Lander, which successfully performed the first two landings on another primary planet within our solar system. Through their dedication and skill a scientific outpost has been established on the planet Mars.

Viking Biology Instrument Development Team—In recognition of outstanding achievements in the design, development, test, and flight of the Viking Biology Instrument, which contributed enormously to man's understanding of the biological and chemical nature of the planet Mars.

Viking Science and Instrument Group—In recognition of the dedication and skill of those scientists, engineers, and technicians who contributed to the concept, implementation, and flight operations of the Viking Science Experiment. This integrated team made possible major increases in our understanding of the planet Mars and the solar system.

Viking Flight Team—For their dedication, perseverance, and diligence in the navigation and operation of the spacecraft and in the collection and analysis of the science data during the Viking Mission to Mars.

Viking Public Affairs—For outstanding achievements in providing information on Viking prime mission activities not only to the national and international media, but to the Viking Flight Team as well.

Viking Secretaries—For excellence and dedication in providing secretarial support to the Viking Project. Their untiring efforts were vital to the success of this history-making mission.

Viking Guidance Control and Sequencing Computer Group—for technical expertise and dedication in the design, development, and construction of the highly suc-



J. Donald Rauth

cessful Guidance Control and Sequencing Computer for the Viking Lander.

Individuals honored:

Exceptional Science Achievement Medal

John D. Goodlette, Chief Engineer; Dr. James D. Porter, Spacecraft Mission Planning; and Albert R. Schallenmuller, Mission Control Management.

Public Service Medal

John R. Adamoli, Flight Control Chief; Richard G. Adamson, Business Manager; Stanley F. Albrecht, Test and Launch Operations Engineering; Robert C. Barry, Lander Operational Simulation; Santo B. Bertuzzi, Project Planning; Charles D. Brown, Orbiter Propulsion System; Orlando L. Butler, Orbiter Command and Sequencing; Francis X. Carey, Test and Launch Operations; Stephen L. Carman, Lander Science Integration; Angelo J. Castro, X-Ray Fluorescence Instrument.

Dr. Benton C. Clark, Inorganic Chemistry Team; Bonnie A. Claussen, Flight Software De-

velopment; J. Richard Cook, Spacecraft Manager & Flight Control Chief; Carolyn G. Cooley, Lander Science Integration; Rodney S. Cooper, Parts, Material, and Processes; Hugh Edgar Craig, Lander Systems Designer; Michael G. Doty, Radar Systems; Dr. Edward A. Euler, Lander Flight Navigation; Kenneth H. Farley, Lander Power Systems; Edgar D. Fox, Subcontractor Production Operations; Nelson G. Freeman, Hardware/Software Testing.

R. Terry Gamber, Lander Mission Operations Planning; Lloyd E. Gilbert, Lander Flight Software; Kenneth W. Graham, Ground Data Systems; Norman E. Greenwalt, Lander Science Environmental Testing; Matthew M. Grogan, Mission Control Planning; Clarence E. Hassler, Flight Control Sequences; Verona P. Hewins, Secretary; James R. Hill, Test Software Development; Donald E. Hobbs, Lander Mission Success; Kenneth H. Hopper, Lander Structures; Frederick H. Hudoff, Photo Sensor Array.

Robert N. Ingoldby, Flight Controls; Jaryl K. Kerekes, Systems Engineer; Tony C. D. Knight, Entry Science Instruments; Jerry G. Lewis, Systems Engineer; Robert O. Lewis, Jr., Electromagnetic Compatibility; Lester J. Lippy, Denver Operations; Michael K. Mann, Guidance and Control Systems; John P. Mari, Flight Computer; Donald W. Marquet, Mission Analysis and Operations; George T. Marsh, Lander Power Equipment; James W. McAnally, Flight Electronics Development; Donald L. Mlady, Systems Engineer.

Francis D. Nold, Systems Development Testing; Lawrence W. S. Norquist, Orbiter Propulsion System; Francis X. Pfenneberger, Lander Ground Software; Robert J. Polutchko, Entry Systems and Flight Software; Duke B. Reiber, Public Affairs; R. Dewey Rinehart, Launch Operations; Daniel G. Robertson, Public Affairs; Darrell G. Roos, Mission Strategies.

David B. Schwartz, Mechanisms Development; Rex W. Sjoström, Lander Flight Team Chief; Parker S. Stafford, Lander Command and Sequencing; James A. Sterhardt, Lander Structures and Thermal Control; H. Wayne Terbush, Lander Flight Electronics; Thomas R. Tracey, Lander Thermal Control; Marvin P. Udevitz, Launch and Flight Operations; Henry C. Von Struve, Lander Science Instruments; Franklin H. Wilson, Systems Engineer; Harrison C. Wroton, Biology Development; Robert F. York, Systems Engineer; Hugh N. Zeiner, Entry Systems Analysis.

Miss LaBarge elected Corporate secretary

The Board of Directors of Martin Marietta Corporation has elected Mary Jane LaBarge as Corporate Secretary. She also was elected Secretary of Martin Marietta Aluminum, Inc., a wholly-owned subsidiary.

Miss LaBarge, who has been Assistant Secretary of the Corporation and of Martin Marietta Aluminum, Inc. since October 1974, was elected by the Board of Directors to replace William M. Elliot, who resigned.

A native of Ticonderoga, New York, Miss LaBarge joined Martin Marietta in 1962. From 1960 to 1962, she was with General Aniline & Film (GAF) and was employed by General Electric Company from 1951 to 1960.

She is a resident of Bethesda, Maryland.

Circus ticket requests due today

Requests for tickets to the El Jebel Shrine Circus June 11 are due today.

Tickets will be distributed to employees with paychecks May 26 and May 27.

Because the Denver Coliseum won't accommodate all the division's employees and their families at one time, the division has purchased tickets for one exclusive performance of the circus and for an additional 2500 seats at a second performance that will be shared with the public.

The first performance is at 10 am. The second performance is at 2 pm.

Employees have been asked to choose a performance but may have to be assigned

to a different performance because of seat availability.

While circus tickets are again free to employees and their families, there will be a charge for parking this year.

On the move

Recent position changes include:

B. N. Hollis: from chief, program contracts for checkout, control, and monitor subsystems project to program manager, contracts, with responsibility for all technical operations contracts and all business follow-on.

A. M. Sandoval: from senior group engineer for design of digital data systems and VLBI tape recorder program to chief, technical engineering for digital data systems.

New member of Titan family designed

Conceptual design of a new launch vehicle system, based on the best of all elements of the division's Titan III family of launch vehicles, has been completed. The division is awaiting go-ahead for the next step in the development, which has a working name of Titan 34D.

The program, currently headed by Peter B. Teets, was initiated about a year ago under the direction of Tom J. Goyette. Purpose was to develop a launch vehicle system that could be used during the transition period from expendable launch vehicles to the reusable space shuttle.

Requirements for the system include its ability to be launched at both the Eastern and Western Test Ranges, improvements in performance and reliability, and that it be built with a minimum dollar commitment.

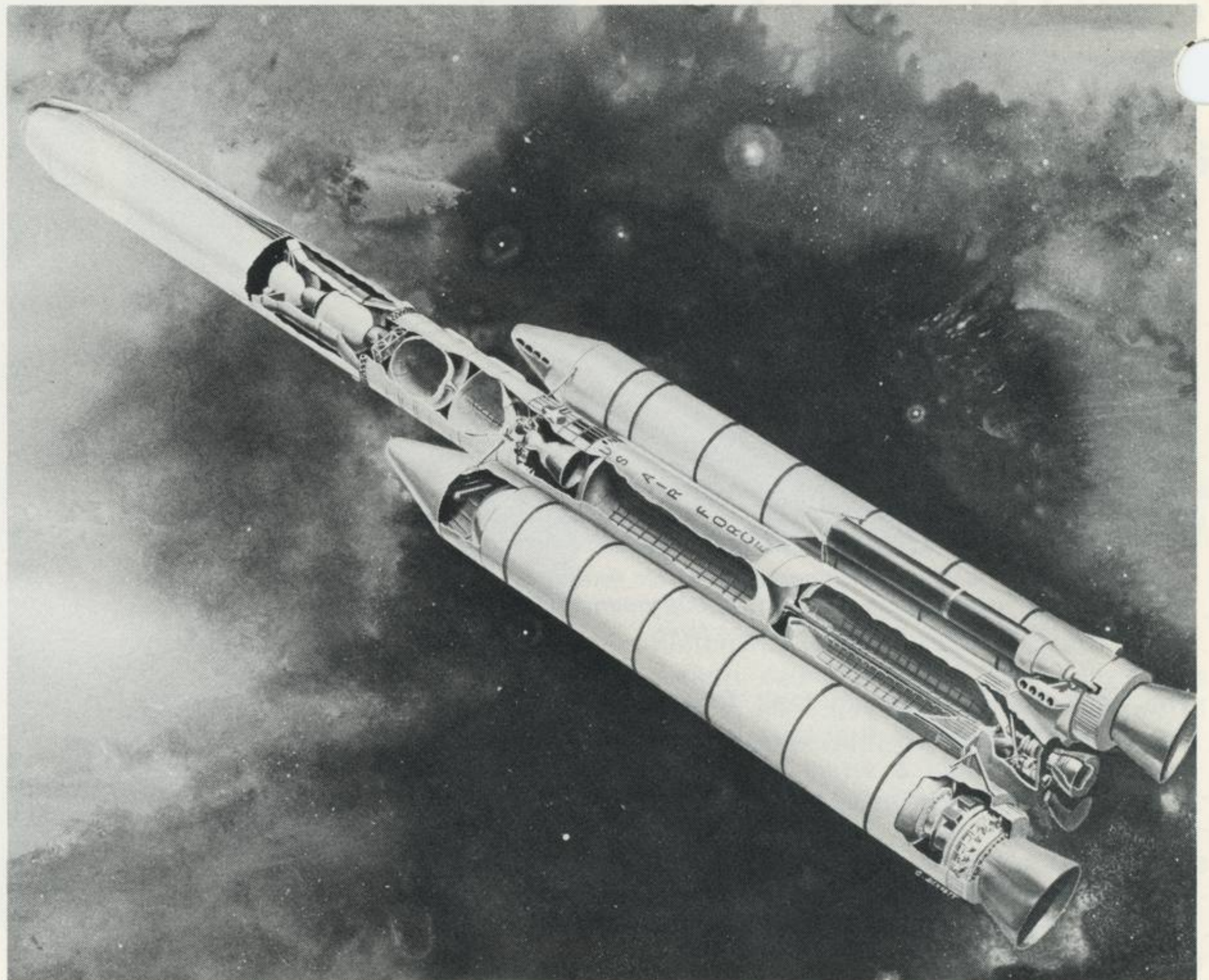
When flying from the Eastern Test Range, the vehicle will use the Interim Upper Stage (IUS). When flying from the Western Test Range, the vehicle will use the redundant avionics system from the IUS.

Being developed for the U.S. Air Force, the new vehicle also had to include the best features of all the Titan III family.

The requirements have been met. The next step is to work with payload contractors to assure compatibility between spacecraft and the launch vehicle. During this part of the program, the division will convert three Titan IIICs to the new configuration.

First launch is planned for July 1980 from the Eastern Test Range.

"We anticipate the newest member of the Titan family will be used for primary missions through 1984," Teets said. "After



Artist's concept of Titan III 34D with interim upper stage.

that, it will be in the role of a backup launch vehicle for space shuttle."

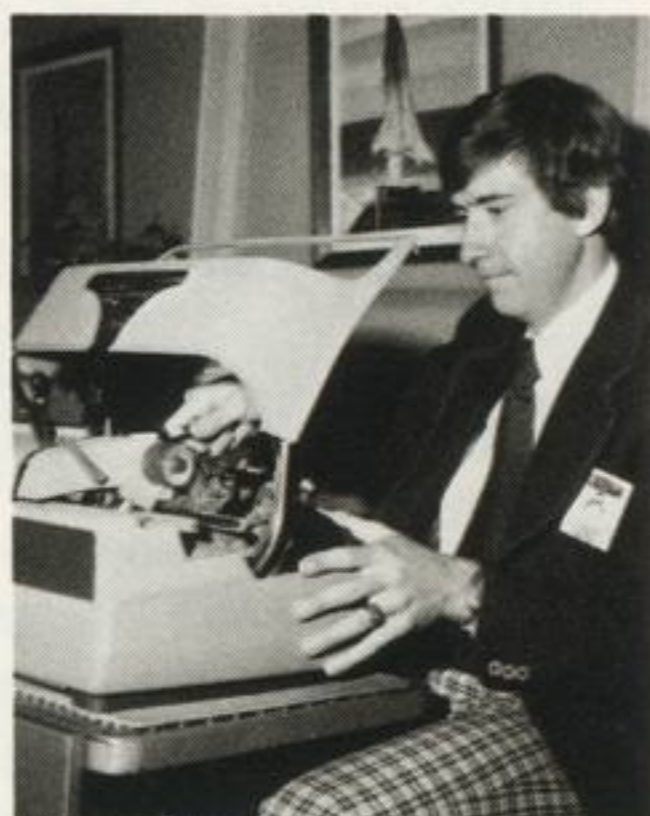
Teets took over the program from Alan L. Schaefle who had managed it in the early stages when Goyette was leading the development studies.

Those in key roles on the program include Theodore Davis, structures; Richard J. Greenspun, ground operations; James F. Moehlenpah, systems analysis; Henry H. Okubo, avionics; Charles Roberts, systems engineering and payload integration; and James R. Waples, administrative support.

Contractor cited for fire fighting efforts

John A. DuPriest, who provides typewriter repair service for the division, has been commended for his action in fighting a fire on division property.

Seeing a fire in a large metal trash container near shipping and the plastics laboratory in the Inventory building, DuPriest called the division fire department and then began using a nearby fire extinguisher on the flames.



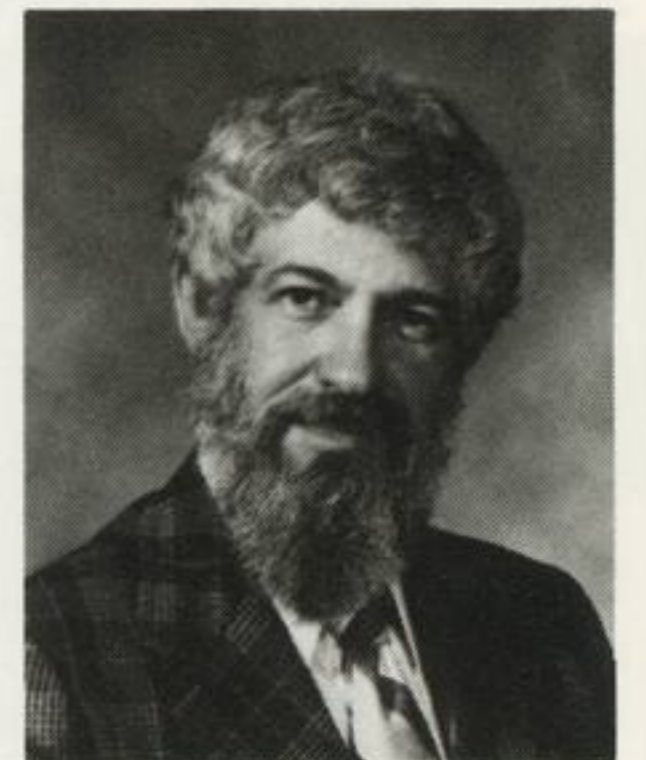
With flames reaching heights of 10 to 12 feet, division employees in the shipping area turned on a fire hose and went to DuPriest's assistance. When the fire department arrived, the trash container was pushed outside and damage was confined to the trash.

F. R. Bennett, facilities and maintenance services, who commended DuPriest, said, "I believe his actions are more noteworthy since he is not a division employee and could well have walked away from the problem with no obligation."

The DuPriest company has been commended as a supplier of the month by the division and has been under contract for typewriter service for nearly 18 years.

Employee nominated for school trustee

Fred Schwartzberg, supervisor of mechanical properties and fracture technology at the division, has been nominated by Governor Richard Lamm as a member of the Colorado School of Mines board of trustees.



The appointment requires confirmation of the Colorado State Senate.

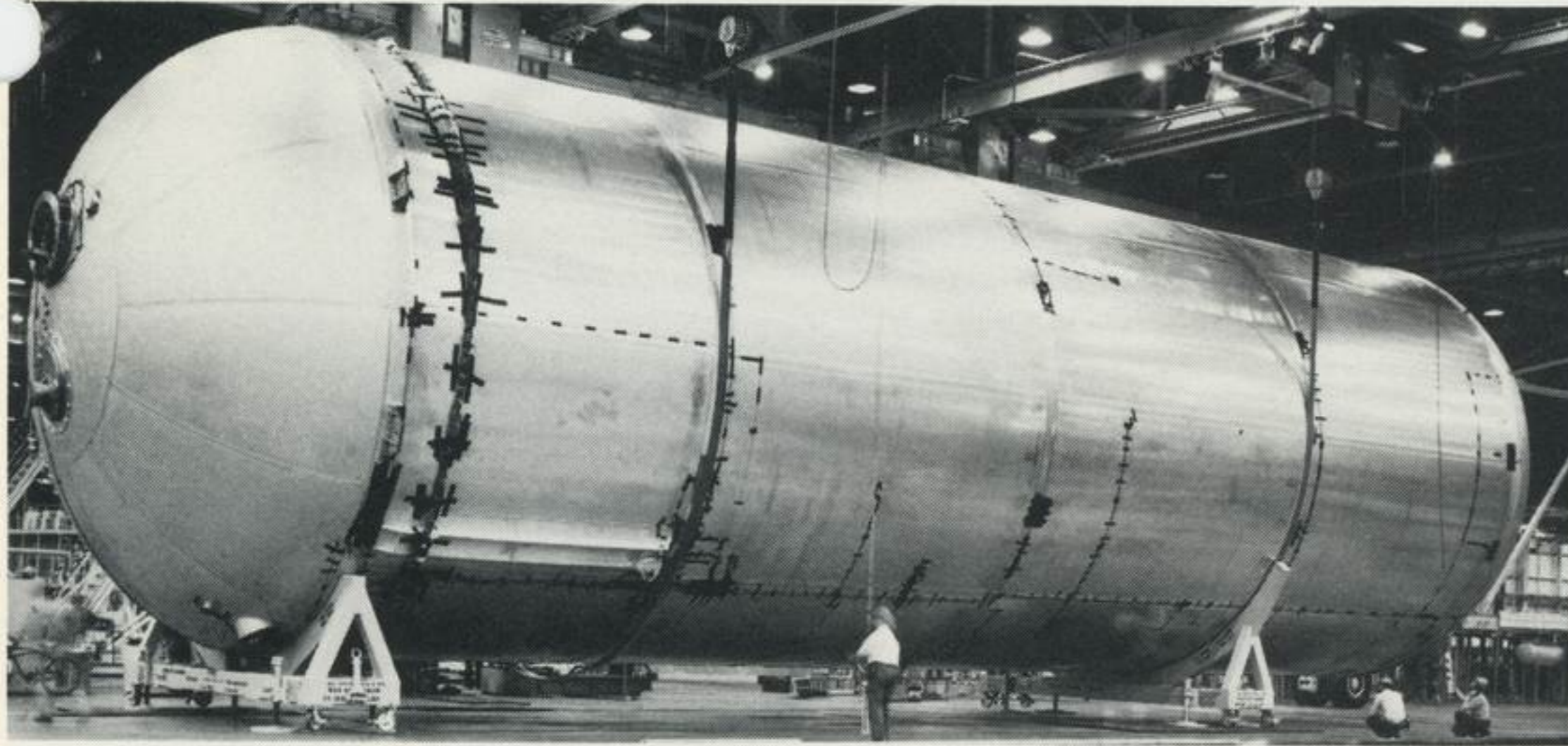
Schwartzberg graduated from the Colorado School of Mines in 1953. He earned a master's degree in metallurgy from Ohio State University in 1958. He is a member of the American Society of Metals (ASM), is past chairman of the organization's Rocky Mountain chapter, and has served on several national ASM committees.

He has been with Martin Marietta since 1959.

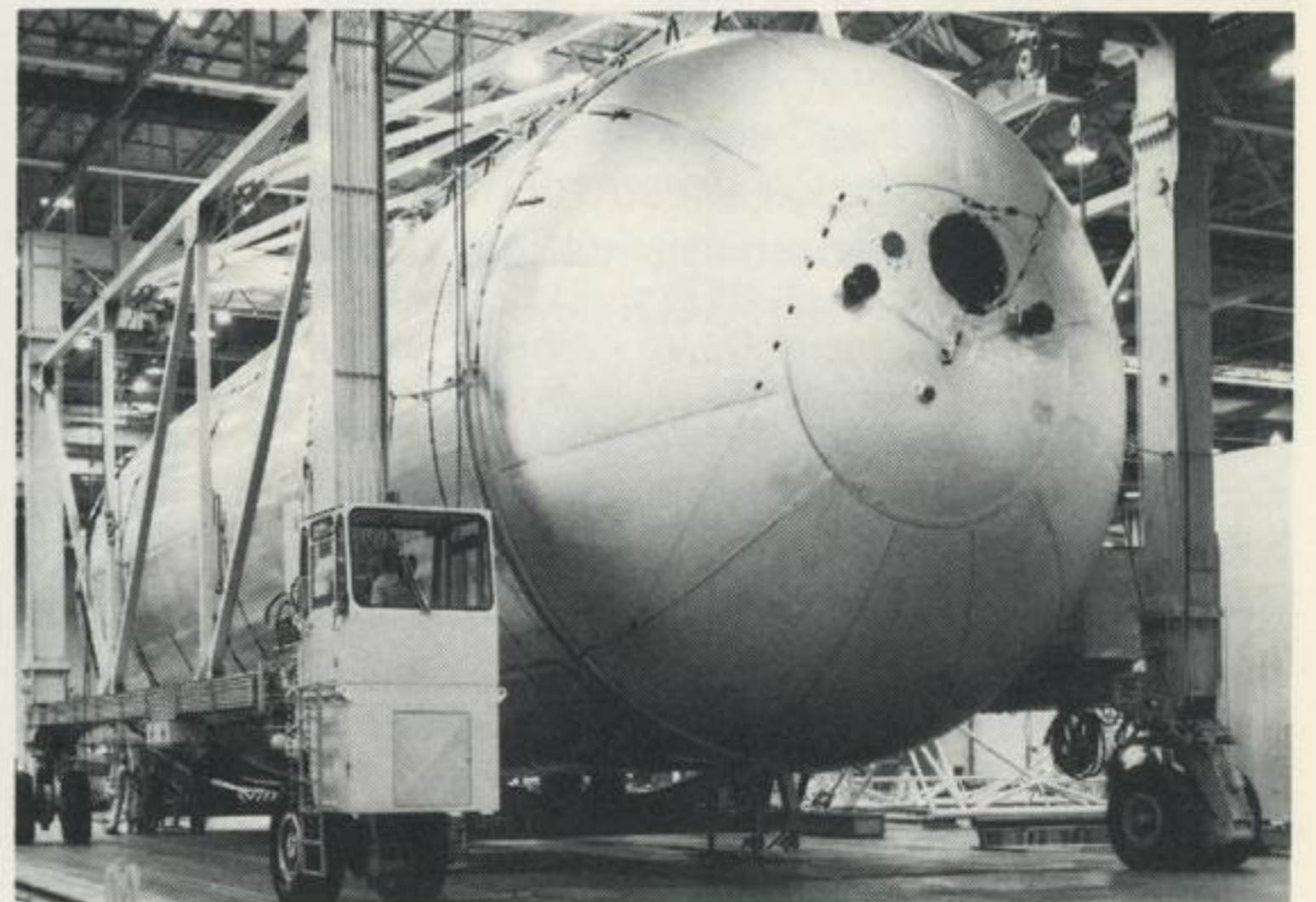
He is one of two new members of the board nominated by Governor Lamm. The other is James C. Wilson, president of Rocky Mountain Energy Co., a wholly-owned mining subsidiary of Union Pacific Corp.

Hydrogen tank completes major test

From Michoud



Liquid hydrogen tank is positioned on transfer fixtures by radio-controlled tank crane. Slings holding the tank are rated at 26,000 pounds each. Transfer fixtures permit the straddle carrier to position itself over the tank.



Straddle carrier, having removed the liquid hydrogen tank from the transfer fixtures, begins moving tank from assembly area to test area.

The first liquid hydrogen tank for the Space Shuttle external fuel tank has successfully completed a series of pressure and mechanical load tests to demonstrate its strength.

The huge 97-foot-long by 27-foot-diameter aluminum tank is the largest of three major elements making up the external tank.

The external tank is being designed, built, and tested by Michoud operations for National Aeronautics and Space Administration's Marshall Space Flight Center in Huntsville, Alabama.

The announcement was made by vice president and program director George E. Smith who said, "These successful test results are a major milestone in our external tank program. They confirm that the tank meets all our design and manufacturing requirements and can go to NASA's Mississippi Test Facility early this summer to take part in the Space Shuttle orbiter's main-engine firing tests."

During the tests, the tank was pressurized with nitrogen gas to 42 pounds per square inch for 14 hours while various mechanical loads, reaching maximum forces of 600 tons, were applied hydraulically.

Mechanical loads were applied to points on the tank where the orbiter spaceship and solid rocket boosters will be attached during launch.

Nitrogen gas pressures inside the tank were applied gradually over several days, building up to the maximum 42 pounds per square inch when the mechanical loads were applied to the attachment points. More than 650 test instruments were attached to the tank to control the test and record technical data.

With these tests completed, the tank will now be moved inside the Michoud vertical assembly building where it will be cleaned and sprayed with a corrosion-

resistant chemical. The tank will then be coated with foam-like insulation to protect it from the extremely cold temperatures of the fuel as well as the extreme heat generated by the rocket engines during launch.

Recently, the smaller liquid oxygen tank portion of the external tank successfully completed a similar series of tests and is now in the vertical assembly building where it is being coated with thermal protective insulation.

The entire 155-foot-long external tank is made up of the liquid oxygen tank joined to the top of the liquid hydrogen tank by an intertank structure. The external tank will provide the propellants to power Space Shuttle's three high-pressure main engines during launch.

Test conductor was Stuart Russell.

Viking leads list of engineering feats

The National Society of Professional Engineers (NSPE) has announced its selection of the ten outstanding engineering achievements of 1976, with the Viking mission to Mars leading the list.

The NSPE award will be presented to the division May 18 at a meeting of the Metropolitan Chapter of the Professional Engineers of Colorado. John D. Goodlette, executive director of technical operations, will accept the award for the division and discuss the Viking project at the meeting.

The outstanding engineering achievements were chosen by a six-member panel of judges representing a variety of fields of engineering practice. The projects were selected from among 50 nominations submitted by NSPE-affiliated state engineering societies and local chapters.

— At Cape Canaveral —

Easter no holiday for 'Mr. Service'

Harold Wilmer, a 38-year Martin Marietta employee assigned to Canaveral flight operations, who spent his long Easter weekend serving his community, has earned the title "Mr. Service" for his continuing volunteer activity.

Here is a journal of his Easter weekend activity:

Friday: Fought various brush fires. Gave first aid to a vehicle accident victim.

Saturday: Fought brush fires until 6 pm when a search and rescue call was received. Began search for survivors of a capsized boat on the Indian River. One survivor found at 9:30 pm. Continued search until 4:30 am.

Sunday: Left Indian River at 4:30 am to go home for breakfast and to attend Easter sunrise service. Back on river at 7 am. Continued search until 4 pm when it was called off.

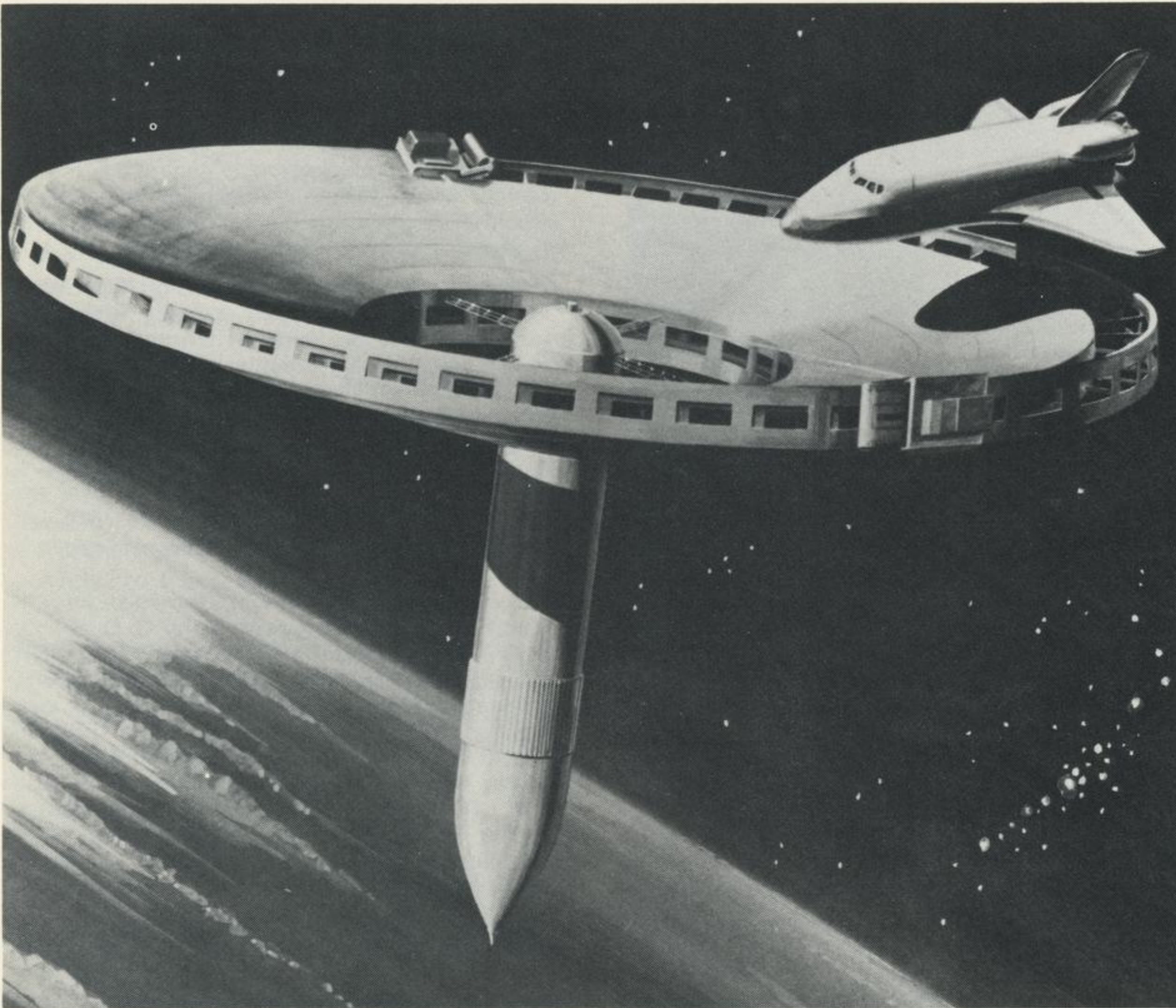
Wilmer is a volunteer with many emergency service organizations, an on-call fireman, an aid to law enforcement agencies, a member of the North Brevard 10-4 club and VERAC—Volunteers for Emergency Rescue and Assistance with Communication.

He is a certified first-aid instructor and a member of the Red Cross disaster committee.

Wilmer has been honored many times for his service. His awards include the Titusville Sertoma Club's Service to Mankind Award and the Cooper-Taylor Safety Award from the Jaycees.

news

MICHLOUD OPERATIONS



This artist's concept depicts two proposed Teleoperator Space Spiders building a structure for a solar power satellite onto a Space Shuttle external tank. With such a structure completed, the external tank being built by Michoud opera-

tions could become a control center for space operations, a crew habitat for Shuttle astronauts, and a focal point for various space missions. The Shuttle orbiter is shown at right hovering over the solar power satellite.

Senator Stevenson visits at Michoud

U.S. Senator Adlai E. Stevenson III, Chairman of the senate's science, technology, and space subcommittee, was a recent visitor at the Michoud assembly facility.

He was accompanied by Dr. James C. Fletcher, NASA administrator; Dr. Joseph Allen, head of NASA legislative affairs; and John Steward, new head of the senate committee staff.

In addition to briefings on the high-energy astronomy observatory, space telescope, and solar heating and cooling, the group heard a status report on the external tank program from George E. Smith, vice president and project director for Martin Marietta's Michoud operations. The group toured the external tank assembly area.

Space Spider may construct space structures

Engineers at the Marshall Space Flight Center have formulated a concept for a device called Space Spider that would be capable of constructing large structures such as satellite power systems and antennas in space.

The concept, according to the *Marshall Star*, would use basic techniques of the common spider to spin structures in space. Carrying a roll of prestamped material, the Space Spider would attach itself to the rim of an established core and, traveling by means of a crawler-type drive, would attach a newly formed ribbon of material to the established rim. The technique would continue until a desired diameter was reached.

A recently released request to industry for quotations calls for a design study of the Space Spider and development of information and data for building structures with various sizes and shapes.

The study should provide data on the maximum size Spider that could be transported aboard Space Shuttle. The structural strength, integrity, dynamics, construction requirements, and cost esti-

mates for developing the system and its prestamped material should also be defined.

The Teleoperator Space Spider has been proposed for flight aboard the Space Shuttle in the 1980s.



Spot Awards were recently presented to five employees assigned to the cryogenic storage and transfer system operation by Tom Wirth, director of external tank operations at Kennedy Space Center. Commended for their hard work and excellent attitude during the refurbishment

program on the liquid oxygen and liquid hydrogen systems were, from left to right, J. L. Richards, J. L. VonLinern, and J. G. Higginbotham, all mechanical technicians; J. D. Walls, quality control inspector; and L. L. Jones, electrical technician.

In Michoud

Call Ray Lacombe at 3606 with suggestions or information for articles for *Martin Marietta News*.