

NUMBER 8/1983



**Inventors  
develop  
power  
modules**



## Inventors earn cash awards

Seventeen employees have been honored by the Denver product development review board for their inventions.

Receiving cash awards are:

Cletus J. Seibert and Fred A. Morris, engineering mechanics: Nitinol torsion drive module.

Thomas A. Milligan and William P. Burger, electronics: TE-01 mode launcher for circular or coaxial waveguide.

W. Clark Benson, engineering mechanics: Use of polyisobutylene for adhesion and corrosion protection of glass mirror, and methods for protection of Ag/Cu second-surface coatings against corrosion.

Sidney L. Russak, electronics: Spatial line spectrometer using digicon detector.

Burt J. Bittner, electronics: Restricted bandwidth antennas.

William H. Tobey, systems engineering; and John V. Coyner, Jr., James J. Herbert, and Dale C. Rudolph, engineering mechanics: Rapidly deployable mesh antenna reflector.

Richard L. Donovan, electronics: Unilateral and bilateral high-performance differential amplifiers.

John P. Gille, engineering mechanics: Method for casting the face sheet for capillary internal cryogenic insulation.

David A. J. Outteridge, engineering mechanics: Exceptional handling visual control logic representation.

Lyle E. Bergquist and D. Lee Johnson, electronics: Continuous monitoring of the gaseous environment near a weld.

Dr. Wayne E. Simon, engineering mechanics: Momentum-transfer explosive forming on a male mandrel.

### On the cover

Inventors Cletus Siebert and Fred Morris display two prototype models of power modules using nitinol wires in pure torsion to achieve rotary power by simple application of heat. These devices can power a variety of space mechanisms using waste heat, solar energy, or electrical resistance as heat sources.

## Computer support contract awarded

The software department, headed by Parker Stafford, is working on a new \$400,000 contract.

The 24-month, fixed-price contract is for the development and design of computer-based support tools for rapidly prototyping critical aspects of command, control, communication, and intelligence imbedded computer systems. It includes a workstation approach.

The contract was awarded by the Rome Air Development Center, Griffiss Air Force Base, Rome, N.Y.



Building a section of a complex compound-contour male master mold for a Titan III transtage forming tool is Philip Brubaker, left, AMT composites engineer. The demonstration was part of a workshop taught by William LaJoy, right foreground, president of Honeycomb and Composite Training, Inc.

## Composites workshop shows latest skills

Advanced composites, nonmetals processing, and tooling technology were the subjects of an in-house seminar sponsored by the advanced manufacturing technology composites section.

The latest fabrication techniques were demonstrated in hands-on sessions directed by William LaJoy, president of Honeycomb and Composites Training, Inc.

Attending the seminar were persons from the materials engineering plastics lab, production quality, quality technology, quality planning, and tool fabrication plastics shop.

## Student is chosen for Foundation scholarship



Kathy Lynee Smith has been named to receive a \$3,000 Martin Marietta Foundation Scholarship.

The winner is the daughter of Mr. and Mrs. James S. Smith. Her father is a metrologist.

She plans to major in mathematics and computer science at the University of Colorado after graduation from Thornton High School. She has been in advanced mathematics and English programs. She also is active in music and in athletics, coaching a soccer team for 12- to 13-year-old boys. She expects soon to be able to combine her church involvement with her interest in computers when her church adds a computer to its office.

## Open house is postponed

The 1983 Denver Aerospace open house, scheduled for Saturday, June 18, has been postponed.

A new date will be announced when the rescheduling is complete, according to open house planning committee chairman Leroy Hollins.

## Vacation planning time may be near

With daylight savings time beginning this weekend—officially on 2 a.m. Sunday—thoughts of better weather and vacation may be entering the minds of employees.

Vacation time offered by the company depends on length of service, and for those in the bargaining unit, number of hours worked.

Generally, employees with one year service, but less than 10 years, receive two weeks; 10 years, but less than 20 years, three weeks; and 20 or more years, four weeks. Bargaining unit employees have the same maximum vacation periods, but actual days are credited according to a schedule of hours worked as spelled out in the labor contract.

Employees are expected to take vacations. Dates should be scheduled with department managers.

Because some employees schedule vacations in conjunction with company holidays, here are the remaining holidays for the major Denver Aerospace locations:

Denver and Cape Canaveral: May 30; July 1 and 4; September 5; November 24 and 25; December 26, 27, 28, 29, and 30; January 2, 1984.

Michoud: May 30; July 4; September 5; November 24 and 25; December 26, 27, 28, 29, and 30; January 2, 1984.

Vandenberg: May 30; July 4 and 5; September 5 and 6; November 24 and 25; December 23, 26, and 30; January 2, 1984.

Each location has the same number of holidays. The disparity in dates is for consistency with holidays offered by the government or other industries in the area.

## JA companies sell products

Two company-sponsored Junior Achievement companies will sell their products today at the Engineering and SSB cafeteria entrances from 10:30 a.m. to 12:30 p.m.

A dry chemical fire extinguisher made by "Flame Guard" and an automobile trouble light made by "Brite Lites" will be sold.

Employees who ordered Brite Lite products March 25 and have not received them may call Marvin Herlitska, Ext 7-2647, to arrange delivery.



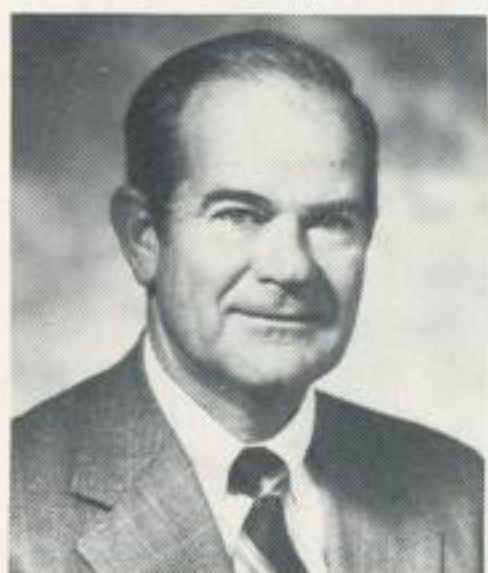
# Martin Marietta Corporation's Ann

The Martin Marietta Corporation will hold its annual meeting of shareholders in Denver April 28 at the Fairmount Hotel.

This is the first time the Corporation's annual meeting has been held in Denver and continues a practice in recent years of holding the meeting in cities where Martin Marietta has sizeable operations. Last year, the meeting was in Cleveland, Ohio; and in previous years, in Charlotte, North Carolina; Orlando, Florida; Atlanta, Georgia; and Davenport, Iowa.

There are about 10,000 Martin Marietta employees in the Denver area. Besides those in Denver Aerospace, others work for Martin Marietta Cement in Lyons and Florence; Martin Marietta Chemicals refractories division in Pueblo; Master Builders division operation in Denver; and Martin Marietta Data Systems in Denver.

## Thomas G. Pownall



Thomas G. Pownall is chairman, president, and chief executive officer of the Martin Marietta Corporation and a member of the board's executive and finance committees.

Pownall joined the Corporation in 1963 as vice president for ad-

vanced planning of Martin Marietta Aerospace. He was elected a vice president of the parent corporation in 1969 and assumed the presidency of the aerospace company at that time. He was elected to the board of directors in 1971.

He was elected the Corporation's executive vice president in April 1976; became president and chief operating officer in September 1977; became chief executive officer in April 1982; and was elected chairman in January 1983.

## James L. Everett III



James L. Everett III was elected to the Martin Marietta Corporation's board of directors in April 1976. He is chairman of the board's finance committee and a member of its audit committee.

He was selected chairman of Phila-

delphia Electric in June 1982 and retained the duties of chief executive, a position to which he was named in April 1978.

Everett is a director of Radiation Management Corporation, Fidelity Mutual Life Insurance Company, Tasty Baking Company, and vice chairman and member of the executive committee of Drexel University.

J. Donald Rauth is a member of the board of directors of Martin Marietta Corporation, chairman of the board's executive committee, and a member of its finance committee.

Rauth spent his entire professional career with the Martin Marietta Corporation or predecessor companies. He was president of Martin Marietta Aerospace from 1967 to 1969 and was president of Martin Marietta Aluminum, Inc., a corporate subsidiary, from 1969 until April 1972, when he was elected president and chief executive officer of the Corporation. He has been a member of the Martin Marietta board of directors since 1968 and was chairman from August 1977 until his retirement as a corporate employee on January 31, 1983. He had relinquished the chief executive officer's responsibilities in April 1982.

He had been vice president and general manager of the then Denver division before he became president of the aerospace company in November 1967.

He is a director of American Security Corporation; American Security Bank, N. A.; Acacia Mutual Life Insurance Company; Black and Decker Manufacturing Company; Brunswick Corporation; Eaton Corporation; People-to-People Health Foundation, Inc; and chairman of the board of trustees at Drexel University.

## William W. Hagerty



William W. Hagerty was elected to the Martin Marietta Corporation's board of directors in July 1967. He is chairman of the board's audit committee and is a member of the compensation and nominating committees.

He is the former president of Drexel University in Philadelphia.

Dr. Hagerty has authored numerous professional articles and a book (with H. J. Plass, Jr.) entitled *Engineering Mechanics*. He is a director of Communications Satellite Corporation, Central Penn National Corporation, Central Penn National Bank, Philadelphia Electric Company, Selas Corporation of America, Hamilton Investment Trust, Keystone Automobile Club, and Mutual Benefit Life Insurance Company. He also is chairman of the board of the West Philadelphia Corporation.

## J. Donald Rauth



## David C. Scott



David C. Scott was elected to the board of directors of the Martin Marietta Corporation December 14, 1978. He is chairman of the board's compensation committee and a member of its nominating committee.

Scott is chairman and chief executive officer of Allis-Chalmers Corporation, a worldwide manufacturer of special machinery.

He serves on several boards of directors, among them American Can Company; First Wisconsin Corporation; Harris Corporation; Humana, Inc; Royal Crown Companies; and Travelers Insurance Companies.

## Melvin R. Laird



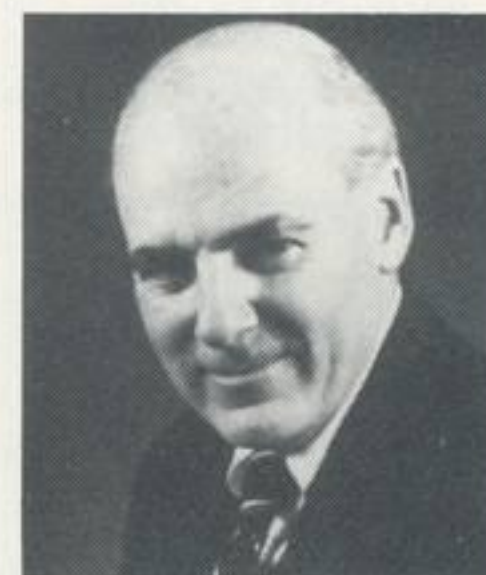
Melvin R. Laird was elected to the board of directors of the Martin Marietta Corporation September 24, 1981. He is a member of the board's nominating committee.

Laird, former Secretary of Defense from 1969 to 1972, is Senior

Counselor to The Reader's Digest Association on National and International Affairs.

He is a director of the Chicago Pneumatic Tool Company; Metropolitan Life Insurance Company; Northwest Airlines; Communications Satellite Corporation; Investors Group of Companies; Science Applications, Inc; and Phillips Petroleum Company. He also is a member of the boards of directors of the Thomas Jefferson Foundation, Boys Clubs of America, and George Washington University.

## Brian D. Farrow



Brian D. Farrow was elected to the board of directors of the Martin Marietta Corporation on February 24, 1983.

He is a senior vice president, general counsel, and a director of Allied Corporation.

Farrow is a former director of The Bendix Corporation and a member of various professional organizations, including the American Bar Association, the Association of the Bar of the City of New York, and the Association of General Counsel.



# Annual Meeting in Denver April 28

of directors, whose brief biographies and photos are included here next Thursday.

## John J. Byrne



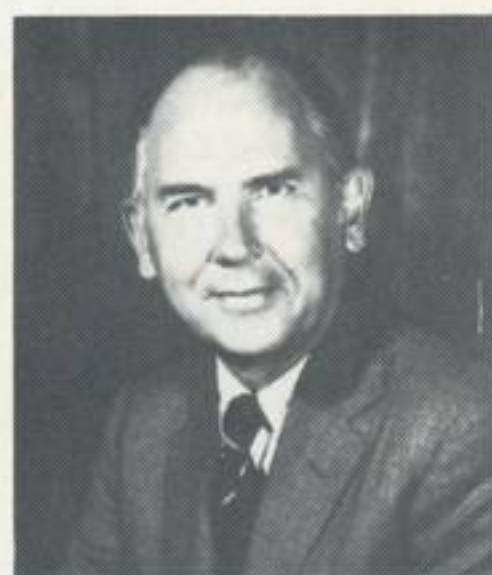
John J. Byrne was elected to the board of directors of the Martin Marietta Corporation August 1, 1978. He is a member of the board's audit committee.

He is chairman and chief executive officer of GEICO Corporation

and Government Employees Insurance Company.

Byrne is an associate of the Society of Actuaries and a Chartered Life Underwriter. He is a member of the board of trustees of the Insurance Institute of America and the American Institute for Property and Liability Underwriters, and has served as governor of the Investment Company Institute. He is a member of the board of governors of the National Association of Independent Insurers and the board of governors of Rutgers University. He also serves as a member of the boards of directors of Midland-Ross Corporation, Government Employees Financial Corporation, Government Employees Life Insurance Company, Legal and General Assurance Corporation, Potomac Electric Power Company, and Shippan International Insurance Co., Ltd.

## A. James Clark



A. James Clark was elected to the board of directors of Martin Marietta Corporation on October 22, 1981. He is a member of the board's compensation committee.

He is president and chief executive officer of Clark Enterprises,

Inc, a holding company headquartered in Bethesda, Maryland. Clark Enterprises includes George Hyman Construction Company; HRW Systems, Inc; and Omni Construction, Inc. He serves as the president and chief executive of the George Hyman unit of Clark Enterprises.

Clark is a director of American Security Corporation; American Security Bank, N. A.; Potomac Electric Power Company; and Acacia Mutual Life Insurance Company. He is a member of the Mayor's Economic Development Committee of Washington, D.C.; regent of the University of Maryland and a member of the visiting committee of the University's School of Architecture; and member of the board of visitors of the School of Business Administration at Georgetown University. He is a director of the National Realty Committee and of the National Building Museum.

## Frank M. Ewing



Frank M. Ewing was elected to the Martin Marietta Corporation's board of directors in August 1976, and is a member of the board's audit and finance committees.

He is chairman of Frank M. Ewing Company, Inc, Gaithersburg, Maryland, and is executive vice president and a director of Kettler Brothers, Inc, a Washington, D.C.-area builder and land development company.

He was an assistant secretary of defense from 1955 to 1956.

Ewing is a director of Washington Mutual Investors Fund. He is a past director of Acacia Mutual Life Insurance Company, Washington Gas Light Company, Maryland Federal Savings and Loan Association, and Citizens Bank and Trust Company of Maryland.

## Griffin B. Bell



Griffin B. Bell was elected to the board of directors of Martin Marietta Corporation September 27, 1979. He is chairman of the board's nominating committee and a member of the audit committee.

He is a senior partner in the law firm of King and Spalding of Atlanta and Washington, D.C.

He became the 72nd Attorney General of the United States January 26, 1977, serving in that capacity until August 16, 1979.

Bell is a member of the American College of Trial Lawyers and the American Law Institute. He also is a trustee of Mercer University.

## Edward L. Hennessy, Jr.

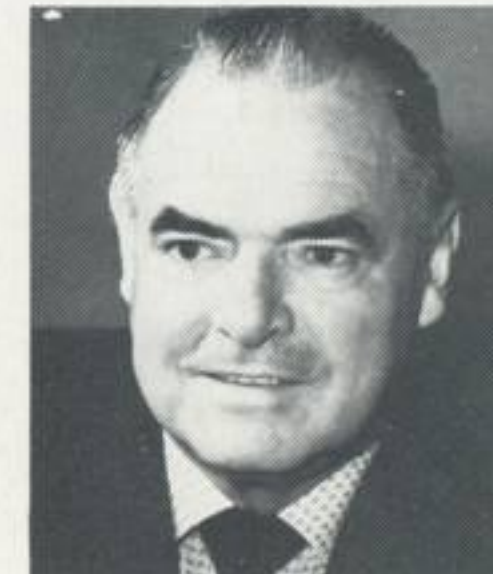


Edward L. Hennessy, Jr. was elected to the board of directors of the Martin Marietta Corporation February 24, 1983.

He is chairman and chief executive officer of Allied Corporation.

Hennessy is a director of The Bendix Corporation and of the Federal Reserve Bank of New York; vice chairman of the board of trustees of Fairleigh Dickinson University; a director of The Coast Guard Academy Foundation; trustee of St. Joseph College, Morristown Memorial Hospital and the Economic Club of New York; a member of the Science Advisory Council of Notre Dame University; and president of the Tri-County Scholarship Fund.

## Frank X. Bradley



Frank X. Bradley was elected to the board of directors of Martin Marietta Corporation September 25, 1980, and is a member of the board's finance committee.

He is president of Halco (Mining), Inc, a bauxite mining consortium with headquarters in Pittsburg. He is a former executive of Martin Marietta Aerospace and Martin Marietta Aluminum, and was vice president of Martin Marietta Corporation until his retirement in August 1980.

Bradley was at one time vice president for marketing of the then Denver division. He was president and chief executive officer of Martin Marietta Aluminum at the time of his retirement.

## John L. Hanigan



John L. Hanigan was elected to the board of directors of the Martin Marietta Corporation in April 1969. He is a member of the board's compensation, finance, and nominating committees.

He is chairman and a director of Genesco Inc, a diversified manufacturer and retailer of apparel and footwear, Nashville, Tennessee. He is the retired chairman and chief executive officer of the Brunswick Corporation.

He is a director of Brunswick Corporation, National Can Corporation, and Allis-Chalmers Corporation.

## Eugene M. Zuckert



Eugene M. Zuckert was elected to the board of directors of the Martin Marietta Corporation in July 1967. He is a member of the board's audit, finance, and nominating committees.

He is a senior partner in the Washington, D.C. law firm of Zuckert, Scoutt, and Rasenberger. He is a director of Greater Washington Investors and of Project HOPE.

After serving as assistant professor and assistant dean of the Harvard Graduate School of Business Administration from 1940 to 1944, he made a distinguished career in government, serving in several capacities. He was Assistant Secretary of the Air Force from 1947 to 1952, and was a member of the Atomic Energy Commission from 1952 to 1954. His government career was capped by his selection as Secretary of the Air Force, a post he held from 1961 to 1965. He returned to private life to practice law in 1965.



## Company hosts AIAA student conference

Tours, technical papers, and career counseling highlighted an engineering student conference held at the main plant April 9.

The 1983 Rocky Mountain Student Conference of the American Institute of Aeronautics and Astronautics (AIAA) brought 30 aeronautical engineering students from Colorado State University and the University of Colorado.

Six AIAA student members presented technical papers that were evaluated by Denver Aerospace engineering managers and AIAA guests. These papers were presented again in regional competition at the Air Force Academy April 14 and 15.

Finalists will travel to the 52nd annual AIAA conference in Long Beach, California May 10 through 12. Denver Aerospace President Norman R. Augustine, who is AIAA president, will preside.

The roundtable career counseling session was moderated by Grover Hall, director of electronics; Parker Stafford, director of software; John Hallan, manager of organization and management development; and Dr. W. Z. Sadeh, professor of engineering and fluid mechanics at C.S.U.

## Air Force names new Space Division head

Maj. Gen. Forrest McCartney will succeed Lt. Gen. Richard Henry as Space Division commander and Space Command vice commander when Gen. Henry retires on May 1.

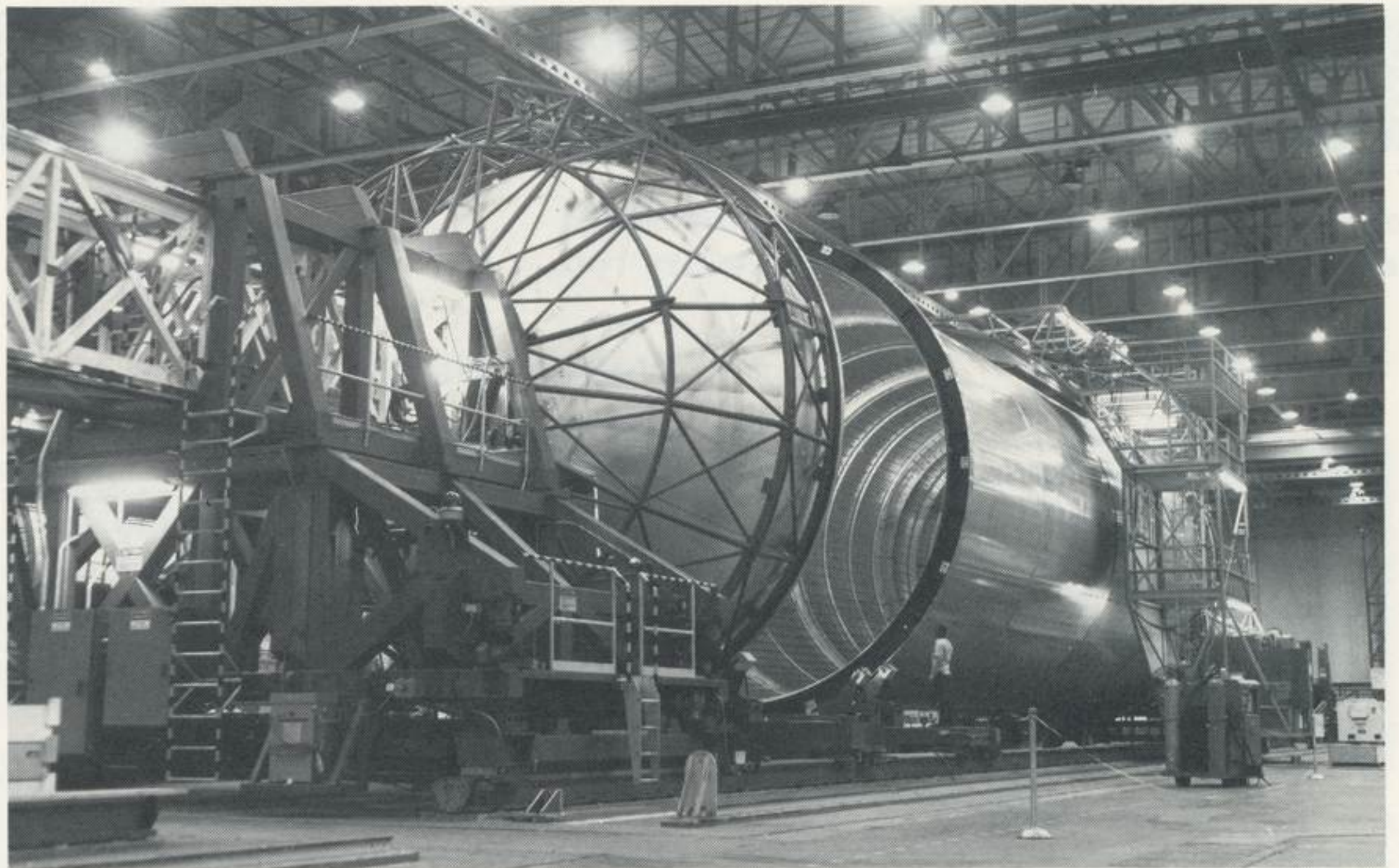
Gen. McCartney is Space Division vice commander and deputy commander for Space Systems Acquisition. He has been nominated for promotion to lieutenant general.

Before assuming his current post in 1982, Gen. McCartney was vice commander, and later, commander and MX program manager, for the Ballistic Missile Organization at Norton Air Force Base.

He first joined the Space Division in June 1974.



*The one-millionth Michoud division paycheck was issued March 25, bringing the total payroll from 1974 to that date up to \$425,678,457. Lewis Davis Jr., left, received the check, presented here by Eugene F. Ahern, controller. Davis has worked at the facility since 1964, transferring to the Michoud division's engineering department in January.*



*The world's largest weld lathe is used at Michoud to weld sections of Space Shuttle's external tank. The lathe is 33 feet tall, 166 feet long, weighs 400,000 pounds, yet welds sections within tolerances of 20 thousandths of an inch.*

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## Applications are available for intern program

Applications for the technical operations intern program are being accepted now. The successful applicant spends a year at Martin Marietta Aerospace headquarters participating in senior-management-level activities in the nation's capital.

The purpose of the program is to "train and develop promising employees early in their careers for progressively more responsible assignments within Martin Marietta Aerospace."

Employees who have been with Martin Marietta at least three years are eligible to apply for the program, which begins in

late July. Candidates should have a bachelor's or advanced degree in a technical field.

Forms and information on the program are available from R. W. Walker, Ext 7-3395.

Final selection of the intern will be made from among the nominees by a committee headed by Allan M. Norton, vice president of technical operations at Aerospace headquarters.

Completed applications with a director's or vice president's approval are due to Walker by May 6.

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## Engineering students hear Michoud vice president

Engineering is a precise profession and aerospace is an exciting, profound application of engineering, Kenneth P. Timmons told students recently.

The Michoud division vice president and general manager was the featured speaker at a meeting of 300 members of the Louisiana Tech University Engineering Association at Ruston, Louisiana.

"I'm impressed with your school and with your generation," he told the students.

In listing engineering accomplishments

during the past 25 years, Timmons said:

"In your generation, which saw polio conquered and men landing on the moon, I believe the greatest advancement is in the ability to model events, states, and phenomena and to process these models in small fractions of seconds in large-capacity computers.

"Engineers have contributed to these achievements, and will continue to make us part of technological triumphs—such as Space Shuttle—today."

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## Five-year space systems contract is awarded

A contract to demonstrate passive and active control of large flexible space systems has been awarded to Denver Aerospace.

The five-year, \$3.5-million contract is from the flight dynamics laboratory at Wright Paterson Air Force Base.

The work will involve the design, fabrica-

tion, and test of selected structural components and assemblies. The effort also will demonstrate the control of precise and stable dimensions in large flexible space systems.

The work will be done in the analytical mechanics section of the mechanics department. George Morosow heads the section.



## Record rains cause minor damage at Michoud division

Torrential predawn thunderstorms inundated New Orleans April 7 with 11 inches of rain and caused a one-day shutdown of the Michoud division plant.

The facility was ordered closed as rapidly rising waters flooded low-elevation streets and neighborhoods, threatening the safety of employees and their families.

The record-breaking deluge pushed three inches of water into some areas of the factory, but prompt efforts by emergency crews kept damage to a minimum. With the crews working around the clock, the plant opened on time the next day, with all but a handful of tools online and operating.

Cleanup crews discovered one surprise in the wake of the flood—three fish and a snake inside the plant. The unusual "catch" had been swept into the building only hours before by surging storm waters.

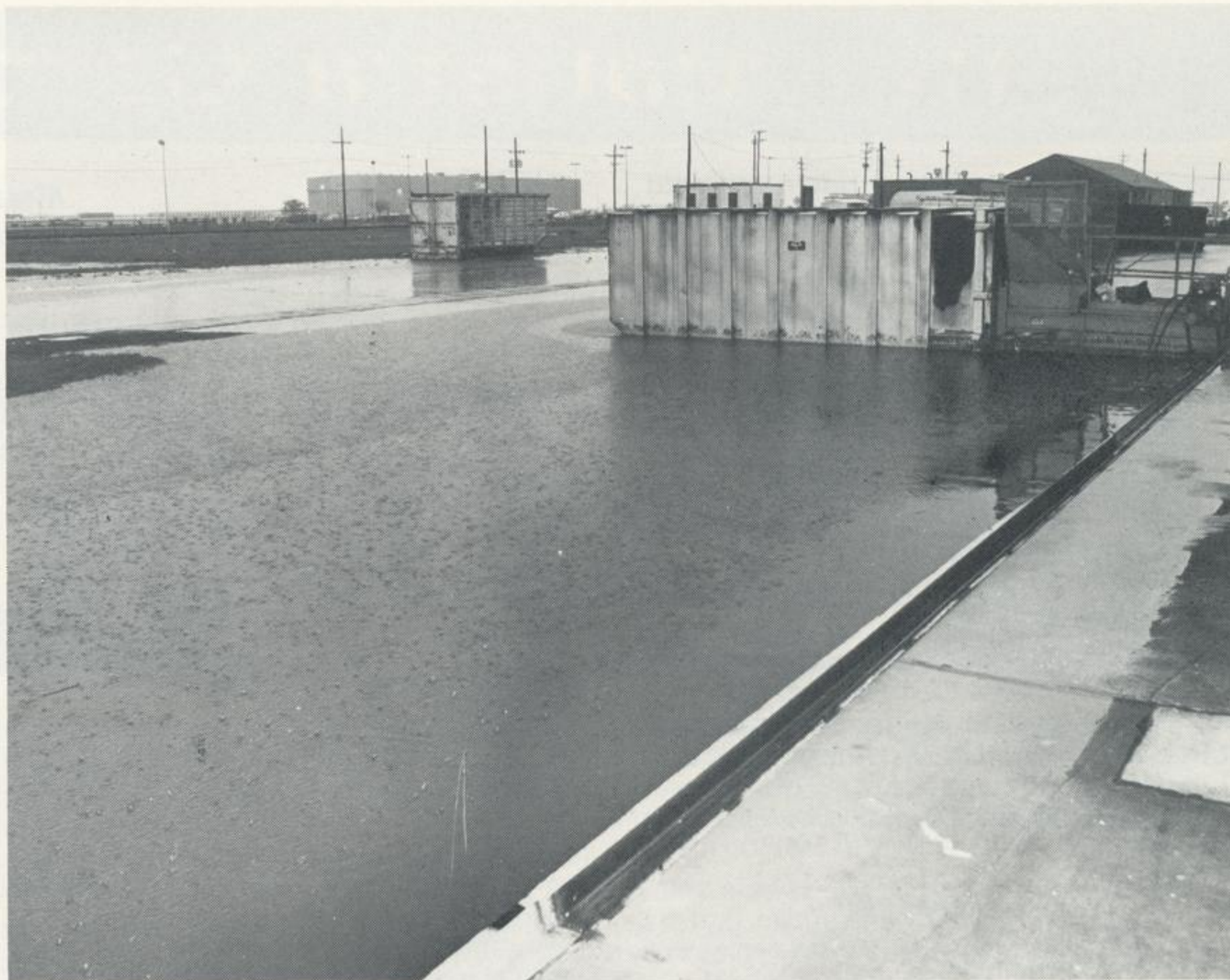
Although a final tally has not been made, it appears only a small percentage of Michoud employees experienced flood damage to homes or cars. Some employees did have serious flooding problems, with as much as six feet of water in a few of their homes. Many employees worked together through the weekend to protect their homes from rising water of the swollen Pearl River, building walls of sandbags and pumping water that seeped through the makeshift barricades. Their combined efforts saved homes that otherwise would have been damaged.

### Recreation

*Photo*—Nature photographers Joe and Bonnie Lange present a slide and stereo program, "Images of Colorado and Alaska's Mt. McKinley," April 28 at 7:00 p.m., DSC Room 200K. For information and reservations, call Platte Canyon Photo Club president William Privratsky, Ext 7-5920.

*Alpine*—A teepee warming camp-out in Pine Junction is scheduled for May 7. Call Ann Burtner, Ext 7-3259, for information. May 21 is the date of the spring event at Highlands Ranch. Call Brian Gallagher, Ext 7-7281 for details.

*Discounts*—Denver Bears regular season home game tickets (except fireworks night) may be purchased at a discount from the recreation office. One-year memberships to Denver-area Nautilus fitness centers are discounted for employees through April. For information on discounts, call Recreation, Ext 6750.



A Michoud division truck dock shows evidence of flooding as rain continues to fall. The water here was more than two-and-one-half feet deep.

## 'Flawless performance' for external tank

The first lightweight external tank completed a letter-perfect mission eight minutes and 31 seconds after its launch with the Challenger on April 4.

"The external tank performed flawlessly," said Robert E. Lindstrom, NASA manager of the Shuttle Projects Office at the Marshall Space Flight Center.

Other NASA officials characterized the countdown for the sixth Space Shuttle mission as the smoothest space count in 20 years. The external tank sailed through the countdown, flight, and reentry without a hitch, landing in the Indian Ocean at 28.2 degrees South latitude, 80.34 degrees East longitude. The point was extremely close to preflight predictions.

### March retirees named

Employees who retired during March, with their length of service, are:

March 1  
William V. Foley, 32 yr and 10 mo.

March 21  
Orianna Chelap, 6 yr and 3 mo.

March 25  
Cecil M. Kortman, 13 yr and 9 mo; Thomas A. Matthews, 26 yr and 3 mo; Nicholas J. Croke (Cape Canaveral) 11 yr and 3 mo; A. J. O'Donnell (Vandenberg operations), 5 yr and 8 mo.

March 31  
Dean E. Smith, 26 yr and 9 mo; Victor K. Butkis (Cape Canaveral), 21 yr and 3 mo; Joseph L. Parrish (Cape Canaveral) 10 yr and 6 mo; William E. Miller, 41 yr and 9 mo; Pauline Blanchette (Michoud), 7 yr; Lena L. Schaefer (Michoud) 15 yr and 1 mo.

### Savings bond drive planning underway

The kickoff meeting for department representatives for the 1983 U.S. Savings Bond drive is set for May 11.

Increased employee participation is anticipated this year as higher interest rates provide extra incentive to invest in Savings Bonds.

Bonds that are five years from maturity and held five years or longer earn interest at 85 percent of the average market yield on U.S. Treasury securities.

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Call Ext. 5364 with information or suggestions for articles, or call one of the following coordinators.

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Vandenberg Operations:	William Leary 2202

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