

April 8, 1985 Number 7

Company funds student's test on next space shuttle mission



High school scientist Amberg, whose experiment will orbit aboard the next space shuttle mission, examines equipment at Denver Aerospace, where his project was designed and built. With Amberg is physical chemist Dr. Harold A. Papazian, Martin Marietta advisor on the experiment.

The botany world will be watching this month's space shuttle mission to see if a student involvement project experiment sponsored by Martin Marietta helps prove a theory.

The experiment, developed by 20-year-old Sean Amberg of Seward, Nebraska, is designed to study the effects of a micro-gravity environment on the gravity-sensing mechanisms in the root caps of germinated corn seeds.

The student involvement project program, conducted by NASA and the National Science Teachers Association, is an annual nationwide competition in which students are invited to propose experiments suitable for flight aboard the shuttle. Its purpose is to stimulate the teaching and study of science and engineering among secondary school students.

Students whose experiments are chosen are paired with a corporate sponsor

to determine the feasibility of developing the proposal into an actual experiment for flight.

Amberg, who currently is a freshman at Massachusetts Institute of Technology, was among 20 students chosen in 1983 from 2,800 entries nationwide. He was paired with Denver Aerospace, and spent 2½ months in Denver that summer working on his experiment with physical chemist Dr. Harold Papazian and Prof. Paul Kugrens of Colorado State University.

Amberg's project is called "Statoliths in Corn Root Caps." Statoliths are the gravity-sensing mechanisms in plants.

The effect of weightlessness on the formation of statoliths will be tested by exposing germinated corn seeds, with their root caps removed, to the weightlessness of space and then comparing them with control plants.

Amberg will cut off the root caps of the germinated corn seeds eight to 10 hours before they are launched into space and place the seeds inside a bag. The growth of the root caps will be chemically stopped or "fixed" by an astronaut before the shuttle lands.

When the shuttle lands, the root caps will be analyzed using an electron microscope.

"This experiment deals with a fundamental botany problem of how a root senses gravity," said Papazian. "We want to see whether the germinated seeds regenerate their root caps and how they do that. The theory is that the plant's sensing mechanism is in the root cap, and this project will test whether formation of that mechanism is dependent on gravity."

As a practical matter, Papazian said the experiment may provide indications of whether we may one day be able to grow food in a space station.

The experiment originally was to have flown a year ago, but was delayed. Papazian said the company has provided materials and assisted Amberg in design, assembly, testing, conduct, and post-flight evaluation.

House votes \$1.5 billion for 21 new Peacekeepers

By a vote of 217 to 210 on March 28, the U.S. House of Representatives appropriated \$1.5 billion to build an additional 21 Peacekeeper ICBMs.

The vote cleared the last funding hurdle for Peacekeeper in the Fiscal Year 1985 Defense Department budget request. On Tuesday, March 26, the House approved a measure authorizing appropriation of funds, and the U.S. Senate approved two similar bills the previous week.

A total of 42 production missiles now have been approved in 1984 and 1985. Another request to fund an additional 48 Peacekeeper ICBMs has been submitted to Congress in the FY 1986 Defense Department budget request.

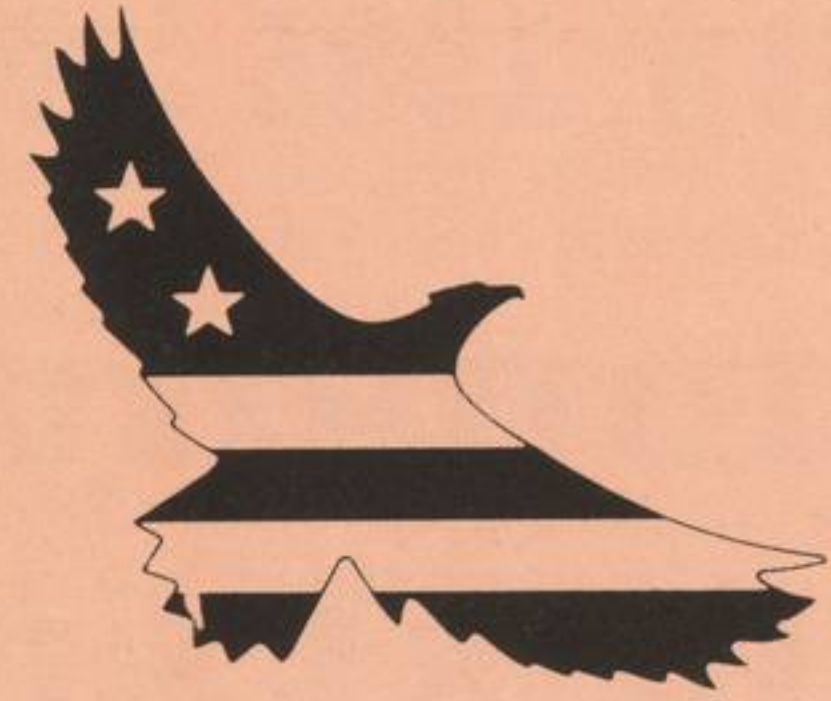
Denver Aerospace responsibilities in development of the Peacekeeper include missile assembly, test, and system

support; weapon system engineering support for the missile and the overall system; the instrumentation and flight safety system; transportation and handling equipment; and the flight test program at Vandenberg Air Force Base, CA.

The company also has developed the Peacekeeper emplacer that will insert or remove missile system elements in or from a launch silo. The first emplacer was delivered to Vandenberg in February.

As of the end of December 1984, Denver Aerospace Peacekeeper contracts totaled approximately \$2 billion, which includes more than \$1.8 billion for assembly, test, and system support, and \$244 million for vehicle design, and launcher and basing work.

Buy U.S. Savings Bonds



Recreation

Hunting—Skyline Hunting and Fishing Club, Inc., will hold hunter education classes, 7:00 p.m. to 9:30 p.m., weeknights, and 8:00 a.m. to noon on Saturday, April 16-22, DSC I, and April 20, SH&FC range. Cost: \$5. Call recreation, ext 7-6605 or 6750.

Softball—Leagues forming; organizational meeting at 5:00 p.m., April 10, SSB cafeteria. All team captains and interested players should attend to discuss rules, league organization, season schedules, and executive committee. Call recreation, ext 7-6750, for information.

Stress—The Career Women's Assoc. presents third workshop on "Stress management: Please, I can only do 12 things at once" at 5:00 p.m., Tues., April 23, Columbine Country Club. Ann Camy, consultant, guest speaker; Robert J. Polutchko, president, I&CS, special guest. Call Annie Rackowski, ext 7-3687, for reservations by Friday, April 19.

Taxes—Last-minute tax forms available from employee service/recreation office, Eng. Bldg., main plant; LSC; DSC; and Data Systems. Call ext 7-6605 for exact locations. At Greenwood, order sheets for tax forms are in recreation racks.

Corporate Games—Forms for the 5th Annual Denver Corporate Games are in rec. racks. Deadline for mailing to rec. office: Thurs., April 4. In-house competitions held in May to select top employees to represent the company in track, tennis, racquetball, swimming, bicycling and 5K race. The games benefit the Colorado Special Olympics and will take place June 6 and 8.

Employees pool efforts to locate missing woman

Some Martin Marietta employees have joined forces to help find a missing young woman. 20-year-old Denise Ann Davenport disappeared at 5:15 p.m. on February 24 from Greeley, Colorado. She was last seen wearing a bright pink two-piece suit, a white blouse and black heels. Denise is 5' 5 1/2", weighs 110 pounds, has sandy blonde hair, and hazel eyes.

"I have three daughters and one of them grew up with this young lady," said Gene Pickett, senior staff engineer on the hard mobile launcher program. "I could almost call her my own." Pickett and other employees from Littleton hope to raise enough funds to help find Davenport.

"Since she graduated from Heritage High School in Littleton, we will concentrate on this area to raise funds and plan searches," Pickett said. Davenport was attending UNC in Greeley, and a search center has also been organized there.

"We will continue searching for her, and need community support and employee involvement... people who have four-wheel drive vehicles, or can donate funds or volunteer time.

"We never think something like this will happen to us, and when it does it's very traumatic." Pickett welcomes calls to his home number: 798-6970, and anyone wishing to volunteer, or with information, may call the Davenport Search Center, 351-7980, or the Greeley Police Department, 353-6123.



Denise Ann Davenport

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DENVER AEROSPACE

P O Box 179—Denver, CO 80201

April 8, 1985

Where Martin Marietta demonstrates mastermind over matter.



Donald J. Nickell selected as new Project Referral winner—John R. Bingel, personnel safety, past winner of Project Referral, draws name of new winner from Judy Phelps, staffing department. Nickell is a group engineer in test operations, and won a trip to Kennedy Space Center to see the next space shuttle launch.

Contest begins to design space station logo

A contest to design a logo for use throughout the Phase B space station study begins today. The contest, open to all Denver Aerospace and space station subcontractor employees, seeks a design suitable for use during Phase C and D, design, development, test, and evaluation.

Winners will receive a \$500 savings bond and the original final artwork appropriately framed.

Ground rules for submitting concepts and the selection process are as follows:

1. All entries must be submitted to K.S. Kleinknecht, mail stop L-8010, by 4:00 p.m. MDT, May 1, 1985.

2. Design format:

a. Circular, oval, or polygon shape with major dimension not to exceed 4 inches.

b. May include both words and art.

c. May be multicolor.

d. Suitable for use as a patch, decal, and as a medallion or charm.

e. Must be applicable for both the definition and development phases of space station.

f. Suitable for use on reports, viewgraphs, or other briefing and promotional materials in black and white in a size reduced to about 1 inch. If not

suitable for reduction, a companion concept may be selected and two winners announced.

g. Concepts might portray such things as the space station, man's presence in space, team spirit, commitment to excellence, quality, productivity, design-to-cost, pride, and do it right once. Original ideas are encouraged and not restricted to these concepts.

3. The winning concept or concepts will be selected by J. W. McCown, space station vice president, and members of his staff by May 10.

4. Upon selection of the final concept or concepts, the Denver Aerospace art department will perform detail design and prepare the final art work, expected to be completed by May 31.

5. Upon submittal of a concept, the candidate thereby grants to Martin Marietta Corporation, sole and exclusive rights to use and reproduce in any manner and for any purpose, the submitted concept, including the right to seek statutory copyright or trade mark protection, as Martin Marietta Corporation deems appropriate.

The contest winner or winners are expected to be named by June 7.

Space club cites MMU design

Martin Marietta Corporation has been named by The National Space Club to receive the Nelson P. Jackson Award, for engineering and manufacturing excellence that resulted in the phenomenal success of the manned maneuvering unit (MMU).

The award is presented each year to an industrial company responsible during the preceding year for an outstanding contribution to the missile, aircraft, and space field. Laurence J. Adams, president of Martin Marietta, accepted the award on behalf of the company. At a special luncheon meeting on March 29, President Reagan was presented with the space club's premier award, the Goddard Trophy, for his great achievements in advancing space flight programs.

The MMU was designed, developed, and tested by Martin Marietta in Denver. It was flight tested on a shuttle mission in February 1984. The following April, an MMU was used to rendezvous with a malfunctioning satellite, and in November was used to capture and stabilize two errant satellites for return to Earth. The backpack propulsion device has been commended by NASA as a valuable new tool for astronauts.

Last month, Martin Marietta also was named to share the 1984 Collier Trophy, presented by the National Aeronautic Association, for development of the MMU.

External Tank Contracts Valued by New Orleans

Propelled by the success of five space shuttle launches in 1984, Martin Marietta's Michoud Division continued its role as one of New Orleans' most important employers.

New and add-on contracts for Michoud in 1984 totaled \$525.8 million, bringing to \$2.7 billion the value of the division's contracts with NASA over the past 11 years.

Michoud production provides significant business to a wide range of local subcontractors. In 1984, the division awarded contracts that totaled \$125.7 million to hundreds of businesses supplying everything from paper clips to nuts and bolts. Of this figure, \$41.1 million was awarded to companies in Louisiana.

As shuttle launches increase in frequency in 1985, Michoud production rates will increase as well. Ten external tanks were delivered to NASA ahead of schedule during 1984, and the division plans to increase production to 24 tanks per year by 1989.

Counsel's corner

Compliance with international traffic in arms regulations

(ITAR)—It is Martin Marietta's policy to comply with the spirit and intent of the ITAR. All employees should obtain the requisite licenses as needed and ensure that any data to be exported is clearly within the scope of the license. Violation of the ITAR can lead to revocation of existing licenses and debarment of the company from exporting. The Corporation and employees involved are further subject to a fine up to \$100,000 or imprisonment for not more than two years, or both.

The Office of Munitions Control of the Department of State has the responsibility of controlling the export from the United States of technical data—both classified and unclassified—relating to items that are on the Munitions List. Almost every product of Denver Aerospace is covered by the Munitions List. The ITAR requires that a corporation exporting technical data concerning, and articles covered by the Munitions List, first register as an exporter and then obtain licenses to export specific data and articles. Classified technical data can only be exported on a government-to-government basis after obtaining a license.

Licenses may take the form of manufacturing license agreements that permit the performance abroad of Denver products, technical assistance agreements that permit the performance of defense services or disclosure of technical data, and temporary or permanent export licenses. A copy of the license must be filed with the Postmaster if export is by mail, or the District Director of Customs if the export is by ship or air at the port of exit. Foreign military sales contracts with the U.S. Government are exempt from the licensing requirements.

Note: Furnishing or disclosing technical data to a foreign national in the United States is considered an export.

For further guidance, consult with Phil DeArment, ext 7-6109.

Michael A. Steuer
Chief counsel

Company sweeps civilian safety awards for 1984

For the sixth time, in competition with all other Vandenberg Air Force Base, CA contractors, Martin Marietta's Vandenberg Operations earned the Western Space and Missile Center (WSMC) Commander's Safety Award for 1984.

In addition, Cynthia Dekker, senior system safety engineer on the Peacekeeper flight test program, received the award for individual safety performance.



Cynthia Dekker

The company's commendation noted the successful launching of three Titan and three Peacekeeper vehicles and conducting extensive installations and tests on the ground support system (GSS) program. A broad-based safety program and two new safety initiatives contributed to the safe year.

Dekker was cited for her part in developing and validating the automatic test sequence (ATS) on the Peacekeeper flight test missiles (FTM). She also helped form both the Central California Chapter of the System Safety Society and the local chapter of the Society of Women Engineers.

Defense systems purges paper

During a recent week in March, more than 3½ tons of paper were discarded by defense systems personnel. The week was specifically designated as 'paper purge week'—the time to clean out all unnecessary and outdated paper from files, safes, bookcases, and storage cabinets.

James W. McAnally, vice president for defense systems, called the effort

very successful, after more than 267 boxes of paper were thrown out, leaving 133 two-drawer file cabinets ready for storage.

McAnally also commended employees for general housekeeping. "To make a program of this type successful, everyone must participate. We intend to make this an annual event," he said.

Briefing

Schaeffle named vice president

Alan E. Schaeffle was named a vice president of Denver Aerospace on March 22. He will report to Richard E. Brackeen, vice president, Space Launch Systems.

Schaeffle will continue as program director for the Complementary Expendable Launch Vehicle (CELV) program. He joined the company in 1956, and held various responsibilities on the Titan I, II, and III programs, with central engineering, in the payload integration program, and with space and defense programs.

Masi named Data Systems vp; McKenna, Wagner get new posts

Richard J. Masi has been appointed vice president of business management for Martin Marietta Data Systems, reporting to R. J. Walters, president. Masi will relocate to Bethesda, effective April 8.

Masi joined Martin Marietta in 1978 as assistant controller for accounting and treasury. He moved to the Michoud Division in 1981 as director of business operations and returned to Denver in 1982 as director of finance and controller.

Replacing Masi will be Frank X. McKenna, Jr. as controller, and Gregory H. Wagner as director of estimating, both reporting to Steven E. Story, vice president of business management, effective April 8.

McKenna joined Martin Marietta in Orlando in 1975 in cost management and estimating, and transferred in 1978 to Bethesda Headquarters staff for financial planning and analysis. In 1981, McKenna transferred to Denver. His most recent position was manager of overhead and financial control.

Wagner joined Denver Aerospace in 1978 as manager for overhead and financial control and then was promoted to manager of finance for Strategic & Launch Systems (S&LS).

Editor's note

Editor's note: The Michoud Division will no longer receive the Martin Marietta News. Relevant news will be covered in the Mission Success Bulletin. Those who wish to receive biweekly copies of the News should contact Michoud Division public relations, department 3030.