

MARTIN MARIETTA

news

DENVER AEROSPACE

April 10, 1987 Number 7





Martin Marietta savings bond drive begins

The 1987 Martin Marietta Corporation U.S. savings bond campaign was launched recently by Thomas G. Pownall, center, chairman and chief executive officer, and Peter B. Teets, right, Denver Aerospace president, the corporation's 1987 bond campaign chairman. James R. Wynn, left, director of sales for the bond division of the U.S. Treasury Department, presents Pownall with a plaque for serving as the aerospace industry's 1986 bond chairman.

Company kicks off bond drive

The 1987 savings bond employee participation campaign starts Monday, April 13, and will continue through May 22.

Joseph C. Spencer, vice president of Business Development, has been named chairman of the savings bond



Spencer

drive for Denver Aerospace.

With 85 percent current employee enrollment in bonds, the company's goal is to increase participation to 95 percent or better, and to increase the amount pledged by employees.

All employees participating in the savings bond program are eligible to receive additional \$100 bonds in a drawing at the campaign's end (vice presidents and directors are ineligible.) Fifty bonds will be awarded. ■



Vandenberg Titan launch team honored

Key members of the Feb. 11 Titan IIIB launch team were honored recently by Felix J. Scheffler, director of Vandenberg Operations, for their "superb performance resulting in the successful launch." Teammembers include, front row, left to right, Melville Wheeler, George Madrid, Roger Hawkins, Jim Larkin, Frank Doyle, Joe Savidge, Dick Hooley and Bob Cryor. In the back row are Steve Bullock, Don Kundich, John Graves, Larry Phipps, L. Brad Sikes and Roger Jacobson.

SDI laboratory cited by ADPA

The American Defense Preparedness Association (ADPA) has awarded its Strategic Defense Technical Achievement Award to Martin Marietta's Rapid Retargeting and Precision Pointing system located in the Rapid Retargeting Laboratory (RRL).

The award recently was announced at the Strategic Defense Initiative (SDI) technical achievements awards banquet in Washington, D.C.

The RRL is a national test facility for development and evaluation of SDI acquisition, tracking and pointing (ATP) systems. The award states the system, completed in December 1986, provides the most realistic performance achievable in the laboratory for ATP systems.

Paul L. Shattuck, program manager of the Rapid Retargeting and Precision Pointing system, accepted the award on behalf of Martin Marietta.

The ADPA, established in 1919, is dedicated to "national security through industrial preparedness." The association plans technical exchanges throughout the country. ■

Security begins employee film

Filming for the 1987 annual security awareness rebriefing presentation will begin this month. A film services cameraman and a company security representative will interview Martin Marietta Denver Aerospace employees at random regarding security policies and procedures.

The purpose of the rebriefings is to stress the importance the company places on protecting classified and proprietary information.

Rebriefing sessions for Denver Aerospace and Denver Information & Communications Systems employees are scheduled for this fall.

Business alliance honors employee

Carol Romero, a human resources specialist and the suggestion system project lead, was honored recently by the Colorado Alliance of Business as the alliance's "top sales" loaned executive.

Romero raised \$2,900 for the alliance in its recent membership drive, an amount that surpassed all other loaned executives' individual sales records. For her efforts, she received an all-expense paid trip to Los Angeles.

The Colorado Alliance of Business provides industry internships for low-income, talented high school students, and works to improve economic education in Colorado. ■

PROJECT CHALLENGE

(Editor's note: The following update by Ron Drobnik introduces the CAE/CAD/CAM section of Project Challenge, which Drobnik heads.)

An essential part of the new Project Challenge productivity initiative for Denver Aerospace involves computer-aided engineering, computer-aided design and computer-aided manufacturing (CAE/CAD/CAM) efforts, headed by Ron Drobnik, director.

"Our objectives are to provide Denver Aerospace with: (1) integrated tools for designing and manufacturing our mechanical and electrical products; (2) an engineering information system that will increase productivity and improve the engineering product; (3) the Denver Aerospace Technical Computer Center that will develop the tools we need to regain and maintain a competitive advantage; and (4) a cadre of experts in the automated analysis, design and manufacturing functions that can provide support to all phases of our product area projects," Drobnik said.

Drobnik has assigned six key personnel to lead various activities. Joe Pohlen is responsible for mechanical CAE/CAD/CAM tasks. One immediate goal is to improve using existing CAD/CAE tools and to integrate many of the independent programs used by various engineering and manufacturing disciplines so that information can be passed between functional areas.

To improve using tools such as CADD 4X CAD software, Geomod and Supertab CAE applications, Drobnik said, program managers will learn of the tools' capabilities. Policies, practices and procedures (P³) will be developed and users will be trained.

Del Morris leads the electrical CAE/CAD/CAM efforts, which will concentrate on four areas. The areas include electronic circuit design and analysis, electronic packaging, electrical and electronic parts engineering, and transmission subsystems (wiring and cabling engineering). A team from each of the electrical disciplines will analyze electrical systems requirements and select an integrated CAE/CAD/CAM system design.

The electrical team is working on improvements in design and analysis, using central parts databases, and released engineering databases, on-line analyses and release activities. The effort emphasizes integrating electrical CAD/CAE tools, while enhancing electrical discipline capabilities through future integrated CAE/CAD/CAM development strategies.

Bill Ottenville is responsible for CAD implementation. Numerous actions are under way to increase CAD productivity and use. The Technical Computer Center, expected to become operational by June, will be an environment for developing enhancements to CAD, CAE and CAM systems. Dedicated terminals with access to all systems within the center will be available. A specific area with a

dedicated CAD system and class materials will be devoted to course development and training. All new software and hardware will be thoroughly tested and documented before release for project use. The center also will support engineering service order tasks that require using CAE/CAD/CAM.

Jim Kenny leads the engineering data management and control effort. This involves automating data interfaces within engineering and between engineering and Production Operations. Automating the intradiscipline and interdiscipline interfaces will provide more accurate and efficient data exchange. The group will develop database architectures for parts, materials and processes and hardware and software systems required to manipulate and transfer these data between systems. The elements of CAE/CAD/CAM and manufacturing resources planning (MRP II) will be linked to provide rapid access to data by engineering and manufacturing operations. The efficiency of design and manufacturing operations are targeted for a 40 percent improvement.

Dave Brodie will lead the engineering requirements and integration tasks. The near-term tasks include developing and implementing a plan for integrating engineering elements with the CAE/CAD/CAM organization, and integrating CAE/CAD/CAM tasks with other Project Challenge organizations. Additional near-term tasks will identify the system design baseline, and define requirements for the central computer organization, perform cost and benefits analyses and identify training requirements.

Larry Jones from Data Systems is responsible for the functional integration and data integrity of the overall system architecture used by the Project Challenge's CAE/CAD/CAM organization.

His team will implement and maintain software and hardware to ensure systems' integration and connectivity and database management. In the near term, this group will identify problems by using available technologies, specifically CAD data management, CAD integration and networking.

"We solicit everyone's suggestions and support for improving productivity in the CAE/CAD/CAM areas," Drobnik said, "as we all improve the ways we perform our engineering and manufacturing tasks at Denver Aerospace." ■



Mission success certifies 625 at EMF

Brandee L. Smith, a manufacturing engineer at the Electronic Manufacturing Facility (EMF) II, signs one of two posters with the mission success creed on it. The mission success campaign is one aspect of Project Challenge, led by Stanley F. Albrecht, vice president of Production Operations. The certification briefings began at EMF in March, and stress the criticality of quality workmanship. More than 625 employees were certified at EMF.

Tethered satellite manager named

NASA's Marshall Space Flight Center Director J. R. Thompson has announced the appointment of John M. Price as manager of the tethered satellite system project within the NASA Special Projects Office.

At Marshall, Price has had various engineering and technical management positions. In November 1982, he was appointed deputy manager of the application payload project, Spacelab Payload Project Office, and subsequently was named manager.

Managed by the Marshall Center, the tethered satellite system entails a data-gathering satellite to be carried into orbit by the space shuttle, then suspended from the cargo bay on a tether—a super-strong cord that can be as long as 60 miles. Attached to the shuttle by tether, the satellite will be deployed in one of two ways: either trolled through the Earth's upper atmosphere to gather atmospheric, magnetospheric and gravity data, or suspended upward away from the Earth for electrodynamic experiments and certain operational applications.

Martin Marietta is designing, developing and testing both prototype and flight hardware for the tethered satellite, including the tether, reel mechanisms, boom, boom deployment mechanisms and associated flight equipment. In addition, the company will support overall system integration, launch operations and mission operations. ■





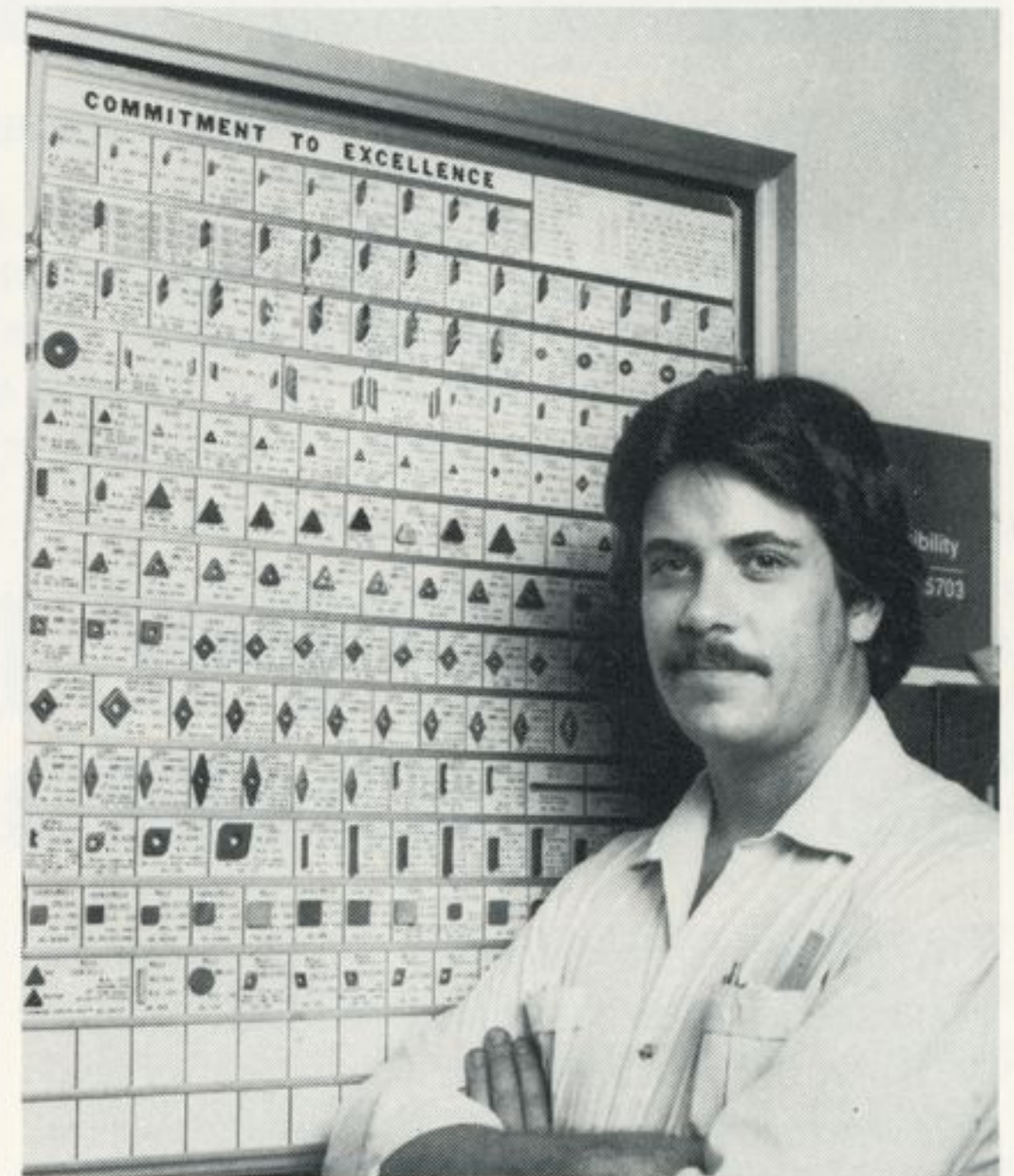
Denver Aerospace features TSS and Titan at Rome exposition

Don Crouch, right, a Martin Marietta tethered satellite system project representative at Aeritalia in Italy, explains a Denver Aerospace exhibit to a visiting dignitary from the Saudi Arabian Embassy, Ministry of Defense, in Rome. Denver Aerospace displayed Titans and the tethered satellite system during the International Electronics, Energy and Space Exposition in Rome on March 24-30.

Junior Achievement sets April sale days

The Martin Marietta-sponsored Junior Achievement company, Artistry Unlimited, will have sale days at Terrace Towers on Tuesday, April 14, and at Waterton on Wednesday, April 15.

The company's product is a solid oak adjustable book and file rack. The product will cost \$10, including tax. Martin Marietta employees advising this Junior Achievement company are Don Joy and Adrian and Susan Lafitte. ■



Employee wins award for display case

Damon Oswald, a numerical control mill operator, stands beside the carbide insert display case he designed and built at home. Carbide inserts are cutting tools used on many machines, and the display shows what tools are available and the nomenclature of each tool. Oswald won an award from the suggestion program for his design. The case has been used since January, and is located next to the A-1 tool crib window on the first floor of the factory.

Evacuation drills set for all facilities

Plant protection auxiliary fire and security personnel will begin fire evacuation drills at all Denver Aerospace facilities on April 22.

When the alarms are sounded, all employees must evacuate their work areas, unless specific arrangements have been authorized by management. Plant protection and auxiliary fire and security personnel will monitor all areas to ensure complete evacuation of the building. If the schedule conflicts with critical activities, the drill can be rescheduled by management by contacting Lt. Hessel, Ext. 7-3333 or 7-4646.

The evacuation drill schedule is as follows:

Building designation	Date	Time
SSN and SSNA	April 22	1 p.m.
SSB and Nearfield	April 22	2 p.m.
EMF I and II and trailers	April 24	1 p.m.
SSL	April 24	1:30 p.m.
AVL	April 24	2 p.m.
Terrace Towers	April 29	1 p.m.
Greenwood Commons	April 29	2 p.m.
DSC I and II	May 6	12:30 p.m.
ASC II	May 6	1:30 p.m.
LSC	May 13	10:30 a.m.
SouthPark I	May 13	noon
SouthPark II	May 13	12:30 p.m.
GEPS I	May 13	1:30 p.m.
GEPS II	May 13	2 p.m.
Inventory Building	May 15	12:30 p.m.
GPL/VTF	May 15	1:30 p.m.
AD/ABC Annexes/Orb	May 20	1:30 p.m.
RDL	May 20	2:15 p.m.
SSB Modulares	May 22	1 p.m.
TSB	May 22	10 a.m.
DPF	May 27	1 p.m.
Warehouse II	May 27	2 p.m.
Factory	May 29	10 a.m.
ARL	May 29	noon
Engineering Building	May 29	2 p.m.

MARTIN MARIETTA NEWS

Published by Public Relations
Editor Jan P. Timmons
MARTIN MARIETTA

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Prepared and produced by the publications department
DENVER AEROSPACE
P.O. BOX 179—Denver, CO

April 10, 1987



NASA Space Systems' logo contest winner announced

Mike Jacobs holds his winning design for the NASA Space Systems' logo contest conducted in March. Jacobs received a \$200 savings bond and a \$50 dinner certificate. Frank Van Rensselaer, third from the left, NASA Space Systems director, congratulates Jacobs and contest finalists Roger Carolfi, Chuck Fleenor, Dave Jackson and John Benson. The contest was open only to NASA Space Systems employees and employees supporting the product area.

Peacekeeper program ends developmental test phase

With the recent successful flight test of the Peacekeeper intercontinental ballistic missile (ICBM), the Air Force accomplished its goal to develop and test a deterrent missile system.

The 17th flight on March 14 marked a major milestone in completing the developmental test and evaluation (DT&E) phase. All 17 test flights were excellent, and the Air Force refers to the program as the most successful development program in its history.

"We are tremendously proud of Martin Marietta's Peacekeeper flight test program and its people," said John P. Murphy, vice president of the Peacekeeper program, on the successful completion of the DT&E phase.

The next flight begins the operational test and evaluation (OT&E) phase. These test flights will provide missile assembly, checkout and launch processing just as it would be done at F. E. Warren Air Force Base in Cheyenne, Wyo., when the missile system is fully operational. Vandenberg Air Force Base (VAFB) and the Warren AFB systems differ in the instrumentation and flight safety system (IFSS), which is used only on test flights at VAFB.

The first flight test of the Peacekeeper (FTM-1) was on June 17, 1983. The launch ended several years of defining design and test requirements, design activity, design reviews, coordination, analyses, fabrication and test.

"Since that first successful flight, the Peacekeeper team has continued to perform in an exemplary fashion at all levels and in all disciplines," said James A. Sterhardt, vice president, Strategic Systems.

"Each discipline faced significant challenges during each phase of the program, and all challenges were met and all issues satisfactorily resolved."

On the final three flight test missiles (18

through 20), the Peacekeeper program will be in its OT&E phase in final preparation for use as the nation's newest and most sophisticated deterrent weapon.

Beginning with Flight 21, the Air Force primarily will be responsible for Peacekeeper processing, with using equipment and procedures provided from the OT&E phase.

The magnitude of the IFSS DT&E task can be shown by a few statistics. On the 17 flights, 1,243 black boxes and 1,290 cables were flown for a total of 2,533 major components. The 1,290 cables required approximately 7,000 connectors and 230,300 wire terminations, and used approximately 935 miles of wire. The DT&E IFSS processed 12,585 flight measurements.

"The 17-out-of-17 DT&E successes are an accomplishment of which we can all be proud," Sterhardt added. "Our contribution to the perfect DT&E record was a major factor in the 100 percent award fee the Air Force gave Martin Marietta in 1986." ■

Company given new SDI study

The Strategic Defense Initiative Organization (SDIO) has announced a new contract award of more than \$7 million to Martin Marietta for continued Strategic Defense Initiative (SDI) architecture study. The award extends studies begun in December 1984 to the end of January 1988.

SDI Architecture Studies, conducted under contract to SDIO, examine various ways for the U.S. to deter a nuclear attack by defending against ballistic missile threats. The defense would combine ground-based and space-based systems. The ballistic missiles and their re-entry vehicles would be intercepted in one or more of their flight phases during boost, post-boost, midcourse and terminal flight. Different systems could use current technology, such as rocket-propelled interceptors, or promising future technologies, such as lasers.

Other major elements of the study include ways to perform surveillance and simultaneous tracking of missiles, re-entry vehicles and decoys in space, battle management, command and control of all systems, global communications and overall system support, including launch vehicles for the SDI satellites.

"Important considerations involve military utility, affordability, survivability and the appropriate evolution of the architecture as it might be deployed during the 1990s and into the 21st century," said Bill Poole, program manager for the SDI Architecture Study. The program is within Military Space Systems, headed by Morris Thorson, vice president.

The new study will focus on selecting and defining all elements of the defensive system, and analyzing their effectiveness and utility against ballistic missile threats. In addition, the study will examine operational requirements.

Martin Marietta was one of 21 teams selected to participate in Phase I of the study. In 1986, SDIO selected the five top contractors to continue the architecture study. All five continue to participate in the new studies, each with individually assigned study tasks and contract dollars. ■

On the cover

Dennis Haley, program manager for the Intelligent Task Automation (ITA) contract, is shown with a robot used for the ITA research contract for the Air Force and the Defense Advanced Research Projects Agency (DARPA). The contract aims at integrating artificial intelligence, computer vision and other techniques to form an intelligent robotic system.

Martin Marietta is developing robotic capabilities that can assess tasks to be performed and choose the appropriate tools or approaches to complete them. Applications include servicing and refueling satellites in space, and construction and maintenance work on the space station.

One area of research aimed at demonstrating the flexibility of robotic systems involves using a robot-operated scanning laser device to measure dimensions of industrial materials and components. The laser's three-dimensional vision capabilities have special applications for quality control inspections.

Employee services/recreation

Corporate Games Update—Martin Marietta's team will defend its first-place title June 4 and 5 at the 7th annual Denver Corporate Games. George Kenry, with I&CS, will coordinate the swimming competition. Terry Heggy is in charge of Martin Marietta's swim team and interested employees can contact him for practice times at Ext. 1-5849. Track team hopefuls are practicing at 5 p.m. Mondays and Thursdays at Columbine High School. Time trials will take place May 21. Track teammembers also will have a spot on the Regional Corporate Cup Relay Team. Todd Myers, Ext. 7-4104, is the coordinator. Jeff Findle is coordinator of employees who will participate in the 5-k and 1500-meter races, Ext. 7-0878. Ken Rillings, Ext. 1-1056, will contact bicycle racers who have indicated an interest in trying out for the bicycle team. Marty Carter has volunteered to be the bicycle race coordinator for the Denver Corporate Games. The date of the in-house racquetball tournament will be announced soon by organizers Fred Neumann and Mark Helton. One male and one female player will participate in the Corporate Games. The date of the Corporate Games qualifying tennis tournament will be announced soon.

Rocky Mountain Regional Corporate Cup Relays—Martin Marietta will enter a team in this event June 20 in Boulder. Employees are needed to compete in the high jump, long jump and shot put. The relays are in their 10th year and allow men and women sprinters and distance runners in various age categories to compete against other corporate teams. Interested employees are urged to call Todd Myers, Ext. 7-4101.

Belle Bonfils—The Belle Bonfils Blood Drive at Terrace Towers on March 30 was successful. Seventy employees donated blood that will benefit patients in Colorado hospitals. The next mobile blood unit visit will be May 27-28 at the Waterton facility.

Commodore Users—The group will meet at 5 p.m., Tuesday, April 21, in the clubhouse at the recreation area. Contact Chuck Barton, Ext. 7-7430 or Joe Presta, 1-6957.

LSC Toastmasters—The group meets at 4:30 p.m. Wednesdays in Room 103 at LSC. Those interested can contact Henry Evans, Ext. 7-0575.

Mile High L5 Space Society—The Mile High L5 Space Society will meet Friday, April 10, at SouthPark West I, Presentation Room 103A. Dr. Robert Culp from the University of Colorado in Boulder will speak on "Space Debris in Low-Earth Orbit." Other activities

include a film of the first space shuttle flight, Young Astronauts and manned Mars activities, and nominations for officers to be elected in May. For further information, contact Jeff Zerr, 790-3857.

4th Annual Preseason Softball Tournament—The double elimination tournament for coed, open and competitive divisions will take place April 24-26. Teammembers must be Martin Marietta or Air Force employees or spouses and dependents of employees. The entry fee will be \$90 per team, payable at registration. Registration and roster deadline is Friday, April 10, in the recreation office. Preseason tournament rosters are available in the recreation racks.

Softball—Softball rosters for regular season play will be in the recreation racks the first week of April. The softball organizational meeting for team captains will be at 5 p.m. Monday, April 13, in the SSB cafeteria. The fee for regular season play is \$5 per person. Rosters must be submitted by 5 p.m. on May 4, with a minimum of 10 persons paid. The season will start mid-to-late May. Team captains will be notified later of the starting date.

Runners—The Sting, a 4-mile foot race for runners and walkers, a fitness fair and a wheelchair obstacle course race will be at 9 a.m., Sunday, April 12, at Washington Park. The events will benefit the Rocky Mountain Multiple Sclerosis Center. Walk-in registration will be accepted from 7-8:30 a.m. at the Washington Park Recreation Center. Call 394-8866 for more information.

CWA—The Career Women's Association will meet at 5:30 p.m., Wednesday, April 22, at the Littleton Town Hall Arts Center. Guest speaker Nancy Cain will discuss "How To Quit Wishing It Were So, and Make It Happen."

Management association schedules next meeting

The Martin Marietta Denver Aerospace Chapter of the National Management Association will conduct its monthly dinner meeting April 14 at the Sheraton Tech Center Hotel.

Mickey Connolly will discuss "Communication: the Power to Accomplish, the Power to Relate." Association officers and board of directors will be elected. Call Bill Good, booster manager, at 971-2065, for reservations or more information.

History...

On a wing and a prayer

(Editor's note: This is the fifth in a series of articles about Glenn L. Martin, and the dream upon which he built an aircraft empire and the company that became Martin Marietta. The series is courtesy of Orlando Aerospace.)

LOS ANGELES, CALIFORNIA, JUNE 1913—The most famous of all aviators, Glenn L. Martin, toyed with the most famous of all curls, the Pickford curls, when Martin co-starred with America's sweetheart, Mary Pickford, in "The Girl of Yesterday." Chosen for his reputation as both an expert aviator and a gentleman, Martin played leading man to Pickford's heroine aviatrix in a less than immortal Famous Players Co. film.

As the plot unfolded, Martin was teaching his leading lady to fly a plane. Suddenly, engine trouble developed. Landing in an uninhabited area, they hiked back to civilization. Naturally, they fell in love, although Martin confessed his feelings reluctantly, if somewhat woodenly.

Meanwhile, the world was facing a war of unimaginable magnitude. In 1914, the heir to the Austrian empire was murdered, setting in motion waves of devastation that continued for more than four years. All over Europe neighbors were taking up arms against neighbors. But even the shocking German attack on the British passenger liner Lusitania in 1915 could not persuade U.S. President Woodrow Wilson to prepare for possible battle.

For Martin, 1915 was a good news/bad news year. The publicity from his brief film career was good for business. All three of his flying schools were doing well with some soon-to-become students like "Big Bill" Boeing and Lt. Van H. Ter Poorten of the Dutch government. The Los Angeles factory was filling an order for 24 two-seater planes for the Dutch, as well as flying boats and a few airplanes for the U.S. government.

But his contracts for aircraft were rare, and the experts needed to design them were even more so. When a Navy contract for a large flying boat went to the Curtiss Aircraft Company, Glenn Curtiss lured Martin's longtime friend and chief engineer Charlie Willard to New York.

It was Martin's turn to need an engineer. He wrote to a number of places in the east in search of a qualified candidate. Several replies, including one from the Massachusetts Institute of Technology, highly recommended a young man named Donald W. Douglas.

Douglas was designing dirigibles for the Connecticut Airplane Company when the offer from Glenn Martin arrived in the morning mail. He gladly accepted to become chief engineer of the Glenn L. Martin Company in Los Angeles. It was a matchup that would influence the course of aviation. ■