

June 30, 1989 Number 14

Company captures Corporate Games



Corporation designates next president, promotes other senior executives

Martin Marietta Corp. said it will promote A. Thomas Young to executive vice president, effective Aug. 14, in anticipation of his becoming president and chief operating officer at the end of the year upon the planned retirement of Caleb B. Hurtt.

Young is currently a senior vice president of the corporation and president of the Electronics & Missiles Group at Orlando. He will move to Bethesda headquarters as executive vice president on Aug. 14, where initially he will undertake a special assignment refining the long-range plan for the strategic direction of the corporation.

Succeeding Mr. Young on Aug. 14 as president of the Electronics & Missiles Group at Orlando will be Allan M. Norton who has been president of that group's Electronic Systems company since July 1987.

In announcing the changes, Norman R. Augustine, chairman and chief executive, said: "K' Hurtt has served our corporation with brilliance for a third of a century, his dedication to excellence having been a prime inspiration for our emphasis on mission success. I will miss our daily association, both as a colleague and a longtime friend, and I am pleased he has agreed to remain on the board of directors, where we will continue to call on his exceptional experience and wise counsel."

In other changes, J. Richard Cook, who has been vice president of Technical Operations for the Astronautics Group, will move to Orlando on July 5 to begin transition as Norton's successor as president of Electronic Systems, effective Aug. 14.

Andrew J. Stofan, vice president of the Advanced Launch System program, will succeed Cook as vice president of Technical Operations



Young



Hurtt



Cook



Stofan

for the Astronautics Group, also effective July 5. The Advanced Launch System program will move with Stofan to Technical Operations.

Young joined Martin Marietta in 1982 as vice president of Aerospace Research and Engineering and was vice president and general manager of Martin Marietta Aero & Naval Systems at Baltimore from 1983 until 1985, when he moved to Orlando. Prior to joining Martin Marietta, Young spent 21 years with the National Aeronautics and Space Administration and was director of NASA's Goddard Space Flight Center at Greenbelt, Md., from 1980 to 1982.

Hurtt, who has been president and chief operating officer and a director of the corporation since December 1987, has served more than 33 years with Martin Marietta in a progression of senior engineering and management positions, including president of Denver Aerospace, which later became the Astronautics Group. He has announced his intention to take early retirement on Dec. 31 in order to pursue a number of personal interests. He will continue to serve on the corporation's board of directors.

Norton has been with Martin Marietta since 1962, most recently with responsibility for developing defense electronics systems,

including the LANTIRN night navigation and targeting system for Air Force tactical fighters and the TADS/PNVS, which performs a similar mission for the Army's Apache attack helicopter. He has also been responsible for advanced electronic development and manufacturing systems, including the Microelectronics Center, optical laboratories, and the LANTRIN "paperless" factory.

Cook will be returning to Orlando as president of the Electronic Systems company, for which he previously served as vice president in charge of the TADS/PNVS program. In his 30 years with the corporation, Cook has held senior program management positions in Orlando, Denver, Vandenberg Air Force Base, and at Cape Canaveral, where he was spacecraft manager and flight operations chief for the two Viking spacecraft that landed on Mars in the mid-1970s.

Stofan was the corporation's vice president of engineering prior to taking over the Advanced Launch System program last November. He previously served 30 years with NASA and was associate administrator for Space Station development before joining Martin Marietta in 1988. ■

Company names 1989-90 Technical Operations interns

Cindy Barth, a staff engineer in Defense Systems, has been named the next corporate intern for the Technical Operations intern program.

Ken Parker, a Space Systems lead for a software tools development team, will be the local intern for the Astronautics Group from June to December 1989, and Karyn Downs, lead engineer in Central Labs, will be the local intern from December 1989 to June 1990.

The program was developed to give outstanding engineers the opportunity to learn about Martin Marietta's group and corporate functions, to develop their management skills, and to allow them to develop contacts throughout the corporation.

The local six-month program is designed to provide the intern insight into the corporation's and Astronautics Group's strategic plans and long-range goals.

Strategic Systems to study space vehicle

Strategic Systems has won a National Aeronautics and Space Administration (NASA) contract to study a reusable orbit transfer system able to ferry equipment from the U.S. Space Station to higher orbits, to the Moon or to other planets.

NASA's Marshall Space Flight Center in Huntsville, Ala., has awarded Martin Marietta Strategic Systems a three-year, \$5 million contract for requirements definition and conceptual designs of the Space Transfer Vehicle (STV). Boeing also received a parallel contract.

The STV, scheduled for operation beginning in 1998, initially will carry spacecraft weighing up to 22,000 pounds from the Space Station and other low-Earth orbits to geosynchronous orbits 22,000 miles above Earth. It will then return to the Space Station and other low-Earth orbits for docking and later use. The Space Station, a permanently manned research facility orbiting the Earth at an altitude of about 220 miles, is scheduled for operation in the mid-1990s. The STV will be able to be launched to low-Earth orbit in Shuttle, Shuttle C, Advanced Launch System or Titan IV.

Eventually, NASA will require a family of STVs to support both manned and unmanned

exploration of the moon or planets such as Mars.

The STV will be the nation's first reusable high-energy transfer system able to carry large space equipment to a variety of orbits. Currently, the Space Shuttle and other launch vehicles use expendable upper stage rockets to carry spacecraft to specified orbits. The STV will remain in orbit, docked to the Space Station, and be used repeatedly.

Technologies needed for the STV are now being developed in a variety of programs at Martin Marietta.

One key technology is an aerobrake, a large shell structure that the STV will use to slow itself down as it enters the atmosphere of Earth or other planets. This was first developed by Martin Marietta for the Viking Mars landers in 1976.

Martin Marietta is developing instruments for NASA's Aero-assist Flight Experiment, which will test an aerobrake launched from the Shuttle as it re-enters Earth's atmosphere at high velocities. Martin Marietta-built instruments will measure the energy that will radiate from the aerobrake as a result of the high temperatures. This is a key factor in aerobrake design. ■

Art contest scheduled for 1989 Open House

Sons and daughters of current Martin Marietta employees in the Denver area may participate in an art contest planned in conjunction with the 1989 Family Open House, Aug. 5.

Several guidelines for the contest have been set. They are:

Eligibility—Sons and daughters of current Martin Marietta employees in the Denver area are eligible. There are four categories: primary, 5 to 7 years old; elementary, 8 to 10 years old; junior, 11 to 13 years old; and secondary, 14 to 18 years old.

Subject Material—Artwork must be related to planetary exploration. This includes past, current and potential future missions; manned or unmanned programs; spacecraft launches; and futuristic planetary colonies.

Judging—The winner in each category will be selected by representatives of the Denver Art Museum. In all instances, the decision of the judges is final. A winner will be named in each category.

Artwork will be judged on creativity and neatness. The artwork submitted must be the original and completed by only the person submitting the work. One entry per person, please. All artwork becomes the property of Martin Marietta and will not be returned. The winners in each category and selected other artwork will be displayed in the Space Support Building cafeteria, at Waterton, during the Family Open House.

Format—Artwork submitted must be no larger than 11 by 14 inches and no smaller than 8 by 10 inches. Sculptures, clay or other models will not be eligible. Acceptable media are pencils, crayon, ink, oils, charcoal, pastels, acrylics, poster paints and water colors. Material will not be supplied.

Time Limit—All artwork must be received no later than Friday, July 21, 1989.

Collection/Identification—Each piece of art must have identification attached firmly to the back. The artist's name and age, and the name and work phone number of the artist's employee parent must be typed or printed legibly. Entries may be mailed to Publication Services, mailstop DC9264, or delivered to one of three Publication Services locations listed below:

- Littleton Systems Center, Second Floor, Room 250
- Deer Creek Facility, "A" Level, North of the Center Elevators
- Waterton, Administration Building, First Floor, Room 104

Awards—The winners in each category will receive a framed 11-by-14-inch photo of the Magellan spacecraft being deployed from the Space Shuttle Atlantis; a detailed 13-inch-tall model of the Space Shuttle; and a \$100 U.S. Savings Bond. Winners will be notified by Aug. 3 and awards presented Aug. 5 at the Family Open House.

For further information, call Publication Services, Ext. 1-4776. ■

**Astronautics
Group 1989
Family Open
House
August 5**

Company sponsors concert in the park

Employees are encouraged to bring family, friends, picnic baskets, and blankets to a free Martin Marietta-sponsored concert featuring the Denver Municipal Band (DMB) at 7:30 p.m., July 9, in Washington Park (South Franklin Street at East Kentucky Avenue).

"Big Band Night" is the theme of the concert by the DMB jazz ensemble.

Prior to the DMB's performance, the Colorado Honor Band, conducted by Terry McEwen, will perform. The honor band is composed of excellent young Front-Range musicians. ■

Videoconferencing system saves corporation money

Operating through a fiber-optic strand thinner than a human hair, the Martin Marietta Videoconferencing System (MVS) is helping slash the ever-growing cost of business travel.

Established in 1987, MVS lets employees meet face-to-face at five Martin Marietta facilities across the U.S., saving travel time and money.

In addition to meeting within the corporation's boundaries, employees can link with 32 other locations in the U.S. and 110 abroad. As of June 1, all NASA facilities joined the network, and the list is still growing.

With traveling expenses at staggering rates, MVS is the money-saving alternative. It can cost \$1,000 or more per day for one employee to fly to Orlando, while MVS costs the corporation only \$180 per hour.

Located on the first floor at the Deer Creek facility and at Viewpoint facility near Littleton Systems Center, the system enables any employee at each location to schedule conferences in the 11-chaired room. The system also is equipped with advanced audiovisual tools, including a video recorder, fax machine, slide projector, and an image processor that instantly sends charts, photos and diagrams from one location to the video screen at another.

MVS administrator Jim Kaygi points out that one of the many advantages of using MVS is having everyone in the same room discussing a project with another city. This avoids the problem of one person not knowing about another's status.

"When everyone involved in a project is in the room talking with another city, each person can turn to the other to check on certain items," Kaygi said. "If a project leader traveled alone to Orlando to discuss the project, he wouldn't have the support of his subordinates."

The system is not cleared for classified discussions, but company proprietary material and confidential meetings are protected by encryption codes.

Kaygi said the system currently is used only 100 hours per month, and he encourages employees to make use of the cost-cutting facility.

"The bottom line is having three complete meetings in one day at three different cities with MVS, or having one incomplete meeting in one city in three days," Kaygi said.

To schedule a conference or for a tour of the facilities, call, Ext. 7-8408.

by K.C. Ingraham



Videoconferencing with Bethesda

Astronautics Group employees Chris Heston and Bob Glover, seated left to right talk with MVS administrator Mark Schwind in Bethesda. The system, located on the first floor of the Deer Creek facility, was moved from Waterton last year.

Teams promote people power

A revolution is quietly taking place at the Astronautics Group.

There are no noisy crowds, no lists of demands and no impassioned speeches.

But the revolution has begun.

The revolution is in the Astronautics Group workplace. It's in Space Launch Systems company, in Space Systems company, in Central Labs, in EMF, Strategic Systems, and in other areas.

But most importantly, it's in employees.

By summer's end, more than 1,800 Astronautics Group employees will have undergone high performance/high involvement work team training.

This type of training, and the work environment it helps produce, has been called by a number of names: high performance/high commitment, semi-autonomous work groups, self-managed work groups, high involvement workers, participative management and others.

What it really means, however, is that the people who are closest to the work have the power to make the critical decisions about how to best do it. And their bosses listen to them, support them, protect them, and provide guidance and direction.

"Martin Marietta is redefining its management philosophy," said Jim MacLachlan, who directs the office of organizational development.

"Senior management is doing it because they believe that people are an appreciating asset. The high performance companies—companies with empowered, energized people—are the companies in today's marketplace that have an edge.

"We must develop that edge if we are to survive," he continued.

"If we want to remain leaders we must change. Our competition is no longer just domestic. It's world wide."

—John Adamoli

High performance work teams assume responsibility for their own working conditions. Steering committees composed of members of senior management meet to help provide focus, to set boundaries and to assure resources.

"But the work groups themselves take the initiative to simplify processes and strategies for doing various jobs," MacLachlan said.

"They communicate to management about what they're doing, but they don't have to ask permission. They know and operate within mutually understood boundaries," he said.

The largest number of high performance work teams—approximately 40—is in Space Launch Systems (SLS) company. John Adamoli, vice president of production operations for SLS, is largely responsible for getting them in place.

Seven teams now are operating in Space Systems company, about 20 in the Central Labs

organization, and three at EMF. And more people are being trained every day.

"It's important to get people involved, to get them sold on how our climate is changing around us and we must change, too, to avoid becoming extinct," said Adamoli.

"If we want to remain leaders we must change. Our competition is no longer just domestic. It's world wide.

"We decided on high performance work team training so we could get the job to the level where the people are doing the actual work," Adamoli said.

An empowered, involved workforce is the cornerstone of the Total Quality Management movement.

Empowerment energizes the workforce. The process makes it possible for significant change to take place. It provides a framework in which employees can do their very best.

For management, it provides the opportunity to concentrate on strategic, significant issues, problems, and opportunities. It helps them to engage workers who are enthusiastic about their jobs so they can solve problems.

High performance training—and a high performance/high involvement environment in the workplace—can help create an atmosphere in which better communication can flourish.

With better communication, a system of shared values can be created. And shared values help improve communication still more.

"When you increase trust, you decrease fear," MacLachlan said.

Astronautics Group has brought the firm of Belgard, Fisher, Rayner, Inc., aboard to conduct high performance work team training.

The first group of 72 people went through the course in Portland, Ore., in February. A mixed group, it had people from all levels, including directors.

Since then, the course has moved to the Scaticon conference center here in Denver, and hundreds of others have had the opportunity. Among them are several Astronautics Group vice presidents.

The training is generally three days of information and exercises designed to show people why change is important, and to give them the tools they need to do it.

"One of the first breakthroughs groups make is when they discover that they have the power within their own teams to control their destiny," said Bill Belgard, one of the principals in the firm.

"Another exciting breakthrough is when managers realize that by giving up some control to the group, the things they were trying to control improve—things like cost, quality, and schedule," Belgard said.

These are important discoveries.

The traditional American management system is almost completely based on principles set forth by scientific management proponent Frederick W. Taylor in the early 1900s.

"Taylor's influence is so pervasive that the most fundamental assumptions held by the vast majority of people concerning the way management should be practiced are based on his works," said Steve Rayner, another partner.



Get Wired

Members of the Titan electrical high performance team on the second floor of the factory at Waterton. From left to right: Maryanne Gietl. The team meets weekly to work on

One of Taylor's most fundamental assumptions is that there is one best way to perform any given job, and that that one best way is best determined by engineers or efficiency experts.

Another key assumption is that management's job is to get its ideas out of managers' heads and into workers' hands, and that management must control the activities of the workforce so there is minimal deviation from the one best way, Rayner said.

Moving Martin Marietta away from Taylor's principals will be difficult.

Some people will want to change but find the high performance/high involvement style too uncomfortable. Others simply won't see a need for it. But a large number of other people see the need for it and support the ideas wholeheartedly.

The high involvement revolution at Astronautics Group has begun. It may not be a noisy one but it's going to change the way you work.



Team join together to work on the wire line in the second floor factory mezzanine area today. From left to right: Esther Castro, Tony Hartley, Mary Burke and Dan Harris. They meet weekly to discuss problems and to discuss ways to improve their work.

Titan electrical core team solves problems together each week

Amid the slamming, banging and scraping that mark the second floor factory mezzanine area today, a small group of Astronautics Group employees meets weekly to work out common problems.

Watching the group at work is a little like watching a group of kids at play on a really dusty field. All you can see is a dust cloud moving across the field. Occasionally you get a glimpse inside the cloud. But you're not really sure what's happened until the dust has settled.

Members of the high performance Titan electrical core team work out problems in a weekly meeting in the production control conference room. Around the table, members of the group are actively involved in the discussions.

Conversation goes first one way, then another. At times the attention of team members seems to stray. But eventually, in fits and starts and occasional digressions, the team gets there. Consensus is achieved. People are in agreement as to the problem and what the team can do to solve it. The group assigns actions to the appropriate people, then the discussion moves on to other problems.

Working like this over the past four months, the 60-member Titan electrical core team has come up with solutions to all sorts of problems.

Their biggest success came just recently. They validated a new manufacturing procedure (MP) for crimping wires.

The new MP—MP85029—takes the place of 11 old MPs. And it will save the company almost \$18,000 a month.

It includes all required changes to P³ media and other required documentation. And the team did it itself.

Among other Titan electrical team ideas are a team newsletter and use of the Voice Message System as a team communication center and mailbox. These devices help improve the flow of ideas between and among team members.

The team also has deleted some inspection requirements, and repositioned others to achieve a smoother work flow. And they've improved training to make it more applicable to team members.

To help the team improve continuously, they've begun to compare budgeted costs to actual costs for wire harness builds. These comparisons are made available to all team members.

"That way, we can see how we're doing from one time to the next," says Dan Caughran, the group's manager.

One other important team accomplishment is 18 people the team has absorbed from the first floor factory.

Because of business fluctuations, these people might have been laid off. Working together, however, the company and the union came up with a special arrangement for 18 people to be loaned to the Titan electrical team and five to another area.

The Titan electrical team has integrated their new members with a minimum of lost motion, and things seem to be going smoothly.

"Communication, cooperation and trust," said Caughran. "That's what we're trying to achieve. And we're making progress." ■



Roundtable

Employees from Central Labs exchange ideas during a training session at Scanticon. From left to right, around the table, Dennis Jimenez, Tony Tedesco, Cid Rivera, Jay Walgren, Bryan Bachman, Dan Harris, Vincent Conca, and Brad Kniffin.

Teet's staff, too

Empowerment and high performance are being felt on the staff of those who report directly to Peter B. Teets, Astronautics Group president.

Teets said in his staff meeting this week that this staff will work for an hour each week on implementing high performance techniques on the Group senior staff.

He also said that when senior staffers send substitutes to these meetings, the substitutes should "be empowered to act on behalf of the company or functional organization they represent."

The Prophets of Quality

"The Prophets of Quality," by Robert Chapman Wood, is reprinted here with the permission of The Quality Review, where it appeared in the Winter 1988 issue. Copyright © 1988 by the American Society for Quality Control. Because of its length, "The Prophets of Quality" will be serialized over several issues of the Martin Marietta News.

Some 475 managers gave rapt attention. No one coughed. No one shuffled feet. They were to listen to W. Edwards Deming speak—and often ramble—for almost seven hours a day, four days in a row. It was a modern equivalent of the marathon sermons of Puritan New England.

Fifteen years ago, American businessmen visiting Japan saw the same attentive looks on faces at business lectures there. Americans talked about that look as a cultural peculiarity of the Japanese. And they wondered whether Japanese actually understood anything at those lectures. When Japanese electronics and autos took over U.S. markets in the late 1970s, they found out. Now the look appears on American faces as they listen to the prophets of quality.

Deming's message focuses first on building constancy of purpose for continuous improvement in business management.

Deming's message focuses first on building constancy of purpose for continuous improvement in business management. He will allow no one to undermine the message. Nicholas DeBenedictus, president of the Greater Philadelphia Area Chamber of Commerce, introduced Deming at this seminar in Valley Forge, Pennsylvania, by saying he would speak on "quality and productivity in the workplace." That sounded reasonable.

But the eighty-eight-year-old Deming sprang to his feet as DeBenedictus ended and demanded in a deep, urgent voice, "What do you mean, 'the workplace'? What do you mean, 'the workplace'?" No response was audible. "The problem is management!" Deming shouted.

"What do you mean, 'productivity'?" he then demanded. Again, no audible response. Again the shout: "The problem is management!" The audience of managers smiled. This was what they had come to hear. Perhaps Deming's most basic teaching is that programs to make workers work harder are misguided, and he seemed to fear that the very use of the words "productivity" and "workplace" showed signs of an old-fashioned mentality that seeks to push workers harder to produce more. He blames managers for neglecting to give their employees leadership toward creation of better products for the customers.

Leaders Share Common Beliefs

Deming is perhaps the most prominent of a small, messianic, and occasionally rivalrous group of leaders who have struggled for more

than forty years to bring America and the world toward quality. In addition to Deming, the group includes the management teacher Joseph M. Juran, the hands-on management consultant Armand V. Feigenbaum, the entrepreneurial evangelist Philip Crosby, and the Japanese aristocrat Kaoru Ishikawa. The quality movement has, in fact, tended to form into factions centered around each leader. One construction industry executive at the Deming seminar reported that his customers doubted that his company was committed to quality simply because it had not chosen to follow a single guru.

The teachings of the leaders differ substantially, but they share a common core:

- Every organization needs a commitment to quality from top to bottom.
- Companies must identify their most critical quality problems and management must lead in defeating them.
- In every process, companies must try to define the characteristics that indicate quality, so they will know what to change and how to measure success.
- Companies must achieve quality by understanding and improving systems and by preventing problems, rather than by reducing defects through inspection and correction.
- Companies must develop a statistical understanding of processes and use statistics to solve problems.

Thus, attentive followers of each teacher can probably learn from the other teachers as well.

Deming has perhaps the most loyal following of the entire group. Born in 1900, the son of a rural Wyoming lawyer, Deming earned a Ph.D. in physics from Yale in 1927. He worked summers in Chicago at Bell Telephone's Hawthorne plant, already well known for its innovations in industrial engineering. After graduation, while working with the Department of Agriculture, he followed the development of statistical quality control techniques by Dr. Walter A. Shewhart at Bell Laboratories.

In the late 1930s Deming took charge of an innovative sample-surveying program at the Bureau of the Census; he also utilized Shewhart techniques to improve the quality of clerical work there. He taught statistical quality control to engineers, inspectors, and procurement officials during World War II. But by 1949 he found that the achievements of U.S. quality during the war had dissipated. With demand for consumer products booming, managers cared



W. Edwards Deming

more about quantity of production than quality of products.

Deming Takes His Message to Japan

Deming went to Japan in 1947 to help the U.S. Occupation prepare for the 1951 Japanese census, and during this visit, he made a point of socializing with the Japanese. Two years later, when the Japan Union of Scientists and Engineers (JUSE) began studying the writings of Shewhart and other U.S. quality experts, several members recognized Deming's name, and he was invited to Japan to give a series of lectures. Knowing Japan's poverty, he refused any payment, and JUSE used the budgeted funds to establish the Deming Prize in quality control. Today this prestigious award is presented annually to companies with outstanding total quality control programs, after a rigorous "audit" of their operations.

Few Americans outside the world of statistics knew of Deming until 1980, after Japanese quality had begun to awe the American consumer. NBC producer Clare Crawford-Mason discovered that Japan's leading quality award was named after an American, and she featured Deming in a documentary titled *If Japan Can, Why Can't We?* The documentary caused a "Deming boom" not only in the American media and in U.S. industry but also in the Japanese mass media, which had largely ignored quality control until this film made it a hot topic.

A Fire and Brimstone Approach

Top executives of Ford, General Motors, and several other leading corporations called Deming in the days after the NBC program aired. If they sought tactful consulting, they didn't get it. Blanford Godfrey, former head of the quality theory and technology department at Bell Laboratories and now chairman of the Juran Institute founded by J. M. Juran, notes, "You remember Deming even if you've only heard him give a one-hour talk. He's a preacher. He says 'If you don't do this, you're going to hell in a handbasket.' He tells them that they're

Continued on page 7

Prophets (continued from page 6)

stupid. He tells them that they don't know how to run their own factories. But when people listen to him, they can go a long way."

At least some U.S. firms were ready to listen. Ford, for example, was losing money in 1980. Deming demanded of the company the new approach its executives knew was necessary. "The many changes that have been taking place here have their roots directly in Dr. Deming's teachings," Ford chairman Don Peterson said in a 1986 letter to *Auto Week*.

Deming Emphasizes Constancy of Purpose

More than any other quality leader, Deming emphasizes that "constancy of purpose for the improvement of products and services" is an absolute necessity. In addition, he stresses the importance of "profound knowledge," principally the understanding of variation through the use of statistical analysis.

"We're afraid of thinking that says quality can be 'installed' like Management by Objectives."

—Brian Joiner

Deming's approach presents difficult challenges to companies and their managers. Statistics is the collection, organization, and interpretation of data describing a process or product. The data must be used to analyze apparently random events—e.g., the appearance of a few

defective parts—in an otherwise stable process. Statistical analysis can determine whether a process (such as the manufacturing of a part or the serving of customers at a bank teller's window) is "in control" or "out of control."

In an "out of control" process, problems are the result of "special causes," such as unusual defects in raw materials, breakdowns of machinery, or human error. When such "special causes" are eliminated and a process is in "statistical control," some problems will remain, but they will appear in a pattern that indicates they are caused by the inherent variability in a stable system rather than by individual causes.

This statistical understanding of systems allows accurate diagnosis and solution of problems. But Deming's emphasis on statistics and his uncompromising approach to his teachings sometimes make his ideas difficult for beginners to understand. "It's not as easy to come away (from a Deming seminar) with a step-by-step view of exactly what you should do" as it is when you attend seminars given by other consultants, notes Brian Joiner, one of Deming's leading disciples and the head of the quality consulting firm Joiner Associates, Inc. "We're afraid of thinking that says quality can be 'installed' like Management by Objectives."

The Japanese also had trouble implementing statistically oriented quality management, according to Kaoru Ishikawa, who was the key leader of the Japanese effort. In his recent book, *What Is Total Quality Control?* Ishikawa says that the Japanese quality movement made limited progress in the years immediately following Deming's first visit. Ishikawa credits another American, Joseph M. Juran, with visiting Japan in 1954 and helping the Japanese to change from a quality effort "dealing primarily

with technology, based in factories, to an overall concern for the entire management."

Juran Sees Quality as a Management Responsibility

Juran was by then a well-known quality leader in the United States. But his powerful public reputation had only recently been established. After a career with Bell Telephone from 1925 through the start of World War II, Juran worked in the Lend-Lease administration; after the war he set himself up as an independent teacher, writer, and consultant in quality control. He was not an instant success. "It was a time of real troubles. I wouldn't wish that on anyone," he says. He wrote the first edition of his *Quality Control Handbook*, but it was turned down by several publishers. Ultimately, McGraw-Hill published it in 1951, "and from then on it was pretty smooth sailing," he says. The Japanese read it and soon invited him to Tokyo.

The heart of Juran's teaching is that quality is a management responsibility.

The heart of Juran's teaching is that quality is a management responsibility. While this seems identical to Deming's teaching, there is an important difference in emphasis. While Deming demands a revolution in the way managers think, Juran tries to make quality a discipline of management analogous to finance. He teaches that quality control is analogous to financial control; quality planning is analogous to financial planning and budgeting; quality improvement is analogous to cost reduction. ■

More jobs listed in the Job Availability System

Jobs in electronics engineering and personnel have been added to the Job Availability System (JAS) pilot program.

More than 250 employees have participated in the JAS program since its start in February, and 11 percent of those have been asked to interview for JAS jobs, said Bev Dare, chief of staffing.

The recent addition brings to four the total number of departments included in the weekly JAS listing. Mechanical engineering and business management jobs have been on the system since its conception.

The program is designed to encourage personal career development and to provide employees access to job opportunities within the company.

Employees with completed JAS forms may hand deliver their forms after hours to the designated mail slot at the entrance of Building 6020 at the Greenwood Commons facility; mail their forms to Mailstop G1311; or send their requests by fax to Ext. 7-0978.

Astronautics Group thanked for its Space Camp involvement

Astronautics Group President Peter B. Teets recently received several letters of thanks for sponsoring four Colorado students' April trip to the United States Space Foundation 1989 Space Camp in Huntsville, Ala.

Following are excerpts from some of the letters.

"The week I spent at Space Camp was one of the most exciting times I have ever had and I will always remember it. I was able learn about the space program and actually go through training just like our astronauts.

"Since I have been back, I have told many people about my experience at camp. The local television stations interviewed me when we arrived and I got to see myself on television in my space suit.

"I will always feel fortunate that I got to go on the trip that you and Martin Marietta gave me."

Respectfully,

Danielle Cordova, Pueblo

"Thank you very much for providing the scholarship to Space Camp that I won. My favorite part was the shuttle mission. I was the flight director on mission control and we got all excellent ratings. I'm going to share this information with my classmates and the Canon City

newspaper is going to interview me. This experience made me want to be an astronaut even more than I did in the beginning. Thank you very much for this opportunity."

Sincerely,

James Dickens, Canon City

"I wanted to thank you for the most exciting experience of my life.

"I learned more than I ever hoped to and am already making plans to return. I have already accepted an opportunity to speak to some children at a nearby elementary school about my experiences. I have also written an article for my school newspaper about the Space Academy. Wow, what an excellent experience!"

Again, thank you,

Darin Hoenle, Colorado Springs

"As parents of a Space Camp Scholarship recipient, we would like to take this opportunity to send our 'thanks' to everyone making the scholarship program available.

"We think it is very wonderful of your corporation to take such an interest in our youth... Thanks again!!"

Sincerely,

Dave and Debbie Dickens, Canon City ■

On the cover

Employees from the Astronautics Group, Information and Communication Systems, and Data Systems combined earlier this month to win the 9th Annual Colorado Corporate games. Martin Marietta edged out U.S. West by four points, and Public Service Co. placed third. The winning score of 274 points was earned in the following events: track, 22; tennis, 24; racquetball, 10; swimming, 88; bicycling, 8; golf, 14; trap shooting, 6; 5K races, 86; bowling, 10; and coed volleyball, 6. Thirty teams competed in the games, with Martin Marietta participating in the "A" division for companies with more than 2,500 employees. The games benefit the Colorado Special Olympics.

Space Systems wins SDI study

Space Systems has won a \$3.4 million, 15-month option for the Defense Shields Demonstration (DSD) program, a research project for the Strategic Defense Initiative Organization (SDIO).

The work is for design, analysis, and testing of large prototype defensive shield systems for protecting U.S. spacecraft from threats such as high-energy lasers, nuclear effects and high-speed pellets.

The option is the final phase of an \$8.9-million, 48-month contract that Space Systems has with the U.S. Air Force Wright Research and Development Center in Dayton, Ohio, with funding from SDIO. Space Systems won the final phase in competition against Textron Specialty Materials Co.

During this phase, prototype shields will be tested against a variety of threats in large test facilities such as the Mid-Infrared Advanced Chemical Laser (MIRACL) at White Sands, N.M. Major segments of scaled test articles

drawn from the full-scale shield designs will be assembled and tested under severe threat conditions to demonstrate how they protect spacecraft. The shields will use advanced materials and designs developed by Space Systems and its subcontractor team.

Lyle Bareiss, Space Systems DSD program manager, said this study is important for future strategic defenses.

"The ability to develop lightweight survivable shields for our space-based systems will be a key factor in SDI deployment decisions," Bareiss said.

The technology developed in earlier DSD program phases was important in the recently won Space Systems contract called the Survivable Power Subsystem Demonstration, Bareiss added.

The program is being handled by the Systems and Environments section of the Space Systems Research & Technology department. ■

Martin Marietta goes out to the ballgame

Department administrators currently are distributing tickets to employees for the company-sponsored Denver Zephyr's game at 7:05 p.m. Saturday, July 15.

Gates will open at 5 p.m. to kick off a variety of activities including a Martin Marietta all-star game and the Lowry Air Force Base drum and bugle corps and drill team at 6:45 p.m.

Tickets are reserved by section, with open seating available within the specified section.

Administrators will have some additional tickets for employees who would like to attend, but did not complete the family activity card that was mailed to employee's homes earlier this year. ■

Direct deposit saves time

There is no faster way to get your money into your bank account than by using direct deposit.

About 59 percent of Astronautics Group employees currently are using this time-saving service.

Obtain direct deposit forms from the information racks, or from the office supplies area.

Employee services/recreation

Mile High L5 Space Society—The group will not meet in July because of the holiday weekend. For the August meeting, Mark Schloesslin will give a presentation on the Apollo 11 lunar landing in observance of its 20th anniversary. For further information, contact Mark Schloesslin, Ext. 1-9057.

Lose Weight at Work—Join the Weight Watchers at Work Program beginning Thursday, July 13 at Waterton. The eight-week session meets from 11:45 a.m. to 12:45 p.m. in the Technical Support Building (TSB), Room 402. The \$15 registration fee has been waived. The \$64 class fee must be paid by Thursday, July 6. A two-check payment plan is available. Details are on the registration flyers located in the information racks at Waterton.

Hunting and Fishing Club—The group will meet at 5 p.m., Monday, July 10, in the clubhouse at the recreation area. For more information, contact Mel Smith, Ext. 1-8655.

Radio Club—The Waterton Amateur Radio Society will meet at 5 p.m., Tuesday, July 11, in the hamshack at the recreation area. For further information, call Jeff Owings, Ext. 7-3629 or 7-6898.

Red Rock Bowmen—Archery club members will meet at 4:45 p.m., Tuesday, July 11, in the clubhouse at the recreation area. For

further information, call Dave Unruh, Ext. 7-0477.

Saddle Club—Ridgeriders Club members meet at 7 p.m., Tuesday, July 11, at picnic pavilions in the recreation area. For more information, contact Mary Smith, Ext. 1-8154, or Joe Carroll, Ext. 1-7800.

Hunter Education Classes—Class dates are set for July 18, 19, 20 and 24 at the VFW hall, 3860 S. Jason St., in Englewood, from 7-9:30 p.m. The range date is 8 a.m. to 1 p.m. July 22 at the club's shooting range. Students must attend all class sessions. Registration will be taken during the first class. At least 10 students are required to continue meetings. The cost is \$7. Employees, family members, and friends are welcome to attend.

Wellness Center—The Deer Creek Wellness Center is adding services and equipment to meet employees' needs. Call to make an appointment for free weight loss or fitness consultations, free body composition analysis testing, and cholesterol screens (\$2). Free blood pressure checks are done on a drop-in basis. HealthMark exercise physiologists are available 11 a.m. to 5:30 p.m. weekdays. Call 7-7575 or 7-7576 to schedule appointments.

Lakeside Amusement Park—Discount coupons for unlimited ride tickets at Lakeside

are available in the recreation racks and from the recreation office at Deer Creek or Waterton. Coupons are valid Sunday through Friday. With the coupon, the unlimited ride ticket is \$6.50 on Sunday (regular price \$7.95) and \$5.50 Monday-Friday (regular price \$6.95).

Elitch's Amusement Park—Discount coupons for unlimited ride tickets at Elitch's are available at the recreation offices at Deer Creek and Waterton, and from recreation representatives at Littleton Systems Center, Viewpoint I, South Park III, the Space Support Building and Greenwood Commons. The coupons are valid seven days a week through Aug. 27. With the coupon, the unlimited ride ticket is \$8.75 (regular price \$10.95).

MARTIN MARIETTA NEWS
Published by Public Relations
MARTIN MARIETTA
R. Christopher Talley Editor

Call Ext. 7-5364 with information for articles.

Prepared and produced by the publications department.

ASTRONAUTICS GROUP
P.O. BOX 179—Denver, CO

June 30, 1989