TYCO ACQUIRES TWO BRITISH VALVE COMPANIES

Two new additions to the Tyco family of companies are British valve manufacturers, Hindle Cockburns Limited and Charles Winn (Valves) Limited, now operating within the Flow Control Division of Grinnell Europe.

Although Hindle and Winn were established in 1880 and 1860 respectively, their manufacturing facilities in Leeds and Birmingham (UK) are among the most modern in Europe. Combined, the two companies employ 300 people.

Hindle manufactures an extensive range of ball valve products that are marketed to a wide range of industries while Winn specializes in supplying high performance butterfly valves to the offshore oil and gas, petrochemical, marine, and water industries.

"The two product ranges will complement the worldwide valve business of the Grinnell distribution network," said Philippe Meyer, General Manager, Flow Control Division, Europe.

Associates in the US are already being trained in these new products and supplies of stock are being produced to meet the anticipated demand.

"With their advanced product designs and state-of-the-art facilities, these two manufacturers are a natural addition and complement to our family of companies," said Meyer.

GFPS Signs Agreements with Hotel Franchisors

As the result of two new agreements, Grinnell Fire Protection Systems Company (GFPS) will be an approved vendor for more than 5,200 major hotels and motels including Holiday Inns, Howard Johnsons, Days Inns, and Ramada Inns.

According to Steve Vieira, Grinnell Corporation's General Manager of National/International Accounts, GFPS now will be recognized as a provider of new and retrofit sprinkler systems, inspection and service, and alarm and detection work to these franchises. The agreements were recently signed with Landmark, a division of Hospitality Franchise Systems, and Holiday Inn Worldwide.

The agreement is especially important to GFPS in light of the recent passage by Congress of the Hotel and Motel Fire Safety Act, a federal act that requires U.S. government employees who are traveling to stay only in hotels or

Continued on page 6

Beginning with this issue of The Pipeline, you'll notice that the word "employee" has been changed to "associate." It's only fitting that in an edition that focuses on the people of Tyco, we introduce a new term that the dictionary defines as "closely connected with another as a partner or colleague." That's how we view your role within the Tyco family of companies: a partnership that is vital to all of our success.
Associates Are the Key To Our Future

by L. Dennis Kozlowski

Staying competitive in today’s global marketplace requires companies to constantly reevaluate themselves and make changes if necessary. How quickly these changes can be made often depends on how committed a company is to the education and training of its work force.

At Tyco, education and training is a top priority. We’re proud that our people have the valuable skills that keep us ahead of the competition. However, by continuously improving your abilities, we increase your value to your company and to our customers.

We are committed at Tyco to making certain that you have all the tools necessary to reach your full potential on the job. Our training is available at your local plant or office; at the Education Center in Exeter, New Hampshire; or in your local community education centers.

In 1991, we improved our education programs by adding an independent Education Counselor, Bob Stuart, who helps associates with education opportunities outside the company. You can find out about getting your G.E.D. (General Educational Development diploma), obtain information about the college or technical school that’s right for your child, or just discuss your educational concerns.

Bob also helped to develop the Education Committee at our Allied Tube & Conduit facility in Harvey, Illinois (USA). This is one of the best examples I’ve seen of a company’s commitment to staying competitive through training and education. I recently visited there and met with the committee, a very dedicated and motivated group of people. They have taken the initiative to source, plan, and present to me the educational opportunities within the plant where classes on everything from basic literacy to advanced mathematics are provided. Committee members are Sillimon Davis, Evelyn Howard, Brian Kahn, Steve Kramer, Tyrone Rogers, Victoria Schooler, Fernando Ramos, and Ismael Zambrano. The group is well on their way to helping everyone at their location have the opportunity to improve their skills through education. We encourage these grassroots initiatives to be developed at other locations, and they have my full support.

Putting the best people in the right positions is a continuing investment for us. When there’s a job opening, our first priority is to promote associates from within the company. Whether from inside or outside Tyco, we look not only for talented individuals with the right job skills, but we look also for bright, enthusiastic associates with positive attitudes and the willingness to strive to keep our company a winner.

We also empower our associates to make good decisions and encourage those decisions to be made as close to the action as possible. A good example is the self-directed teams at Mueller in Decatur, Illinois. They have formed groups dedicated to improving the work environment and, already, they have cut production times and improved communications within the plant. There is still a lot of work to do, but the team concept enables everyone to keep a closer eye on quality, and all members are involved in decision-making. (See related article on page 8.) This team concept is being used by other plants throughout Tyco, such as Simplex Wire & Cable in Newington, New Hampshire (USA); Grinnell Corporation in Statesboro, Georgia (USA); and others.

Our investment in our associates is vital to Tyco. You make us what we are today and define who we will be in the future. Thank you for your dedication and hard work.
GRINNELL ENGINEER GETS PATENT
And No More Stale Bread!

Ralph Waldo Emerson once said, "If a man can build a better mouse trap, the world will make a beaten path to his door." George Jenkins, a Senior Manufacturing Engineer for 20 years at Grinnell Corporation in Statesboro, Georgia (USA), hopes that path leads to his door.

George hasn’t built a better mouse trap, but he has invented a better way to keep bread fresh. He even has a patent for it.

It all began one day in 1991. With three out of four kids going to college, George was already stressed. When he tried to make a sandwich and found that the bread was stale because someone hadn’t put the twist-tie back, he fumed that there had to be a better way. He put his mind to work and built a rough prototype that a year-and-a-half and $4,000 later became Patent #5,191,996. Now when George needs two slices of bread, he simply opens his dispenser, pushes a lever, and the bread pops up. The dispenser then closes airtight, eliminating any need for a twist-tie.

Although George is still working on getting his product mass-produced and into department stores, he hopes to have it on shelves by Christmas. Move over Rolo, Make way for the Jenkins Fresh Bread Machine!

SUCCESS STORIES IN SAFETY

Kudos to the following divisions for their outstanding safety records:

- Twitchell in Dothan, Alabama (USA) recently received the Award of Excellence in the Fleet Safety category from the Business Council of Alabama (BCA). In 1992, the company’s tractor trailer drivers had 600,000 miles on the road without an accident. During the past 10 years, Twitchell’s award-winning safety program has continued to be recognized within the State of Alabama. BCA is a statewide non-profit organization representing 2,300 businesses and industries.

- Ludlow Laminating and Coating in Homer, Louisiana (USA), achieved First Place status with over 409,420 work hours with no lost-time or reportable accidents. The company was ranked by the American Forest and Paper Association against 542 plants in the packaging industry.

- Mueller Co.’s Test Lab and Model Shop in Decatur, Illinois (USA) reports that associates there have worked 3,454 days without a lost-time accident.

Simplex Director Receives Human Resources Excellence Award

John Conley, recipient of this year’s Human Resources Excellence Award presented by Tyco.

John Conley thought he had “died and gone to heaven” when he joined Simplex Wire and Cable in Newington, New Hampshire (USA) as Director of Human Resources two-and-a-half years ago. He said that for a human resources professional, Simplex’s working environment and its open communication with associates is an ideal situation.

John’s enthusiasm and efforts were recognized by Tyco and, as a result, he was honored in May with the Human Resources Excellence Award presented by John Helfrich, Vice President of Personnel and Industrial Relations at Tyco. “His dedication to positive employee relations practices has helped Simplex management achieve overall results through its people,” John Helfrich said. “In addition, his personal interaction with all employee groups has gained him the respect and credibility that has set a new high standard in the work force.”

Surprised and pleased to receive the award, John Conley attributes his success to his...
**International or Interoffice: Dwight Holbrook Manages the Mail**

As Mail Administrator at Tyco and Grinnell Corporate Headquarters in Exeter, New Hampshire (USA), Dwight Holbrook keeps the flow of information traveling efficiently. Whether it’s an overnight package to Barcelona, Spain or an interoffice memo three doors down the hall, he’ll make sure it gets to the right desk.

Dwight processes and distributes every piece of correspondence that goes out or comes into Corporate Headquarters -- some 500 pieces or more per day. He then personally delivers that mail to over 130 associates in three buildings. And he makes the trip no less than four times a day.

To avoid any confusion, Dwight advises anyone sending mail to Exeter to “be very specific when addressing a piece of mail. The person’s name is very important since we have over 100 associates alone at headquarters.” Dwight also asks that if you receive intercompany mail that does not belong to you to forward it to the location indicated and not back to Exeter, New Hampshire.

Dwight hails from Melrose, Massachusetts, although he’s lived in New Hampshire for the past 30 years. In his spare time he enjoys going to the beach, sailing, skiing, and playing for Grinnell’s softball team.

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**STATE-OF-THE-ART MILL INSTALLED AT ALLIED TUBE & CONDUIT**

Associates at Allied Tube & Conduit have installed a state-of-the-art tube mill in the Harvey, Illinois (USA) plant that started producing mechanical rolled tube and pipe this summer.

Unlike the existing mills that produce galvanized tubing, this mill will run only commercial-quality mechanical tubing, making Allied more competitive in uncoated (or black) steel tubing and opening up new markets for the Mechanical Tube Division. The tubing will be targeted to the conveyor, scaffolding, farmstead (such as animal confinement), and overhead door industries.

The mill includes a tube cutting and handling system unlike any other currently in operation in the United States. This “on-line” system eliminates time that’s usually spent transferring the tubing to another cutting operation to get a quality end finish. The new cutting system will make Allied more responsive to customers’ needs with shorter lead times and, in some cases, “just-in-time” deliveries.

Another new technology that will greatly improve the quality of the finished product is the H-coil accumulator, which feeds the flat steel strip into the mill before it becomes tubing. This device will minimize scratching and improve the surface quality of the tube. New process controls and a new welder also have been added for better weld consistency. This automated handling and cutting process will not only save time, but will also result in less scratching and other surface damage due to packaging and handling.

The mill will be staffed by technicians, each of whom is capable of performing all mill functions. “The addition of the new mill is an excellent opportunity for Allied to move into new markets and continue its exceptional growth. The challenges of operating new equipment and selling new products are ones that Allied’s associates are eager to meet,” said Vijay Patel, Plant General Manager/Vice President, Manufacturing.

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**Jerome Carson works as a Tape Machine Operator at Mueller Co., in Decatur, Illinois. He and his brother, Tony -- also an associate at Mueller -- are two members of a family group called The Carsons, a popular band with a Motown sound in the central Illinois area.**
GRINNELL PRODUCTS FEATURED IN 
FIRE TECHNOLOGY COURSE

Fire fighters and inspectors enrolled in the Fire Technology college degree program at Cosumnes River College are learning fire technology with Grinnell-manufactured products and equipment, thanks to an arrangement by the Supply Sales office in Sacramento, California (USA).

Taught by Gary Bertsch, Fire Protection and Loss Control Specialist for the Sacramento Municipal Utilities District, the course features Grinnell fire-related products exclusively. Throughout his presentations, Gary refers to Grinnell Supply Sales as the source for all the literature and products being used in the class.

Due to the success of the course last year, the Sacramento Educational Cable Channel decided to broadcast it live each week, giving thousands of cable television subscribers exposure to Grinnell.

Gary Bertsch uses Grinnell products in his course demonstrations.

Gary Bertsch has more than 20 years of fire technology experience. "The opportunity for Grinnell to assist his effort was obvious and readily welcomed by the Sacramento Supply Sales office as a great public relations and educational opportunity," said Kate Carter, Sales Engineer for the Sacramento Supply Sales office.

Due to the success of the course last year, the Sacramento Educational Cable Channel decided to broadcast it live each week, giving thousands of cable television subscribers exposure to Grinnell.

Members of The Pipeline committee at Corporate Headquarters are from left to right: (seated) Nancy Ross, Carrie Griffiths (Editor), and Robin Carter; (standing) Janet Van Hirtum, Candy Baselice, Lou Chiesa, Rose Dougherty, and Barbara Jacques.

Welcome to The Pipeline! If this is your first issue -- or your fourteenth-- we'd like to thank you for reading Tyco's quarterly newsletter. Starting with this issue, you'll notice that the newsletter has a new look. The changes are a result of the feedback we received from the surveys we included in the last newsletter. Your responses were valuable to keep The Pipeline headed in the right direction. In addition, we have a new Editor, Carrie Griffiths, who has joined Tyco as Communications Specialist. If you have any additional suggestions or ideas for articles or photographs, call Carrie at (603)778-9200 x. 509 (FAX: (603) 778-2612). -- The Pipeline Committee
accident, not including overtime, weekends, or holidays. The last lost-time accident occurred in February of 1979.

"The safety records at these locations exemplify the dedication and determination of all employees to maintain a safe work environment, said John Helfrich, Vice President of Personnel and Industrial Relations. "Congratulations to all those employees involved.""

Lana Farmer, a NC/CNC (numerical control/computerized numerical control machine) Operator in the machine shop at Mueller Co., in Albertville, AL, was recognized as Mueller's Safety Queen for never being injured on the job during her 17 years of service. To her right is Plant Manager Lloyd Darnell.

Ludlow Technical Products associates in Chicopee, Massachusetts from left to right: Karen Houston, Jennifer Otero, Melissa Provast, and Barbara Hein.

Franchise Agreements continued from page 1

motel that have sprinkler and fire alarm systems. In order to get government business, hotels more than three stories high must comply with the Act.

Based in New Jersey, Hospitality Franchise Systems provides services to more than 3,500 Days Inns, Howard Johnsons, Ramada Inns, and other franchises and is the largest franchisor of hotels and motels in North America. Through the Landmark Services Division, GFPS will be advertised in their services directory.

In addition, the GFPS Retrofit and Inspection Service videos and accompanying brochures were recently sent to the owners and/or managers of all 3,500 of their locations.

Holiday Inn Worldwide in Atlanta also signed a similar agreement that will give Grinnell Fire Protection access to more than 1,700 Holiday Inns worldwide. A similar mailing of Grinnell’s promotional videos is underway.

"This is a significant breakthrough for Grinnell and its worldwide fire protection units as it gives us the opportunity not only to be recognized as an approved vendor, but we also gain personal contacts within the Holiday Inn Worldwide corporate structure in which to market our services," Steve Vieira said.

David Webb is a Service Technician at Wormald Fire Systems in Newcastle, Australia, a position he has held for the last two-and-a-half years. He says he enjoys his work because of the travel, independence, and variety. "My day can involve programming and repairing fire panels, drawing schematic plans for system changes, or conducting quarterly testing for a power station."

FIRESTORM EXTINGUISHED BY ANSUL

Imagine watching a sea of flames that covers a 2,200 square foot area and seeing it snuffed out in a mere 90 seconds.

That's what 600 fire fighting officials, security engineers, and military representatives saw during Ansul's demonstration of their foam hardware on a field in Brasschaat, Belgium last May. The event was held to show customers how well Ansul's foam products worked and to prove their efficiency in a real-life situation.

Spectators weren't disappointed. Despite cold and rainy weather, 750 gallons of fuel ignited a 65 feet high fire, which sent out a wall of heat.

Ansul's twin agent unit extinguished the blaze in a minute-and-a-half flat. Ansul also demonstrated their new nine-liter water and foam extinguisher (Ansul - Belgium), flow mix unit with SILV-EX foam (Ansul USA), and mobile foam trailer MS 130 (Ansul - Belgium and Total Ladenberg).
If you’ve ever had a stress test, ultrasound, or an electrocardiograph (ECG), then you’ve probably been in contact with Ludlow Technical Products. Located in Chicopee, Massachusetts (USA), this division of Ludlow Corporation manufactures specialty papers used in hospitals and offices around the world.

In addition to their line of products used for medical recording applications, Ludlow also manufactures office imaging products such as fax paper, color inkjet printer paper, and pressure-sensitive transfer tapes used for envelopes and labels.

Ludlow has remained an industry leader by keeping pace with changing technology and recognizing shifts in market demands. In the late 1950s, Ludlow Corporation acquired Ludlow Specialty Papers. Through the years, Ludlow went through changes and a diversification of their products. By the 1960s, Ludlow was printing and selling medical charts as well as manufacturing pressure-sensitive products and transfer tape products.

When fetal-monitoring and ECG technology improved in the late 1970s, Ludlow bought a new printing press and other related equipment, allowing the company to sell to original equipment manufacturers (OEMs) of medical chart paper recorders.

In 1986, Ludlow Technical Products moved into its brand new facility in Chicopee, Massachusetts. Since then, Ludlow has added to its list of products fax paper, specialty computer graphics papers, industrial chart papers, as well as resting tab and snap electrodes used in ECG monitoring. The Chicopee facility now measures 145,000 square feet, while a second plant with 35,000 square feet was opened in 1990 in Vancouver, Washington. The two plants combined have over 300 associates. In addition, new technology such as bar-coding systems used in the warehouses ensure timely delivery to customers such as Hewlett-Packard, Siemens Medical, Federal Express, and American Home Products.

As the company enters into the mid-90s, Ludlow remains the leader in product quality, product development, and market development in all facets of its businesses. Ludlow expects to have ISO-9002 certification by the end of this summer, which will recognize Ludlow as a world-class manufacturer. According to Jim Anderson, Vice President of Sales and Marketing, “Ludlow has tremendous growth opportunities still to come and an excellent outlook for the future.”

So the next time you’re at the hospital for a test, your results might just be printed on a Ludlow product.
John Conley continued from page 3

associates. "I think the employees here at Simplex are a very diversified work group. We don’t have a lot of employee dissatisfaction." That satisfaction may result from management’s encouragement of feedback, John noted. A cooperative environment is fostered by Simplex’s Suggestion Program and an employee policy review council that encourages associates to discuss work or plant rules. “Simplex has a lot to be proud of,” he said.

Not one to rest on his laurels, John is investigating how work teams would help Simplex. “Self-directed work teams are manufacturing’s future,” he said. “We feel that employee involvement and empowerment is the wave of the future, where supervisors become coaches and employees accomplish their work through a series of goals and objectives.”

John’s responsibilities include overseeing personnel, safety, and benefits for the 700 associates who work at Simplex. The company manufactures undersea fiber optic cables for military and communication applications.

As we reported in the last issue of The Pipeline, exciting changes are happening at Mueller Co. in Decatur, Illinois (USA) as a result of Vision 2000, the new modernization project being implemented in the plant. (See The Pipeline, Spring 1993)

But the real news is that associates who are participating in the new “cell” process in the Ball Valve Center at Mueller say they are happier and more productive as a result of the changes.

Associates accustomed to the assembly line are now working in small work teams. And they couldn’t be more pleased. As the first work center to begin cellularization, associates in the Ball Valve Center are using new machines that have replaced the old manual lathes and assembly equipment, but require a higher technical capability on the part of associates.

With an average length of service of 28 years, the Ball Valve Center group of associates includes Luis Gordillo, Ron Brunner, Jim Jackson, Willie McDade, Jim McDermith, Jerry West, Ron Clark, Larry Dietz, Mark Bredar, and Ruth Carriger. Each had to complete 120 hours of course work in order to be eligible to work on the new equipment.

Associates point to their ability to be involved in decision-making, as a change for the better. "I love the cell concept because everything is done in the work center from start to finish. It gives the associates a better idea of what it takes to get the product completed," said Supervisor Paul Nartker.
DIVISIONS RECEIVE ISO CERTIFICATION

Achievements Enable Companies to Compete In the International Marketplace

Congratulations to the following divisions for attaining ISO certification. These certifications assure purchasers around the world that our products meet a consistent standard for high quality.

ISO 9001

Simplex Wire and Cable Company
Newington, New Hampshire, USA

Grinnell Pipe Support Division
Cranston, Rhode Island, USA

Wormald BV
Woerden, Netherlands

Winn Valves
Birmingham, United Kingdom

Hindle Valves
Leeds, United Kingdom

Wormald Manufacturing
Stockport, United Kingdom

Wormald Ansul (U.K.) Ltd.
All branches

ISO 9002

Grinnell Flow Control
Statesboro, Georgia, USA

Grinnell Flow Control
Columbia, Pennsylvania, USA

Grinnell Flow Control
Lubbock, Texas, USA

Grinnell Flow Control, Cleveland-
Rowan, North Carolina, USA

Mueller Co.
Albertville, Alabama, USA

Helmut Geissler (subsidiary of Total Walther Feuerschutz GMBH),
Wertheim, Germany

Grinnell Sales and Distribution,
Enschede, Netherlands

Total Walther Feuerschutz GMBH
Koln (Cologne), Germany

To achieve ISO 9000 certification, all of the plants underwent a comprehensive audit by an internationally registered auditing agency. The agency determined whether the various operations within each plant complied with ISO 9000 quality objectives.

Simplex Wire and Cable began to prepare for the audit a year ago when their largest customer, AT&T, signed a $500 million contract with Simplex that contained a clause requiring the company to “make a best effort” to be ISO-certified by the end of 1993. “Not only did we make a best effort, but we also were certified six months before the deadline,” said Russ Miles, Manager of Quality Systems Technology at Simplex.

Simplex and Grinnell’s Pipe Support Division in Cranston, Rhode Island received an ISO 9001 certificate, which means that they meet the highest international quality assurance standards for design, development, production, installation, and service.

Continued on page 11

These Pictures Are...

Denise Boivin, Ludlow Technical Products, Chicopee, MA

Jim Cox, Ansul, Marinette, WI

Danny Davis, Grinnell, Henderson, TN

Pat Fleetwood, Mueller Co., Decatur, IL

Jacqui Hastings, Wormald, Sydney, Australia

Michele Hebert, Simplex Wire and Cable, Newington, NH

Deanne Herman, Ludlow Technical Products, Vancouver, WA
Gladys Legree Makes a Difference at Grinnell

We'd like you to meet Gladys Legree, an associate of the Grinnell Corporation in Statesboro, Georgia (USA). Gladys said that her job has helped her family not only by providing an income for everyday financial responsibilities, but also by enabling her son and daughter to go to college. "It's made a real difference in my family."

As a Grinnell associate for 18 years, Gladys also has made a real difference during her work in the Core Department, Machine Shop, Finishing Department, and now in the Cartoning Department. "I love my job and the people I work with," she said. She asserts that the company not only cares about her and her family, but also about the community. She points to the company’s sponsorship of a girls’ softball team that provided the only means for the team to compete in a tournament in Detroit.

Gladys and her husband, Johnny, live in Statesboro where they both enjoy gospel singing.

This motley crew is actually the Tyco/Grinnell softball team. The group plays three times a week in a local league at the Exeter (New Hampshire) Parks and Recreation field. From left to right: (front row) John Collins, Tony Ciccone, Mike Durkin, and Dennis Crowley; (back row) Tom Fish, Paul Goyette, Dwight Holbrook, Rob Costello, Byron Kalogerou, Jim Turbitt, Joe Santenello, Dean Nai, Kevin Teague, and Dave Friend. Missing: Jim Broadbent, John MacSweeney, and Mirza Shirazi.

Some of the People Who Serve as

Susan Lane, Allied Tube & Conduit, Harvey, IL

Don Lanier, Grinnell, Statesboro, GA

Lily Legenza, Supply Sales, Toronto, Canada

Scott MacArthur, Grinnell, Brussels

George Mathis, Mueller, Co., Chattanooga, TN

Sarah McArdle, Twitchell, Dothan, AL
Donald Alcorn, General Manager of Grinnell's Cleveland-Rowan, NC plant said, "To prepare for the audit at Cleveland-Rowan, we closely evaluated the quality program we had in place in relation to ISO 9002 requirements."

"Based on our conclusions, we then drafted a revised quality manual detailing the system modifications that needed to be implemented and launched an internal auditing procedure to ensure they were put into practice. Most importantly, we educated all plant employees about the significance of ISO 9002 certification to heighten their motivation in achieving that goal."

According to Richard Tardy, General Manager of Grinnell’s Statesboro, Georgia plant, his location’s leadership group prepared for the ISO 9002 assessment by examining the requirements of the standard in comparison to the quality procedures in place at the plant.

“Our evaluation indicated that, while Statesboro is a Ford Motor Company Q-1 supplier and a certified supplier to both Chrysler and Tecumseh, some of our quality programs needed to be modified to achieve ISO 9002 certification," Tardy said. "We focused on improving those and all plant procedures by developing a Quality Systems Manual for all employees to follow. Since certification, this manual has served to establish a disciplined process for achieving continuous improvement in the products and services we provide our customers."

ISO 9000 certification procedures were created in 1987 by the International Organization for Standardization (ISO), which represents companies in more than 90 nations. ISO provides a consistent, worldwide set of guidelines for quality management and assurance.

"Hats off to these divisions for sailing through a very challenging test," said Dennis Kozlowski. “All of the associates involved should be applauded for their efforts in preparing for these difficult ISO audits.”
HEALTH WATCH

Health Watch offers tips and suggestions to help you and your family improve your overall health and fitness.

Swimming in the Lap Lane

What's the all-American sport? It's swimming, not baseball! According to a study by the National Sporting Goods Association, swimming is America's number one participant sport. Some 6.3 million Americans engage in lap swimming as a form of exercise that's good for the heart and easy on the joints.

When performed correctly, swimming burns more than 660 calories per hour, the equivalent of running six miles per hour. Three hours of swimming per week can improve flexibility, increase strength, build cardiovascular endurance, and give the upper and lower body a complete workout. Because of water's buoyancy, swimming causes fewer injuries to joints and muscles than high-impact sports, such as jogging or aerobics.

But to reap fitness benefits, you must swim at maximum intensity for at least one-fourth of all laps performed. "Hardly anybody does that," according to Jean Rosenbaum, MD, director of the American Fitness Association in Durango, Colorado. "Our studies show that 95 percent of the people who swim, do not swim at an aerobic pace."

Few swim to the max, perhaps because swimming does not come naturally, as walking or jogging do. Efficient lap swimming means combining arm strokes and kicks with coordinated rhythmic breathing. It means inhaling through your nose and mouth when your face is out of the water, rotating your head, then exhaling by blowing bubbles out through your nose and mouth when your face is submerged.

Gilding effortlessly through the water is an intricate skill that takes coaching, patience, and time to acquire. Start out slowly in lap swimming, advises Stanford University's Richard Quick, head coach of the 1988 U.S. Olympic swim team. "Swim one lap, rest, and completely recover before starting the next lap. Spend 15 minutes at this activity and gradually build up each week, spending more time swimming with a little less rest between laps."

Grinnell Managers Make Regionalization A Success

Increasing federal regulations requirements in the human resources area have made the field more complex than ever. Regional Industrial Relations Managers serve as a professional resource and corporate liaison to US Grinnell Supply Sales branches and Grinnell Fire Protection Systems districts. They also serve as personnel managers at their own manufacturing facilities.

As a result, these managers have streamlined the personnel and industrial relations functions throughout Grinnell Corporation. Here are the people who have made regionalization a success.

Peggy Fleckenstein, Mueller Co., Albertville, AL
Paul Gregoire, Ansul Fire Protection, Marinette, WI
Mel Kent, Mueller Co., Decatur, IL
Mary Ellen Kerr, Grinnell, Cranston, RI
Steve Myers, Grinnell, Cleveland, NC
Bill Petitt, Grinnell, Lubbock, TX
Susan Lane, Allied Tube & Conduit, Harvey, IL
Don Lanier, Grinnell, Statesboro, GA
Dennis Matha, Allied Tube & Conduit, Harvey, IL
George Mathis, Mueller Co., Chattanooga, TN
Jim Phillips, Grinnell, Henderson, TN
Richard Waggoner, Allied Tube & Conduit, Philadelphia, PA