Scot Forge: Employee Owners Create a Culture Committed to Quality and Customer Service

They're partial to plaid, too.

Lea A. P. Tonkin

Teamwork — a sense of shared responsibility for success — percolates throughout Scot Forge...

One of the first things visitors notice when they stop by Scot Forge in Spring Grove, IL, not far south of the Wisconsin border, is the brightly-hued plaid jackets on the top executives' portraits hanging in the lobby. Their snappy red, yellow, and green Buchanan tartan would demand attention in most any crowd — except here. You don't need to look far for pride in "plaidness." It pops up on sales literature, signs, and cabinet fronts. Encouraged by a company clothing subsidy, many employees sport ties, vests, jackets, and other attire in various tartans. It's one of the ways these employee-owners build camaraderie and recognition for their brand of customer service. Then there are the reports about heat treat guys donning devil costumes in "Scot Forge University's" customer education program, but that's another part of the story.

Teamwork — a sense of shared responsibility for success — percolates throughout Scot Forge, the largest open die shop in North America.[1] That means hard work, the willingness to pitch in where help is needed and to build a non-traditional organizational culture, as well as some laughs and celebrations along the way. More than a few employee-owners have retired as millionaires; those rewards have been shared throughout the organization,

About Scot Forge

Starting in 1893 as a local hammer shop in Chicago, Scot Forge has expanded into one of the country's largest forging operations. Formerly known as Atlas Forgings, the company began using the name Scot Forge in 1977. Its ESOP originated in 1978, and the organization became entirely employee-owned in 1997. Scot Forge was named the 1999 National ESOP Association Company of the Year. The Spring Grove, IL-headquartered company has additional facilities in Clinton, WI and in Franklin Park, IL; Wayne, MI (half ownership); New Castle, PA (half ownership). Of 480 employees, more than 230 work at the Spring Grove site. The enterprise ships out about out 9000-10,000 forgings a month.

Scot Forge is the largest U.S. buyer of bottom poured ingots. Its forging and processing equipment and capabilities allow the firm to serve a variety of markets. The company offers open die forgings ranging from one lb. to 80,000 lbs. (forged center, rolled surface bars; round, flat, square, and hex bars; blanks; rings; hubs; torch cut and multiple process shapes, etc.), rolled rings (rectangular or profiled, up to 240-inch outside diameter and 49 inches face height) up to 60,00 lbs., and secondary services such as milling, turning, saw cutting, heat treating, chemical spectroanalysis, deep-hole drilling and boring, etc. A recent $14 million expansion at its Clinton, WI plant — a new round bar mill — makes Tartan Bars™ available with a rolled bar surface to 16 1/4 inch diameter. Equipment includes the world's fastest-acting hydraulic presses, one of the largest ring mills in North America, forge furnaces with individual capacity to one million lbs., mobile manipulators up to 100,000 lbs., etc. The ESOP company has achieved ISO 9002 certification at all facilities. Scot Forge has earned numerous awards for quality, service, and customer satisfaction.

not confined to senior management in the ESOP (Employee Stock Ownership Plan)[2] company. The $130+ million enterprise, already claiming 18 percent of the crowded forgings market,[3] plans to boost its share through aggressive customer service and employee involvement (EI). Sales per employee amount to $270,000. "It's a one-stop forge shop, going from one lb. to 80,000 lbs. in all metals — carbon, alloy, copper, stainless, aluminum, titanium, etc.," said Jim McKinley, Scot Forge president and CEO.

Cultural Change and Continuous Improvement

Although the employee ownership and EI culture is strong, things didn't always work this way, explained McKinley. When he pushed for a switch from a traditional time clock-based shop to an all-salaried work force in 1992, some employees such as supervisors worried that others might take advantage of the new arrangement and not do their part to support the change.

"The peer pressure to contribute is incredible, the exact opposite of a more traditional plant," McKinley said. "Employees are interested in improving their profit sharing. Our average number of days off in a year is two; 40 percent of the company has perfect attendance. We take responsibility for our position and our job — and we all have more than one job."

Another benefit from the all-salaried concept is that it helped supervisors hone their judgment in handling people issues. They have leeway (spelled out in simple terms in an employee handbook), for example, to use their discretion when an employee has car trouble versus an ailing family member who needs care at home.

"We All have a Stake in the Success of the Company"

Since Scot Forge switched to an all-salaried work force in 1992, everyone is paid for 40 hours whether they are the president or a machine operator, according to Sharon Haverstock, vice president of marketing. A bereavement policy offers time off as needed, with room for flexibility according to need. The company still has exempt and non-exempt workers, providing overtime pay opportunity for some employees.

Haverstock said many employees are relatives or friends recommended by veteran associates. People tend to recommend individuals who'll jump into EI and do their part to support Scot Forge strategies. "You can teach skills, not attitude," said the marketing executive.

"One of the ESOP's biggest advantages is that, since we all have a stake in the success of the company, we all look for ways to grow the business," she added. "We receive cash profit distributions three times a year and dividends."

ESOP Shares Rise Along with Wages

ESOP advantages accumulate for active employees only, said Karen York, an accountant and member of the Scot Forge ESOP Council for the past 11 years. York received the 1998 Outstanding Employee of the Year Award from the National Employee Stock Ownership Program (ESOP) Association and has served on the association board of governors. "As you work, you earn shares of company stock. Within a year of leaving the company, former employees' shares are bought by the company," York said. "The number of shares you earn goes up as your wages go up." So far, stock prices moved up each year. Employees choose whether to receive annual dividends as a check or to roll over the funds into an IRA or company stock.

Employee owners keep up to date about their company stock ownership prospects through informal and formal communications. Every month, the company hosts a catered lunch for each shift where managers discuss sales, projected gains and challenges, and other factors affecting stock distributions, York said. A representative of the ESOP Council also reports on any ESOP-related news.

The monthly plant lunches fuel increasing enthusiasm and involvement in Scot Forge's continuous

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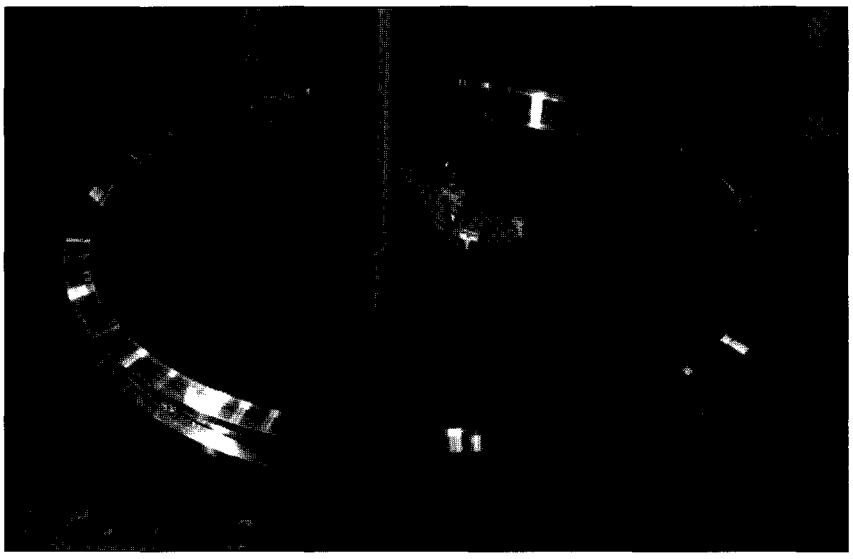

Figure 1. *High conductivity casting wheel forged from chrome zirconium copper.*

improvements (CI), according to Jim McKinley. All hands hear news from the monthly managers meeting, sharing the latest information about sales, any problems, or other happenings affecting the bottom line. "All of that information is completely open," McKinley said. "We want and need people to know how to make a difference in helping us to improve." Bulletin boards, a newsletter, weekly supervisors meetings, and informal communication round out the communications mix.

Strong Culture and a Fresh Perspective; "Nobody Has Their Hands Tied Here"

"The culture is very strong here. Being an employee-owned company, when we do hiring and training we talk about CI and changing processes," said Mary Wendt, continuous improvement coach/human resources. "We're looking for a fresh perspective — the ability to see the connection between what they do and success. We're looking at ways to do things better, faster, more safely in all areas — whatever it takes. For example, if someone drives a forklift through an overhead door and it costs $6000 to repair, that amount will not go into our profit sharing — it will affect our future paychecks. Everyone here wants to put in a good day's work and do whatever it takes to get the job done." She noted that the company saves money on shipping costs by using a receptionist's suggestion that employees on light duty could deliver packages close to its facilities.

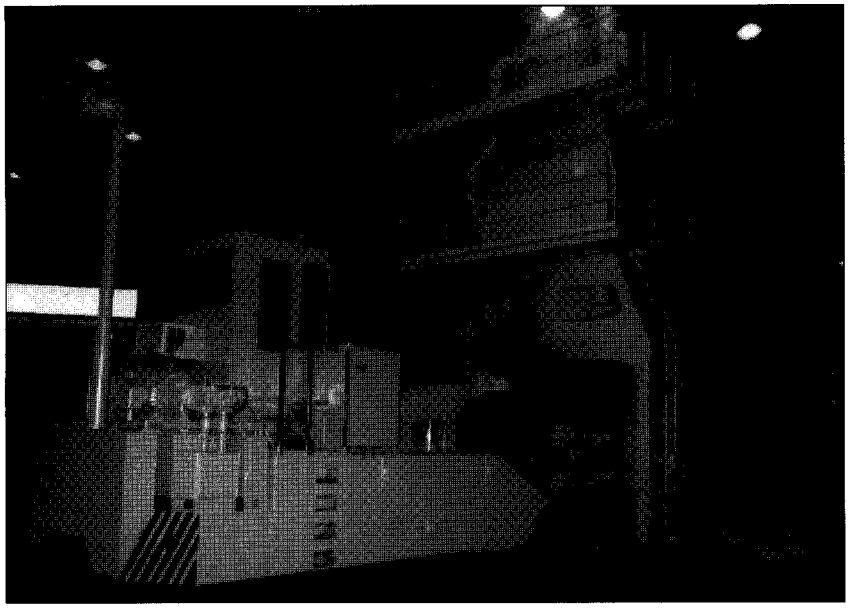

Figure 2. *A 3000-ton press, forging a 2300°F ingot to size.*

"We have EI, problem-solving teams, and other improvement activities," she continued. "CI encompasses every area — design, the shop, etc." Performance measures on equipment usage, setups, safety, etc. as part of cultural change initiated in the early '90s keep the spotlight on improvements.

"Nobody has their hands tied here," Wendt said. "So you don't hear, 'That's not my job.'We're beyond the point of plant floor teaming only, and we don't have to entice people to be in teams — they see that teaming works and they want to be a part of it."

Training Focus

Scot Forge invested in group dynamics and team skills training when work area and cross-functional teaming began several years ago. They encourage employees to participate in a variety of training programs, offering 100 percent tuition reimbursement for CNC training at a nearby community college; electrical, hydraulic, and computer classes; supervisory training; and other courses. Bachelors and masters degrees programs are reimbursed 100 percent. Employees receive a $250 bonus for the first 40 hours' training each year, whether it's offered at Scot Forge or elsewhere.

"We just started a behavioral-based safety program," Wendt said. "We have a hot, heavy equipment environment, so safety is very important. We train employee observers and then they spend 20 minutes twice a week observing others at work. They write up what they find on observation sheets, good and otherwise. We find that people usually have the tools and the means to do what they need to do safely, but personal habits and shortcuts affect the ways people work. For example, people may need to put on a face shield when they are grinding, wear other personal protective equipment, etc. We had an outside consultant come in to help us start the program, and now we have a steering committee for each plant; the observers are volunteers. Our observers talk with the operators about their findings to see if they can do something differently, but it's not a policing thing." Safety incidents decreased more than 75 percent compared to the previous year, with accompanying reductions in lost time. Wendt said employees have experimented with different glasses, helmets, gloves, etc., but much of the improvement is "just habits."

"We Laugh a Lot"

With all the emphasis on improving customer satisfaction and safety performance and the like, there's still

room for fun here. "We have a lot of social events here — tartan games, etc.," Wendt said. "And wearing plaid — it's an identity. Everybody teases us and we laugh about it."

Wendt said a customer education program assignment provided another opportunity for fun and creativity. Given the job of designing a program for customers, to teach them about Scot Forge processes and equipment and how forgings can meet their needs, Wendt pulled together a multi-functional team (HR, marketing, the receptionist, etc.) for the task. "We decided to take all the fun parts from college and combine them," she said. "We asked people from each department to design a skit with the idea that learning can be fun, and we created 'University of Scot Forge' to tell customers about our forging processes."

Approximately 25 customers were invited to the university (a letter from the "dean"), then provided with school pennants and given student IDs at a Sunday orientation party. They spent a half-day in "class," watched skits, had lunch, and toured the Spring Grove shop. The next day they traveled by school bus to the Scot Forge operation in Clinton, WI for another field trip (tour). "We decorated their rooms at the hotel like dorm rooms and gave them care packages from home with a letter from Mom, had a graduation ceremony with caps and gowns and a banquet, and offered a tour at our Franklin Park (IL) shop the next day if they wanted to. We had lots of laughs and jokes, and they learned what we can do — what metals we can work with and shapes we can do, and how to eliminate steps in processing."

Some of the skits were especially memorable. Take the Class from Hell delivered by heat treat employees garbed in red and black devil costumes, complete with horns and tails. They used dry ice to create a smoky effect, and an area manager sported a "flaming" tie. Forge guys created a "Forge Time" skit, a takeoff on the TV series "Tool Time." "They did a great job using Powerpoint and their own scripts and costumes," said Wendt. "We also showed the birth of QC, with a quality manager dressed up as 'General Flatten,' and a professor gave pop quizzes.

"We were excited about doing something new and unique, not just giving a tour or sales speech," Wendt said. "You get caught up in the loyalty, commitment, and fun of the company. We like to laugh a lot." University of Scot Forge proved so popular with customers and employees that more educational hijinks can't be far behind.

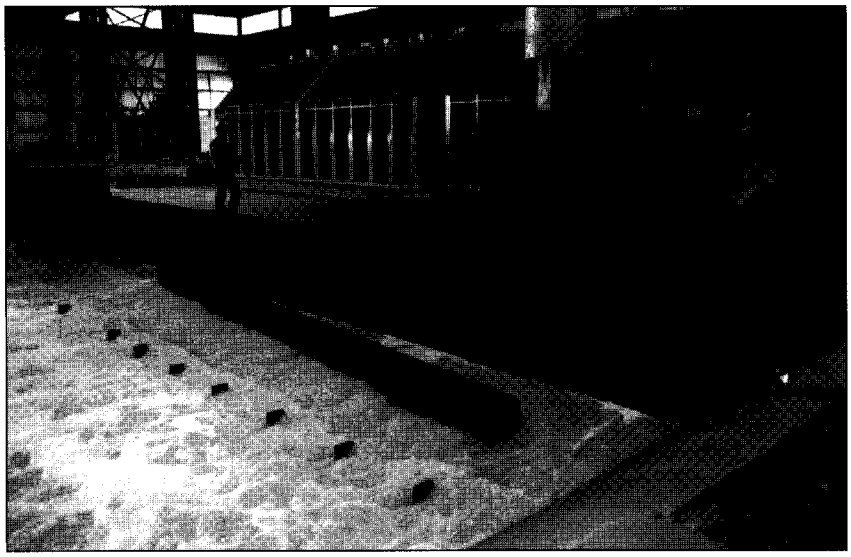

Figure 3. *Forged bar being lowered into the 50,000 gallon quench tank for heat treat at the Clinton, WI operation.*

"Let's Really Make a Difference"

Forging strong partnerships with customers starts with effective communications, said Jim McKinley. "We talk with customers about their specific needs and look for better ways to reduce their leadtimes and overall costs," he said. "Through our top metallurgist and others, we talk with them, we go into their plant, and we put the knowledge of our forging experts to work in an understanding of their process. It's our way of saying, 'If you want to cut prices, let's really make a difference.'"

Pooling expertise with customers on a long-term basis makes more sense than short-term price shaving, McKinley said. "A customer may have numbers stamped on parts that are later machined off, for example, or otherwise lose value by using the wrong process," he said.

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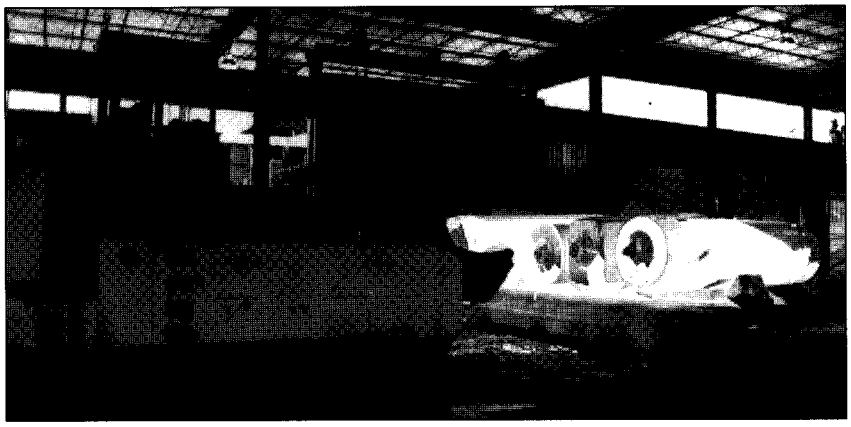

Figure 4. *A manipulator removing a 40,000 lb. hot ingot from a forge furnace.*

Scot Forge approached one large customer about finding an alternative to lengthy parts machining on outdated equipment at the customer site. "We wanted to be proactive about reducing costs. We went to a big meeting with them and they jumped on it like a train. We said, 'If you'll let us make these parts without competition for ten years, we'll put in a million-dollar machining center to make them.' We got the ten-year contract and pegged the prices to indexes that are simple to follow such as scrap so that the metal cost is ensured for the life of the contract. We guaranteed our labor content and the savings that would come as a result of making things almost twice as fast." For the first five years of the contract, the customer got a five percent reduction on their parts. For the last half of the agreement, they will pay ten percent less, because the machining center is paid for. "It's like a slingshot effect," McKinley said. "We work with our suppliers, too, an ongoing partnership to optimize the forging process."

Figure 5. *This large hollow forging will be used in a mining operation.*

Proactive Partnership

Innovative partnering leads to greater mutual benefit through Scot Forge's Proactive Partnership program, according to Thomas Schwingbeck, Jr., director of technical sales. Launched in 1998, it's designed to uncover long-term ways to cut costs and leadtimes — and attract more business from customers pleased with the approach, he said. "Instead of the traditional approach of just taking orders, we find ways to produce high-quality products less expensively. We work with customers in a three-step process — a goals assessment, then an operation evaluation, and the analysis and documentation step (see Figure 6). Later, we continue to consult with the customer, providing ongoing support."

Material selection, excess processing steps, the lack of parts standardization, metal integrity problems, inefficient manufacturing processes, and paperwork are among many potential non-value-added culprits targeted by these joint efforts. Sometimes customers carry too much inventory of non-critical parts and still run into delivery snags when they run low on other parts. One customer learned through a Proactive Partnership program analysis that it was bulking up on leadtime between order receipt and release to manufacturing because of delays in unnecessary paperwork hand-offs, Schwingbeck said. In another case, an OEM customer gave Scot Forge a look at intermediate and finished drawings on a critical part; using the same materials but a different melt practice, they lopped more than 30 percent off the cost of some buys. The idea is to cut waste wherever it shows up related to the forging process. So far, six customers formally participate in the Proactive Partnership program.

Good Basic Business Practices

"We're continuing to look for ways to improve our customer service in many ways through good basic business practices," said John Cain, plant manager at the Spring Grove facility. "Letting people who do the work have a say in solving problems, selecting equipment, etc. is part of our cultural change that's been happening for some time. We're building accountability for getting things done."

Training to support this involvement is company- and customer-driven. Cain added, "Sometimes customers want us to do additional processes on site, and we are continually working on improvements in safety, quality,

and other areas." Employees in all three plants participated in training sessions for a new finite capacity scheduling system launched in 1998. That system, along with other process changes, helped Scot Forge boost on-time delivery performance 20 percent and reduce lead-times 15-45 percent.

People power remains a key factor in Scot Forge's success. "We've invested over $100 million in equipment since 1985, but we have a continuing need for people with adequate skills," Cain said.

Cultural Change: A Long Time Coming, But Momentum's Increasing

New ways of working with customers, suppliers, and employees in every area of the business reflect a huge cultural change at Scot Forge over the past several years, according to President and CEO Jim McKinley. Customer service and competitive gains far outweigh the costs of change — training, heavy capital investments, etc., he said. "Our old way was to make as much as we could. Then we had product sitting in queue, and we were always working overtime," McKinley said. "By tailoring our operations more closely to customer demands, we learned to schedule machines more effectively.

"It was a long time coming, but now we can take customer orders and give actual times when the work will be completed, while we are taking orders," McKinley continued. "Scheduling software helps us pick out the right jobs so we can move to the next stage of production. You may learn, for example, that one order is stock bars for a service center, where another order is very critical. We involve everyone in making improvements in our processes, and we are unlike any other forge shops. We're building flexibility to meet our customers' needs. Our attitude towards change is, 'What's next?'"

Proactive Partnership Steps

Scot Forge and its customers look for cost and leadtime reductions, while maintaining high quality performance, through a three-step process:

1. *Goals assessment.* Scot Forge technical team members sit down with the customer to assess their goals and improvements they would like to make. The team visits the customer's facility, talks about areas of concern (excessive machining and weld repair, etc.), discusses priorities for improvement, and jointly establishes a plan of action.
2. *Operation evaluation.* The technical team spends a day in the customer's plant, meets with customer counterparts, and observes the operation. They identify projects that can benefit from "partnership" scrutiny and then conduct a detailed review of the customer's products and processes based on samples, prints, and observations.
3. *Analysis and documentation.* The Scot Forge team provides a written analysis documenting current practices, also indicating possible forging solutions for increasing operational efficiency and decreasing costs.

Figure 6.

1. Forging is a process of forming and shaping metals through the use of hammering or pressing. Starting stock, often a cast ingot, or a "cogged" billet forged from a cast billet, is heated and then kneaded between dies to the specified shape and size. This hot forging process breaks up the metal's coarse grain structure and replaces it with a fine wrought structure. Secondary processing such as heat treating can further refine the microstructure and enhance its strength. In open die forging, heated metal parts are shaped between a top die attached to a ram and a bottom die on a hammer anvil or press bed and never completely confined in the dies; metal parts are gradually shaped to the desired configuration through hammering or pressing of the work piece (at temperatures above the recrystallization temperature — for example, ranging from 1900-2400 degrees Fahrenheit for steel).
2. ESOP companies distribute their own stock to employees, holding the stock in trust until employees retire.
3. There are approximately 45 shops in Scot Forge's markets.

Lea A.P. Tonkin is the editor of Target.