



TEXTURES

2018

AMERICAN
TEXTILES

WE MAKE AMAZING™

Photograph courtesy of American & Efind

Dear Readers,

Today, American textiles are more than basic fibers, yarns and fabrics. From highly engineered fabrics that keep our warfighters safe to high-strength carbon fibers that fortify aircraft to advanced medical products that help patients heal, textiles are quietly sustaining and improving everyday life. As companies who innovate and manufacture these amazing products, members of the National Council of Textile Organizations (NCTO) are proud to be part of an industry that gives people better, healthier and more fulfilling lives.

Our third annual edition of **TEXTURES** will take you on a journey that illustrates American textiles' contemporary renaissance. You'll get first-hand perspectives and insights from thought leaders and change makers on the groundbreaking developments, as well as real-life stories that personify the textile industry's impact on our nation and the globe.

Through the various stories included in this publication, you'll gain insight into the modern U.S. textile sector and the bright, resilient, talented people who make our industry the global leader in product innovation and quality. People who are creatively reshaping the norm. People who aren't afraid to take risks. People whose inventive strategies and smart, efficient processes are making the world a greener, smarter, healthier and safer place.

NCTO is pleased to share this inside look into a truly amazing industry. We hope this edition of **TEXTURES** gives you a deeper appreciation for a great American industry that makes an incredibly important and positive impact on each of our daily lives.

Sincerely,



A handwritten signature in black ink that reads "Bill McCrary".

Bill McCrary
Chairman, NCTO
Chairman & CEO, William Barnet & Son



A handwritten signature in black ink that reads "Augustine D. Tantillo".

Augustine D. Tantillo
President & CEO, NCTO

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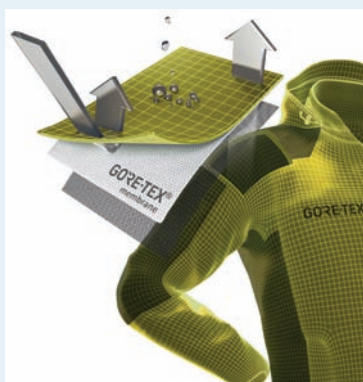
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U.S.-made premium wool suiting fabrics with an American-style aesthetic are used by higher-end men's suiting makers, as well as sportswear and fashion brands.

Cover image courtesy of American Woolen Company

COMMUNICATE

Send comments and story ideas to stories@NCTO.org.

CONTACT US

For more information about NCTO and its mission, contact us at (202) 822-8028 or visit NCTO.org.

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NCTO COUNCIL ROUNDTABLE: CHALLENGES & OPPORTUNITIES FOR THE U.S. TEXTILE INDUSTRY

The National Council of Textile Organizations (NCTO) represents the breadth and depth of the U.S. textile industry through a council-based structure that provides a voice to the diverse interests of the industry.

There are four separate councils that comprise the NCTO leadership structure. Each council represents a major component of the U.S. textile supply chain and elects its own officers who make up NCTO's Board of Directors.

COUNCIL LEADERSHIP

The Fiber Council represents domestic textile fiber producers and is currently chaired by Don Bockoven, president, Wellford, South Carolina-based Leigh Fibers Inc. Every year, Leigh Fibers purchases approximately 300 million pounds

of textile waste from a wide range of suppliers. Once sorted, the fiber is used to create both branded and customer-specific fiber blends.

The Yarn Council represents domestic yarn manufacturers with Frontier Spinning Mills Inc.'s CEO Robin Perkins currently serving as chairman.

Founded in 1996 and based in Sanford, North Carolina, Frontier is one of the largest producers of 100-percent cotton and cotton-blend yarns in the world. The company operates state-of-the-art manufacturing facilities in multiple states and employs more than 1,100 people.

The Fabric & Home Furnishings Council represents domestic manufacturers of fabric, including woven, knitted, nonwoven, tufted, braided or other, and home furnishings. The council is chaired by



The United States will continue to be advantaged in the cost of natural gas, a primary feedstock for many synthetic fibers.

Don Bockoven
NCTO Fiber Council Chairman
President, Leigh Fibers Inc.

Greenwood Mills Inc.'s President Jay Self. Headquartered in its namesake city of Greenwood, South Carolina, the company manufactures textiles from fiber through finished fabrics, and its subsidiary SingleSource Apparel (SSA) is one of the largest non-branded apparel manufacturers in the Americas.

The fourth council is the Industry Support Council, which includes textile distributors; converters, dyers, printers and finishers of textiles; and suppliers of products and services to such fiber and textile entities. Greenville, South Carolina-based Picanol of America Inc.'s President Cyril Guerin currently serves as chairman. Picanol develops, produces and markets high-tech air-jet and rapier weaving machines. Today, approximately 2,600 weaving mills around the world use Picanol machinery, totaling more than 175,000 weaving machines.

INDUSTRY CHALLENGES, ADVANTAGES

An upswing in investment by domestic and foreign firms in U.S. textile manufacturing has led many to posit that the industry is making a comeback after surviving exceedingly difficult times.

"I believe we will continue to see this investment trend in the near future as a result of continuing pressure on reducing supply chain cycle times and global competitiveness," said Fiber Council Chairman Bockoven. The United States will continue to be advantaged in the cost of natural gas, a primary feedstock for many synthetic fibers."

Fabric & Home Furnishings Chair Self stated: "I think the majority of the investments have been predominately in open-end spinning. The low labor content and competitive electrical rates have made this a good investment. We are starting to see some investment in weaving with some of the new speeds out there. This is primarily replacement and not new capacity.

Self continued, "Beyond fundamental market factors, future investment is also dependent on sound government policy. Competitive tax and regulatory structures are vital. In addition, we need to have logical trade policies, such as the yarn forward origin rules that are included in most of our international trade agreements. Policies like these are imperative to meet challenges from low-cost suppliers like Vietnam, who continue to grow market share with double-digit increases without any beneficial duty treatment thanks to generous state-sponsored subsidies."

From a spinning perspective, "We will continue to invest responsibly in our plants to stay on top of technology," Yarn Chair Perkins said. "Operating in a free marketplace is a privilege, but we continue to face labor challenges. One of the benefits the United States has had over foreign manufacturing is the lower cost of dependable and uninterrupted power."

Speaking on behalf of his sector, Industry Support Chair Guerin said, "Those businesses who want to be prepared for the future now need to invest into new equipment."

Guerin added that one of the strengths in the United States is a closeness to the market. "Proximity," Guerin said. "We are a Belgium-based company with more than 50 years of presence in the United States. We established our company in Greenville in 1970 to serve our customers. What was true then is still valid today, even more so with the rapid pace at which the end users change their needs."

TECHNOLOGY, LABOR CHALLENGES

As technology, including automation, continues to become more advanced, U.S. textile companies are faced with opportunities as well as challenges.

"Innovation, technology and automation are critical to driving global competitive-

We will continue to invest responsibly in our plants to stay on top of technology.

Robin Perkins
NCTO Yarn Council Chairman
CEO, Frontier Spinning Mills Inc.



ness,” Fiber Chair Bockoven said. “In addition, automation has been used to improve operator safety in areas like ergonomics where repetitive motion typically done by humans is now being done through automation.”

Finding skilled employees for the industry is a challenge according to Bockoven. “At the end of 2017, there were almost 6 million jobs in the United States unfilled. The textile industry is no different than the rest of the country in the challenges with attracting and retaining employees. We have been working to develop a strong succession plan and have promoted several millennials into critical positions because of what they’ve accomplished and the potential they’ve shown.”

“The most effective innovations increase flexibility and speed to market,” Fabric Chair Self said. “Also they allow us to take advantage of new fibers and their properties. We have become more proactive in

Those businesses who want to be prepared for the future now need to invest into new equipment.

Cyril Guerin

NCTO Industry Support
Council Chairman
President, Picanol of America Inc.



training our workforce and have started apprenticeship programs with the school districts to promote workforce training.”

“Innovation offers less dependency on labor resulting in the need for fewer employees; however, a good company will have to pay those employees more,” Yarn Chair Perkins said. “Managing a 24/7 operation in today’s workforce environment is very challenging. Finding quality candidates who want to work shift work and weekends has become extremely difficult. At Frontier, we try to focus on automating when possible and providing a good, clean, safe workplace for our employees with competitive benefits and wages.”

“We offer innovation to one of the oldest industries in the world,” Industry Support Chair Guerin said. “Weaving is a process that has not changed much in 5,000 years! But with highly-advanced looms, we take weaving to an all new level of performance. And there is definitely more to come. Our machines are already Industry 4.0 enabled — as in are capable of capturing and processing huge amounts of sensoric data — and these data will be used ever more to further optimize the weaving process.”

DRIVERS AFFECTING CHANGE IN THE U.S. TEXTILE INDUSTRY

“Our customers continue to ask us for quicker turnarounds from point of sale to delivery,” Yarn Chair Perkins said. “We have to specialize in quick response for customer satisfaction. E-commerce is having a material impact on shopping today. The retail industry needs to adjust to the millennial purchasing habits as baby boomers age and purchase less.

“The CAFTA region needs to broaden its offerings to become more of a one-stop shop for retail buyers. U.S. textile suppliers are logistically positioned to better serve the U.S. retail sector than anyone else. We need to expand our product offerings to match products that are currently supplied from Asia,” Perkins added.



Beyond fundamental market factors, future investment is also dependent on sound government policy. Competitive tax and regulatory structures are vital.

Jay Self

NCTO Fabric & Home Furnishings
Council Chairman
President, Greenwood Mills Inc.

“As the world grows smaller every day, it is critical to bring a significant level of differentiation to the table,” Industry Support Chair Guerin said as he discussed changes and drivers in the industry. “Picanol’s U.S. customers are very well equipped to develop new products, new solutions and new services. The performance, versatility and frugality of modern looms helps them to be more competitive, not only at home, but also on the world market.”

According to Fiber Chair Bockoven: “Continued efforts in automation, focus on circular economy and continued efforts in mass customization will all have some impact that will shape the industry of the future. I would foresee continued investments in automation particularly as the workforce challenges continue. The jury is still out as to how the circular economy

thinking will play out in the industry where there have been considerable efforts in recycling for the past 20 or so years. Things like UNIFI's REPREEVE*, regenerated polyester, for example — there has been considerable effort with yet a lot more to come."

THE COUNCIL SYSTEM BENEFITS NCTO'S MESSAGE


"NCTO membership brings industry connectivity, camaraderie and leverage," Bockoven said. "The relationship with industry is critical as evidenced by NCTO providing a unified voice in regulatory affairs and trade negotiations. While the Trans-Pacific Partnership is no longer on the table, the

industry partnership during the negotiations was second to none. The relationship with the community is critical in demonstrating to employees the commitment to the area where we all live and work.

"Not only does NCTO give us a united front to present to our legislators, but they research the problems facing our industry and provide us with solutions and/or recommendations that are beneficial to us individually and to the industry as a whole," added Yarn Chair Perkins. Regarding the relationship between industry, company and community, Perkins said: "It's the reason we exist. We need local government to support us as corporate citizens so we can maintain a

successful workforce that in turn supports our community and local businesses. Supporting our local schools and community colleges is key to growing a strong community that produces hard working citizens and leaders."

THE COUNCIL SYSTEM WORKS TO SUPPORT NCTO MEMBERS

It is clear in speaking with the NCTO council chairmen, although their views vary slightly due to their industry sector challenges, in the end the message comes down to one achievement by NCTO — a shared voice where the U.S. textile industry can speak in unison and affect positive change. 



NCTO members met with U.S. Senator Richard Burr (R-N.C.) in Washington in 2017.



FIBER COUNCIL membership represents domestic textile fiber producers



YARN COUNCIL membership represents domestic yarn manufacturers



FABRIC & HOME FURNISHINGS membership represents domestic manufacturers of fabric and home furnishings



INDUSTRY SUPPORT membership includes textile distributors; converters, dyers, printers and finishers of textiles; and suppliers of products and services to such fiber and textile entities

NATIONAL COUNCIL OF TEXTILE ORGANIZATIONS (NCTO)

Mobilizing Support for the U.S. Textile Industry in the 21st Century

The National Council of Textile Organizations (NCTO) is a Washington, D.C.-based trade association representing the U.S. textile industry. From fibers to finished products and machinery manufacturers to power suppliers, NCTO is America's textile voice. Four separate councils comprise NCTO's leadership structure. Each represents a major component of the U.S. supply chain and elects its own officers who make up NCTO's Board of Directors.



GOING VERTICAL

Wool Textile Makers Find Success With Premium-Branded Apparel Made In USA

American Woolen Company recently introduced its first apparel line, which features 13 pieces of luxury menswear made in the USA from start to finish.

Apparel manufacturers are a scarce breed in today's U.S. textile landscape. Low-cost imports and high labor costs forced much of the domestic apparel manufacturing sector offshore in recent decades.

But in certain product areas, this trend can be reversed, as Kentwool Inc. and American Woolen Company have found by using a vertically-integrated business model. By controlling the production process from yarn spinning to finished product, Kentwool and American Woolen are finding success with premium apparel brands focused on wool, a natural fiber known for its thermal comfort, breathability and ability to be worn across seasons.

Kentwool and American Woolen both have histories going back more than a century. While their products and end markets may be very different, the commitment to quality, craftsmanship and

heritage are equally important to both forward-looking, modern manufacturers.

Kentwool is a family-owned and -operated company that more recently applied its expertise in wool yarn spinning to launch an apparel business known as Kentwool Performance Apparel. Established in 1843 in Pennsylvania by Thomas Kent and now headquartered in Greenville, South Carolina, Kentwool owns a 135,000-square-foot state-of-the-art wool-based yarn spinning facility in nearby Pickens, which houses approximately 20,000 spindles and produces yarn from 100-percent wool or wool/man-made blends. In addition to its generations-old, high-quality wool yarn operation, the company boasts a thriving consumer-facing, ultra-premium performance sock business.

American Woolen Company recently gained new life thanks to the dedication and vision of Jacob Harrison Long. Established in 1899, the company grew to

become the world's largest wool manufacturer in the early 20th century. But years after its heyday, the company had diminished and become primarily an importer and wholesaler of woolen blankets. Long purchased the brand in 2013, and later had the opportunity to invest in a manufacturing location in the form of historic Stafford Springs, Connecticut-based Warren Mill — a cashmere and camel hair woolen fabrics plant with more than 150 years of history. Under the leadership of CEO Long and President and COO Jennifer Knight, American Woolen Company is reestablishing itself as a premiere, luxury brand name, and is finding success once again as a fine worsted and woolen textile manufacturer.

KENTWOOL'S STORY

All Kentwool products are made in the United States, and the company prides itself on producing some of the highest-quality wool yarns in the world.

"We just achieved our 10th consecutive year of being Usterized," said Keith Horn, president, Kentwool. "Usterized is a certification that says what you get from us is going to be the same every time with continuous improvement in product. We are very pleased to be a part of that program, and it says a lot about the quality of Kentwool's employees and the Kentwool brand," Horn said.

Kentwool is one of only a select few companies worldwide to receive the Usterized Quality Certification from Switzerland-based Uster Technologies AG. The company also is very proud to be the only company in the United States to hold the certification, which states that the yarns Kentwool produces are of the highest quality.

BRANCHING OUT THROUGH BRANDING

In 2008, Mark Kent — the fifth-generation family member to lead Kentwool — participated in a charity golf pro-am. After three days of rainy, less-than-ideal golfing weather wearing under-performing socks, Kent found himself with badly blistered



Kentwool Inc. prides itself on producing some of the finest wool yarns in the world in Upstate South Carolina.

feet. The story goes that after complaining to his caddy about the lack of a performance golf sock, the caddy suggested that Mark, as someone who ran a wool yarn manufacturing company, should go make a great golf sock.

"That comment stuck with Mark, and he set out on an endeavor of about a year and a half of research and design to create a product that he felt met his requirements to go to market," said Lauren Hubbard, director, sales and marketing, Kentwool Performance Apparel. "It was an ultra-premium, super-performance sock, of course made using wool." The "World's Best Golf Sock" — which fittingly carries a Blister-Free Guarantee — has developed a following and is worn by more than 70 tour professionals and caddies. The socks feature a proprietary blend of super fine Merino wool and other premium and high-tech fibers to offer wicking ability, comfort, as well as reduced friction, abrasion and muscle fatigue.

"We positioned our launch into the market as a golf sock, and that remains a large and important piece of our business," Hubbard said. "But over the past decade, we have organically grown into being a versatile performance sock for our customer."

Customers now comprise people seeking comfort for luxury — such as the golfer and traveler — and those seeking comfort for necessity — such as manufacturing and food service industry employees who may be on their feet for long shifts each day.

According to Hubbard, much of the sock division's growth has been through word of mouth. She said the company has developed a very loyal customer base because "once people know the product, they love it!" The fact that the socks are made in the United States has helped build the reputation of the brand nationally, but especially in the Southeast. "Here in Upstate South Carolina, people are so proud to wear a product that originates

where they live. It makes the textile industry very tangible for customers that might otherwise not realize how close it is to them, or how much they are impacted by it, even though we all encounter textile products every day.”

“Some of our most loyal customers are actually our employees,” Horn added. “That’s how much the yarn manufacturing team believes in what they do and the finished product. That in itself is a testament to what kind of product is put out there.”

HERITAGE COMBINED WITH MODERN IDEAS

Hubbard said the company’s long, rich history provides a lot of credibility with its customers. “In the world of socks, our price point is on the higher end, and when we’re asking people to consider spending \$20 to \$40 on a pair of socks, Kentwool’s history gives us a great deal of validation,” she said. “I think it gives us instant trust with the customer that we do know wool and that we know it well. We are very

grateful for that as Kentwool’s youngest division because that trust is so important and valuable, but often takes significant time to build.

“It is really critical to us that we embrace our history and heritage, and that shapes our identity as a company,” Hubbard said. “Our heritage is built in to everything that we do every day, but we also need to give our customer the type of product they are looking for now. We constantly consider the marriage of heritage and innovation.”

“We have a strong tradition in regard to yarn, and the whole mindset of the sock business is really how do you marry the quality of what you have done for years in yarn manufacturing, and apply that to a new product based on the quality you’ve produced for years,” Horn said. “Mark built an incredible team here. We know how to make yarn. We know how to make really good yarn. Now, how do you apply that to a product and carry those characteristics into our own brand for the benefit of the customer?”

LEGACY

Mark Kent passed away unexpectedly in 2017. His significant contributions to Kentwool, the textile industry and his community will be greatly missed.

But Mark’s strong leadership of Kentwool and the growth and changes that occurred during his tenure set the company on a course for prosperity and longevity. “The Kent family, and especially Mark, believe in being on the cutting edge,” said Horn. “Mark believed in investing in the future and his people. We have some of the latest technology available in the world at our facility, but by far, our greatest asset is our people and the team Mark built. What sets Kentwool apart is our quality, our service, and our commitment to our customers. That’s something that we strive for on a daily basis.”

“Obviously where we sit today, we have a lot of discussions around the table about what the future looks like,” said Kim Kent, CEO. “What we can say for sure is that



Kentwool is one of a select few companies that have an Usterized Quality Certification from Switzerland-based Uster Technologies AG. The designation certifies that the wool yarns produced by Kentwool are of the highest quality.

Mark, and those before him, successfully built this company on delivering a high-quality product, being innovative and responsive and nimble in the marketplace and that's what we'll continue to do. Both with yarn and with socks and whatever else is on the horizon for us."

"From the sock perspective, we see huge future opportunity," Hubbard said. "I think the appetite for fast fashion is waning. The same interest in craftsmanship people have in micro-brewed beer, locally-made furniture and other products, they're now seeking in apparel as well. Delivering a product that's made in America of the highest craftsmanship and quality will serve Kentwool well as consumer behavior trends more towards highly crafted items."

AMERICAN WOOLEN COMPANY'S STORY

True luxury goods are made in Paris, Milan and London — think Chanel, Ferragamo and Burberry — so why not in the United States? That was Jacob Long's thinking when he acquired the American Woolen Company brand. He had a background in investment banking and precision machining, but during a 23 year-stint working in Europe, Long developed an interest in the textile industry and apparel manufacturing,

"What I really learned in Europe was this aspect of craft manufacturing," said Long. "That focus that the Europeans have — they have the ability to run flexible operations, focusing really on the product — I felt if American Woolen could pull it off, we could pull it off because we had a mill that would adhere to those European standards."

HISTORY AND CRAFTSMANSHIP

After Long met Jennifer Knight, a businesswoman with a background and family history in the textile industry, the opportunity to own a textile factory appeared in the form of a Loro Piana mill in Stafford Springs. Warren Mill was acquired by Italy-based Loro Piana in



Kentwool leveraged its knowledge in wool yarn to launch Kentwool Performance Apparel, a consumer-facing ultra-premium performance sock business.

Delivering a product that's made in America of the highest craftsmanship and quality will serve Kentwool well as customer behavior trends more towards highly crafted items.

Lauren Hubbard

Director, Sales and Marketing, Kentwool Performance Apparel

1988, who invested heavily in upgrades, added worsted capability and continued to train a talented workforce. After Loro Piana was acquired by Paris-based LVMH Moët Hennessy Louis Vuitton SE (LVMH), LVMH decided to sell the Warren factory. "From their point of view, they were interested in the Loro Piana brand, and it was all about Made in Italy," Knight said. "They no longer needed this little mill in Connecticut. We think it's a really unique asset in the United States in terms of textiles."

With the 2014 acquisition of Warren Mill, American Woolen was in the business of manufacturing fine worsted and woolen cloth, and had the means necessary to control every aspect of production as Long had envisioned.

At Warren Mill, wool fiber enters the plant and goes through no less than 13 steps on its way to becoming a finished garment. Fiber is dyed, blended, carded and spun into yarn that is wound on cones ready for weaving. The yarns are dressed and warped, drawn-in and woven before the greige fabric goes through a mending process. The greige fabric is then finished, before fine mending and exhaustive inspection steps are performed to prepare the fabric for the cut-and-sew process. It's a meticulous process that takes highly-skilled technicians. The finishing stage alone comprises 12 different processes involving heat, steam, chemical and water treatments to add texture and body to the fabric and bring it to life. During fine mending, every inch of the fabric is examined to look for previously unnoticed



It's actually not so much the heritage, but the provenance, and it's the expertise and craftsmanship. And that's not all about looking at the past, it's also about preserving the craft in the present and the future.

Jennifer Knight

President and COO, American Woolen Company

flaws and impurities in the cloth. Every yard of fabric is then inspected four times before it is packaged for shipping.

"I think what's unique about American Woolen is we're really trying to turn out a fine product, and we're turning out that fine product in Stafford Springs, Connecticut," Long said. According to the company, they are defining a new American luxury by preserving centuries old craftsmanship and carving out an authentic American style. "I tell people we are not trying to go

head-to-head with the Italian fine worsted mills," Long continued. "We're actually trying to carve out a unique niche which we believe is more an American style of fabric and an American-style aesthetic — a different color palette, a different texture. We're trying to find the key attributes that will make a Made in America product different from Made in Italy."

"Our main customers are J. Crew, Hart Schaffner Marx, Timberland, The North Face, and Hickey Freeman," Knight noted. "We sell to higher-end men's suiting makers, and then we sell to more sportswear and fashion brands. I would say 85 to 90 percent of the fabrics we make here, our customers then use our label as cobranding in their garment."

American Woolen's second biggest market is Japan. "The reason Japan loves our brand is because Japan loves American

heritage brands," Knight said. "They wanted an alternative to high-end Italian fabrics. They are loving that they can make suits, open it up and see that it's American Woolen-made fabrics right from Connecticut."

CRAFTSMEN-MADE IN CONNECTICUT

Long and Knight were able to rehire many of Warren Mill's former employees and thus harness the skills and knowledge of third and fourth generation employees who have passed down their craft.

"Machines don't make fine textiles, the employees who operate those machines make fine textiles," Long said. "You can throw as much capital as you want at the problem, but it's not about throwing capital at the problem, it's about getting the operators to try to find the solution."

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Machines don't make fine textiles, the employees who operate those machines make fine textiles.

Jacob Long

CEO, American Woolen Company



Long and Knight want to engage the employees — give them more responsibility and make them feel like they are on the cutting-edge of making Made in America fashion.

“We don’t want our colleagues to feel like mill employees or mill workers — what would it feel like to be fashion technologists?” Long said. “I think for us, the big thing has been trying to engage our workforce and encourage them to think more about what they are doing, because at the end of the day, we’re really trying to turn out a fine product.”

LAUNCHING A GARMENT LINE

With Warren Mill up and running, the next step for Long and Knight was to develop American Woolen’s own line of apparel. The company recently introduced its first garment line, which features 13 pieces of luxury menswear. “Our idea was to position ourselves as a company making these garments on the level of a European luxury brand,” Knight said.

“We control what we do here even with our garment line. We’re making all of the fabrics; and all the garments are sewn in small factories all over New York City. We’re completely overseeing every aspect of production, and I think that’s true luxury,” Knight said. She hopes a womenswear line also will be developed in the future.

The company certainly gains respect from the legacy and heritage of the American Woolen and Warren Mill names. But Long and Knight have a clear focus on provenance. They believe consumers want to know more about where products, including clothing, are produced. Especially on the luxury end, there is a desire to know a skilled craftsman produced the fabric and the garment in the United States.

“It’s actually not so much the heritage, but the provenance, and it’s the expertise and craftsmanship,” Knight said. “And that’s not all about looking at the past, it’s also about preserving the craft in the


present and the future. We see ourselves as trying to be a true American luxury brand and the way we will do that is because we control the whole supply chain. It’s partly history, but it’s also provenance and craftsmanship and control over your supply chain.”

Knight was first introduced to Long through family friends. “Jacob said I’ve bought this trademark and now I want to back it into developing a supply chain, potentially owning our own means of production and ultimately want to launch a fashion brand,” Knight recalled. “And he said, ‘Do you think I’m crazy?’

“I think what we decided to do here was a little bit crazy, but in the greatest way,” Knight said. “I think we’ve got a great opportunity to build a good, solid textile business, which will be in the suiting, outdoor and sportswear markets at the higher end. We’re going to do some government and military business too. But I think our ultimate opportunity is to build a true American luxury brand.”

The majority of American Woolen Company’s fabric customers use cobranding and incorporate American Woolen’s label in their garments.





Lenzing's existing facility in Axis, Alabama, soon will be joined by a second plant as part of a \$293 million investment to expand TENCEL™ capacity in the United States.

CAPITAL IDEAS:

USA ATTRACTS TEXTILE INVESTMENTS

From economic booms to its most painful periods of restructuring, U.S. textile manufacturing has always been a magnet for investment. Since 2006, the United States has attracted \$20 billion in capital spending in new textile supply chain plants and equipment, with \$2.4 billion coming in 2016, the latest year for which investment information is available.

Moreover, it is not just Americans making the expenditures. Foreign entities have also made substantial investments. In recent years, Japan-based companies have announced \$2 billion in carbon fiber investments; two large China-based companies are investing \$628 million in yarn spinning; and multiple Europe-based companies have invested in nonwovens capacity in the United States.

Many reasons exist for this capital infusion in capacity, as well as in services.

For some, it is speed-to-market and the presence of a qualified labor pool. For others, it is the availability of a highly efficient, eco-friendly supply chain and the proximity of NAFTA and CAFTA customers. But, perception also plays a part in location decisions. "People around the world associate Made in USA with quality and performance," said National Council of Textile Organizations President and CEO Auggie Tantillo. "That has market value and it is one reason why the United States has been a focal point for textile investment."

LENZING COMMITS TO U.S. PRODUCTION

One company putting substantial new investment into the United States is the Lenzing Group, one of the leading fiber manufacturers in the world. Headquartered in Austria, with production sites in all major markets as well as a worldwide

network of sales and marketing offices, Lenzing supplies the global textile and nonwovens industry with a variety of high-quality cellulose fibers.

As part of the company's sCore TEN strategic growth plan, Lenzing is investing \$293 million to open a second U.S. plant near its existing facility in Axis, Alabama, close to Mobile. Scheduled for completion in 2019, the new operation is expected to create 163 new jobs to significantly increase production of one of the Lenzing's flagship products — TENCEL™-branded lyocell fibers.

TENCEL™ is Lenzing's brand name for a series of lyocell fibers it makes from reconstituted cellulose, in this case, wood. More absorbent than cotton, softer than silk and cooler than linen, TENCEL™ fibers are used to make everything from mattresses and bed linen to sportswear and denim. Hygiene products like wipes and



We see the growth in the Made in USA movement, and we want to be a part of that. There is a lot of perceived value in that program.

Andreas Dorner
Commercial Director, Lenzing

diapers are another important market for the product.

The unique process Lenzing employs to make TENCEL™ fiber is extremely environmentally responsible because of its closed loop system, meaning almost 100 percent of the solvents used to make the product are captured and recycled. In fact, it is so sustainable Lenzing received the "European Award for the Environment" from the European Union.

"The expansion will more than double current TENCEL™ production in Axis, making it the largest lyocell production site in the world, with a total capacity of 140,000 tons annually," said Kevin Allen, site manager of the Mobile facility. The new plant will account for about 90,000 tons of that production. "We are very proud to have in Axis the first-generation production site and now the most advanced, state-of-the-art facility in the same location," he said.

Andreas Dorner, commercial director, Lenzing, said the new facility is a strategic move for the company that allows better, faster service to customers throughout the western hemisphere. "We see significant advantages to having facilities located in the United States. It allows us to respond quickly to customer needs and eliminate some costs and much time in shipping. It is much better to be able to ship to fabricators in Central America from Alabama than from Austria or China."

But there are other reasons, too. "We see the growth in the Made in USA movement, and we want to be a part of that," Dorner said. "There is a lot of perceived value in that program. Again, it goes back to making the value chain better for our customers. The expansion just made a lot of sense to us. In Alabama, we had the land, the equipment and the resources to make a major expansion. It puts us closer to some of our significant markets and allows us to be part something we think is important."

Dorner said Lenzing is committed to maintaining a strong U.S. presence. "This is a very important market to us, and we are going to continuously think outside of the box for ways to continue growing the business."

CENTRAL TEXTILES: INVESTING TO SATISFY MARKET DEMAND

Investment in the U.S. textile sector, however, is not limited to capacity expansions. Investments in supporting services also contribute to a highly efficient and competitive industry — one that can offer value through the best combination of quality, price and delivery.

Founded in 1984 and currently in its third generation of family management, Central Textiles Inc. in Central, South Carolina, manufactures apparel fabrics and technical textiles. Its sister company, Cotswold Industries Inc., founded in 1954, is a leader in the development and distribution of technical textiles and apparel fabrics. Like Central, Cotswold is a vertically integrated manufacturer, converter and distributor.

Always racing to bring new textiles to market, Central and Cotswold often were slowed by a shortage of reliable, cost-effective textile testing services. Seeing unmet demand, Central filled the void by making a considerable investment in TexTest LLC in Columbus, Georgia — a modern testing facility that allows producers to ensure



Lenzing employees at the Axis, Alabama, site inspect TENCEL™ fiber bales prior to shipment.



You cannot be afraid to fail. You make, you test, you reengineer. And who knows? What looks like a failure today may become your leading product two seasons from now.

James McKinnon
CEO, Central Textiles

their products meet the exacting standards required by their customers.

“We have to continuously look at how an old-line, private textile company can be of value to our global customers,” said James McKinnon, Central’s CEO. “And the answer is that we have to provide products and services that make sense from a sourcing perspective in the various areas we serve.”

“We have a diverse, complex business,” he said. “And we have to constantly reinvent ourselves — as often as every few months. We have to be complicated to survive.”

Central Textiles looks at the countries or regions covered by U.S. trade agreements and customizes offerings for those specific areas. For the United States, one of Central’s offerings is the recently acquired TexTest lab.

“We focus on speed-to-market and innovation. And we innovate in two ways, product offerings and intellectually. Reengineering both commodity and specialty products is accomplished by driving cost out of the product and driving performance into the product. The focus is on how we test and retest those materials. So, we provide testing services for the finished goods from our clients. A lot of what we experience is learning by failure. Sometimes you can only figure out the way something is going to work when it doesn’t perform. So, you learn, and you

reengineer a fiber, a yarn, a fabric, a sheeting or a finished garment so that it will do something it didn’t used to do.”

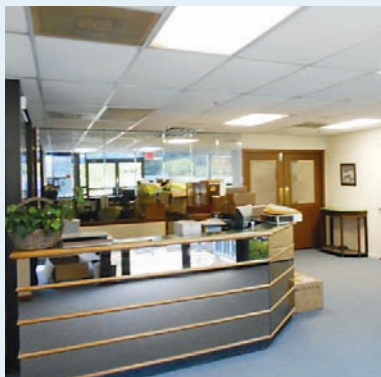
Innovation is a key aspect for both Central and Cotswold. “We use testing to drive innovation across the board,” McKinnon said. “We don’t just offer testing services to our customers or use them for our own products. We offer these services to our competitors as well. The U.S. textile industry is a family, and we see our customers and our competitors as our cousins. We want to see multi-generational companies that have been around a while be around for a lot longer.”

McKinnon said the biggest differentiator for TexTest is speed-to-market and quick-turn testing. “TexTest does not do any

testing other than textiles and apparel. We believe we are the deepest company for the types of testing that we do.

“From 1954 until 2003, Cotswold and Central were totally focused on wovens,” McKinnon continued. “But we started scouring the market and realized that we needed to be a textile engineering business — a business that doesn’t specialize in this or that, but, instead, a business that specializes in bringing its customers what they want.

“To be successful in our industry today, you have to take chances,” McKinnon said. “You cannot be afraid to fail. You make, you test, you reengineer. And who knows? What looks like a failure today may become your leading product two seasons from now.”



Central Textiles invested in the TexTest lab to offer testing services — including Hi-Vis A2LA — to the industry to help drive innovation across the board.



A&E — a leading producer of sewing thread, embroidery thread and technical textiles — has recycled and reused more than 1.1 billion liters of wastewater since 2013, and 16 operations and support facilities have achieved 100 percent zero-waste-to-landfill status.

U.S. TEXTILES: PACESETTERS IN SUSTAINABILITY

The landmark National Environmental Policy Act of 1969 (NEPA) made it U.S. policy to better protect the environment and promote sustainability. To achieve this laudable goal, virtually everyone must participate — companies, consumers, state and local governments and institutions. Proudly, the U.S. textile industry has been a pacesetter in this important area by routinely exceeding government mandates.

Albert Einstein once said, “We cannot solve our problems with the same thinking we used when we created them.” This commitment to a new way of thinking is why many U.S. textile companies have altered production methodologies, adopted sophisticated recycling programs and instituted zero net waste policies to ensure the protection of our environment and natural resources. Two that stand out are American & Efird LLC (A&E), and the Jones Family of Companies.

Founded in 1891, Mount Holly, North Carolina-based A&E is a global company and among the world’s foremost manufactur-

ers of sewing thread, embroidery thread and technical textiles.

“A core part of our business strategy is to operate all of our global facilities in a sustainable manner,” said A&E CEO Les Miller in the company’s most recent sustainability report. “It is not only a good business practice to do so, but it is the right thing to do for all of our stakeholders.”

“A&E is proud to be at the forefront of sustainability,” said Jimmy Summers, A&E’s vice president - Environmental, Health & Safety/Sustainability. “A&E helped pioneer transparency in the thread industry by sharing its first sustainability report in 2010, which incorporated actual performance data and targets.”

Summers noted that the company maintains a program called “The Ten Threads of Sustainability.” Each thread addresses an area of environmental responsibility and outlines A&E’s commitment.

A&E views this as a journey and not a destination, and while it has made some

significant progress, the objective is to continue pressing the envelope in regard to its environmental goals. For example, Summers reports that the company has recycled and reused more than 1.1 billion liters of wastewater since 2013. Furthermore, 16 operations and support facilities have achieved 100-percent zero-waste-to-landfill status. Overall, from 2006 to 2016, the company reduced its worldwide greenhouse gas intensity by 6 percent and reduced its global power consumption by 10 percent when measured in kilowatts per kilogram of thread manufactured. Forty-four percent of the fuels used to create steam at A&E dyeing operations were renewable and carbon neutral in 2016.

“In our view, a sustainability program cannot be sustainable unless companies consider the health and well-being of their associates,” said Summers. “For this reason, safety is a core part of A&E’s sustainability program, promoting safe working environments by using tools such as safety audits, residual risk reduction and SNAP — or Stop, Notice, Act and Prevent,

A&E's TEN THREADS OF SUSTAINABILITY

1 CARBON FOOTPRINT

Develop global carbon footprint and goals for greenhouse gas reductions in coordination with improving energy efficiency of all locations with a goal of reducing each year the amount of greenhouse gas per kilogram of thread produced, or greenhouse gas intensity

2 WATER CONSERVATION AND RECYCLING

Develop best practices in water conservation and implement the best practices with a goal of reducing each year, the amount of water per kilogram of thread produced, or water intensity

3 ENERGY CONSERVATION

Develop best practices in energy efficiency and implement them to achieve a goal of reducing each year, the amount of energy per kilogram of thread produced, or energy intensity

4 SUSTAINABLE PACKAGING

Develop plans for packaging and the implementation of those plans to reduce the amount of packaging used and increase the amount of recycled packaging throughout A&E's supply chain

5 RECYCLING & WASTE REDUCTION

Implement a plan to achieve a zero-waste goal at all A&E facilities

6 SUSTAINABLE PRODUCTS

Continue research and development for additional sustainable products to add to A&E's existing line of recycled polyester thread, organic cotton thread and PFC-free water repellent thread finishes

7 GLOBAL ENVIRONMENTAL HEALTH AND SAFETY AND SOCIAL RESPONSIBILITY

Environmental, health and safety, and social responsibility compliance using internal and third-party audits to certify compliance

8 SUPPLY CHAIN SUSTAINABILITY

Engage suppliers and customers to drive waste out of the supply chain, as well as reduce the overall environmental impact of the supply chain

9 ECO-DRIVEN PRODUCT STEWARDSHIP

Implement a chemical management program that ensures A&E meets customers' restricted substance lists and zero discharge of hazardous chemicals (ZDHC) program requirements

10 ECO-DRIVEN EDUCATION AND INVOLVEMENT

Share knowledge with stakeholders including customers, suppliers, industry peers and others through collaboration and active participation in industry organizations that work to increase knowledge and awareness in the area of sustainability

which is an observation feedback program designed to engage our associates and encourage their participation in the safety process."

Said CEO Miller: "Sustainability is ingrained in the culture of A&E. We strive to earn the continued trust of our customers through our high-quality products, services and sustainability performance."

Another organization that has a long history of conservation and recycling is the Humboldt, Tennessee-based Jones Family

of Companies. "We have developed many products with sustainable principles as the blueprint for product differentiation and performance efficacy," said Patrick Owens, vice president, strategic marketing, Nonwovens.

Founded in 1936, the company is a family-owned business comprised of Jones Yarn and Jones Nonwovens. The yarn business combines natural and man-made fibers — including recycled textile by-products — into yarns that are used in floor care tools like mops. The nonwovens side of the

business produces nonwoven materials from natural fibers including reclaimed cotton, wool, jute and hemp. In addition to packaging, these fibers can be used in such applications as cotton batting for fire barriers, mattress insulation and other thermal insulation applications.

The company recently announced a doubling of capacity at its Jones Nonwovens plant located in North Las Vegas, Nevada. The expansion was in part to meet market needs for thicker and more resilient sustainable and natural material products for

mattresses, which are beginning to replace synthetic components and foam.

Jones Nonwovens has recently also been making headlines for its new biodegradable Synchronicity packaging, a more environmentally friendly option to the polystyrene foam common in a lot of cold packaging.

“In the United States, almost a quarter of all landfill waste comes from packaging and containers, a significant number that will continue to grow without drastic intervention,” Owens said. “For decades, this destructive packaging has been synonymous with non-biodegradable petroleum-based products.”

Synchronicity combats this problem by using bast and cotton fibers from post-harvest plants and textile waste. Natural fibers exhibit many of the same properties as packaging material currently on the market, allowing for thermal management and protection. But they also decompose over time, returning naturally to the environment. Jones Nonwovens proclaims that the recyclable properties of natural fibers “make them the ecological choice for a farm-to-packaging process that shortens the cold chain at no added cost.”

“As for the name, Synchronicity, we were trying to put together a message that would be representative of the Jones philosophy and the emerging trends in the marketplace,” Owens said. “We knew there was a tremendous amount of concern, particularly among millennials, about waste and packaging, and we felt there were solutions that could be created. The name Synchronicity describes the harmonious relationship between material applications and consumer desires.”

Owens continued: “Our first focus has been on packaging, particularly thermal-insulated packaging. This is especially timely as a rise in e-commerce has necessitated the use of a lot of packaging materials.” He cited home grocery and food orders as examples. “Consumers ordering

We have developed many products with sustainable principles as the blueprint for product differentiation and performance efficacy.

Patrick Owens

Vice President, Strategic Marketing, Jones Companies Nonwovens

these perishable meals once or twice a week have begun to build up a lot of waste,” Owens said.

Jones’ history of recycling and repurposing began many years ago. The company first became known in the cotton industry. “Our company has deep roots in cotton,” Owens said. “Our philosophy has always been to make the best use of materials. It became one of our core competencies years ago to process materials that were not first grade. We would use such materials as gin byproducts, while the high-quality cotton would be sent to traditional textile companies. We would repurpose these into value-added products, while at the same time eliminating some of the waste produced by the gin. This is why we say we have a history of

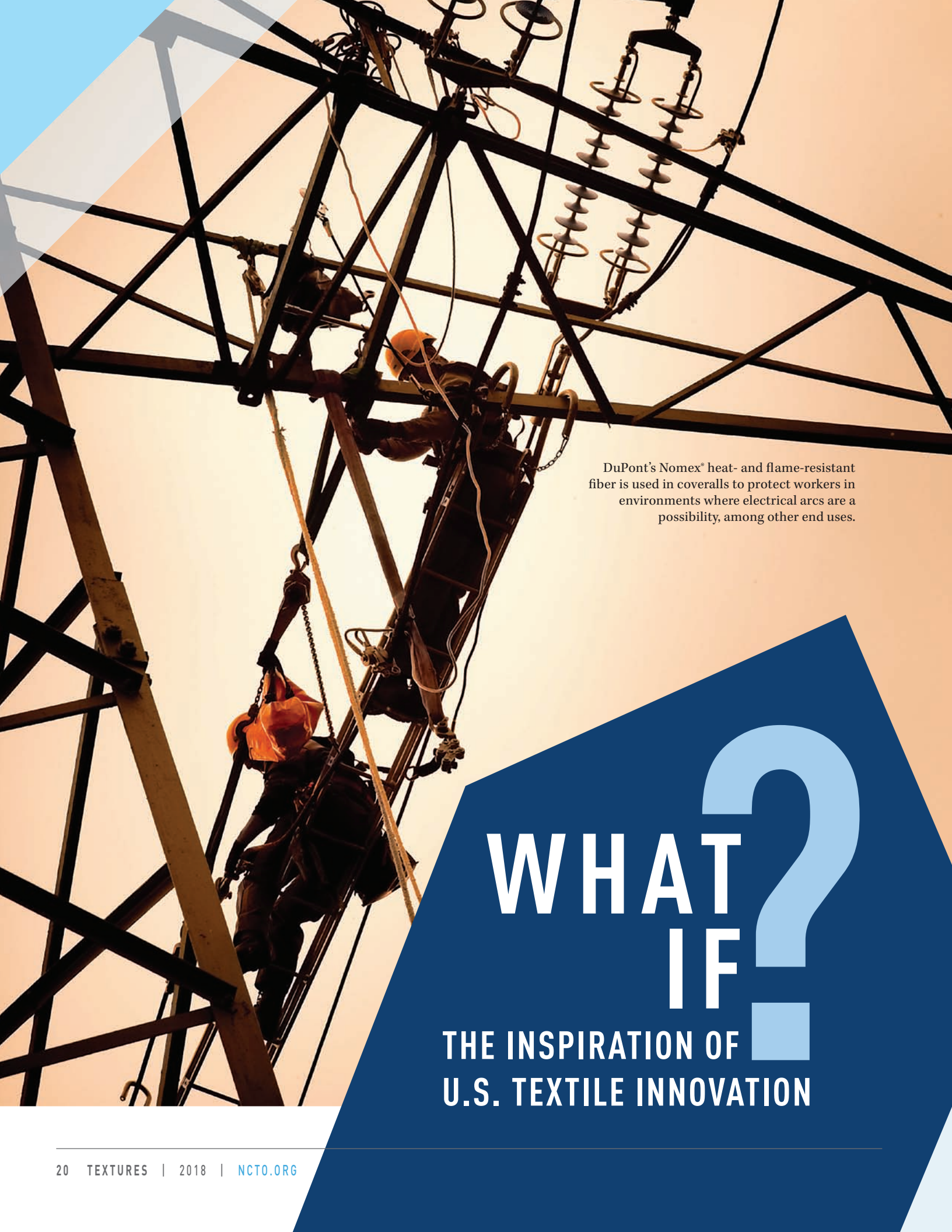
sustainability. We have been doing this for a long time. We became very good at working with materials that have been discarded and bringing them back into value-added applications.”

Owens also said Jones Nonwovens has joined the Sustainable Packaging Coalition (SPC), an initiative that brings together companies, educational institutions and government agencies involved with the packaging supply chain. Goals of the SPC include a collective development of resources and the implementation of packaging solutions.

“We see this as a great opportunity to work with like-minded companies as we strive to develop our efforts in the world of sustainable packaging,” Owens said. ☞



Jones Nonwovens employees are instrumental in the production of the Synchronicity biodegradable packaging materials made using bast and cotton fibers from post-harvest plants and textile waste.



DuPont's Nomex® heat- and flame-resistant fiber is used in coveralls to protect workers in environments where electrical arcs are a possibility, among other end uses.

WHAT IF?

THE INSPIRATION OF
U.S. TEXTILE INNOVATION

What if?" It is the question where innovation begins, and few companies have asked it as often and answered it as well as DuPont™ and Fil-Spec USA.

Wilmington, Delaware-based DuPont Safety & Construction — now a business unit of DowDuPont's Specialty Products division — is a global leader in products and solutions that protect what matters — people, structures and the environment. The company enables its customers to win through unique capabilities, global scale, and iconic brands including Kevlar® and Nomex®; and has a century-long track record of innovation matched by few companies in the world.

Two of DuPont's most iconic innovations, Kevlar and Nomex, date back to the 1960s. "Sometimes it is hard to think of something that has been around for 50 years or more as innovative, but that remains the case for both of these," said Reiyao Zhu, DuPont Nomex technical guardian. Thanks to DuPont's active commitment to continuous improvement for both products, "Nomex and Kevlar are still the very best for their intended applications," she said

Nomex is a heat- and flame-resistant fiber that can react during an emergency. When the fiber is exposed to extreme heat, it undergoes a special reaction and captures more energy in the fabric, gaining valuable extra seconds of time to protect the wearer from heat transfer. From protecting people drilling underground to those rocketing into space, Nomex has numerous applications. Perhaps the best-known applications are in turn-out gear for firefighters.

Confidence in the ability of Nomex to provide thermal protection gives firefighters the assurance they need to be more effective, according to a DuPont case study. "Once you are in there and you see nothing but fire, if you start questioning your suit, you are going to start questioning your ability to do the job," said a Philadelphia firefighter.

The properties of Nomex also protect workers in environments where flash fires are a possibility. "Nomex is used in coveralls to protect these workers," Zhu said. "It is also used in situations where electrical arcs are a hazard, such as with electricians."

While Nomex is known for thermal protection, Kevlar is renowned for toughness and ballistic-resistance. Originally developed for use in automobile tires, Kevlar has since become famous for bullet-resistant vests used by SWAT teams and officers engaged in high-risk law-enforcement activities. The living proof of its effectiveness is the more than 3,100 members of the International Association of Chiefs of Police/DuPont Kevlar Survivors Club® who survived potentially fatal or disabling injuries by wearing protective vests.

Always looking to make sure even more police officers go home safely to their families, DuPont frequently conducts tests to determine the capabilities of certain Kevlar weaves and constructions to absorb, contain and deflect energies from the high-velocity impact of bullets and projectiles to make the product better. Depending upon the risk inherent in their assignments, law enforcement officers can choose among Kevlar constructions that can stop small-caliber bullets up to .44 caliber and higher.

"A lot of people know about the law enforcement applications for Kevlar," Zhu said, "but Kevlar is used in many other applications as well." One of the more popular applications is for gloves that protect the hands of automotive workers, glass

Confidence in the ability of Nomex to provide thermal protection provides firefighters with the assurance they need to be more effective.

DuPont's Nomex® fiber is now 50 years strong, and thanks to the company's commitment to continuous improvement, it is still a leading product for heat and flame protection.





We have learned that we must innovate to survive ... The only way forward for us was to specialize in high-value technical fabrics.

Dominique Quintal
Vice President, Sales and Marketing,
FilSpec Inc.

handlers, oil and gas drillers, welders, machine operators or others who have jobs that require hand protection, she said. Other applications range from tire sealant, to footwear and electronics cables.

With both Nomex and Kevlar, fiber and fabric construction are critical, Zhu said. What works as a fire retardant might not be as effective for arc protection. And for Kevlar, a vest designed to stop a bullet might not be as effective for a knife, and vice versa.

AFFOA: ADVANCING MANUFACTURING

A company-wide commitment to innovation is one reason why DuPont is a partner in the Advanced Functional Fabrics of America (AFFOA), a non-profit institute

founded in 2016 as part of the U.S. government's National Network of Manufacturing Innovation initiative to promote advanced manufacturing.

Seeded with \$320 million in public and private funding commitments, AFFOA is headquartered in Cambridge near the Massachusetts Institute of Technology (MIT). Its mission is to enable a manufacturing-based revolution — the transformation of traditional fibers, yarns, and textiles into highly sophisticated integrated and networked devices and systems — by leveraging the geographic distribution of the domestic fiber and textile industry, academic research centers, and consumer product companies to weave a nationwide network of Industrial Members, Fabric Innovation Network (FIN) Partners, Startup Incubators and University Hubs.

"This unique partnership has the potential to create a whole new industry, based on breakthroughs in fiber materials and manufacturing," AFFOA CEO Yoel Fink said. "The new fibers and the fabrics coming from AFFOA will have the ability to see, hear, and sense their surroundings; communicate; store and convert energy; monitor health; control temperature; and change their color."

Specialty yarn spinner FilSpec USA recently joined AFFOA as a FIN member. The company was created in 2017 when Sherbrooke, Quebec-based FilSpec Inc. purchased Richmond Specialty Yarns in Ellerbe, North Carolina. Specializing in research and development for innovative technical yarns used in high-performance textile industry applications, FilSpec's yarns boast thermal management, cut and abrasion resistance, protection against flames and sparks, moisture resistance, antimicrobial protection, as well as other capabilities.


"FilSpec is committed to serving the American market by providing innovative solutions, reliable operations and a level of quality that constitute the foundation of FilSpec's identity," said Dominique Quintal, vice president, sales and marketing.


"Originally, we became involved with Richmond Specialty Yarns on a commission basis, and in 2009, FilSpec became the controlling shareholder in the company," he said. "We completed the purchase of Richmond in 2017. With what is now FilSpec USA, we can take advantage of U.S. trade agreements to enable us to sell a range of specialty products. We are now spinning yarn in the United States and selling to Mexico for applications that will be used in Mexico. Same thing for Central American countries as part of CAFTA. As for innovation, it is not something we are doing because it is trendy. It is in our DNA, and it is what we will continue to do."

The world has moved on for the textile industry Quintal said. What once worked will likely not ever work again. "In our business, we cannot cling to the past. Even if we did not have competition from those low-cost countries, we would still be operating with the same mindset, of being innovative and coming up with new products for new applications. And we want to work with partners, suppliers and customers that share the same vision.

"Innovation means constant reinvention," Quintal said. "We usually don't expect a product to last more than five years. Eventually, almost no matter what you produce, the only way you are going to continue to be profitable is to reduce cost. And then you are back in the battle with low-cost countries. Instead, you have to come up with new products for new applications and keep doing it over and over."

"We have learned that we must innovate to survive," he continued. "We didn't have a choice. The only way forward for us was to specialize in yarns for high-value technical fabrics."

Quintal foresees a continued period of growth for innovative North American companies. "We have the knowledge and we have the expertise, that is our biggest advantage over textile companies from other parts of the world." 



The Infiltrator Jacket available from Seattle-based Outdoor Research® features GORE-TEX® fabric with stretch technology.

U.S. TEXTILES: HIGH PERFORMANCE IN EVERY MILITARY ENVIRONMENT

American armed forces are tasked with defending our country in the air, on land and at sea no matter how challenging the environment.

Because of the unique and global nature of this mission, the Department of Defense (DOD) must buy an estimated 8,000 different U.S.-made textile products annually to satisfy its various operational needs. When different sizes are factored into the item mix, there are some 31,000 line items sourced from the textile industry by the military each year.

Fortunately for America, manufacturers like Newark, Delaware-based W.L. Gore & Associates Inc. (Gore) and New Bedford, Massachusetts-based Brittany Global Technologies (Brittany) are up to the job of helping to make textile-based defense products that are the most technically advanced in the world.

INNOVATIONS FOR ALL ENVIRONMENTS, SITUATIONS

Famous for its GORE-TEX®-branded consumer products, Gore also is a high-level innovator that manufactures military textiles, including those used in protective gear.

Jason Rodriguez, marketing communications manager, Military Fabrics, W.L.

Gore, notes that the environment and a warfighters protection and comfort in that environment are of prime importance to Gore as the company conducts research and development on innovative fabrics for the armed forces.

“Our protective fabrics are designed essentially to help warfighters improve their mission effectiveness by staying alert, staying comfortable, staying dry, and remaining protected no matter what their environment is,” said Rodriguez. “Those are very important elements when developing high-tech fabrics within our business.”

Gore was founded in 1958 by Wilbert “Bill” Lee Gore and his wife Genevieve Walton Gore, initially serving the electronics market. In 1969 when Wilbert’s son Robert “Bob” Gore discovered expanded polytetrafluoroethylene (ePTFE), the company launched GORE-TEX and went on to become a leader in fluoropolymer technologies that apply to many different industries. The first GORE-TEX customer used the fabric in a tent application.

“GORE-TEX is our signature fabric within the Fabrics Division,” Rodriguez said. “It is our legacy product. However, we’re continuing to develop new fabric technologies around that — lighter weight and thinner products within the GORE-TEX portfolio — to continue improving mission effectiveness and assist with lightening the overall load for the

THE U.S. TEXTILE INDUSTRY PROVIDES SUPPORT

to our men and women in the U.S. armed forces in a myriad of ways.

Here are just some of the items sourced by the military that feature textile products.

- Fire-resistant combat uniforms
- Ballistic-resistant body armor & helmets
- Footwear
- Webbing, backpacks, bags & pouches
- Fire-resistant flight suits and coveralls
- Camouflage systems
- Tents & shelters
- Chemical protective clothing & equipment
- Aircraft, vehicle & tank fuel cells
- Extreme cold weather uniforms & gear
- Parachutes
- Explosive ordnance disposal bomb suits
- Blankets, bandages & medical gear
- Storage tanks
- Ropes & cables
- All-weather tarps, liners & covers
- Aircraft & ship composites
- Sandbags & defense barriers
- Stealth technology
- Personal flotation devices
- Communication lines (optical fiberglass)
- Inflatable boats/rafts
- Harnesses & safety belts
- Firefighting turnout gear

warfighter. We are also developing innovations in new areas such as chemical and biological protection; uniforms that leverage ePTFE fiber; and self-extinguishing, flame resistant products.”

Some of Gore’s latest protective technologies for military applications include GORE® CHEMPAK® fabrics— used for chembio uniform applications that feature a stretch technology — and GORE® Katana fabric — a blend of ePTFE, nylon and cotton fibers specifically engineered for hot weather and tropical operations. According to Gore, uniform-specific fabrics optimize air-permeability, dry time and strength-to-weight ratio and can exhibit no melt or drip during flash-fire incidents.

GORE-TEX® PYRAD® is a weatherproof, breathable fabric that was designed to also offer a unique blend of flame resist-

One thing I think helps Gore stand out is our comprehensive and robust understanding of our customers’ needs and the end-use application.

Donald C. Vavala
Director, Military Government Affairs,
W.L. Gore & Associates

ance (FR), thermal insulation and thermal properties. Gore reports PYRAD® fabrics also are lightweight, fast drying and abrasion resistant. “GORE® PYRAD® is an engineered flame-resistant technology that can be integrated into waterproof and non-waterproof technologies,” Rodriguez said. “The technology has also been leveraged in tent applications.”

“Gore continues to expand our technical fabrics portfolio into areas that are providing enhanced protection against weather, contaminants or flash-fire incidents that the military is faced with,” Rodriguez said. “We focus on delivering this performance in garments, footwear and gloves. It’s a system level approach where Gore can provide a solution that can protect warfighters in the field.”

“In addition to having a rain chamber and various testing labs, Gore recently invested in a state-of-the-art heat and flame lab and comfort chamber,” said Donald C. Vavala, director, Military Government Affairs, Gore. “The heat and flame lab can simulate various test methods traditionally conducted by a third party. The comfort chamber was designed to replicate climates from across the world. Gore keeps investing in

assets to ensure we can continue to provide great products now for the warfighter, but also meet the future needs of the warfighter.

“One thing I think helps Gore stand apart from other fabric providers is our comprehensive and robust understanding of our customers’ needs and the end-use application,” Vavala added. “Our commitment to fitness for end use is paramount. Our products undergo rigorous testing both in our facility and in the field to ensure they do what we say they will do first time and every time. We adhere to high standards of quality and product integrity. We want to make sure that our warfighters have an advantage when they are on the battlefield. Their protection is paramount in our minds — their ability to execute the mission and come back from the mission — and anything we can do to help that is hugely important to Gore.”

EXPERTISE REQUIRED

Once a high-tech fabric is specified by the military, it must then be fine-tuned with camouflage and other special protective technologies to maximize its effectiveness for warfighters in the field. Brittany Global Technologies specializes in adding these enhancements through dyeing, printing and finishing.

Dyeing and printing are the two most common processing methods to color textiles. While dyeing produces only one color, printing is a more complex process whereby various colored designs are imparted on a fabric surface. Finishing refers to subsequent processes that turn a dyed or printed textile into a more useable product by improving its look, performance and feel.

“The specs are very numerous” said Ken Joblon, president, Brittany Global Technologies. “That’s one of the most challenging aspects of working for the U.S. military — being consistent with the specs as well as matching the colors accurately. They are extremely exacting.”



Ken Joblon has been with Brittany Global Technologies his entire career. His father started the company in 1939 after purchasing a screen printing company for \$300.

I feel gratified to play a part in equipping our military. I know our military has the best equipment available.

Ken Joblon
President, Brittany Global Technologies

“The military needs stringent specs because they want the fabric to perform at its very best,” said John Kenyon, COO and vice president, Brittany Global Technologies. “Brittany has state-of-the-art equipment, a lot of technology developed over the years, and the military really looks to us now as someone that can provide the very best fabrics. It’s very proprietary in nature, but we do use special dyes, chemicals and formulations of course,” Kenyon added. “The soldier’s uniform just continues to get better and better. The soldier’s uniform needs to stand up to harsh conditions and needs to fulfill a lot of different functions.”

Brittany maintains a government certified lab with all the necessary testing equipment to be sure it meets the military’s specifications for each product. Every lot is certified with an official government report.

Brittany, founded in 1939, is a second-generation family business with a long history in textile printing and dyeing. In the early 2000s, the company — feeling pressure from low-cost imports — began investigating new markets to strengthen its business. The company’s willingness to innovate and diversify rather than stand still, led them to the military business.

“I feel gratified to play a part in equipping our military,” Joblon said. “I know our military has the best equipment available. We are all proud of what we do here, and it’s a fast-moving business. We have to be very nimble as things happen fast, and we must respond very quickly. In order to respond, many pieces must be in place, a few of which include having raw materials on hand, to having the right machinery, and having trained people to take care of whatever needs the government may have. That’s our culture.”

William Barnet & Son, LLC



Bill McCrary

Chairman, National Council
of Textile Organizations
Chairman and CEO,
William Barnet & Son LLC

THE LAST STITCH

**NCTO Chairman
Bill McCrary says
the U.S. textile
industry is resilient.**

As an almost 50-year veteran of the U.S. textile sector and as a current industry CEO, I'm proud to say I work for a truly amazing industry.

During my tenure, I've seen the best and worst of times; and right now, I'm excited because the U.S. textile industry is healthy and growing. The recession of 2008-09 set us back, as it did many other industries. Since that time, however, we have experienced growth and then stability in output, investment and employment.

Besides amazing, if I had one other word to describe the U.S. textile industry, it would be resilient, as the story of my company, William Barnet & Son LLC, illustrates.

Founded in Albany, New York, in 1898, Barnet's guiding principles are safety, quality, productivity, cost, and customer satisfaction. The company is proud of its 120 years of continuous business, remaining privately-owned, and keeping continuity of leadership within the family from generation-to-generation.

Initially a wool reprocessor, Barnet's roots are in recycling post-consumer by-products back into processable fiber for a second life. The company moved south to Spartanburg, South Carolina, in the early 1960s when there was great growth in synthetics. Because of the company's varied capabilities, Barnet began contract manufacturing for major chemical companies, and later began a significant trading business covering all generic types of fibers, yarns and polymers worldwide.

Today, Barnet has a global footprint, with operations in the Americas, Europe, and Asia producing a wide variety of world-class recycled and first-grade products. The company also does contract manufacturing and has a fiber trading and distribution business.

Like Barnet, the resilience of the U.S. textile industry is amazing. We are survivors. We are creative. We have great leadership and wonderful loyal associates in the industry. Just as importantly, we enjoy what we do and take pride in the diverse customer base we serve.

We are an industry in balance with respect to supply and demand. The U.S. textile sector is vertically integrated and can make and supply almost any textile product to compete with any other country in the world ... but we do it right here in the United States with guaranteed quality and on time delivery. Case in point, the U.S. textile production chain had \$78 billion in shipments and more than \$28 billion in exports in 2017.

In fact, the dynamic within the U.S. textile industry is so strong that we are attracting foreign direct investment from all over the world — Mexico, the European Union, Japan and even China. It is clear, major offshore competitors now view U.S. textiles positively and as a good destination for investment. The opportunities are to be prudent managers of these recent investments, both domestic and foreign, and to continue to grow our sector in the largest consuming nation in the world.

Moreover, the industry is critical to America's national security because we manufacture more than 8,000 different textile products used by our soldiers, sailors and airmen in executing their mission to keep our country safe.

Drilling down further, we are amazingly innovative as we continue to differentiate ourselves from the lower cost basic commodity fibers, yarns, and fabrics made in other parts of the world.

A great example of innovation is the formation of the Advanced Functional Fabrics of America (AFFOA) institute in 2016. A \$320 million U.S. Department of Defense, state, and privately-funded collaborative effort headquartered near the Massachusetts Insti-

tute of Technology, AFFOA is focused on commercializing the next generation of smart textiles. Backpacks that communicate; and washable, stretchable clothes that can power electronic devices and monitor your health will be hitting the market in upcoming years.

U.S. textiles also are amazingly adaptable. Textiles are not just apparel. Textiles are an industry that supports and supplies various sectors fundamental to our standard of living, including food, clothing and shelter. Each sector is constantly trying and finding ways to make products using differentiated materials. Carbon fiber is seeing especially explosive growth, with more than \$2 billion in capital investment announced in Alabama and South Carolina in recent years. These products are finding applications in the automotive market, aviation and a host of other areas.

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Another area where U.S. textiles have made amazing strides is in sustainability. As well as being good stewards of the environment, in certain instances, there are also significant cost savings to be had when recycled materials are used. I have always said if quality is good, and cost is equal to or less than first grade raw materials, then there is a bright future for recycled materials. Considering that most companies are now designing textile products with a circular lifecycle in mind, the latest recycling technologies are helping to make U.S. textiles more sustainable and competitive than ever.

Finally, the U.S. textile industry has been amazingly engaged in an intensive outreach effort in Washington, and with the public.

Thanks in part to the NCTO-led "We Make Amazing" industry rebranding campaign and the enhanced relationships built with policymakers, we have seen an improved perspective from our government. We are grateful that key federal officials now acknowledge the importance of our industry, and to a reasonable degree, cooperate with us on critical policy issues, including NAFTA modernization and other trade matters. It is clear globalization and expanded trade must benefit all parties, or it doesn't work. In that light, NCTO is working closely with the U.S. government to strike a proper balance with respect to textiles.

As my 2017-18 term as NCTO chairman concludes, I'm excited about going to work tomorrow in the world's most amazing, resilient textile industry. We have a bright, prosperous future and I can't wait to see things unfold. ☚

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