

ISSUE 3: 2021

BEHIND THE SEAMS OF THE GLOBAL DENIM INDUSTRY

# insideDenim

**Boldness,  
creativity and  
sustainability  
collide**



Cotton industry takes a stand / Colour's natural chemistry  
New microfibres warning / UK denim's comeback / Factory Talk

# Contents



**Cover** A model wearing the latest collection from US-based brand Oak & Acorn – Only for the Rebelles. We talk to its founder, Miko Underwood, in the Dialogue section.

PHOTO: PETER OSBORNE

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**03** Editor Clare Grainger welcomes readers to *Inside Denim*, explaining that the magazine's aim is to look closely at the most forward-thinking companies and innovative ideas in the global denim supply chain.

**06** **Global news** Ideas and initiatives from around the world.

**04** **Guest comment: James Bartle**

Outland Denim's founder is pushing the industry to ensure safe and supportive working conditions in the supply chains.

**08** **Industry News**

A round-up of recent launches and developments from across the supply chain.

## THE SCIENCE BEHIND THE STYLE

**10** **The makings of 'low-carbon' cotton**

Cotton is fighting back against its bad reputation with the help of data and regenerative farming.

**14** **Not only plastic**

New studies show a greater abundance of cellulose microfibrils in the environment than previously assumed – but much more needs to be known.

**18** **A new colour chemistry**

Demand for natural processes has seen a new focus on plant-based dyes and colours extracted from waste or by-products.



**22 Jean Genie:  
Luca Braschi**

A revolution in consumption, design and planning is needed, according to the founder of consultancy Blue Alchemy.



**26 From deckchairs to denim: UK selvedge stages a comeback**

The long journey to produce denim fabric in the UK has resulted in new collections. Could this be the start of something bigger?

**30 A new spin on 'American casual' in Seoul**

A designer and a brand give us their take on the South Korean denim scene.

**34 From DPRK to Stockholm**

A Swedish brand that attempted jeans manufacturing in North Korea has now made inroads into streetwear.



**38 Dialogue:  
Miko Underwood**

The founder of US brand Oak & Acorn - Only for the Rebelles believes education is the key to change.



**42 Factory talk** A closer look at some of the mills and manufacturing premises around the world:

- Kuroki, Japan
- AGI, Pakistan
- Cone, Mexico

**48 Clocking on...**

Denise Sakuma, Lycra's vice-president of brands, marketing communications and merchandising, has a spring in her step around Barcelona.

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# Meet the team



## **Clare Grainger** Editor

Clare has two decades of journalism experience, starting with local and regional newspapers, followed by six years in London, working in the financial press and for a superyacht magazine. She has been with World Trades Publishing, writing about the textiles sector, for the past nine years.

## **Jo Tait** Associate publisher

Jo has over 20 years' publishing experience in both print and digital media, developing effective marketing strategies, with commercial focus for global clients including those in the performance textiles and footwear industries.



## **Sophie Bramel** Technical editor

Sophie is one of the most respected technical journalists in the global textile industry. With a career spanning over three decades there is little that she does not know about fabric and more specifically performance fabrics; her passion and enthusiasm are infectious.

## **Stephen Tierney** Consultant editor

Stephen has been a writer for 30 years, working on projects for newspapers, government departments and an extensive range of private-sector organisations. He has won awards from Plain English Campaign and the Institute of Internal Communication.



## **Charlotte Robson** Assistant content developer

Charlotte's writing career began with a residency at a UK gallery. Since then, she has published on art, fashion, materials and footwear, including for *World Footwear*, *World Leather* and *WSA* magazines. After living and studying in both Shanghai and Seoul, she maintains a keen interest in the latest industry developments from China and South Korea.



# Hope on the horizon as the industry gets creative

**W**e find ourselves once again in a period of uncertainty caused by the covid pandemic. At the end of last summer, when we published Issue 2, there was a feeling that we were mainly over the worst in the UK, and transmission rates were also down in Europe and elsewhere, but sadly we find ourselves in the midst of another wave. At the start of February last year, many of us met at Bluezone in Munich. Yes, there were hand sanitiser stations and we were encouraged not to shake hands (which felt unnatural), and a few cases had been confirmed in Munich itself, but coronavirus still seemed far away. While we are now addressing the realities of new lockdowns and closures there is, however, concrete hope of a return to normality as countries begin to vaccinate. As AGI director Hasan Javed points out in Factory Talk (page 44), this provides optimism to the markets about a longer-term recovery.

We certainly don't want to dwell on the bad, because there is so much good, and this issue includes many inspiring voices and innovative products that are driving the industry forward. James Bartle, the CEO of Australian brand Outland Denim, in our Guest Comment, gives a powerful plea for more to be done to protect employees in "overlooked" segments of the supply chain. The company, with others, launched the Supply Network Intelligence System last year to increase transparency in terms of workers, and companies are encouraged to join to strengthen the initiative.

We delve into denim's relationship to microfibre shedding – something we generally hear about on the performance textiles side but about which there is not much solid data. It was previously thought that cellulose fibres weren't causing issues in the environment, but what are new studies telling us? Regenerative Farming is another hot topic: how does this apply to cotton, and what does that mean for denim? Find out on page 10.

*“Some companies are using the time to focus on research, with the quieter time offering the chance to renovate or change”*

Some companies are using the pandemic to hunker down and focus on research, with the quieter time offering the chance to renovate or change. Italian chemicals company Soko Chimica has invested in a new innovation hub, ready to welcome visitors when restrictions allow. We also hear from companies busy in their R&D labs, boosting the options for natural dyes. It's great to hear how nature – as well as waste from other industries – is providing solutions, even if some are currently fairly small scale.

This issue's Dialogue is with Oak & Acorn founder Miko Underwood, who explains how important it is to acknowledge denim's history and suggests ways the industry can address inequalities and become more inclusive.

We hop from one side of the globe to the other with articles on South Korea's denim scene and on the UK's. Cone's CEO Steve Maggard tells us about the company's Mexico investments, we find out what happened when a Swedish designer made a collection in North Korea, and denim consultant Tilmann Wröbel takes us on a trip to the hallowed ground of Kuroki in Japan.

We hope you enjoy this issue. ■

**Clare Grainger**

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 GUEST COMMENT

**James Bartle**, CEO of Australia's Outland Denim, believes manufacturers and brands should put competition aside to tackle the industry's big problems – and supporting vulnerable workers in supply chains is among his top priorities.

# “The denim industry can lead life-transforming, generational change”

**A**ccording to the Walk Free Foundation, one in 130 women and girls globally are victims of modern slavery. Covid-19 threatens to only make this figure even more devastating with millions of already vulnerable people either out of work or living on reduced wages due to the pandemic. Human trafficking, just one form of modern slavery, is a \$150 billion industry, which casts a large shadow over the value of the denim jean industry, worth an estimated \$70 billion. When faced with these numbers, it's impossible to ignore.

When we started building the foundation of what would become Outland Denim, I'll humbly admit to not knowing a lot about denim, but I did, and still do, wholeheartedly believe that it is the key to solving this global injustice — the idea being to support women who have come from backgrounds of modern slavery, exploitation or vulnerability, not with charity but stable and safe employment that in turn allows them to support their family and contribute to the prosperity of their wider community. It's nothing above and beyond. Incredible things will happen when we simply do the bare minimum in providing people the human rights and support they deserve. And in 2021, consumers understand more than ever that brands are either part of the solution or part of the problem.

Our brand launched with a product range of only black skinny jeans, at a pop-up in Queensland, Australia, in what was the hottest summer of the past 100 years. People still came in to try on and purchase. We launched an equity crowdfunding campaign just days before the World Health Organisation declared covid-19 a pandemic. People still invested, and helped us raise over AUD \$1.32 million. Time and time again, we are reminded that consumers will show up for businesses that reflect their values, particularly when it comes to sustainability, even during the most uncertain chapter of our lifetime or a 40-degree day.


As we enter 2021, I believe our greatest challenge to overcome as an industry will be the rise of greenwashing. This manipulative marketing that stamps products as '100% sustainable' or hides

facts in the fine print, if at all, is the greatest threat to the pursuit of sustainable practices and innovation. It slows true progress; and while it may win positive sentiment in the short term, brands will suffer the repercussions of disenfranchised customers when the truth in their slogans is inevitably brought to light.

Combating greenwashing needs a multifaceted approach. We need to not put the onus on consumers to solve problems that were created by the industry. We need to empower our impact and corporate social responsibility teams with the tools they need to make true change. We need to invest and support research and advocate for that research to influence legislation that will regulate and bring accountability to our reporting and advertising. But most importantly, to mitigate greenwashing, brands need to establish an internal culture, driven from leadership, that morally rejects it.

Beyond this, we as denim manufacturers and brands have to put competition aside and collaborate on solutions to the challenges we face. We don't exist in a vacuum so no one is going to win this 'sustainability race'. In partnership with Bossa Denim, PSG and Nudie Jeans, Outland Denim in 2020 launched the Supply Network Intelligence System, which aims to protect and support those who work in the earliest and most overlooked segments of our supply chains. As more brands join to become members of the system, not only does impact increase but cost is reduced for all participants.

I'm hopeful as we enter a new year that we as an industry will continue to provide opportunities for wearers to connect with makers, as often the story of social injustice is told in statistics. In talking to one of our first staff members about three years into her working with us we asked, 'How is this helping you, this kind of employment and opportunity?' She said that because of this opportunity she'd been able to build a home for her family who previously lived under a plastic sheet. She went on to say that she was also able to buy her sister back off a man who owned her. This is the kind of life-transforming, generational change that the fashion industry can create, and I believe denim, with its universality, adaptability, loyalty and underlying rebellion is the community to lead the way. ■

A photograph of James Bartle, CEO of Outland Denim, sitting on a wooden chair in a rustic, wood-paneled room. He is wearing a blue long-sleeved shirt and dark pants, with his hands clasped in his lap. The background features a wooden desk and a window with a view of greenery.

*James Bartle is the founding CEO of Outland Denim, a company described as being “on the vanguard of the socially conscious manufacturing movement”. Outland employs seamstresses who have been impacted by human rights abuses and gives them a future through sustainable employment and career progression in its Cambodia-based production facilities.*

PHOTO: ANNIKA SALISBURY

*“Incredible things will happen when we simply do the bare minimum in providing people the human rights they deserve”*

# Global News

**Sweden** H&M Group has signed a multi-year deal to replace virgin cotton and wood-based fibres with Circulose, a material made from recycled textiles by Swedish company Renewcell. Pascal Brun, head of sustainability at H&M, said: "This agreement is an important milestone not only for H&M Group, but also for the wider industry in terms of having a circular product like theirs available at scale."

**UK** Jeans manufacturer Blackhorse Lane Ateliers is transforming its allotment into what it describes as London's first indigo garden, run by Luisa Uribe from Indigo Bluefields and Liza Mackenzie from Indigo Works. The plot will be used as an educational garden for learning how to grow, extract and use natural indigo to dye fabric.

**Finland** The European Commission has provided €6.7 million to a textiles recycling project led by Infinited Fiber Company, whose cellulose carbamate technology enables textile waste to be turned into a cotton-like fibre. Twelve companies are taking part in the €8.9 million three-year project, including denim mill Kipas, and manufacturers Inovafil and Tekstina. They will supply fabrics to H&M and adidas.

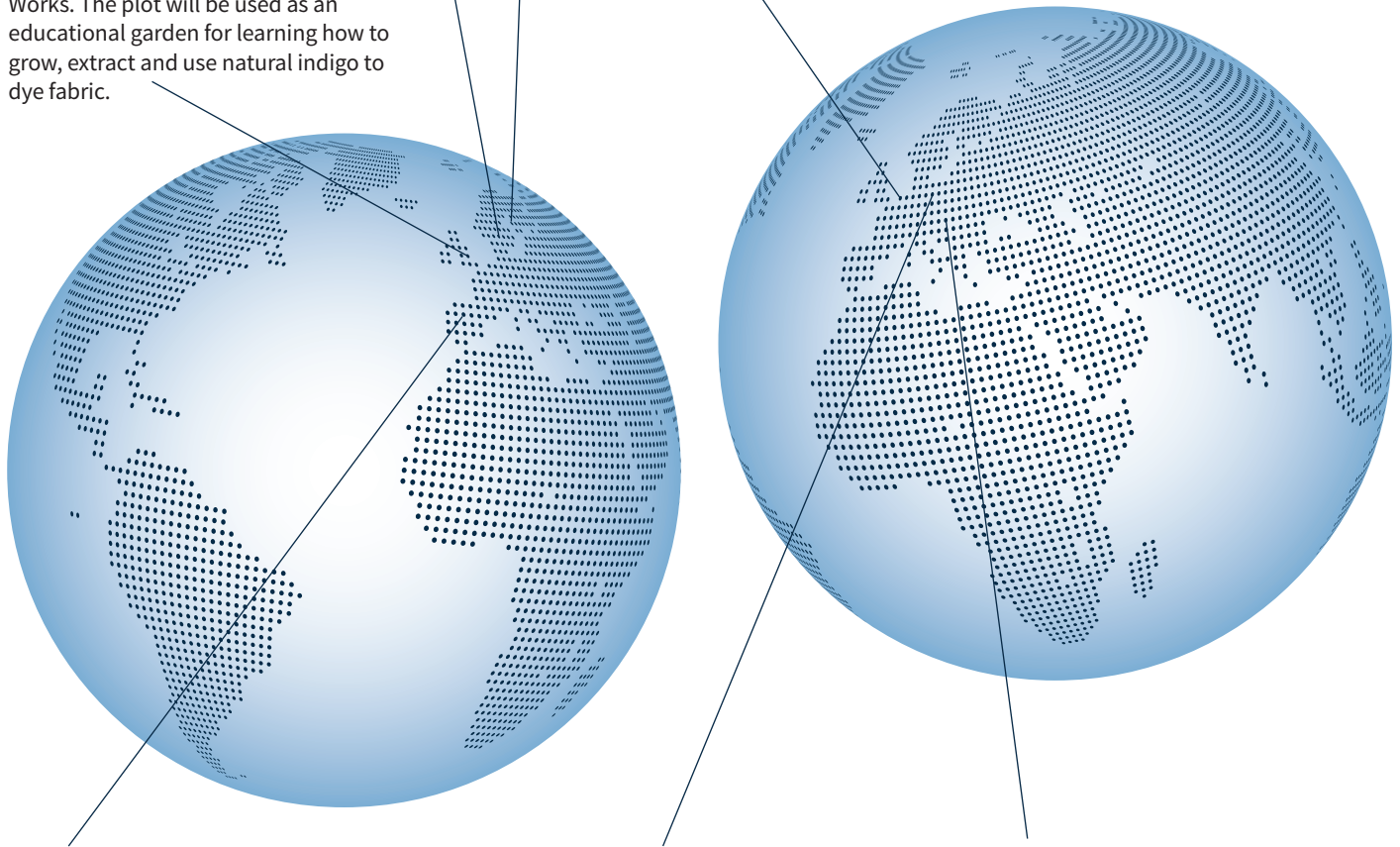
**Netherlands** The water footprint of polyester fibre is much higher than influential apparel industry calculations have suggested, according to non-profit group Water Footprint Network. The Netherlands-based organisation said the water footprint of polyester can be as high as 71,000 cubic metres per tonne of fibre, which equates 71,000 litres per kilo of fibre.

- Dutch denim brand Mud Jeans has boosted its B-Corp score by more than 35 points in three years, making it one of the top Benefit Corporations in the Netherlands. To be classed as a B Corps, a company must meet criteria in areas such as social and environmental performance. Mud founder Bert van Son said: "We have identified improvement targets that we hope to integrate in the coming years, such as increasing renewable energy."

**Spain** Technology provider Jeanologia has teamed up with 3D garment simulation solutions company CLO Virtual Fashion to allow users to import Jeanologia's files onto CLO's software. They will be able to visualise denim finishes, and then send designs to a laser machine. It will enable higher levels of collaboration between brands and their supply chain partners, Jeanologia said.

**Germany** Chemicals producer Rudolf Group has launched two water repellents based on natural components. Ruco-Dry Bio CGR is made of waste that accumulates as a by-product during the processing of cereal grains in the food industry, and is refined to create a water and stain repellent textile finish. Ruco-Dry Bio NPE is based on a mixture of plant extracts and combines water and stain repellency with breathability and a natural hand feel, the company stated.

**Austria** Fibre producer Lenzing Group will start work on a solar energy project this summer which it claims will be Upper Austria's largest ground-mounted photovoltaic plant, covering 55,000 square-metres. The plant will generate nearly 5,500 megawatt hours per year, which will help it meet its target of cutting its carbon dioxide emissions in half by 2030 and be climate-neutral by 2050.





**China** Wrangler will now be available to Chinese consumers through a partnership with Tmall, an online retailer. Scott Baxter, CEO of Wrangler owner Kontoor Brands, said: “One of Kontoor’s core strategic priorities includes expanding to new markets, and launching in China is a key step towards that.”

**South Korea** Lee launched online in South Korea, with stores set to open in March. A brand spokesperson commented: “From the official launch in South Korea, we plan to introduce a variety of fashion items, as well as denim. We plan to position ourselves as an attractive fashion brand that will appeal to millennials and generation Z.”

**Hong Kong** The Hong Kong Research Institute of Textile and Apparel (HKRITA) has signed a five-year collaboration with the H&M Foundation. Projects include a yarn that will capture CO<sub>2</sub> from the air, a bio-based option for removing indigo from wastewater treatment plants, and a system for using the recycled cellulose powder decomposed from the cotton in cotton-polyester blends to produce regenerated viscose fibre.

**US** Karachi-based Artistic Milliners has purchased a denim factory in Los Angeles, with the intention to develop the business (Star Fades International) into a “state-of-the-art” design and production hub based on supply chain 4.0 principles. Executive director Murtaza Ahmed said the acquisition gives it a strategic foothold in the US as it expects increased nearshoring.



**Israel** Better Cotton Initiative (BCI) has announced winners of a technology challenge: Israeli agricultural-tech start-up Agritask, which has won €100,000 for its mobile app that allows farmers to adopt digital solutions and remote monitoring. Second place went to Indian agricultural-tech company CropIn, for a digital farm management solution that enables “complete digitisation” of farming processes.

**Bangladesh** Denim Expert has made schoolbags from leftover denim and distributed them to local schools. The World Economic Forum praised the company as part of its New Champions awards for its sustainability progress, as well as its work with USAID to provide human trafficking survivors and transgender people with opportunities.

**Brazil** The authorities in the Brazilian state of São Paulo have confirmed 42 people died in a recent road traffic accident near the town of Taguaí and that the majority of the victims were workers at a jeans factory. Status Jeans closed its factory for three days of official mourning and supported victims’ families.

**Australia** Biomaterials company Nanollose and Indian manmade fibre manufacturer Birla Cellulose have filed a joint patent application for a high-tenacity lyocell fibre made from microbial cellulose. Nanollose uses a fermentation process to grow fibres that it believes could become “a sustainable alternative to conventional plant-derived cellulose fibres”.

**India** The Fashion For Good initiative is working with PVH Corp, Kering and Arvind on a pilot project in Gujarat that involves setting up a cotton farm over 1.5 hectares and using technology from UK-based group Materra to produce cotton using less water and no pesticide. Materra, formerly called HydroCotton, combines precision agriculture and controlled environments to create what it calls “radically resource-efficient cotton farms”.

# Industry News

## The next frontier: What blockchain means for denim

Italian jeansmaker Carrera is launching its first blockchain-compliant range after its supply chain and processes were mapped with the help of EZ Lab in Padua.

Carrera was launched in 1965 and was one of Europe's largest denim makers, but moved production to Tajikistan at the end of the 1980s to be closer to the cotton supply. It now operates a vertical operation, with spinning, weaving and finished products, employing 2,000 women.

"Our organisation was perfect for blockchain as everything is integrated in one unit," said Carrera owner Gianluca Taccella, speaking on a blockchain webinar on PV's Digital Denim Week. "We did a small survey that revealed 95% of people don't know what blockchain is but that 70% are interested in transparency, so we are confident in the future it will have a positive impact."

The webinar was hosted by Giusy Bettoni, CEO of the CLASS sustainability platform, and included Amit Gautam, CEO of traceability platform Textile Genesis, and Walfredo della Gherardesca, CEO of Genuine Way, which offers blockchain-based traceability solutions for small and medium enterprises (SMEs).

Mr Gautam explained that there are three distinct features of blockchain. "It is a way to store data but what's special is once something is written it cannot be modified. The database technology can connect transactions to each other, and the third is to do with tokenisation; that you can take a physical asset and create a digital twin; tokens or assets can exchange hands."

Textile Genesis has worked with Lenzing as well as brands including H&M to scale up its technology, and Mr Gautam believes that brands' commitments to using traceable fibres by 2025 will be an impetus for the supply chain. ■

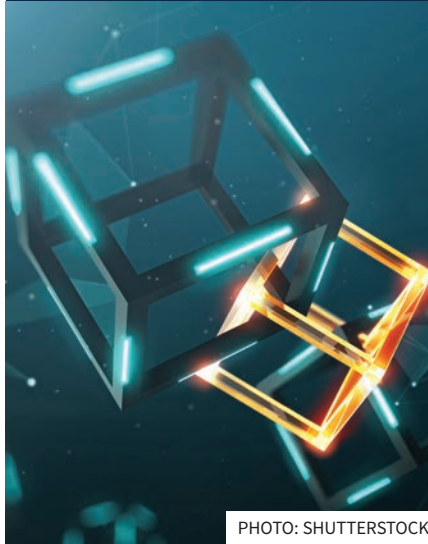


PHOTO: SHUTTERSTOCK

## Transformers' campaign gathers pace

The Transformers Foundation's #EthicalizeDenim campaign now has 14 signatories, companies "that absolutely endorse" the Calls to Action set out as part of its first report.

The foundation is seeking more companies to endorse the Eight Ethical Principles for The Purchasing of Jeans & Denim, with a target of between 50 and 100 companies in the supply chain.

"This Code of Conduct is much like the 10 Commandments in a sense - be honest, tell the truth, respect one another," Transformers founder Andrew Olah told us. Once they reach the target, they will approach brands and retailers and ask them to accept and endorse the principles, too.

The Foundation's white paper, 'Ending Unethical Brand and Retailer Behaviour: The Denim Supply Chain Speaks Up', published in October, uncovers why some brands and retailers reneged on commitments to denim suppliers, and puts forth short-and long-term solutions.

Authored by Marzia Lanfranchi, the foundation's intelligence director, and journalist Alden Wicker, the report includes in-depth interviews with executives representing a cross-section of the supply chain, including laundries, mills and cut-and-sew factories in 14 countries. Andrew Olah's hopes for the campaign and for a fairer industry can be found in our online Dialogue section. ■

## Tonello launches laser and software system

Technology group Tonello has launched a laser and software system for jeans that it describes as a "breakthrough innovation".

THE Laser includes four laser systems and new software called CREA, and is the result of "many months of hard work after listening to customers' suggestions", according to Alice Tonello, research and development director.

She said: "It is an innovative, complete laser range and reflects the keywords of our vision: simple, digital and automatic."

The machines are compact, so they need less space; they are fast, and easy to install and maintain, she added. They can also be connected to the group's Metro software, which measures consumption.

Other advantages of the machines include a system whereby the laser can understand where the garment is placed and laser correctly. "This helps to save time, and is an amazing innovation," added Ms Tonello. CREA software is described as solid, beautiful, fast and easy to use.

## H&M's 100% recycled cotton jeans

Fashion retailer H&M has teamed up with Lee for its first 100% recycled cotton jeans, made from 80% post-industrial waste and 20% post-consumer waste.

The retailer will also share the garments' life cycle assessment data (including the water, CO<sub>2</sub> and energy impact of each piece, from raw material through to end of use) on its website.

H&M's global sustainability manager, Pascal Brun, said: "The H&M x Lee collaboration clearly shows our efforts in making fashion sustainable and transparent. From the use of materials to water saving methods, we are pushing the boundaries and opening our doors for how you can design and produce denim garments.

"I am excited that we also for the first time will share data indicating the water, CO<sub>2</sub> and energy impact of each denim garment during the production process."

## AFM chooses natural dyes

Pakistan-based AFM has taken "another step towards sustainability" by introducing a line of naturally dyed denim jeans. Chestnut wood, reseda weld (aerial parts), madder plus roots, cochineal insects, acacia bark and buckthorn roots made up AFM's denim dyeing palette for the collection. All dyes used came from "all-natural" sources via a "premium European supplier", the company said. ■



PHOTO: SOKO CHIMICA

## Soko touts powers of Black Magic

Italian chemicals company Soko Chimica has developed a product for black denim that saves water by achieving the same bleaching in single bath of water that would normally be achieved in two or more, and which also saves time and energy, it claims.

It has also opened an Innovation Hub (pictured) at its headquarters in Firenze as a space for brands, designers and the wider industry to discover new products and gain design and technical inspiration. While many have scaled back spending during the pandemic, Soko took the opportunity to renovate and invest, with a redesigned lab, showroom and office, as well as the new hub.

Black Magic is one of the first innovations to come from the new hub, offering a way to wash down black denim in one bath, reducing time, energy and water consumption.

Black Magic works at 50°C rather than the conventional 80°C, reducing steam, and works at pH10, meaning gentler processes can be used, eliminating the need for caustic soda. The process means less stress for fabrics, in particular stretch fabrics, which can result in fewer rejects, according to the company.

Matteo Urbini, managing director of Soko Chimica, said this is just the start of similar sustainability-focused developments, and the hub will offer a positive space for those seeking solutions. “Last year was hard for everybody, but we are from Florence and we believe in Renaissance, it's part of our culture and it's part of our vision,” he added. ■

## Arvind backs cotton project in Gujarat

The Fashion For Good initiative has announced a new cotton project, working with fashion groups PVH Corp and Kering and denim manufacturer Arvind, in Gujarat.

The project involves setting up a pilot cotton farm over 1.5 hectares and using technology from UK-based group Materra to produce high-quality, long-staple cotton using less water and no pesticide.

Materra, formerly called HydroCotton, was one of 13 start-ups that Fashion For Good selected in 2020 for inclusion in an accelerator programme. Materra's approach combines precision agriculture and controlled environments to create what it calls “radically resource-efficient cotton farms”.

The pilot farm will be equipped with a network of sensors to track data in real time. This will allow what Materra calls “efficient irrigation”, delivering the right amount of water directly to the roots of the cotton plants. The system is also pesticide-free: it monitors pest outbreaks and, when necessary, the farm will use biological pest control to combat them. ■

### Bossa blends nature and nurture

Customers' desire for comfort and changes to working patterns caused by the pandemic will have an influence on denim trends, according to Turkish mill Bossa. It has split its fabrics for spring-summer 2022 into four categories: Heritage, Dark Side, Sweet Home and Nature Breath. “We take inspiration from different sources; from cultural movements, from social movements, from fashion trends and we try to translate that into our denims,” said Bossa designer Piero Turk.

### Orta threads an ‘ecolution’

Turkey-based denim mill Orta launched its “ecolution” for Spring/Summer 22, “deeply rooted in ethical innovation, circularity, transparency, authenticity, ultra-performance and durability” says washing manager Zennure Danisman. Key to this is Orta's “golden ratio” of pre- and post-consumer recycled materials and alternative natural materials, which Ms Danisman said would become Orta's standard going forward.

### Isko and Johnson meet again

British designer Miles Johnson has joined forces with Isko for a second time on another Light on the Land collection, designed in partnership with Creative Room and Iskoteca, Isko's Italian style and washing research hubs. Each item was created with fabric from Isko's R-Two range (containing reused cotton and recycled fibres), and which have been designed with “material circularity embedded into the production processes, designing out waste and minimising impact,” Isko said. Light on the Land 2.0 “incorporates responsible design principles” overall - including innovative apple-based trim material by Cadica - and has been developed using “eco-conscious finishing techniques”, the company said.

### Unravelling DNM's chrysalis

Inspired by the chrysalis phase, wherein the caterpillar becomes a butterfly, denim producer DNM Denim (headquartered in Turkey, with a factory in Egypt) has unveiled its “chrysalis project”. Shaped'N Relaxed is made with Lycra and focuses on comfort, fit and shape. The Iconic Touch offers softness and sustainability using Tencel and EcoVero, among others. Tokio Spirit uses cottonised hemp and Comformance offers a solution for “environmentally-conscious fashion enthusiasts”. ■

# The makings of 'low carbon' cotton

**T**o be true, the entire fashion industry is accused of being unsustainable. But the extent of its impact is often based on incomplete or outdated data, and there is little solid research to set the record straight. This is not unsurprising given the size and fragmented nature of the market. Awareness however is growing that the numbers, copied from one industry report to another, are far from foolproof or even accurate. The challenge for cotton is that calculating the impacts of an agricultural resource is even more difficult than measuring those of an industrial process. Energy, water and chemical use in fields depend on weather conditions, vary widely from farm to farm and from year to year. Cotton has become 'demonised', says Andrew Olah, CEO of Olah Inc, founder of Kingpins and the Transformers Foundation. "We need to stop treating cotton like it comes from a factory. It doesn't, cotton comes from farms, and each farm is different." He says it is near impossible to evaluate the impacts of cotton farming on a global scale as conditions on a smallholder farm in India will be worlds apart from those on a huge agro-industrial estate in Brazil.

If that's the case, then what is sustainable cotton? To this fundamental question, there is no simple answer. There is however growing momentum to promote better practices and no lack of organisations, institutions, industry frameworks and working groups to help the industry make progress.

Cotton gets a bad rap. It is accused of consuming undue amounts of water and chemicals from farm to mill. But it is fighting back. Better data is being collected to improve statistics and the adoption of regenerative practices is helping frame the natural fibre in a more positive light.

The good news is that they are now increasingly working together to clear up the confusion in sustainable cotton practices and labels. Among these, the Textile Exchange, Delta Framework and US Cotton Trust Protocol are seeking to align the different standards and improve industry statistics. "The global cotton community has realised it needs better data and it is taking measures to achieve unity on information collected on farms," says Brent Crossland, a global sustainability and regenerative cotton consultant and Textile Exchange ambassador. He cites Farm to Field, Myfarms, the Cool Farm Tool and Field Print Calculator as new platforms designed to help farmers log the various metrics to support their sustainable practices.

## A common ground

The US cotton industry launched the U.S. Cotton Trust Protocol in 2020 to improve the sector's practices and monitor progress. It includes elements of regenerative agriculture, such as reducing soil loss and increasing soil carbon, measures that it says improve yields. The parameters tracked also cover land use, water management, greenhouse gas emissions and energy efficiency, and will provide a clearer picture of previously unavailable field data, it says.



*Levi's supports sustainable cotton farming and farmers as part of the Sustainable Cotton Challenge launched by Prince Charles, The Prince of Wales in 2017. Shown here, products from Levi's Spring/Summer 21 Made & Crafted collection that features premium denim fabrics.*

PHOTO: LEVI STRAUSS

Farmers participating in the programme are invited to report their data using the Field to Market platform. “Field to Market has created a data collecting tool that is as user-friendly as can be,” said U.S. Cotton Trust Protocol president Dr Gary Adams, speaking at a webinar on “Addressing gaps in sustainability: why brands need more data”. He emphasised the importance of better statistics. “The industry needs relevant and useful, standardised data, and it needs to be updated regularly,” he added. As self-reporting will be suspected of unreliability, independent verification will be conducted by Control Union on a selection of farms. This, he says, will provide a measure of accountability. The protocol is now included in the Textile Exchange’s list of ‘preferred fibres’.

The Delta Framework, which is a part of Cotton 2040, a multi-stakeholder programme created by sustainability non-profit Forum for the Future, is an ambitious plan to harmonise metrics and standards. It has identified 15 farm-level indicators across three main pillars — environmental, social and economic benefits — covering what it believes to be a foundation for better practices. This vast undertaking has reached out to 54 different organisations, from UN agencies to research institutions, and plans to present a finalised programme by mid-2021.

“Our goal is to make the cotton industry more sustainable and resilient so that sustainable cotton is no longer a niche, but the way things are done,” said Charlene Collison, associate director at Forum for the Future, in a presentation of the Delta Framework.

Textile Exchange is part of the Cotton 2040 Project, it has also formed the Sustainable Cotton Roundtable and manages the 2025 Sustainable Cotton Challenge. “These working groups and programmes all seek to harmonise standards and remove confusion,” says Mr Crossland. He does point out however that they put much of the burden on farmers. “The challenge is what do we need to know? The data that farmers need may not be the same information that consumers will find useful. We need better statistics that measure improvement, but we should not ask for more than we need.”

### Regenerative vs extractive

Documentaries such as “The Biggest little farm” in 2018 and “Kiss the ground” in 2020 have helped bring the issue of regenerative agriculture to the mainstream. “The topic resonates strongly with consumers and these films help better understand what this type of farming is,” says Mr Crossland. He says regenerative practices have also gained a lot of play with farmers, as they can apply them in stages. “Regenerative makes sense from a farmer’s point of view as it covers many different aspects of farming and can improve yields and diversify crops, while improving soil health.”



“Maintaining healthy soil will have repercussions on other impacts areas such as water and energy use,” says Dr Jesse Daystar, chief sustainability officer at Cotton Inc. He cites cover crops as having potentially a beneficial impact. This soil enrichment technique keeps roots in the ground and thus minimises disruption to its biome. The advantages of reduced tillage and cover crops can vary by region depending on soil types and weather conditions. “Farmers will need to try different methods, and experiment with them.” They will also need to adopt a new mindset and accept a changing landscape. “Many are not used to scrubby fields,” he says.

*The cotton industry is aware it needs to provide more complete and up-to-date information on farming practices.*

PHOTO: COTTON INCORPORATED

*After switching to 100% organic cotton in 1996, sportswear brand Patagonia is now betting on regenerative organic cotton, used to make a series of T-shirts.*

PHOTO: PATAGONIA



This is a point that Dr Cristine Morgan, chief scientific officer for the Soil Health Institute, a non-profit, also raises. “Fields where regenerative agriculture techniques are applied look different, they can look messy, and this goes against socially accepted norms.” She recommends putting signs at roadsides to display soil health scores that will help explain why they look unkempt.

### Carbon sequestration

A technique that has relied on a loosely defined set of practices to maintain soil health, and as such improve its resilience and potentially sequester more carbon, regenerative agriculture is also being formalised into a new standard. The Regenerative Organic Alliance (ROA) has introduced a certification programme which adds a number of criteria to existing organic standards, including soil health, animal welfare and social fairness. These, says ROC director Elizabeth Whitlow, “are missing from organic farming”. It is designed as a “bolt-on” that organic certifiers can add to their audits. The cotton and denim industries are a key focus for the organisation and the first tests were conducted with Patagonia, a founding member of the programme, and Arvind and Pratibha in India.

e3 cotton, developed by BASF, has been promoting what it calls “carbon positive cotton farming” for years. A fully traceable system from seed to garment, it also measures CO<sub>2</sub> levels at each stage of the supply chain. Committed to sustainable manufacturing, Vidalia Mills sources all of its cotton from e3 producers.

Major brands are making moves in the same direction. Levi Strauss has linked its sustainability goals to those of the U.S. Cotton Trust Protocol. Kontoor brand Wrangler is working with the Soil Health Institute and MyFarms to support farmers switching to regenerative practices. This is part of its goal to source 100% sustainably grown cotton by 2025. Lee, also a Kontoor brand, has taken similar measures.

How much impact these measures will have on cotton prices is open to question. For some, regenerative increases yields, diversity of crops, and can provide carbon credits that can be a new source of revenue for farmers. For others, the transition from conventional to regenerative, and then possibly to organic, will impact a farmer’s revenues, increase prices, and potentially add time-consuming data collection to a workday. Paying more for more sustainable raw materials is normal, says Andrew Olah: “It is unacceptable behaviour that a brand refuse to pay extra for more sustainable practices. It is a matter of doing the right thing not because it is sustainable, but because it is the right thing to do.” Regenerative farming, he says, is not a trend, it’s a good way of farming.



The Rodale Institute, a research institute on regenerative and organic farming, believes the technique has the ability to sequester all of the world’s annual carbon emissions. Scientists do however question the magnitude of impact it can have, all the more so in the absence of a globally recognised method of measuring carbon sequestration. It is expected that its application in cotton farming, coupled with the collection of better quality data, will provide a clearer picture of impacts and progress made. This might in turn help craft a more positive picture of denim’s favourite fibre. ■

*Wrangler (seen here launching in China) has invited cotton farmers who can demonstrate soil-carbon and biodiversity improvements to be part of a collection for the Jeans Redesign project from the Ellen MacArthur Foundation.*

PHOTO: WRANGLER/  
BUSINESS WIRE

### Sustainable cotton production

The Textile Exchange monitors the evolution of sustainably grown cotton globally as part of its 2025 Sustainable Cotton Challenge. The 2020 annual report shows that the market share of what the organisation calls “preferred” cotton is up. It represented 22% of global production in 2017/18, with a striking 58% increase over the previous period, growing from 3.8 million tonnes to 6 million tonnes. Preferred cotton is that which is certified by the Responsible Brazilian Programme (ABRAPA), BASF e3, Better Cotton Initiative (BCI), Cleaner Cotton, Cotton made in Africa (CmiA), Fairtrade, Fairtrade Organic, International Sustainability and Carbon Certification (ISCC), Australian sustainable cotton organisation myBMP, Organic and REEL Cotton. The data for 2017/18 does not include Transitional Cotton, Regenerative Organic Certification (ROC) or US Cotton Trust Protocol programmes, not formally launched at the time. They will no doubt add to the global availability of more sustainable cotton.

When textiles were first identified as a source of microplastic pollution, polyester fleece was rapidly singled out as a likely major contributor. But new research has revealed the presence of cotton and cellulosic microfibrils, too. These are being found in places where they are not expected to be, going against a widely held assumption that natural and wood-based fibres are biodegradable.

## Not only plastic

**C**otton and cellulosic microfibrils are being found in the Arctic, in the deep sea and in the air we breathe. A research study has even collected indigo-dyed cotton fibres in the far reaches of the Canadian north. It is not yet fully understood how they get there (it might be through the air), and it is not known how dangerous they are.

Should we be concerned? Cellulose is a natural material, it is the most abundant biopolymer on Earth, and its presence in waterways may come from sources other than textiles. But the microfibrils being found are often of a modified type, known as anthropogenically modified cellulose, which is not a natural substance.

Reports indicate that the presence of cotton and cellulosic microfibrils is far from trivial. These two fibre families represent roughly 36% of all textile fibres produced annually but they made up nearly 80% of the microplastic particles collected in the Southern European deep seas. Polyester came in second (13%), followed by acrylic, polyamide, polyethylene and polypropylene. These are the findings of a research team led by Anna Sanchez Vidal at the University of Barcelona, Spain, in a paper published in 2018.

“Though polyester is the main fibre used in clothing, it is not the main fibre observed in oceans and in nature. Natural fibres are found in high proportions, even though it is believed they should biodegrade,” said Dr Richard Blackburn, associate professor and textiles technology group leader at the University of Leeds, speaking at a webinar organised by The Microfibre Consortium.

Cellulose is the most abundant polymer in the world, and cotton a very pure form of cellulose, he says. Once mercerised, however, cotton fibres switch from cellulose type I to cellulose type II, a term used to describe manmade or semi-synthetic cellulosic fibres such as viscose and acetate. “It is not a naturally occurring fibre,” he says. Various chemical treatments including oxidisation, or bleaching, change the chemistry of the fibre, while dyes form covalent bonds that make cotton more crystalline. This, he says leads to a greater possibility for chemicals to leach from cotton than from a synthetic fibre.

In this relatively new field of research, there are many gaps in the science and literature. It is not known how microfibrils adsorb or release chemicals in the environment, nor how chemicals affect biodegradation, and even less is known on their potential impact on the health of biota and animals as they travel through the food chain.

Research from North Carolina State University, funded by Cotton Incorporated, shows that the natural fibre biodegrades faster than synthetics in wastewater treatment plants, fresh water and salt water environments. “Once dyed and finished, cotton fibres still biodegrade, but sometimes at faster or slower rates, and more research is needed to better understand how textile chemistries accelerate or retard fibre degradation,” says Dr Jesse Daystar, chief sustainability officer for Cotton Incorporated.





French brand Kaporal Jeans identifies its most sustainable products as part of its Blue Impact label and has taken measures to remove virgin synthetics from its ranges and replace them with Unifi's Our Ocean recycled polyester from ocean-bound plastics.

PHOTO: KAPORAL JEANS

Additionally, related research with University of North Carolina Wilmington is under way to better understand how accumulated cotton and polyester microfibrils impact aquatic life. “The science surrounding the environmental impacts of microfibrils is quickly evolving and Cotton Incorporated is committed to leading research to better understand and address the impact of apparel on the environment and reduce the environmental impact of our clothing.” Cotton Incorporated is also working with Ocean Wise to investigate ways to reduce microfibrils shedding from textiles.

### Phasing out polyester

As more is known, it may become more difficult to brush the issue aside. Its emergence has led some companies in the denim industry to phase out polyester and seek alternatives for other synthetics. In Italy, Candiani is replacing fossil-fuel based fibres with plant-based ones, as seen with Coreva, a biodegradable stretch fibre made from natural rubber. Turkish mill Orta Anadolu is said to be rethinking its policy with regards to synthetic fibres.

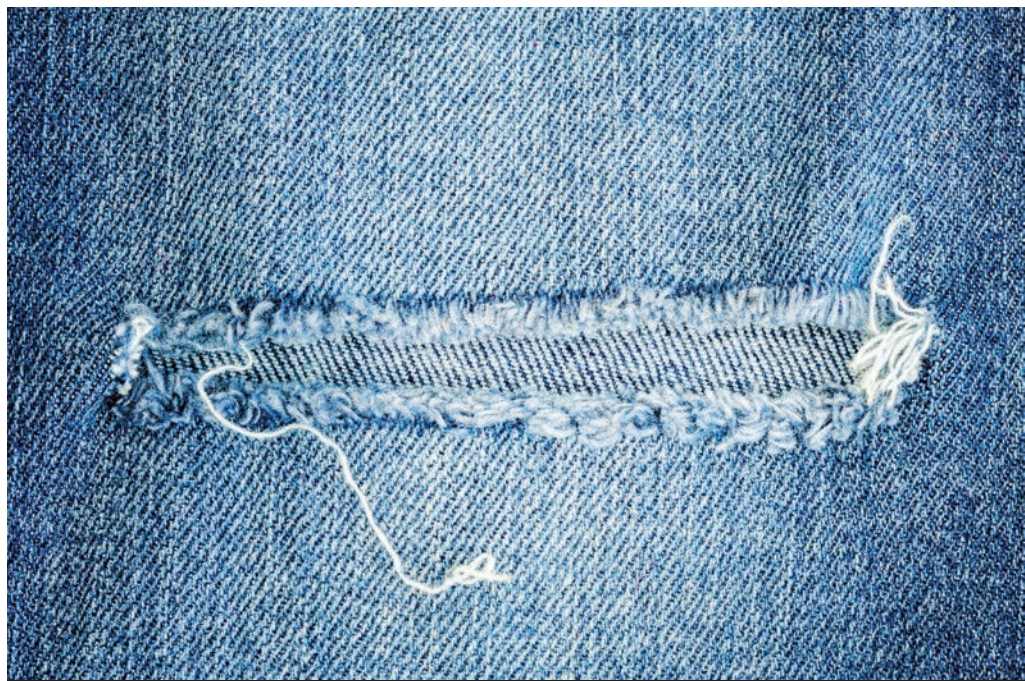
French jeans brand Kaporal is addressing the issue by phasing out the chemicals that can leach from a fabric and generate microplastics, Beatrice Gonzadi, the brand’s sustainability manager, tells *Inside Denim*. It now sources recycled polyester from Unifi’s Repreve Our Ocean programme, which contributes to removing what are called ocean-bound plastics from the environment. The brand has created a Blue Impact label for its most eco-responsible products. “When we launched this range, in autumn/winter 2019, it had a single reference, and we now have 30% of the spring/summer 2021 collection that is sustainably designed,” she says. The brand’s goal is to reach 50%, and this, she notes, covers the entire sourcing and manufacturing process, including fabric, laundering and accessories.

### Anthropogenically modified cellulose

But keeping synthetics to a minimum in collections is only part of the problem. The number of indigo-hued cellulosic microfibrils that a research team at the University of Toronto found in its study prompted it to focus specifically on this source of pollution. The report, ‘The Widespread Environmental Footprint of Indigo Denim Microfibers from Blue Jeans’, was published in July 2020.

## “Fibres could be a conduit for persistent legacy chemicals entering the environment”

SAMANTHA ATHEY, UNIVERSITY OF TORONTO



The research team found that textile microfibrils made up 87% to 90% of the anthropogenic particles found in sediments collected in the Canadian Arctic Archipelago, Laurentian Great Lakes and shallow suburban lakes in southern Ontario. Among these particles, 21% to 51% were anthropogenically modified cellulose, and 40% to 57% were identified as indigo denim microfibrils, representing 12% to 23% of all microfibrils analysed.

These numbers led the authors to “hypothesise that blue jeans are a major source of introduction of anthropogenic cellulose microfibrils into aquatic environments and serve as a tangible and potent indicator of anthropogenic pollution”.

Dyeing, along with other treatments applied to improve the durability or performance of fabrics, are thus believed to increase the synthetic content of the original raw material. “We found microplastic microfibrils in sediments at 1500 metres. It takes them a long time to reach these depths, but our research suggests that they biodegrade at a slower rate than previously thought,” says Samantha Athey, key author of the paper. She does however concede that this could be due to the colder conditions found at these depths and that cellulosic fibres should break down faster than synthetic ones.

*A Toronto University research team turned its attention to jeans as a source of microplastic pollution.*

PHOTO: SHUTTERSTOCK.COM

The team compared the microfibrils collected in the environment with those shed by domestic laundering, with a series of three types of jeans: used, new and distressed models of Levi's 501 Original Fit blue jeans made in 98% to 100% cotton. New jeans were found to release a significantly greater number of microfibrils than used ones. "We found that the microparticles released during washing were virtually the same as fibres found in the environment," says Ms Athey.

For her thesis, Ms Athey is pursuing research into domestic laundering as a source of textile microfibrils and specifically seeking to identify the presence of unintentionally added contaminants, such as PCBs, plasticisers and flame retardants. "These legacy chemicals are no longer in use, but they are persistent and identified as Chemicals of Mutual Concern in the US and Canada. Fibres could be a conduit for them entering the environment," she says.

### The study of fibre fragmentation

More research is needed to understand the many parameters that lead to fibre shedding, be it during manufacturing or home laundering. Not only is the issue complex, it is also difficult to quantify. There is as yet no globally recognised method of collecting and measuring the samples themselves. This has been the first focus of research for industry organisations looking to better understand the issue and determine its impact on manufacturing.

In 2018, five industry organisations created a Cross Industry Agreement (CIA) to tackle the microplastics issue. Members include trade bodies representing detergents (AISE) and synthetic fibre manufacturers (CIRFS) along with European outdoor (EOG), textiles (EURATEX) and sporting goods industry (FESI) associations. The CIA published an update on its research in January and announced that a harmonised test method had been developed and handed over to the European Committee for Standardisation (CEN) for use as an official standard.

New research suggests that home laundering may not be the predominant emission pathway, the CIA update says. It confirms that natural textile fibres make up a greater proportion of textile fibres sampled in the air than synthetic fibres, in a proportion of 70-75% for natural and regenerated cellulose materials and 17-30% for fibres of petrochemical origin. It intends to pursue research to better understand what triggers fibre fragmentation which should help find a solution to reduce the phenomenon.

**“Natural fibres are found in high proportions in the environment, though it is believed they should biodegrade”**

DR RICHARD BLACKBURN, UNIVERSITY OF LEEDS

The Microfibre Consortium (TMC), based in the UK, has been working on the issue since 2016. Its research first focused on the development of a collection and quantification protocol, but it is also looking into the mechanics of fibre fragmentation and is testing fabrics (200 to date) to build up a knowledge base. "We are collaborating with members to test more fabrics, in specific research areas, that will provide the consortium with the data needed to produce conclusive industry statements," TMC managing director, Sophie Mather, said in an emailed statement. TMC members include some 40 companies among them Fast Retailing, Gap, H&M, Inditex, Primark and Target.

At a recent online forum with its research partner the University of Leeds, the organisation presented data that confirms the complex nature of fibre fragmentation. Contrary to the findings of earlier research papers, it says it is not related only to fibre composition, but to the interconnection of all elements that make up a textile. The results of its research will be presented at the TMC Fibre Fragmentation Summit to be held online from March 23 to April 1, 2021.

There is, as yet, no clear idea of the pathways the microparticles take nor how dangerous natural fibres are. "Anthropogenic modified cellulose may not be as persistent as synthetics, but we are finding them everywhere, in the air, in the sea, in animals, in biota. Until we can confirm they are not harmful, we should mitigate their release," says Samantha Athey. She mentions laundering less and adding better filters to washing and drying machines. Some research suggests that adding a specific type of enzyme to wastewater treatment plants could be a solution. Many questions remain about these tiny particles and the debate goes beyond plastic. ■

*Early studies focused on laundering as a source of microfibre pollution, new research is needed to assess the contribution of textile and clothing manufacturing, from yarn to fabric and to garment finishing.*

PHOTO: SHUTTERSTOCK.COM





The development of a dry leaf extraction process allows Stony Creek Colors to scale up production of its natural indigo dyes.

PHOTO: STONY CREEK COLORS

# Rethinking the chemistry of colour

**W**hether based on recycled textile waste or natural indigo, these alternative dyes are, for now, just that, alternative. Very few can equal the scale and performance of synthetic indigo. When more sustainable practices are called for, chemicals companies have, or develop, solutions. The introduction of pre-reduced or liquid indigo some 20-odd years ago significantly improved the environmental profile of denim dyeing. An aniline-free solution, developed by chemicals company Archroma, is considered a further step in the right direction. These are without question better and welcome, but they don't address the rumblings for more natural solutions.

As demand for more natural materials and processes grows, so does interest in alternative and plant-based dyes. From natural indigo to recycled agricultural or industrial waste, this new outlook is fuelling experimentation and expectations.

The reintroduction of natural indigo in industrial processes is the mission that Stony Creek Colors, a company based in Springfield, Tennessee, is pursuing with dedication. Its innovative dry leaf extraction process, in operation since 2019, is ready to be scaled up and should be patented this year. The company founded in 2012 has faced many challenges in its drive to make the natural dyestuff suitable for today's industrial needs. "We looked to improve each stage of the process, from seed to mill, and believe it is possible to disrupt each one," company founder Sarah Bellos tells *Inside Denim*.

The crop itself had faded from the agricultural landscape, and had therefore not benefitted from modern farming techniques. To improve yields and consistency, it was first necessary to identify and breed new indigo plants. “We are at a stage where it is possible to make giant leaps in indigo yields, as opposed to other crops that have been optimised for decades,” says Ms Bellos, citing corn and cotton having been incrementally improved over many years.

The perishable nature of the leaves, from which the dye is extracted, was another challenge. Their shelf life is in the order of 4 to 5 hours, she says. To address this issue, which is the crux of its extraction innovation, the company developed a process that involves the stabilisation of the leaves to limit their perishability and allow year-round extraction. This solved the issue of scaling up production and, even more critically, provides batch-to-batch consistency.

For Stony Creek, the reintroduction of indigo crops supports the growing trend towards regenerative agriculture. “Our indigo plants partner with bacteria in the soil to extract nitrogen from the air and use it to grow the plant. Nitrogen cycles are critical to agriculture, as they are a source of fertilisers,” says Ms Bellos, who adds that tropical indigo is a legume crop. “Leaves are composted after extraction and stems and roots are left in the field, which improves carbon sequestration and helps soil regenerate,” she adds. The company says that this makes its agricultural practices not just climate neutral but climate positive, while offering the market a bio-based chemical.

Stony Creek Colors is currently supplying textile dye partners and denim mills in the US, Mexico, Turkey, Italy and China, and selectively integrating new partners. It claims that its natural dye can be used as a drop-in solution. “The purity of our plant-based indigo dye is still somewhat lower than that of petroleum-based dyes, but the unwanted elements are non-toxic,” says Ms Bellos. Current production is consistently sold out, but the company’s goal is to make it available season after season without disrupting a brand’s supply chain. “We know now that our plant-based indigo solution works at industrial mills and will work with those companies that see the value of using natural indigo.”

### Changing views

Natural indigo may in time find its place on the market, agrees Ali Tekin, head of R&D for Pakistan-based AGI Denim. He compares its evolution to that of organic foods and organic cotton. “At first, they were much more expensive than their conventionally grown equivalents but with time, quantities increased and prices went down. I think natural dyes will follow a similar path. They require more effort at first, and not all brands and consumers are ready to make the shift. But if there are enough that are willing, it can turn into a viable market,” he says.



With regards to processing, whether synthetic or natural, indigo needs to be made soluble. “But each solution has its advantages and disadvantages,” says Mr Tekin. Besides its steeper price, natural indigo lacks the uniformity of synthetic dyes and often requires longer production times. “There is no standard recipe for natural indigo,” he says, and depending on weather conditions, the plant will produce a greener or yellower shade. Among its advantages, he lists its renewability, biodegradability, non-toxicity and skin friendliness. Ideally, plant-derived indigo should be processed using natural and non-toxic chemistry, but it may require the addition of synthetic chemistry to obtain better results or brighter colours. “We are working on all of these issues today, so as to be ready for the future,” says Mr Tekin. He believes that natural indigo could make up 15% to 20% of the market in five years. Other sustainable processes, such as waterless dyeing, he points out, went from virtually zero to mainstream in five to six years. As part of its strategy to favour more sustainable processes, AGI has introduced a natural, organic reducing agent, which replaces salt with glucose and eliminates hydrosulphites, leaving no toxic residue in wastewater.

*AGI Denim is exploring the possibilities of using natural indigo.*

PHOTO: AGI DENIM

In its exploration of alternative dyes, AGI is also working with Nature Coatings. The California-based company founded by Jane Palmer uses FSC-certified wood waste to make a high-performance black pigment. “This solution solves the issue of petrol-based carbon black which has many health concerns,” says Mr Tekin. Nature Coatings’ closed-loop manufacturing process is very clean, requires no external source of energy and emits only steam. It is also easy to process, resists humidity and UVs, and is a cost-neutral high-performance dye, he says.

Plants and agricultural waste are not the only source of novel pigments in the denim industry. Using old clothes to dye new ones is the innovative and sustainable solution invented and patented by Andrea Vernier, CEO of Officina +39. The process known as Recycrom starts with leftover fabric scraps in cotton or cellulosic fibres (tolerance for other fibres is low, in the order of 3% to 5%), these are sorted by colour and ground into powder using an eight-step process that is mainly mechanical, he tells *Inside Denim*. And, he says, it is growing demand for natural dyes that first inspired him to seek a more sustainable solution.

Recycrom is now reaching industrial scale. The company recently dyed 150,000 pieces with pre-consumer waste for G-Star and OVS, and produced Recycrom dyes from unsold Inditex group garments to make a capsule collection. The company is now looking into the possibility of recycling fabrics made in other fibres into dyes and is stepping up trials with second-hand clothing. Through its participation in the Fashion For Good incubator programme, Officina +39 is working with Reverse Logistics and I:CO on these projects. The company has also expanded the options, introducing Recycrom for screen printing. It is working on developing solutions for fabric dyeing and for coatings.

### A shift to natural processes

Heightened interest in natural or plant-based chemicals can be seen throughout the denim industry and not only in dyes. Italian mill Candiani introduced a chitosan-based alternative to PVA with Kitotex, and then a plant-based solution known as V-sizing.

Italian laundry specialist Tonello is developing dyes made from vegetable food waste, using a natural mordant, in its Wake process. Though processing is faster than that of indigo, not all shades offer the performance levels of synthetic dyes, the company says. A fixing agent can be added, but that will go against the “all-natural” claim, R&D team member Carlo Reniero told *Inside Denim*.



Archroma was a precursor in the recycling of agricultural waste into colourants when it introduced its EarthColors dyes for cotton and cellulose fabrics and garments. Coming from a well-established supplier of chemicals, they may help change the industry’s views on plant-based chemistry. The company’s latest development, an indigo that is near aniline-free (the presence of aniline is below limits of detection by standard test methods), has been adopted by Soorty.

With its Smart Indigo technology, the Pakistan-based denim manufacturer uses electricity instead of chemistry to reduce liquid indigo. This, the company says, removes many of the harmful chemicals that end up in wastewater. Soorty is experimenting with natural indigo, another process that discharges cleaner wastewater, it claims.

*Officina +39 has developed a version of Recycrom, its patented process that makes pigments from fabric scraps, that creates a dirty, vintage feel.*

PHOTO: OFFICINA +39



*The black pigment developed by Nature Coatings is made from wood waste.*

PHOTO: NATURE COATINGS

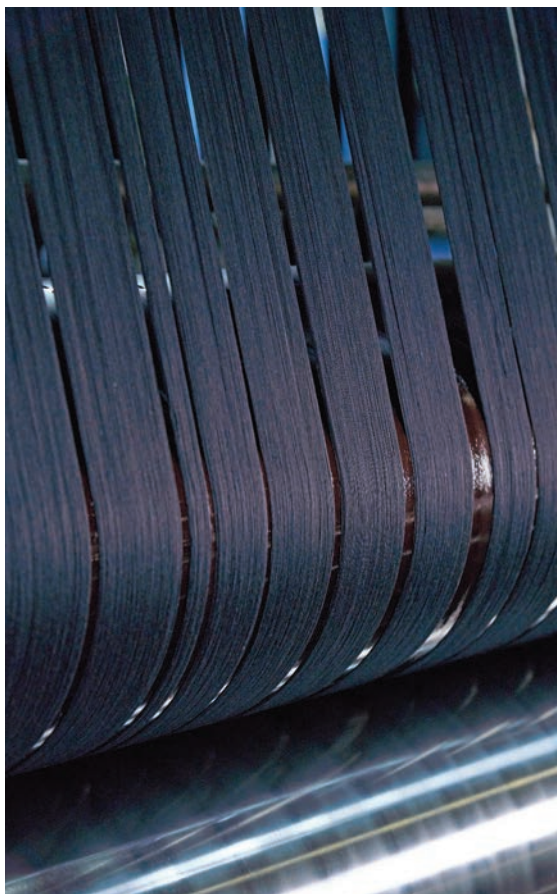
The optimisation of dyeing operations is an ongoing process at Sharabati Denim. The Egypt-based company has focused on the automation of the dyeing machines themselves, enabling the company to increase quality, efficiency and production capacity. The Sahara process it developed uses a new chemical to improve indigo uptake on warp yarns and reduce the number of washes needed to remove unfixed dyestuff. Foam and nitrogen dyeing processes are other more sustainable measures in development.

Iskur Denim has recently focused on reducing the amount of dyestuff needed to make very dark shades of blue. The result, Blue Zircone, is said to cut water use by 95% and offer long-lasting colour that does not fade, even after 40 home laundries. The Turkey-based company introduced We Are Water (WAW), a certified water-saving indigo dyeing technology in 2017, which will be rolled out across all of its denim pieces by the end of 2021.

### Finding the right balance

Without denying that demand for more natural products is up, Günther Widler, DyStar's head of technology for denim, believes the market needs to find the right balance between natural and synthetic indigo. He points out that it may be difficult for plant-based indigo to reach the level of performance and optimisation that synthetic indigo has benefitted from since it was first invented 125 years ago. In 2017, the chemicals company introduced Cadira Denim, a resource-saving concept based on its pre-reduced Indigo Vat 40% Solution combined with a biodegradable organic reducing agent (Sera Con C-RDA), which, he says, "does the job without the negative effects of the salt." It is part of the company's focus on reducing the footprint and side effects of indigo chemistry, furthered by the launch of indigo spray in 2018.

DyStar is now testing the possibility of filtering out indigo pigments after dyeing so as to release cleaner wastewater, which Mr Günther says could be reused in some processes such as pre-treatments, leading ultimately to a closed loop use of water and indigo in factories. "We are working with chemists to find the best and most environmentally-friendly solution. It is our responsibility to use the right chemistry in the right quantities," he says.



*Sharabati Denim's Sahara process uses a new chemical to better fix the indigo on the warp yarn, removing wash steps for unfixed dyestuff.*

PHOTO:SHARABATI DENIM

Providing sufficient quantities of plant-based dyes for an industry that currently consumes in the order of 50,000 to 70,000 tonnes a year of synthetic indigo is not feasible and not in the interests of the industry nor, for that matter, the world. "The surfaces required to grow the amount of dyestuff the denim industry uses would be gigantic, possibly the size of Bangladesh, and would replace food crops," he posits. It is not possible to rely entirely on natural indigo, he insists, other than for special collections and capsule lines. "In the future, the situation may change with the development of biotech dyes. But these processes require sugar, and may lead to the same discussion with regards to land use. The question would then be: should sugar be used to make dyes or to feed people? Food for thought," he says.

Plant-based dyes may require extra processing steps in the backend of the supply chain, which may offset the sustainable nature of these products, as a spokesperson for Sharabati Denim points out. "Natural dyestuffs are not yet perfectly suited to industrial processes," agrees Ali Tekin at AGI Denim, but he believes they could, in time, become a viable solution and could address market demand for more natural and sustainable jeans.

The outlook for bio- and plant-based chemicals is mostly positive. Some solutions, such as Nature Coatings' bio-black, tick all of the boxes with regards to performance and price. But blue is another story, and natural indigo faces the daunting task of competing with synthetic indigo, whose market dominance has been largely unchallenged, until now. ■



Now is a good time to explore new areas of finishing and develop novel techniques, according to **Luca Braschi** from denim consultancy Blue Alchemy. He acts as a bridge between brand, laundry and suppliers, advising on practical ways to achieve designers' ideas using the most sustainable methods.

# Translating the **vision** onto the canvas

**Q Which development has made the most impact over the past five years? Are there any that have more potential?**

**A** We are witnessing a new era of denim finishing with methods and treatments that have less impact on the environment, operators and consumers. While the conventional approach left little to creativity, now there is ample room for inventiveness and innovation. New technologies and chemicals have been invented and are evolving, I wouldn't be surprised if there is a new one next week.

However, there is room for improvement, and I am focusing my efforts on unexplored areas, such as the interaction between new chemistries and raw materials with ozone and lasers. Lasers have been improving rapidly with some good results and this "new" technology has had the greatest evolutionary support in terms of software and control.

Reducing water consumption is key, which means washing using minimal water, but these practices can pollute the garments with indigo discharged during treatment, which tends to redeposit. To fix this, peroxidase is a product that is underused; it cleans the water, reducing rinsing, making garments bright and enhances contrasts. I consider this enzyme a premium look enhancer, as it merges the laser pattern with the wash look. In fact, when I don't use it, the laser pattern looks fake and not in tune with the natural abrasion of the garment. In addition to technologies and chemistry, there is value in tools like new-generation abrasive materials that don't create the dust and sludge of pumice stones.

**How easy is it to adapt finishing processes when working with hemp or recycled fibres? Or with natural dyes?**

We start from the assumption that the textile industries don't want to make finishing complicated, keeping the classic cotton fabric behaviour as a reference. Each fibre has its own natural structure; hemp and linen are a different length to cotton and this must be taken into account – these fabrics are quite delicate and risk tearing if the washing is too aggressive. They are suitable for "vintage" washing, or medium-light washes, creating accentuated salt-and-pepper effects and are generally blends that give a nice look and cast.



*Room with a view: the Blue Alchemy studio in the Italian countryside.*

ALL PHOTOS: BLUE ALCHEMY

Fabrics with recycled cotton are the opposite: they are more attractive with medium-dark washes. This is because the weft of the recycled cotton is not white but rather blue, so it is difficult to obtain bright contrasts and beautiful points of white. Some types of natural dyes are rather superficial and stay on top of the fibre, so it is recommended to use the "old" effect obtained with both mechanical and laser abrasion. Dark tones cannot be obtained. It is also very important to select the correct binder to improve the fastness.

**What qualities are important for someone in your position and how do you keep up to date?**

I worked at chemical companies for many years where I gained not only experience but also a passion for denim, and visited laundries around the world. I consider every experience, every technique and piece of advice as tools I can draw on. A quality that characterises me is the aesthetic sense – the creation of the look – which comes from understanding the behaviour of fabrics in different conditions, enhancing their characteristics. After working for creative studios and brands, I learned to translate the requests of designers into practical results, from the concept and the mood to the finished product.



**“Sustainability cannot be limited by the ability to invest”**

*Luca Braschi advises brands and retailers through his consultancy Blue Alchemy. He has over 20 years' industry experience, including working for Garmon and The Italian Job creative studio, where he worked closely with brands such as AG (Adriano Goldschmied), Citizens of Humanity, Hugo Boss and Levi's. He is currently working with Uniqlo and the Fast Retailing Group on a sustainable production project.*



In this sector you never stop learning, this pushes me to search for ideas, explore new applications and technologies. Fortunately, I have a great relationship with the suppliers who share their innovations with me. I think this is an ideal time to explore the grey areas, to develop new effects and optimise them.

**What's most important to you and what do you enjoy focusing on?**

The most important thing in my work is beauty, because aesthetics should never be compromised, and to create sustainable techniques without compromising the look. I try to get the most out of my clients' resources, whatever technologies they have. Sustainability cannot be limited by the ability to invest in new technologies or economic resources. With industrial production, the most important factors are cost, time and result, which must be guaranteed and constant. The most important technology is our brain and creativity, so the best results are found by finding the right balance of logic, conventional methods and new technologies, chemistry and tools. I'm also focusing on all those unexplored areas that new sustainable technologies and practices have. One of these is certainly ozone, which is only minimally exploited.

**What are some of the biggest changes you've seen over the years?**

I have been working in the textile industry for 20 years, and in the last decade there has been a growing interest in change, probably starting with the famous Greenpeace Detox campaign in 2011. I have worked for leading chemical companies that immediately began to search for new raw materials to create products without hazardous substances. Things only move where there is an economic interest, and fortunately this demand has created a new economy for producers and suppliers.

Campaigns to raise consumers' awareness have also had some impact. Brands and chemical groups have led the change, and this has had a knock-on effect down the supply chain. Only recently have I noticed a growing desire in consumers to purchase sustainable garments; this part has been too slow.

**How much of the sustainability of the garment is rooted in materials?**

Everything starts from the raw materials - the fabric, the accessories and the chemistry. When the raw material has biodegradability or is able to be recycled, we are halfway there. It is important to avoid the exploitation of natural resources, for instance, using lower-impact fibres such as hemp.

Our supply chain is full of variables and sometimes they are difficult to control, so starting with 100% "green" materials makes everything more controllable. If I use chemicals that do not contain dangerous components, I don't have the problem of monitoring how it is used; with "unsustainable" chemistry, there are concentration limits, meaning a human dosage error could pose risks for the environment and people. At the design stage, it is important to consider the end of the garments' life, such as accessories that can be easily removed and using recyclable fabrics.



*Luca believes in creating a varied range of styles and finishes to meet market demands.*

**How would you ideally like the industry to change, and how do you think it will in reality?**

A revolution in the way of working, designing and planning is needed. Consumers who were already conscious of ethics, nature and responsibility are now more so, while those who were not are starting to pay attention. This change is still too slow so brands must make a courageous sustainable choice, regardless of consumer demand, and present their actions in a clear and simple way, because there is too much confusion about sustainability. Transparency and traceability will be fundamental, there are already several systems in place, but the key to making the message understood is to have a universal language. Brands should be sustainable in their DNA, not just for marketing purposes. Unity is strength, so the more people, brands, leaders and industries take the same direction, the more chance they have to change radically for the better. ■



🌐 3,000

in 2,000

📷 1,000

## What a year!

It's hard to believe that we published our first issue a year ago oblivious to the year that would lie ahead. We haven't been able to get out to see everyone so we're so pleased you have come to us! Amongst the challenges there have been many positives for us. Since launching Inside Denim's digital platforms in the summer we've connected with so many of you from all over the world.

With 3,000 registered website users, around 2,000 LinkedIn followers and around 1,000 Instagram followers, we are so pleased to have generated such interest in our 'science behind the style' features. We've so much more to come!

If you haven't already you can sign up to [www.insidedenim.com](http://www.insidedenim.com) **FREE** and access our technical articles and features. We'll also send you a weekly newsletter to keep you up to date.

If you are interested in raising the profile of your business to our global industry professional audience in either our magazine or digitally on our website, email: [jo@worldtrades.co.uk](mailto:jo@worldtrades.co.uk)

# From deckchairs to denim: UK selvedge stages a comeback

PHOTO: HEWITT HERITAGE FABRICS

Chris Hewitt describes arriving outside a Lancashire mill as a moment that would change the course of his life. This might sound dramatic, but it marked a key moment in a long journey to produce UK-woven selvedge denim, and which has recently been selected for collections by brands including Hiut – whose co-founder describes him as a “denim maverick”. “Up until I spoke to Chris, I thought what we were doing was hard, but at least we still had a town full of grandmasters [experienced workers],” says David Hieatt. “When he told me, 10 years ago, that he was going to weave selvedge in Britain, I thought that would be a tough, tough ask.” With the domestic denim industry largely disappearing three decades ago, there is little in the way of infrastructure or support on the fabric side, but Mr Hewitt was determined to make it work. “My current mill likes a fighter,” he admits.

He set up Hewitt Heritage Fabrics in 2016, his love of denim and its heritage cemented through his vintage clothing shop, Somebody & Sons in London. The research stage for the selvedge involved several partners; finding those that could deliver proved problematic, not least because of the indigo. “Most British companies don’t weave a lot of yarn-dyed goods so they are reluctant to weave a fabric that might contaminate all their other products, especially if they are weaving on old looms,” Chris explains.

Hewitt Heritage Fabrics’ Lancashire-woven selvedge has been used in new ranges by brands including Hiut and Joe & Co, following a tough slog by its founder to set up production and develop the fabric to the right specifications. And while the volumes are far from those produced 30 years ago, these companies are part of a group of brands that place value on making jeans in Britain.

The breakthrough came when he discovered two 1950s Northrop shuttle looms that had been in retirement since weaving deckchair fabrics, and which could create the authentic look he was seeking. He returned to the mill time and again, testing for shrinkage and stability and hand feel. Finishing was a major challenge: “People would say, ‘yes, we can do that’, then they’d run 1,000 metres of fabric and it became clear they couldn’t, so I was left with fabric that’s very difficult to sell,” he says. “Hiut have been very encouraging in that they have stayed in the conversation for a very long time. Others do stay in, but most brands have built into their marketing the idea of a Japanese woven product.”

Hiut, a jeansmaker and brand based in Cardigan, South Wales, was launched in 2011 following the closure of a former jeans factory in the town that had made 35,000 pairs per week. Owners David and Clare Hieatt wanted to protect those skills and create employment. Their slogan ‘Do one thing well’ and appealing marketing and ethos has earned fans that appreciate the high-quality fabric and attention to detail. The Hiut x Hewitt collection will be available in both men’s and women’s fittings and each will have a leather back-patch highlighting the journey between the two maker homes, Cardigan and Lancashire.

The Hewitt fabric is also being used by brands such as London-based United Overalls (see separate panel) and Joe & Co, a clothing company based in Manchester run by Josef Schindler, who reckons the British selvage “can hold its own against any of the denim mills from Japan, the US or Italy”. He also highlights the heritage with an embroidered Lancashire red rose on the pocket, and is a vocal supporter of UK manufacturing. His collection launched in December, with the fabric travelling only 30 miles to be made into jeans, minimising the carbon footprint. “We made enquires into transporting the fabric using the Lancashire canal network,” says Mr Schindler “but this wasn’t a workable option.”

### Indies and markets

Hewitt’s story is fairly pioneering when you consider there was never a vast amount of denim fabric made in the UK – even in its heyday most was imported and then made into jeans here. From the 1960s through to the early 90s, big brands such as Levi’s made in Britain but smaller independent labels also played a significant role. Different areas favoured different brands: Crazy Face, Joe Bloggs, Bleubolt, Boogie Jeans, Dollar Jeans and Road were among the brands of choice. They thrived because retail was not dominated by big groups; people also shopped in independent stores, boutiques and markets, around which the denim scene thrived.



Phil Wildbore, who owned the Road label, says the high street lowered the price of jeans. “In the late 80s and early 90s, it was normal to pay £40 for a pair of jeans, but that’s the same price that people want to pay now – they should be around £110 if we factor in inflation,” he says. “The demand for cheaper prices meant that you couldn’t compete. Then all the machinery got shipped abroad, so we lost all the infrastructure to make.”

The closure of the highly regarded Smith & Nephew mill in Pendle in 1993 ended denim fabric production in England and was such a blow that it was discussed in parliament, with MP Gordon Prentice lamenting: “The decision might make commercial sense to one company but for the country as a whole it makes no sense.” Ireland’s Atlantic Mills, which also made denim fabric, closed in 1999.

*(Above:) The old looms give the fabric an authentic feel, but need a lot more attention from operators than modern machines*

PHOTO: HEWITT HERITAGE FABRICS

*(Below:) Joe & Co promotes the Lancashire heritage. The collections are sold online and at Altrincham Market in Manchester.*

PHOTO: JOE & CO

**“ We made enquires into transporting the fabric using the Lancashire canal network ”**

JOSEF SCHINDLER, JOE & CO



*HebTroCo is a relative newcomer to denim but are proud of the local manufacture.*

PHOTO: HEBTROCO/  
ALEX DE PALMA

Road, which was at one time producing 3,000 pairs of jeans per week from a family-run factory in Leicester, followed other brands in trying overseas manufacture. “It didn’t work; it didn’t have the same feel,” says Mr Wildbore. “The game had changed, it was more mass production. The jean world became incredibly generic.”

#### **Manufacturing revival?**

With such a rich history of textiles and clothing making in the UK, could the sector be revived, particularly as people reconsider sourcing destinations? A report by The Alliance Project (TAP), initially in 2014 and updated in 2017, concluded there is potential in sectors such as homeware, luxury goods and fast fashion, and perhaps in value-added products like jacquard, embroidery and knitwear, but for staples the UK will remain uncompetitive on cost for some time. Decades of offshoring means there is a skills shortage and an ageing workforce, with major challenges including a predominantly micro-size supply chain with no OEMs, or large prime manufacturers, to act as “enablers”. “The UK also has one of the highest energy costs in any of our competitor markets,” said the report. TAP established two Regional Growth Funds using £27 million of public and £123 million of private money that it forecast would create over 4,000 jobs – however, the pandemic has hit the sector hard, as consumer spending dropped off and companies closed.

#### **Steady whirr of machines**

There are a small number of jeansmakers in the UK, making for brands that value local manufacture. Blackburn-based clothing manufacturer Cookson & Clegg was founded in 1860, starting life as a boot upper supplier and now makes jeans for brands including Finisterre. Like many in the industry, it has had ups and downs; a year after being bought by designer Patrick Grant in 2015 it announced job losses following the loss of a big contract. It is now operating on a smaller scale, partly through Mr Grant’s Community Clothing social enterprise, which creates employment in the UK’s textile manufacturing regions.

Last summer, Cookson & Clegg won funding from Made Smarter, a programme helping small-and medium-sized manufacturers implement new digital technologies. UK-based denim consultant Amanda Barnes says the company has a “top reputation” among UK producers. “On the denim side, it’s not so much about the authentic vintage machines (which many denim enthusiasts believe is key to a good pair of denim) but more about affordable quality at Community Clothing: a pair of raw organic 12.5oz selvedge are reasonably priced at £79.”

London-based Blackhorse Lane Ateliers is one of the more prominent UK jeansmakers (see *Inside Denim Issue 2*), using beautiful fabrics from Japan, Turkey and Italy. The company is setting up a mini laundry this year which will help designers, students and brands develop wash techniques. Brands that make jeans in the UK include Hove-based Dawson Denim, which uses Japanese fabrics sewn on 1950s sewing machines; Sheffield’s Forge Denim, which imports Japanese selvedge and uses steel buttons to represent the city’s steelmaking heritage; Fallow Denim, based in Brighton, which uses Japanese and Cone fabrics with deer leather patches tanned in Scotland; and HebTroCo from Hebden Bridge, which sources all its clothing and accessories in the UK. “Making in Britain is convenient, and minimums are lower,” says its co-founder, Brant Richards. “We truly value local production – all our manufacturing is within a drive of our unit – but we get cloth from Candiani because consistency of supply is crucial.”

On the fabric side, The London Cloth Company is a micro-mill that weaves small quantities to order and offers 60 types of indigo cloth, including a range with an indigo cotton warp and a Shetland wool weft.



*Hiut's co-founder Clare Hieatt modelling the Hiut x Hewitt range.*

PHOTO: HIUT JEANS

For Hewitt, the target is to develop a yarn and dye it locally (yarns are currently brought in from Turkey) and eventually create a compostable jean. For Hiut, using British selvedge represents a wider ideal of keeping alive the opportunity of manufacturing for future generations. "People don't understand how hard it is to do what Chris did," says David Hieatt. "It's the stuff we dreamt about when we started, that we'd do a fully British jean. People congratulate us on our success, but success isn't being the only one, it is when the infrastructure comes back and making denim in Britain becomes a lot easier. We'd like it to be common practice to have denim woven in the UK – it's good for the environment, for industry and skills. This is a key defining moment, but it should only be the start." ■

Chris Hewitt admits it's difficult to have a successful clothing industry if the prices are not in line with the rest of Europe. "There are a lot of sewers here, but young people don't want to go into that side of the industry, and it's not something the government has an interest in developing," he says. He is setting up a new brand this year, Somebody's Denim, which will use the UK fabric (amongst others) with the jeans made in the UK and Portugal. "I'd love to be able to make everything here but it's so hard to remain competitive," he explains.

Even if the numbers work, the UK doesn't currently have the infrastructure to support a denim industry at scale. Denim consultant and the co-founder of The Three Indigos Idrish Munshi, whose family owned a laundry in Leicester in the 80's and 90's, says strict water rules and the cleaning cost of effluent are too prohibitive. "In the past, when Levi's and Wrangler were made in the UK, washing here was worthwhile because companies understood the water challenges and would pay a decent rate. When other companies realised ways of bypassing the water rules or they installed their own effluent treatment plants, they reduced the costs of processing the garments and it was difficult to compete. Today, it would be difficult to restart this side of the industry here using conventional means - the effluent treatment plant would make it too costly. Sustainable processing using modern technologies could be a feasible option."

#### **Common practice**

That's not to say there is not a thriving denim scene in the UK: there are plenty of passionate designers, creatives, consultants, retailers and fans; people working within global companies, or brands or retailers that make offshore, as well as those making collections domestically. While mass-market denim looks unlikely to return, it seems there could be the desire and potential for more niche makers.

#### **A perfect fit for United Overalls**

*Thomas Burke, founder of the London-based brand, uses Hewitt's fabric for five-pocket jeans made at Blackhorse Lane Ateliers.*

#### **What's important to you about sourcing fabrics from, and manufacturing in, the UK?**

It was always a crucial part of our brand that we source as much as we could from the UK. Making the highest quality jeans also meant that the denim we used had to be a

selvedge denim woven in the UK, which was only being made by Hewitt Heritage Fabrics. They upheld a lot of the ideals and standards that we wanted to, seeking the most ethical and sustainable practices.

When we were searching for a manufacturer, we were already friendly with the founder of Blackhorse Lane Ateliers, Han Ates, after attending their first opening party back when it was an empty industrial building. They strive to make everything as sustainable as possible and they work with their local community so they can give back as much as possible.

#### **How do you think the fabric compares with Japanese denim?**

The yarns are not as exciting as some that you might find coming out of Japan but for someone looking for a vintage style finish and fading process the denim from Hewitt Heritage is great. The character and nuances that the 1950s Northrop looms add to the fabric become much more apparent after wear and conjure up images of the jeans made in early 20th Century America.

#### **Would you buy more UK fabric if it were available?**

If more mills started up in the UK making more selvedge denim then we would be overjoyed, the more manufacturing that we bring back to the UK the better! Most of our customers see UK-made denim as a very new idea but are excited to purchase such a unique item. They can really feel the quality in what we make and that is due in a large part to the amazing denim we receive.

PHOTO: UNITED OVERALLS



*Mr Jeon plans to further develop his denim designs and techniques. His method is experimental, and he seeks to create "new shapes, proportions and details" with future collections.*

PHOTO: PAINTERS





Comparatively little is written about South Korean denim, especially when contrasted with the collector's paradise that is Japan, the country's neighbour. Inside Denim talks to two protagonists on the scene in Seoul, both with unique insights to share on denim's heritage and contemporary potency in the city.

# A new spin on 'American casual' in Seoul

One of many threads to South Korean denim culture today is *amekaji*, a Japanese term meaning "American casual", so the founder-designer behind Seoul-based fashion brand Painters, Won Jeon, tells *Inside Denim*. Applied to wearers of what is considered to be American-inspired fashion (a demographic which, Mr Jeon says, tends to skew younger), the phrase more than hints at one interpretation of denim's place in the world, from a North-East Asian perspective.

In Mr Jeon's view, however, wearing denim is "not a major trend" in Seoul, at least. He says that "few designers" work with denim in any meaningful way, though he points to South Korean actress Kong Hyo-jin and actor Bae Jung-nam, both known for incorporating denim into their everyday style, as local influencers. Instead, Mr Jeon's own eye was drawn to the "undervalued" fabric while researching global street cultures for Painters' spring-summer 2021 collection, which showed at Seoul Fashion Week last October. Denim's "subcultural" history and typically "working class" roots, plus its strong identity on account of its prominent visual role in moments of cultural "resistance", deemed it suitable for Painters' nonconformist palette, he says.

## Down to Dongdaemun

Mr Jeon sources all the denim used in his collections for Painters from denim merchants KunSan, based in Daejeon, central South Korea, but also has a shopfront in Seoul within the famous Dongdaemun shopping complex, the largest fabric market in the country. Characteristic of fabric shopping in Seoul, Mr Jeon says, KunSan does not have an online presence, in order to prevent the unwanted copying of its hundreds of different denim samples by competitors. The designer relays to Inside Denim that while it might be "better to go to different countries [such as Japan]" to purchase denim, he feels "lucky" to have found and established a positive professional relationship with his chosen denim supplier. "I try to create a deep bond between the fabrics I select and Painters as a brand by sourcing all materials in Seoul," he tells us.

Visits to KunSan often inspire a "half and half" approach to realising his initial sketches in denim, Mr Jeon says. The sheer scale, diversity and ever-changing nature of the enterprise's offerings mean that he frequently – yet, always unexpectedly – leaves with more than one fabric to experiment with, as opposed to sticking fast to any preconceived idea, a creative process which he admits to enjoying very much. He mostly opts for 100% cotton, handwoven denim fabrics though, and avoids stretch. As the sustainable fashion conversation gains increasing traction around the globe, Mr Jeon is considering branching out into other fibres (such as hemp and Tencel, a wood-based cellulosic fibre), but is taking steps to first "completely understand" the field prior to making any changes.

Painters' production of denim pieces such as jeans and overalls is usually outsourced elsewhere in Seoul, but Mr Jeon controls the pattern-making and final sampling processes in his studio. Ever since interning with Paris-born, London-based designer Faustine Steinmetz while a London College of Fashion student, Mr Jeon has been interested in hand-dyeing techniques, which led to his discovery and subsequent experimentation with the Japanese shibori manual resist method, a prominent design element of the denim pieces he showed during his October 2020 presentation. For spring-summer 2021, the designer mainly used Sanforized denim (already fixed to avoid or minimise any shrinking) and layered different washes on top of each other, intentionally "damaging" the fabric's edges to achieve the raw fringes seen in the collection.

### Rising between Seoul and Japan

Bona fide denim lover and co-founder of early South Korean raw selvedge denim company Twilled & Co (which closed in 2017) and the now-iconic imported denim shop Brick Seoul (which shut its doors in 2014) Howard Lee similarly straddled two different denim worlds, with a dual focus on the contemporaneous denim scene in Seoul and the more established denim heritage of neighbouring Japan. Though Mr Lee was forced to dissolve Twilled & Co while taking up his compulsory military service a few years ago, it is clear that denim remains as much in his heart and on his mind today as during his pre-Brick Seoul days, when he would purchase and ultimately take apart denim jeans from Japan and the United States for years, just to investigate production differences between pairs down to the "smallest details".

"Finding the perfect pair of jeans is quite tricky, with so much to consider, namely: the fit, the denim and its colour and fade, the craftsmanship and the tiniest details, plus the brand and its values – all of these have to be right," Mr Lee says. Out of frustration with there being "so many great denim brands throughout the world, but not so much in the South Korean market", he opened Brick Seoul in spring 2012, with the intention to make it "the" source for denim on the Korean Peninsula. Brick Seoul's line-up of exclusively raw selvedge denim included Rogue Territory (imported from the US), Bldwn (US), Naked & Famous Denim (Canada), 3sixteen (US), The Flat Head (Japan) and Momotaro Jeans (Japan).

Mr Lee recalls that Rogue Territory was Brick Seoul's most popular brand, specifically its Stanton jeans. "People really loved the fit and the colour – or fade – of the denim the brand got from Nihon Menpu," he tells us. It was a "big mistake" to close Brick Seoul, Mr Lee confides. "I had closed a great shop where I could talk and share ideas with other people passionate about denim," he continues. He did it to focus his energies on nurturing Twilled & Co, though, which he launched in spring 2014 and, as with Brick Seoul a couple of years prior, fully intended to grow into the top denim brand in South Korea through creating the "perfect" pair of jeans for the Korean market, in terms of quality, fit and price.

*“I try to create a deep bond between the fabrics and my brand by sourcing all materials in Seoul”*

WON JEON, PAINTERS

Interestingly, at that time denim mills in South Korea were primarily producing "budget-friendly" denim, so Mr Lee and his business partner Sam Yoon ingeniously produced Twilled & Co's denim garments in both Seoul and Japan, using the same Japanese selvedge (the "finest") from Collect and Kaihara mills, to offer denim at different price points. Garments made in Seoul were priced "more accessibly" (slight detail changes were made to bring production costs down, Mr Lee tells *Inside Denim*), while the Japanese-made jeans were crafted "to the highest quality standards" and, therefore, were priced higher. Twilled & Co's standard denim – 13.25 ounces of Sanforized and pure indigo rope-dyed, ringspun Memphis cotton, woven in Japan – was sourced from Collect. The Kaihara denim used was pure indigo rope-dyed selvedge, with the weight differing slightly from denim to denim.

### Shades of blue

For both Mr Lee and Mr Jeon, denim is intensely personal. While Mr Jeon employs the, for him, underrated yet symbolically charged fabric as something of a vehicle for creating "new" shapes and expressing his own, progressive artistic viewpoint as a designer, Mr Lee brings our discussion back to the intimate nature of "breaking in" one's own pair of jeans, a unique process which ultimately makes them "truly yours". Mr Jeon's desire to keep moving the design and production techniques of denim "forward" is perhaps a nod towards the increased diversity and maturity of the South Korean denim scene today, as Mr Lee sees it (local brands Demil and Bespoke Denim are current particular favourites of his), the perfect stage - or runway - for Mr Jeon's aesthetic innovations. So much more than an imported idea or yesterday's fad, the contemporary denim outlook in Seoul is imbued with creative flair, originality, communal support and keen determination. ■

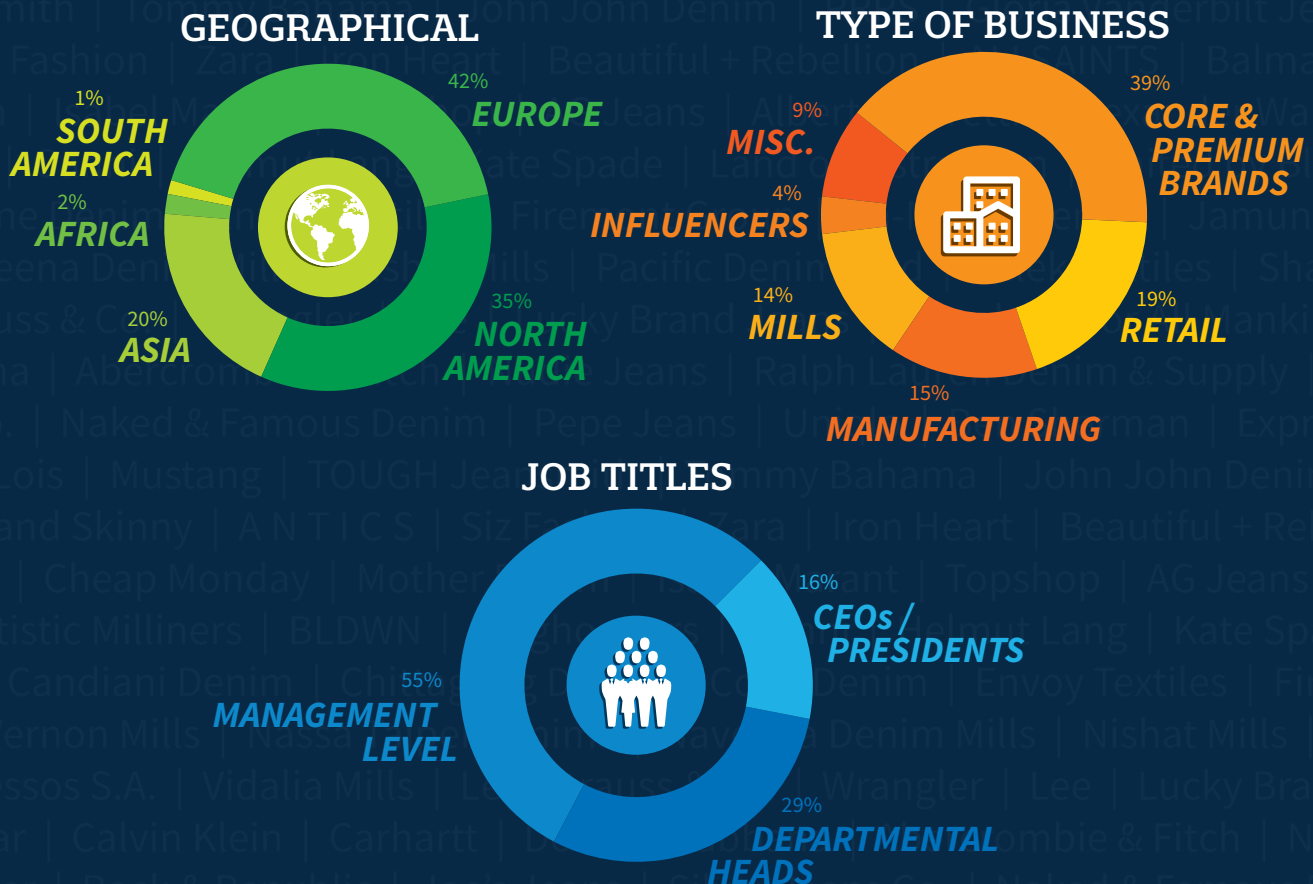
*“Finding the perfect pair of jeans is quite tricky, with so much to consider”*

HOWARD LEE

# insideDenim

BEHIND THE SEAMS OF THE GLOBAL DENIM INDUSTRY

We want our readership to be as valuable and as valued as our journalism. It's why we have left no stone unturned in identifying key global contacts in the global denim industry.



insideDenim will be landing on the desks of those individuals we have hand-picked to receive our magazine: influencers, material designers, R&D managers and of course those who are responsible for sustainability in these businesses across the world.



*The designer's experiences in Pyongyang, North Korea left a lasting impression and encouraged her to actively pursue slow, bespoke and fair production, inspired by classic vintage styles.*

PHOTO: UNITS OF THEBE

# From DPRK to Stockholm

**T**he now-fabled Noko (as in North Korea) Jeans brand began in 2007, the brainchild of a small group of Swedes: founders Jacob Åström, Tor Rauden Källstigen and Jakob Ohlsson, plus designer (and denim lover) Julia Hederus and photographer Erik Wählström. Technically active until 2011, Noko Jeans had a short sales life. Ten years on, though, the brand's signature black denim (indigo-dyed jeans were considered too American or westernised for the North Koreans, Ms Hederus tells *Inside Denim*) is coveted by collectors worldwide.

Launched online via the brand's own website and at Stockholm's (since closed) PUB department store in December 2009, PUB pulled Noko's jeans from its shelves within a matter of days, citing potential political controversy. Remarkably, Noko subsequently opened its own Stockholm-based museum to exhibit and sell the jeans later the same month. The museum soon relocated to another part of Stockholm, but finally closed its doors in February 2010.

Noko Jeans' intention was always to "tell stories" from inside North Korea and "increase [international] transparency, little by little" through making denim jeans in Pyongyang, the nation's capital, Ms Hederus says. Back in the late noughties, being in Pyongyang felt as though "time had stopped entirely, sometime in the 1950s", she tells us. The group's aim was to create a point of contact between the North-East Asian country and the wider world.

Julia Hederus, the designer behind Noko Jeans, the first (and possibly only) Western denim jeans brand to celebrate making its products in North Korea, diplomatically describes dealing denim with an enigma, plus making her own way in the fashion industry - via Thebes.

## Dictating denim

As there was no denim fabric production in North Korea at the time, Ms Hederus says, raw materials were sourced from nearby China as necessary, with the denim then cut and sewn in a Pyongyang factory predominantly engaged in mining and app development activities. Communication with the North Korean factory was "extremely limited", which made the project difficult to manage, the Swedish designer tells us. It was therefore tricky to "get information straight", although Ms Hederus describes having had a "good working relationship" with Noko Jeans' Pyongyang-based stakeholders.

*“I don’t think that we need more products today, but we will always need creativity, beauty and clothes to cover ourselves.”* ”

JULIA HEDERUS, NOKO JEANS



In total, the Noko Jeans team spent 10 days in the North Korean capital during July 2009, reaching Pyongyang via train from Beijing, with a further three weeks in China (during which time they did not visit their Chinese denim producer). Ms Hederus tells *Inside Denim* the trip left a “deep impression” on her, and while she had felt worried, she describes a “spacious and clean factory, with good machinery”. The workers would have gymnastics each day, outside in the courtyard. Palpably concerned about how “hard [sewing is] for one’s shoulders and back”, Ms Hederus recalls this part of the story with a clear sense of relief: “I thought [the exercise] was great”,

she discloses. However, she also acknowledges that the project “took a turn [Noko Jeans] didn’t want” on the factory floor.

During our exchange, the designer was keen to emphasise how, today, she feels that clothes should be made under fair trade regulations and for a living wage. However, she remains positive about the founders’ original, perhaps “naïve”, idea of taking part in an exchange - not only in terms of business, but also of culture.

### Pyongyang style

Documenting Noko Jeans' "transparency" during the Pyongyang-based cut-and-sew process for would-be buyers was a key objective for the Swedish enterprise, but a "slight crisis" ensued when it became apparent that this would be "impossible", Ms Hederus reveals. With their chosen jeans-making factory already preoccupied with the manufacturing of winter jackets when the Swedish delegation arrived, they "never really got the chance" to witness much of the jeans' production, as intended. What is more, no further visits to the country were possible, owing to the expense of travel.

Instead, the first – and, as it would turn out, only – batch of 1,100 pairs of Noko-branded unisex denim jeans arrived in Stockholm some months after the brand's team returned to Europe. Two styles were made: the Kara slim fit (a tighter model, with a regular waist), plus the Oke loose fit (a baggier jean, with a regular waist and a drop crotch). The 100% cotton jeans had been designed to be washed and treated, but this process was never undertaken due to the factory in Pyongyang not having the necessary facilities.

Ms Hederus explains that she did "look a lot" at hemp fibre during her research process, but the nascent brand's budget could not stretch to accommodate the price of hemp. Moreover, "convinced that stretch was a bad idea", for reasons relating to the quality and long-lasting durability of the finished jeans, the designer considers her "old-fashioned" approach to material selection appropriate to Noko Jeans' principal concept: to be responsible for what they saw as the first Western denim jeans produced in North Korea.

### A labour of love

"Making garments is hard work and that should be acknowledged and appreciated," Ms Hederus tells *Inside Denim*. Following a "long in-between phase", which included freelance work and assisting other labels with various aspects of the design process in Paris, Shanghai and Kolding, Denmark, as well as in Stockholm, she concentrated her Central Saint Martins-honed menswear design talent on starting up her own (slow) men's fashion brand, Units of Thebe, in 2017. "Products have a lot of power in society," she says, so with Units of Thebe her aim is now to make fewer products, of the highest quality possible.

**“Making garments is hard work and that should be acknowledged and appreciated”**

JULIA HEDERUS, NOKO JEANS



*"I thought, why should there not be a unisex jean?" Ms Hederus says of her 100% cotton creations. Levi's 501s represent the "ultimate" in unisex denim for the designer*

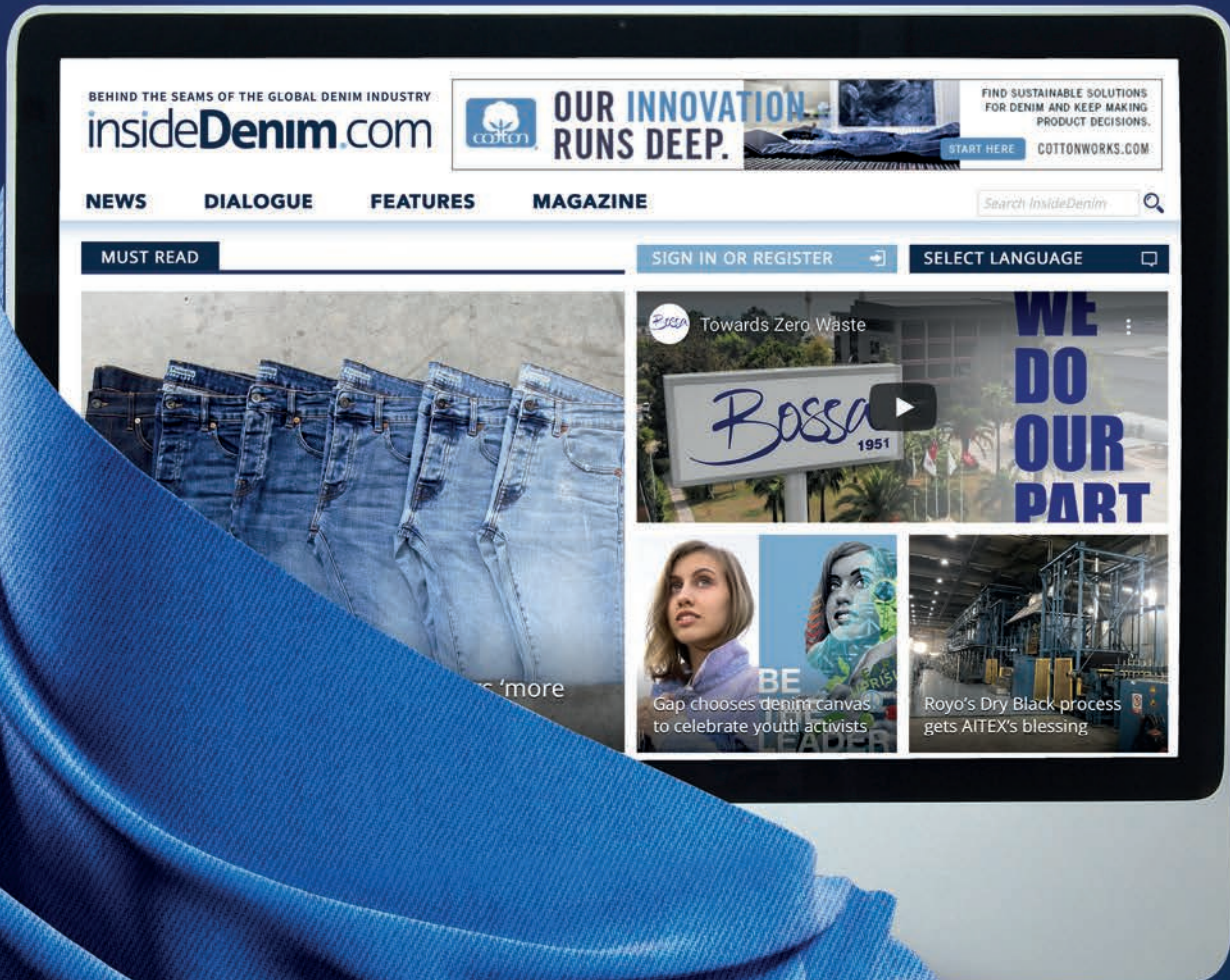
PHOTO: NOKO JEANS

Today, Ms Hederus says she is against fast fashion and overproduction and believes that her current premium streetwear offering, which is inspired by classic military uniforms and vintage pieces, is "fair trade", seeing as how every garment is handmade to order in Sweden. She hopes all clothing and accessories will be made under fair labour conditions in the future. Her legacy as a designer, she tells us, will be "equality, creativity and resourcefulness". She continues: "I don't think that we need more products today, but we will always need creativity, beauty and clothes to cover ourselves.

"The art of making clothes is old – and it is an ancient profession that I am proud to be in. To make things is important to people and I think that this will only grow in importance in the future. I don't want to see society saturated, in terms of production, energy, extraction, workforce and financial resources, but an equal and balanced place to be."■

BEHIND THE SEAMS OF THE GLOBAL DENIM INDUSTRY

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New York-based brand Oak & Acorn - Only for the Rebelles pays homage to the untold story of the Indigenous American & the enslaved Africans' contributions that have shaped American manufacturing and denim. Founder **Miko Underwood** explains how she expresses her vision through her designs and why she feels now is the right time to educate and inspire to drive positive change.

# Mighty oaks from little acorns grow

**Q Why is it important to educate consumers on the history of denim, and what are the main things that you would like people to know and understand?**

**A** Today's consumer expects to be informed of where their clothing comes from, who the designer is and the brand's ethos. When I began to learn the history of the American jean, the information demanded me to be culturally responsible and share. As a design director with years of telling brand stories, I was completely unaware of indigo's history and its connection to the slave trade. The desire for "blue gold" otherwise known as indigo propelled global commodification and the violent exploitation of labour. I want people to know that indigo was the hidden commodity of the slave trade and that the jean was born on the plantations of the American south. I would like consumers to be informed of the abuses that exist today in the US with labour exploitation throughout the American prison system and our global supply chain.

I believe education is the key to change and holds us accountable. By bringing awareness to practices that have brutally capitalised off the labour and skillset of Indigenous people and continues to exploit factory workers today, it is my hope that we can begin to institute real positive change.

**Your designs reflect the ethos of the brand. How easy is it to do that, where does your inspiration come from and how does the genderless and seasonless design fit into that? How do your fabric choices reflect the brand?**

During the pandemic, I thought to myself, "How will we come out of this? How will people feel? What will be important to them?" I understood immediately that people will want to feel held, cosy and nurtured, they will want to feel empowered and informed and will prioritise protection and functionality as it relates to their new way of life. Oak & Acorn - Only for the Rebelles' Red White & Indigo Collection is made up of five sub-collections, each one telling its own story in connection to the history of denim and combining messages of inspiration with innovative design.

*Miko Underwood is Oak & Acorn's founder and chief creative director.*

ALL PHOTOS: PETER OSBORNE





Our Signature REBELLE Coverall collection pays homage to the farmer, the worker, the enslaved and the prisoner and is made of biodegradable and compostable denim.

Twenty percent of the profits from our Signature Collection goes to support initiatives of We Got Us Now, a non-profit organisation built by, led by and about children and young adults impacted by parental incarceration. The fabric choices connect to the history of denim but are also future forward, functional and of course sustainable. The inspiration for the brand is truly an intuitive process. I don't look at trends, I do what feels right and has meaning. My process is experiential, I want the customer to be moved by Oak & Acorn, so storytelling is integral to the design and fabric choice.

I decided the brand would be genderless because I love the functionality of men's denim. I've always leaned heavily in the men's market, but I wanted the pieces to be wearable for women as well, so genderless felt right. It also allows for neutrality in design. Having a seasonless collection is a standard I've held for myself to present a focused product line and eliminate potential waste in development. The pieces of the seasonless collection are Oak & Acorn staples that will carry the brand throughout the year.

**What do you enjoy most about working with mills and suppliers, and how do you choose which ones to work with?**

I love the innovation that happens at the mills. It's where my design process truly begins. I'm a natural problem solver, so going from concept to production is like solving an incredible puzzle. With my brand I see sustainability as 360. I look at each touchpoint of the brand ethos: traceability, social impact and education and marry the strengths of each supplier to the design process.

For Oak & Acorn this equates to working with factory partners that understand the pillars of the brand, are innovative yet responsible makers and committed to supporting our work. I lean on them for their expertise and ingenuity in the execution of the product. The collection is made of a combination of eco-fibres that include hemp, Refibra and Tencel, recycled and repurposed denim, indigenous artisan materials and other deadstock fabrics. While we have great partnerships with overseas mills and factories, I've simultaneously made a commitment to produce locally, supporting manufacturers at home and working with small businesses.



**You have talked about the need to increase Black and minority representation in fashion and denim, particularly on the design side and at managerial level. What steps can those in the industry take to address imbalances?**

There's an opportunity in this moment for businesses to connect with community and address the needs of the largest consumers of our market. The Black and Latinx American consumer spends a combined \$2.7 trillion annually, but are drastically under represented on the supplier side. There must be systemic accountability and economic equanimity. Companies can rectify these imbalances by creating pipelines of access to young designers and entrepreneurs.

As we know, denim is a very niche category of business where there's a very tight community of makers and gatekeepers. Although the jeanswear trends have traditionally risen out of the Black communities – Black women in particular had played a very important role in the birth of textile production prior to the industrial revolution – Black designers aren't represented as the businesses owners or executives in the denim industry. Blackness is often underrepresented, misrepresented or not at all present until it is appropriated from a larger design house and adopted as a trend or political statement of the moment.

*Oak & Acorn has worked with mills including Candiani and Soorty for its seasonless and genderless collections.*

Jeanmaking is a beautiful craft with rich roots in American history that deserves to be shared. I'd like to see that change. I'd like to see mentorships at the high school level, paid internships, endowment and grant programmes for college students. I'd like to see incubators that expose students to indepth history of indigo and inculcate training through design labs to transform the ethical denim space. I believe that it's our cultural responsibility to reach back, inform and inspire the next generation of makers and create economic equanimity and opportunity.

**What advice would you give to young people hoping to get a job in the denim industry?**

The advice I would give to young people is be bold, be creative, be curious, allow invention and advocate for your talent. Be passionate about your creative process but remember to always be a student with openness to learn and listen. Last but not least, be an ethical worker; your work ethic, kindness and responsibility to your team is everything.

**What changes have you seen in the industry in 2020, and/or what would you like to see more of in the future?**

The experiences of 2020 have brought us into a greater awareness of our place in the global community. The rise of covid-19 has thrust us into a technological shift that has transformed our social, political and environmental interactions. The pandemic has given us "space" to communicate on a much deeper level because of our shared experience. It makes room for authentic and informed conversation around systemic inequities we've perpetuated for generations via culture, race and class. It's dismantled so much of what has been a familiar way of life and forced us into restructuring. As a result, we are seeing an evolution of authentic brands that are born in service to the global community. And larger brands are lending their platforms to emerging talent to adopt more meaningful exchange.

The growing awareness of the effects of our consumer decisions on the environment is encouraging our buying decisions. I believe we will continue to see more domestic curation in effort to support small businesses and rebuild our local communities. I predict the emergence of the local craftsman, the rise of skilled trade work and eventually apprenticeship programmes – especially since the traditional education experience has been compromised, DIY will graduate to skillset and expertise. I'm looking forward to this evolution.



**What aims have you got for Oak & Acorn, and are there any upcoming launches or projects you can tell us about?**

The Oak & Acorn - Only for the Rebelles collection will officially launch in retail chains Nordstrom, nordstrom.com, shopbop.com and via oakandacornbrand.com at the start of 2021. In the New Year, Oak & Acorn will also be actively working on The Denim Collective, an educational initiative that will further explore the history of denim as a social, cultural and political icon throughout history, educational programming, media and brand collaborations.

I also have some upcoming articles that I'm authoring, speaking engagements and other goodies I won't mention, but 2021 will be an exciting year! ■

*The new collection includes hemp, recycled materials and deadstock fabrics.*

# Discover new territories



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## FACTORY TALK: KUROKI MILL

When it comes to Japanese denim fabric manufacturing, there are only a handful of really great places in the land of the Rising Sun to visit. Kuroki is definitely one of them. Let me take you on a guided tour...

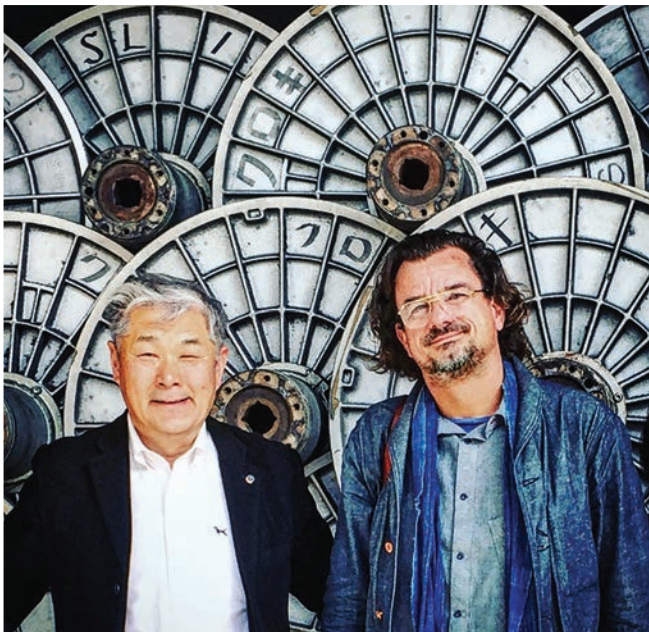
# The Holy Grail of denim fabrics

**W**hen visiting Japan and particularly the Bichu Bingo area, I always recommend a visit to the Kuroki denim mill. I've had the chance to go there twice, and I can tell you it has the 'wow factor' for every denimhead.

The Bichu (or Bitchu) Bingo area is located close to Kojima Bay, which you might know for its famous denim brands such as Momotaro, Japan Blue, Kapital and Big John. The area was originally a wetland, and the then-Emperor requested that cotton was planted to drain the swamps. It became famous for its quality cotton and its textile industry, and this industry, and subsequently denim, is a reference point around the world.

In Bichu Bingo we find the city of Ibara, where Kuroki Mill is located. It was founded in the 1950s by Tamotsu Kuroki, and when the first Levi's jeans were manufactured in Japan, the company started dyeing and weaving denim. By the early 1960s, Japanese denim had begun to grow in popularity around the world.

To ensure that the indigo dyeing quality was as good, if not better, than the original American denim fabrications, Kuroki began indigo rope-dyeing around 1965. It quickly became known for its deep and rich indigo rope-dyed denim fabrics, and focused exclusively on these from the 1970s.



### Warm welcome

Arriving at Kuroki in Ibara's outskirts, I received a warm welcome from Tatsushi Kuroki, the current president. If you are a regular visitor of denim fairs, you will probably recognise him, with his light grey hair and smiling face. He travels the world, presenting his innovative and heritage fabrics, sharing his passion for the well-made blue wherever he can. But seeing him in front of his factory, and having a personal guided tour, is a wonderful experience that I'll never forget.

It goes without saying that water treatment is perfect at Kuroki, and that the entire dyeing plant is extremely tidy and clean. Fabric dyeing and fabric weaving are set up in two different factories, so one of the first things you notice in the dyeing section is the huge space given to the rope preparation and rope dyeing. It is the heart of the company. The rope-dyeing machine has a few "secret tricks", that I'm afraid Mr Kuroki would not want shared here!

In the weaving plant, which is located a few kilometres away, Tatsushi Kuroki welcomed me into his office with a hot tea and a seat on his comfy vintage sofas. In the main weaving halls, I saw an impressive number of rare and collectible Toyoda vintage weaving machines. These wooden shuttle looms are alongside groups of more modern and faster selvedge looms. It's from these looms that some of the world's best premium and heritage brands get their fabrications.

There are different looms for a range of fabric weights, going from 6oz to 24oz. And, let me tell you, the 24oz selvedge loom uses some impressively thick indigo warp-yarn, which could almost be called 'cables'. It's fantastic to hear the humming of the vintage looms. Even the modern ones transmit the sound of quality.

### Couture clients

Kuroki could simply focus on this exceptional know-how in heritage denim fabrics, but to stay ahead in fabric innovation, it also offers a wide variety of trend-driven fabric, blending metallics, colours and bi-stretch fabrications, for clients including luxury couture houses. There is also a hidden section in the weaving department, where the famous jacquard machines are set up. This is the place where, for example, the LV monogram denim fabric comes from, and Kuroki is constantly working on new versions of this jacquard denim, on new jacquard techniques and novelty selvedge borders.

So much to see, so much to discover. And if you can't get the keys to enter the factory for a glimpse, then stop off at the Kuroki showroom in Ibara, and go through the thousands of fantastic denim hangers and samples.

All this excitement makes you hungry, so Tatsushi Kuroki took me for a fantastic lunch. Not to a fancy expensive restaurant, but a really good, down-to-earth ramen take-away. Because this man was so eager to head back to his factory and create more exciting denim fabrics! ■

*(Left) Mr Kuroki and Tilmann Wrobel.*

*(Right) 24oz warp yarn.*

ALL PHOTOS: T. WROBEL



*Tilmann Wrobel is the founder and creative director of Monsieur-T, the 'Denim Lifestyle' studio. He started his career as a haute couture designer and segued into streetwear and denim through his love of skating. He has worked as a designer and consultant for some of the world's top brands, and is based in Paris, France.*

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**FACTORY TALK: AGI**

The Pakistan-based mill is embarking on an ambitious expansion programme that includes a new LEED-certified spinning mill, a denim factory and a shredding facility, which will enable it to boost fabric offerings while minimising environmental impact.

# Building resilience at AGI

**I**t shows tenacity to forge ahead with expansion while many are scaling back, but Karachi-based AGI Denim is confident its investments will help it stand out as a responsible and forward-thinking denim and jeans manufacturer. The groundwork has begun on a new spinning mill that will have a capacity of 60,000kg of yarn per day when it is completed mid-year, and this will be followed by a fabric weaving mill and recycling facility in the first stage of a multi-year initiative.

The addition of the spinning mill means AGI will become fully integrated – it already operates fabric and garment facilities – and executive director Hasan Javed says this will have many benefits including increased speed, quality control, better control over raw material and cost, and reducing the carbon footprint. “I think verticality is the key in the denim business and Pakistan is a leader when it comes to having fully vertical set-ups,” he says. “In less than a 100-mile radius you have everything from the cotton farming to ginning, spinning, dyeing, weaving, stitching, washing, packing and shipping, especially here in Karachi.”

## LEED certified

AGI Denim was born from the Artistic family of denim companies, having been set up in 1949 by Hasan Javed’s grandfather. The group has now divided into a number of separate companies and at the start of 2020 AGI went through a corporate restructuring and rebranding to have a leaner and more agile structure and lessen some of the confusion in the market. Its two manufacturing plants will produce more than 50 million metres of denim per year by the second half of 2021.

The spinning mill is being built to LEED (Leadership in Energy and Environmental Design) standards, which Mr Javed says represents the company’s mindset. LEED certification provides verification of a building’s green attributes, and includes metrics such as energy savings, water efficiency, reduced CO<sub>2</sub> emissions and improved indoor environment quality.

*A rendering shows AGI’s new facility. It will be on stream this year.*

ALL PHOTOS: AGI DENIM





Executive director Hasan Javed is spearheading the spinning and denim mill investments.

(Left:) Breaking ground on the new spinning mill.

AGI had been targeting LEED gold at a minimum level, but initial assessments have shown the building should fall into the higher platinum category, with investments including solar power, an air-conditioning plant and a central vacuum and air circulation system throughout the facility to improve worker comfort. “The industry has changed so rapidly – sustainability, traceability, these are no longer just buzz words – you need to take tangible steps and actions so you can be known as a responsible company,” says Mr Javed.

Working with Swiss, Japanese and German technology providers, the mill will follow Industry 4.0 specifications, which means machinery will be linked through cloud-based computing and software and it will include a high degree of automation. This will enable workers to be trained in more highly skilled roles, says Mr Javed, taking the pressure off manual jobs, such as lifting of heavy bags of yarn. It also means the machinery can be operated and monitored remotely; something the pandemic has increased the need for, as more people began working from home. “I could be sitting outside the country and control the technology; everything is based on smart phones and tablets,” he explains. “You can get the complete rundown of your production, so it becomes a more transparent system where we can monitor everything that’s coming into the mill without physically being present.”

### Yarn strength

The past few years have seen a growing demand for recycled content in denim, as well as for new blends or for fibres such as hemp. There is currently a maximum amount of recycled content that can be added before the yarns become weakened, as the shorter fibres are more likely to create imperfections in the fabrics and quality issues in the process. AGI has worked closely with machinery companies to design equipment that is better able to cope, which should increase the percentage of recycled material that can be added without reducing quality.

“Sustainability starts from the fabric R&D stage and from the fibre and yarn,” explains Mr Javed. “We spent a lot of time customising our machines for running these short fibres, and we want to close the loop ourselves and have a circular approach.” The circular approach will be enabled in the first half of the year by a new system for converting post-industrial waste, as well as a new jeans shredding facility, which will be operational in the second half.

The expansion plans also include a LEED-certified denim mill which will be built later in the year and a new effluent treatment plant that will enable 85% of the water to be recycled. Phase two will begin in 2022 or 2023 and will double the spinning capacity by 2023. By 2025, the aim is to be “fresh water neutral”.

### Technology-driven

Such investment and expansion would appear to go against the grain of companies that are reining in spending while they assess the pandemic’s fallout on consumer spending. While Mr Javed admits the plans were made pre-covid, he believes companies that have invested in technology have tended to show the most resilience. “We put everything on hold for about for three months, but we’re fortunate in that the denim industry – while it did have a severe impact – was also one of the faster ones to recover. The world has to bounce back and, with the vaccines, there’s a lot of optimistic news.”

He also points to a shift in sourcing, where some countries might be losing market share, and suggests Pakistan’s long-term investment strategies are making it increasingly attractive. An improvement in the political and law-and-order backdrop is also helping. “When I joined the company in 2010, people seemed reluctant to visit but now we often host US and European companies and they are pleasantly surprised with what they find on the ground. For a long time, we weren’t able to grow the business as a country,” he concludes. “But this is Pakistan’s time, we feel, to grow, and in order to grow you need to differentiate yourselves. And you can differentiate yourself by going green and investing in your company’s core values.” ■



## FACTORY TALK: CONE DENIM

An important part of Cone Denim's commitment to reducing water usage is a new zero-liquid-discharge effluent treatment plant at its production facility in Parras, northern Mexico.

# Liquid assets

**L**ike all the companies that form part of Elevate Textiles, fabric manufacturer Cone Denim has an important contribution to make towards reducing the group's greenhouse gas emissions and water usage by 2025. Elevate's stated aim is to reduce the water intensity of its manufacturing operations by 25% per unit of production by 2025, compared to a 2016 baseline. It has said it will publish annual figures on the way to meeting the target. The group published its first sustainability report in late 2020 and showed that between 2016 and 2019, its water usage reduced by 7.5%.

As part of the collective effort to improve this further, Cone Denim is installing a new zero-liquid-discharge effluent treatment plant at its factory in Parras de la Fuente, in the state of Coahuila in northern Mexico. According to Cone Denim president, Steve Maggard, investments of this kind are a clear demonstration of the denim mill's commitment to sustainability. "We're not just dipping our toe in," he says.

### Progress, despite covid-19

Steve Maggard joined Cone in 1994 and went to Parras as a management trainee in the early part of his career, arriving soon after the 1995 production launch there and staying for about seven years. The town, its people and the factory are all close to his heart. Plans were in place to invite friends and customers to Parras for a twenty-fifth anniversary celebration in September 2020, but covid-19 put a stop to this, as it did to so many gatherings last year. The pandemic caused some hold-up in the installation of the new effluent treatment plant too because engineers, technicians and equipment suffered delays, but the project has made steady progress in spite of this.

Cone Denim Parras is a vertically integrated operation that has the capacity to process raw cotton, spin yarn and weave and dye between 30 million and 32 million yards (27.5 million to 30 million metres) of denim fabric per year. Around 900 people work there in four shifts and the whole process runs 24 hours per day, seven days per week.

*The factory in Parras is vertically integrated and has the capacity to process raw cotton, spin yarn and weave and dye up to 30 million metres of denim fabric per year.*

ALL PHOTOS: CONE DENIM





*Aerial view of the Cone Denim site at Parras de la Fuente, Mexico.*

### Water supply

North Carolina-based Cone first set up its operation in Parras with a local joint-venture partner, Cipsa, but it bought this partner out 12 years ago and now has full ownership. Its biggest reason for being there, Steve Maggard explains, is that Parras has a long history, more than 100 years, of textile production. The town is relatively small, with a population of around 45,000, meaning the competition for workers is less intense than in many other locations. “We are the biggest employer in town,” Mr Maggard says. He also points out that the water supply is good.

Water supply is the subject of frequent debate among politicians in the state congress for Coahuila, but Parras de la Fuente is something of an oasis in the desert, the Cone Denim president continues. There are several wells on the factory site and the company has all the necessary licences and permits in place to use the water. But it still wants to make its water-use more efficient, here and across the whole of its manufacturing network, and the zero-liquid discharge idea is an important part of the strategy. “We know our customers are looking for the opportunity to tell stories of good sustainable practice to consumers,” Mr Maggard says. “We want to provide them with the most sustainable option we can because we know it’s the right thing to do, ethically, and also because it will help our customers see us as the supplier of choice.”

### Another step

Wastewater treatment has always been an important part of the operation in Parras. After an investment of millions of dollars, an integrated wastewater treatment plant that met all US as well as Mexican regulations was part of the operation from the very beginning, with chemical and biological treatment taking place on site. For 25 years, Cone technicians treated the water that the factory used and discharged it into a nearby creek and, onwards, back into the environment. The main difference now, when the zero-liquid-discharge project is complete, will be that all of the water will go through ultra-filtration and reverse osmosis, leading to 93% of the volume coming back into the operation to be used again.



*President of Cone Denim, Steve Maggard.*

The other 7% will be contained in solids that will dry out at the site with the water evaporating into the air and returning to the water-cycle in that way. The dried sludge will then go for disposal, but no water will leave the site, Steve Maggard points out. To compensate for that 7%, the Cone Denim Parras operation will continue to draw some of the water it needs from the wells on site. Allowing for evaporation, it will take between 10% and 15% of its water from that source; the rest will be water it has recycled. Construction of the new treatment plant is at an advanced stage as this issue of *Inside Denim* goes to press and it will be in operation by the early part of the third quarter of 2021.

This new initiative is a source of pride for Mr Maggard and his colleagues, but he insists that sustainability and, specifically, water-saving ideas are not new for the Parras plant. “We already have condensation recovery from the steam lines,” he says, “and the process water is already being reused multiple times before it reaches the wastewater treatment plant. What we are doing now is just another step on the journey.” ■



Denise held the position of global ready-to-wear and denim director at The Lycra Company. She has been recently promoted to vice-president of brands, marketing communications and merchandising. She has been with the company since 2004. She is based in Barcelona where she lives with her partner and children. Denise has an MBA in marketing at University of Michigan, and a Business BA.



PHOTO: DERICK MCKINNEY / UNSPLASH

## CLOCKING ON...

The Lycra Company's **Denise Sakuma** considers herself lucky. "Work is 80% of the day, so you need to love what you do. If you love what you do 80% of the day, you will be a happy person."

# Comfort and performance top the agenda

## 6.00am

I wake up, check emails and scan the news while sipping my first cup of Nespresso. Then it's time to get the kids up (yes, this is a drama every morning!) and get them ready for school.

## 7.30am

After leaving the kids at the bus stop, I go for a 5km run. I usually cross Barcelona's Arc de Triomf, head through the Ciutadella Park and then reach the beach, see the sun rise and then back home.

## 8.30am

I am lucky to live close enough to work to walk, so I have another Nespresso and put on a good pair of jeans with Lycra fibre with, most likely, an Adidas Originals top and trainers. I make my way to the office at Paseo de Gracia, which hosts most of the fashion, sports and luxury brand stores. Being based here is a great way to stay close to the flavour of colours, textures, look and feel of latest apparel.

## 9.00am

I answer my emails and have video calls with my Asian and European team members. Innovation is extremely important and is one of our key strengths. With our newest Advanced Textile Innovation Centre based in China, many of the latest developments are coming out of Asia, so it's important to dedicate quality time to Asia and I reserve my mornings to go through the latest denim innovations with the teams.

## 1.00pm

As a global company, 1pm and 2pm are really busy times because this is when we are able to get all the teams on one call. We work collaboratively so these discussions range from innovation and development updates, through to marketing and communications planning. When I get time, I go for a quick walk and grab some lunch. My favourite is Japanese.



## 3.00pm

Our head office is based in Delaware, US, so this is the time to have those important discussions with the sustainability, marketing and innovations teams in the US and Europe. This is when we can go through the research reviews and discuss the latest consumer insights – essential for developing consumer-led solutions and technologies, such as our Lycra anti-slip. This is also a key time for catching up with customers, new suppliers, our agencies and doing one-to-one coaching sessions with the team. I love meeting customers and suppliers in person, but for now, video calls will suffice!

## 6.30pm

I walk home, perhaps still on some calls and finalise a few emails. Time to hug the children, check on their homework and after taking care of them, it is my time. As much as I love what I do, it is important to switch off and have enriching experiences outside of work too. I learn as much as I can about something new each week – cryptocurrencies (bitcoins) is my latest. I usually have a nice dinner with my partner, talk about our day, laugh, sometimes a glass of wine, a movie or a book. I also video call my mother every evening.

## 10.30pm

Off to bed for a good night's sleep and ready to face the new day. ■

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## ORDER FORM

Please complete and scan/photocopy/email back to [john@worldtrades.co.uk](mailto:john@worldtrades.co.uk)

<b>NAME:</b>		<b>POSITION:</b>	
<b>COMPANY:</b>		<b>NATURE OF BUSINESS:</b>	
<b>ADDRESS:</b>			
<b>TEL:</b>		<b>E-MAIL:</b>	
<b>PLEASE BEGIN MY SUBSCRIPTION TO:</b>		<b>PLEASE SEND ME _____ COPIES OF:</b>	
<b>MASTERCARD</b> <input type="checkbox"/> <b>VISA</b> <input type="checkbox"/> <b>AMERICAN EXPRESS</b> <input type="checkbox"/> <b>DINERS CLUB</b> <input type="checkbox"/>		<b>EXPIRY DATE:</b> <input type="text"/> / <input type="text"/>	
<b>CARD NO.:</b> <input type="text"/>		<b>SIGNATURE:</b> <input type="text"/>	

Credit cards will be charged in GB Pounds. Your credit card company may charge you for this service.

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15>19 Feb. 2021

# FRESH CHANCES

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