

WOOL





THE WOOL LAB

Autumn/Winter 2020

A guide to the best wool fabrics and yarns in the world.



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WOOL

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Mimicking Nature

Photography
KATE BALLIS & LIZ HAM



It's doubtful that when looking through runway shows one thinks of soil health, though with our increasingly volatile climate and threat of desertification, one of the most compelling solutions to fashion's environmental impact is truly grass-roots. *Ella Edwards* investigates regenerative agriculture.

The protection of endangered animals is an important aspect of holistic management.



The world's geography has evolved over thousands of years with the influence of large numbers of grazing animals moving across the landscape. To create protection from predators, these animals formed large herds – the larger the herd, the safer the individual. When these animals gathered, they ate and then manured and urinated on the pastures, and then periodically moved on to find fresh food. This system of grazing, where large and bunched herds moved as a unit across the landscape, created a self-sustaining ecosystem that cycled between growth and decomposition.

With the advent of wire and other new materials in the 1800s and more cost-effective ways to control the land through fencing, set-stocking (the containment of herd animals in paddocks for long periods of time) became the norm. Since World War II, the increased use of synthetic fertilisers and chemicals, widescale tillage and the innovative development of ever more productive seeds, promised ever-increasing production gains. But it has also become clear that, as impressive as these gains were, they were perhaps coming at a great cost to the land itself and new thinking was required.

A 2018 report generated by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, estimates that 43% of world populations already live in regions affected by land degradation and by 2050, four billion people will be living in drylands. This reality is immensely terrifying but there is a countermovement that is not only showing promise, but gaining ground, literally, and regenerating the land threatened by desertification.

The people at the frontline and experiencing the volatility in the climate are looking back to nature to solve the environmental problems of our era. Surprisingly, this doesn't involve de-stocking and disengaging in agriculture, but instead involves combining agriculture with the systems of nature to positively impact the environment. Scientist and visionary, Allan Savory has spent his entire life studying the grazing patterns of the large herbivores of the African continent and believes that if agriculture can mimic nature, the world can quell the encroachment of desert. Applying the rotational grazing system developed by André Voisin to the rangelands of Africa, Savory added an ecological perspective and developed what many others have now extended across the world: the agricultural practice of Holistic Management.

The fundamental essence of Holistic Management begins with the ecology of the soil and so the management practices of agriculture must first address the health of the soil. Just as good bacteria is needed to keep our digestive system running smoothly, the soil needs a community of microorganisms to help it grow healthy plants, sequester carbon, absorb rain and support animal life. While some kinds of farming destroy these microscopic life forms, regenerative practices developed with holistic management helps build them back into the ecosystem.

Pioneering Australian regenerative agriculture teacher Dr Terry McCosker began a grassroots initiative which has developed into a movement that is changing the way Australian farmers, or more accurately "transient custodians", are managing the land. Dr McCosker and his team at RCS Australia have spent more than thirty years empowering Australian graziers with regenerative management practices and is proving that through the management of the biology of the soil, we can reverse the degradation of our environment.

"There were two schools of thought in biology developed by Louis Pasteur and Antoine Béchamp," says Dr McCosker. "Pasteur's theory was known as the Germ Theory of Disease and claimed that fixed species of microbes caused disease. Pasteur's contemporary, Béchamp, had a different theory, and one in which we understand as truth today; it is not the microbes per se that cause disease, but an imbalance in the ecosystem in which they exist. In the context of soil, decades of not managing for soil biology has created imbalances which means that many of the natural functions carried out by biology are not being done. For example, the microbial activities of scavenging for phosphorus and many minerals and converting them to the forms required by plants are missing in action.

"What we have to do is manage for biology in the soil and its diversity and complexity. The biology can change the chemical and physical characteristics of soil," explains Dr McCosker. "By building the complexity of the soil biology back up, the health and productivity of the plants, animals and, ultimately, the people within the ecosystem will benefit.

"Within a functioning ecosystem, the carbon cycle is the key," asserts Dr McCosker. "Plants sequester carbon from the atmosphere, and deposit it





Protecting waterways with reeds and grasses not only prevents erosion, but also helps to clean the water.

in the soil through their roots as sugars where the soil microbiology use it in exchange for soil-borne minerals and nutrients that help the plant grow. It is only a growing plant that can productively pull carbon from the atmosphere and to keep a plant growing, it needs to be strategically grazed. This is where regenerative agriculture comes in. When ruminant animals graze the grasses with a holistic approach to grazing, they not only ignite the growth of the plant, they recycle about 85 per cent of the energy they consume, depositing this evenly back onto the landscape for plants and micro-organisms to capture and draw back into the soil. Grazing animals are intrinsic to a regenerative system and building up ecological diversity.”

Inspired by learning from educators such as Terry McCosker and Allan Savory, and developing their own innovative techniques, leading Australian woolgrowers are using their sheep, the Merinos that grow the world’s finest wool, to repair the degraded soil and land. By rotationally grazing livestock, nurturing species diversity through pasture cropping, planting diverse varieties of vegetation and improving water retention with compost and ‘leaky weir’ techniques that stop water erosion and run-off, woolgrowers can work with the systems of nature for the betterment of not only the land, but the animals and people within the ecosystem.

Merino sheep support the success of regenerative agricultural practices.

In Victoria, woolgrower Harry Youngman has been working tirelessly with the resources he has at Tiverton to increase the organic matter – litter broken down by microbial populations – in the soil. Organic matter is the sponge, or humus, of the earth and is, as Youngman says, “Mother Nature at her best”.

For every one per cent of organic matter, each hectare of the soil will hold around 150,000 litres of additional water through the growing season, and on a property like Youngman’s, where average rainfall is 700ml, he is able to enhance his average rainfall – held equivalently in the soil – by a significant amount of ten per cent. It’s these sorts of initiatives that not only contribute to more efficient farming and superior quality of wool, but also to a more sustainable future. “We want to make this work and to develop sustainable practices and hopefully replicate them elsewhere in good time. We have this little postage stamp of land that we want to care for.”

Moving toward a regenerative agricultural business model is by no means an easy feat, but increasingly, Australian woolgrowers are seeing the diverse benefits of working in sync with nature. In Tasmania, woolgrowers Roderick and Kate O’Connor are working with Greening Australia to revegetate large swaths of land. “In some areas of the property it will take me twenty years to revert my land to native grasses. In doing so I have been able to step back and better understand the lifecycle around us. It will take me my entire life to get things set up so that I can pass onto my son something that’s better than what I inherited,” Roderick says. “Climate change means the management of the land is really, really difficult, but through soil conservation and grassland conservation, and the planting of new trees, then we can hopefully help to halt some of that change by lessening its impact on us and what we do here.”

In New South Wales, woolgrower Colin Seis has applied his understanding of Holistic Management to cropping and is leading the movement to replace traditional cropping methods with ‘pasture cropping’. “Loss of land to salinity, declining soil structure and quality, soil carbon loss, dead and dying trees, insect attack, fungal and animal diseases, plus the high cost of fertilisers, herbicides and other inputs showed the suffering of an unhealthy system,” Seis explained.

With this realisation, Seis and his neighbour, Daryl Cluff, have spent the past twenty years developing a new technique they call ‘pasture cropping’. The process involves sowing crops into living (but dormant) perennial pastures and when the crop completes its annual cycle, the perennial plants are ready for their burst of growth. “While conventional cropping methods require that all vegetation be killed prior to sowing and while the crop is growing, with pasture cropping there is no need to kill competing ground cover vegetation, and yet adequate productivity can still be achieved,” Seis said. “Groundcover is maintained at all times which makes the paddocks more resilient to drought, wind and water erosion are avoided, soil structure is not destroyed by cultivation, and chemical input requirements are only a fraction of those used in traditional crop production methods.”



Sheep are an intrinsic part of Seis' pasture cropping system on his property Winona. They are managed in two main mobs – one comprising 2,000 ewes and the other 1,500 hoggets – rotated around 70 paddocks in a time-control rotational grazing technique. Before sowing, when perennial pasture species are dormant, short term time-control grazing with a large mob of sheep is used to graze and trample perennial pasture down to a height of around 100mm. This practice prepares the paddock for cropping by reducing the starting biomass and physically breaking down weeds, creating a litter and mulch layer and adding nutrients from manure and urine. Then the crops are sown, usually with no herbicide and 70 per cent less fertiliser than conventional methods. Only relatively small amounts of liquid organic fertiliser are added at the time of sowing, using the same machine, so that soil compaction is minimised.

Overall, the implementation of pasture cropping has restored the landscape health on Winona. Winona is now a diverse, functioning native grassland with more than 60 native species. As Seis points out, this change was created, not with herbicides, but with groundcover. By applying regenerative forms of cropping and grazing, Seis has more than doubled soil carbon and significantly improved the soil water holding capacity in just ten years. The vast majority of the soil carbon is highly stable, meaning it is significantly less subject to degradation, and carbon is being built and measured to a depth of 500mm. All soil nutrients increased, including phosphorus, by an average of 172% in available and total amounts, except for aluminium, iron and sodium, which have decreased.

In addition to being able to pass on a productive and sustainable farm to the next generation, Seis feels a well-deserved sense of achievement at having developed an innovative farming method that is being adopted by thousands of other farmers in similar climates and soil landscapes all across the world.

The learnings of holistic management and regenerative agriculture are spreading far and wide with innovators relaying practical management techniques to the wider farming community. As Dr McCosker points out, “the most powerful knowledge a farmer can gain is to understand simple ecology and the importance and role of biology in soil health. Man is part of the ecosystem, not the boss of it.”

Not only is regenerative agriculture being taught to others working with nature, the learnings and knowledge from the Australian regenerative agriculture movement are being shared with the wider community. In his seminal book *Call of the Reed Warbler*, Australian woolgrower and author Dr Charles Massy offers the insights and practical knowledge of not only of what he has learnt over the past 35 years of working with the land but of what others have achieved through regenerative agriculture. For farmers and consumers alike, *Call of the Reed Warbler* offers a tangible path forward for the future and shares the knowledge of mimicking nature with the wider community.

As Dr McCosker points out, “the willingness to change is the biggest hurdle for farmers transi-



Soil health is the foundation of a functioning ecosystem.

tioning to regenerative agriculture management and from my experience I understand it is better to pull than push change. So it comes down to society and the consumers to create that pull. Farmers are only transient owners of the land; custodians for a short amount of time. If the world wants to feed and clothe itself in the future, it needs to provide that pull for farmers by financially supporting their management practices to regenerate the land.”

Working to support the environment rather than degrade it, regenerative agriculture and holistic management focus on developing the biology and fertility of soils as the basis of the entire farm ecosystem. The system is holistic in that, overall, one part of the system such as the health of the environment is not sacrificed for another, such as the economy. Right across Australia, woolgrowers are incorporating holistic and regenerative management to their practice of raising sheep and growing wool, and as the regenerative methods take root, the landscape responds and the health of soil, animals and people flourish. ∞

Unravelling the Seams

From breaking down the supply chain to travelling back to the source, an increasing number of brands are introducing traceability into their collections, *Lisa Griplas* writes.



It's no secret that the fashion industry has a complex web of networks. From discovering the true origins of a fibre, to following a yarn, fabric or garment through the supply chain, the term traceability is becoming increasingly important. Where does my clothing come from? What's really in my favourite sweater? Who made my clothes?

It's a sad reality but traceability – and indeed transparency – really came into the fore following the horrific Rana Plaza incident in 2013. More than 1100 garment factory workers were killed in Bangladesh when an 80-storey building collapsed. Now, more than five years on, players big and small appear to be embracing new opportunities in the fashion industry, with traceability – to some degree – looking to become the new normal for many brands. 2019 was slated to be “a year of awakening”, according to McKinsey & Company's State of Fashion 2019 report, which urged companies to “self-disrupt their own identity” to satisfy the growing demands of “woke” consumers. The report found that consum-

ers, particularly those younger than Millennials, have both social and environmental issues on their minds and that these beliefs are intertwined with how they shop. Brands that aren't transparent fail to offer traceability within the supply chain or have an environmentally focused narrative will fail to capture perhaps the most influential group of consumers.

From farm to finish line

Leading the way to becoming 100% traceable is Swedish menswear brand ASKET, who last year announced it would trace its entire collection back to the origin of the raw materials and put that information into every garment. ASKET's new standard requires the brand to break down every garment made into its raw material, trace every component back to its origin and put all that information – the entire supply chain – into every single garment. Since ASKET made this mighty pledge, the brand is 74% traceable as it documents the where and how each garment is made and origin of the fibre.

“The apparel industry is in desperate need of change. Every garment produced requires precious natural resources as well as human hands that stitch it together,” says ASKET co-founder August Bard Bringéus. “Yet compared to only 15 years ago, we buy twice as many garments but keep them only half as long. The sad truth is that the average consumer has come to disregard the inherent value in each item and fashion has become a disposable commodity. Our goal is to show people exactly what goes into making their clothes. Only when we face the full story and the true cost of the products we put out there, can we start making better decisions.”

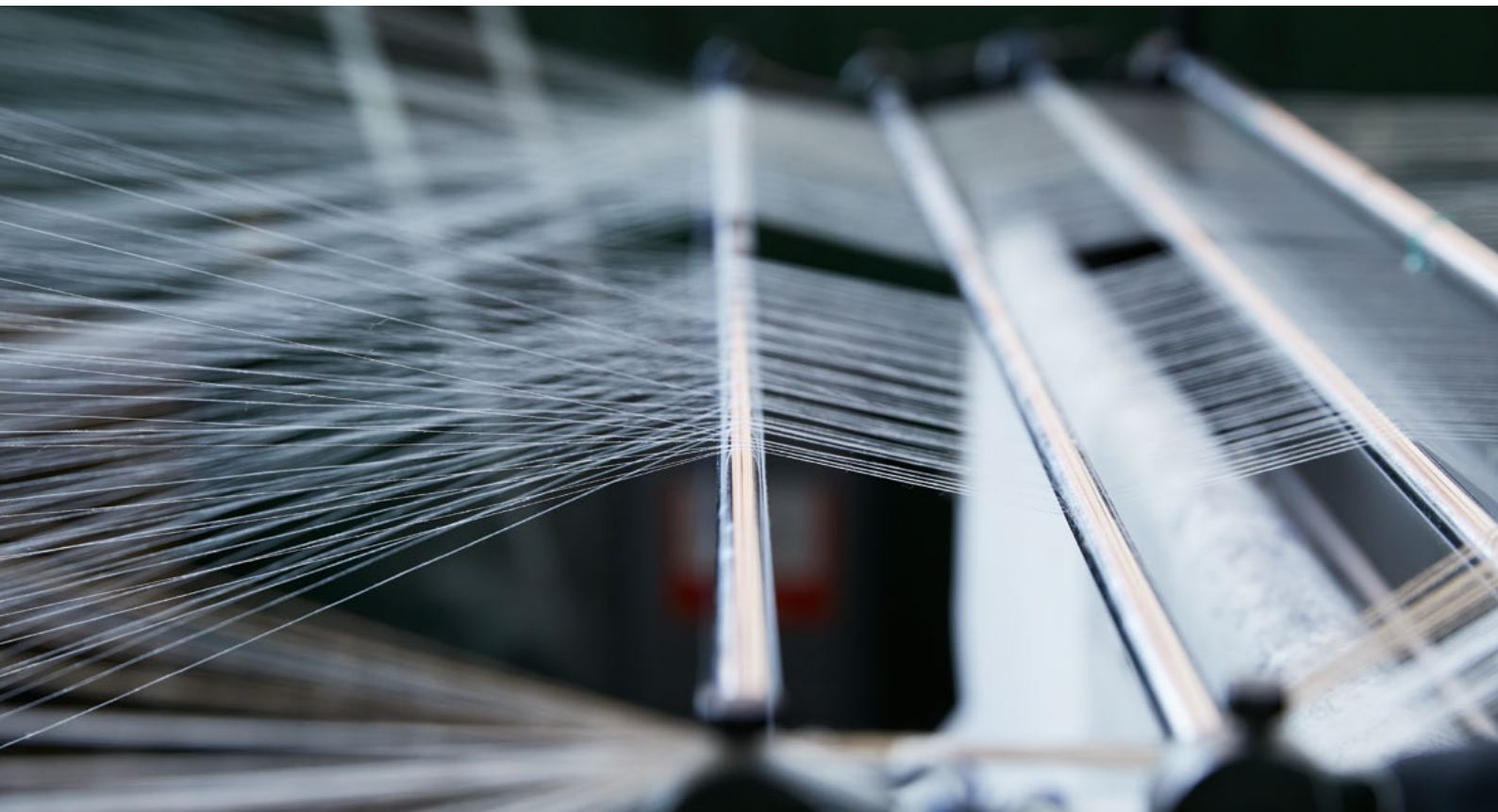
ASKET's goal is to show consumers exactly what goes into making their clothes – from the raw material to the physical labour. By drilling into supply chain complexities and craftsmanship ASKET hopes to help consumers make more responsible decisions about what they buy, at prices that reflect what it costs to make them. Travelling the world to unravel the seams, the ASKET team is visiting Australian woolgrowers, mills and manufacturers to gather information to be included in every garment's label. And whilst many players within the supply chain have nothing to hide, ASKET says that those who do not wish to comply will be weeded out of ASKET's production pipeline. “Last year we commenced our journey to make our garments fully traceable from raw material to finished garment, no easy feat considering the complexity associated with the garment supply chain,” says Bringéus. “But after months of research and discussions in collaboration with our



From greasy wool, the raw fibre, right through to finished fabrics, the fashion supply chain comprises an extensive network of suppliers.

Italian spinning mill, we're pleased to share that we have set up a direct relationship with a Merino wool farm in Omeo, Victoria, Australia. We're steadfast in the belief that curbing fast-consumption habits is by far the most effective way to reduce fashion's impact on the planet. And fabric selection plays a very important part in this. Our priority is the longevity and durability of our garments – of course with a focus on natural materials that are biodegradable. When it comes to wool, Australian Merino is second to none. The Merino fibre lends itself beautifully to both quality and durability; it's fine and soft giving the knit a luxurious feel, but the fibres are also long, lending to durability. What is more, Australia has a long heritage of rearing Merino sheep and consistently producing amongst the best wool."

It's the importance of fabric selection mentioned by Bringéus which remains at the core of ASKET. Yet it's currently not only up to brands to pay attention; consumers hold the power in what they choose to buy. As consumers have become increasingly aware of what's in their food, this trend is gradually creeping into apparel, with more and more consumers turning the label to see what's in an item of clothing. However, there's still a long way to go when it comes to fibre education and environmental impacts. "In general, consumers don't understand fibres, natural or synthetic, and the environmental impacts that are associated with each but that's also in part to the lack of information available," says Bringéus. "A tell-tale sign is the excitement we've seen around clothing made from plastic water bottles, ocean plastic or other upcycled plastics. While it might go some way in cleaning up the planet, clothing made out of any kind of plastic



may actually do more harm to the environment than good – with the shedding of microplastics and lack of proper recycling methods. More efforts need to be made to promote the use of natural degradable materials and developing effective methods for recycling of plastic.”

Emerging designers take charge

With both traceability and supply chain transparency playing a vital role in fashion’s complex ecosystem, emerging labels know the importance of building their business around this. The Woolmark Company works with designers to connect them with the supply chain, allowing designers to have strong working relationships with spinners, mills and manufacturers.

Last year, The Woolmark Company collaborated with lifestyle label Nagnata to introduce Australian Merino wool into their offering for the first time. By working closely alongside The Woolmark Company’s technical team, the duo behind NAGNATA was connected with leading wool mills to explore various knitting machines and spinners, before finally choosing who they wished to work with. “It’s really important to us to have a close relationship with our manufactures and we like to be involved in the process every step of the way,” explained NAGNATA co-founder Laura-May. “This also allowed for us to learn so much about the versatility of Merino wool. You achieve a much higher level of innovation when you collaborate in person with the technicians who are essentially coding the knitwear machines making the garments. It’s easy to have creative ideas on what you want the textile to look like, but if it can’t be coded or achieved by the particular machine you’re working on, which happened countless times because there are so many restrictions, then you need to go back and forth on alternate ideas.”

The Woolmark Company also supports supply chain transparency through its prestigious International Woolmark Prize, with many finalists and indeed winners tracing the fibre throughout the supply chain and back to the source. This year’s winners, Colovos and Edward Crutchley, both ensured they could trace their supply chains by working with a close-knit network of suppliers. Colovos set out to make a luxury, modern Merino wool collection with a sustainable circular proposition. Partnering with like-minded mills which are accredited with the Greenpeace Detox Program, they worked together

to create innovative fabrics and explored new looks and textural development. In addition, the puffer jacket they created using 100% wool filling, rather than traditional down, uses an outer fabric that is entirely traceable. “Our goal was to create a luxury, modern collection with a fully sustainable proposition,” explained Michael Colovos. “We are committed to principles of zero waste in manufacture, so all production waste and end-of-life garments will be recycled to create new fabrics, a process that uses steam, heat and citrus to breakdown the fabric waste and create a new fibre to be spun into fully recyclable yarns.” The brand is also working to include QR/RFID technology into its care labels to communicate transparency and traceability with the garment’s features, allowing the brand to have an ongoing conversation with its customers. Menswear and Innovation Award winner Edward Crutchley also had a transparent and sustainable approach to sourcing and manufacturing for his International Woolmark Prize collection. Cut-and-sew garments were made by a small family firm where there is total production flow transparency, giving the brand the ability to know exactly who has been involved with every step of the garment sampling and production process. Knitwear and woven jacquard fabric were made by Johnston’s of Elgin in Hawick. “I think it is impossible to work as a smaller brand in today’s environment without transparency and sustainability being at the forefront of what you are doing,” explains Crutchley. “One of Merino wool’s strongest assets is its sustainability and how it can be used to contribute to a circular economy.”

Ruchika Sachdeva of Bodice Studio, the 2018 winner of the International Woolmark Prize Womenswear Award was so passionate about supply chain transparency she literally travelled to 22 states across the vast length and breadth of India. It’s not just important for her label, but moreso her way of life. “I asked myself what’s the best my country has to offer and I know that it is handloom: Making fabric, and even yarn, from scratch. So I was looking for people who do handloom – with wool,” said Sachdeva of her winning collection. Her Woolmark journey started at Bhuttico, a weavers’ co-operative in the Himalayas, where she developed fabrics using



the extra-weft technique. “With Bhuttico, it wasn’t just about the textiles, as with any given place, it’s not just what they’re making, but the whole experience that counts.” She travelled to Maheshwar to spend time with Hema Shroff of the label Amba, then onto Goa where she found natural dyes at Bio Dye. She enlisted the technological advancements of Raymond – one of India’s oldest family-run mills – to produce a custom colour story, as well as custom weights. “If my work comes across as sustainable, that’s not something I’m trying to do on purpose, it’s just who I am, and what I’ve become over time. My initial work wasn’t about sustainability, but perhaps that’s changed with my lifestyle because how you live reflects in your work.”

Information and innovation

While Sachdeva took the slow approach, travelling across the vast sub-continent, scientific advancements are helping designers and brands not only trace a fibre such as wool back to its country of origin, but even back to the exact farm. Dunedin-based product and supply chain traceability specialist Oritain can essentially take a ‘fingerprint’ derived from the chemical compositions of plants and animals – and fibres such as wool – storing these fingerprints in the Oritain database and eventually able to trace a particular product back to its origin. This scientific approach measures the product itself to prove where it claims to be from. The science used by Oritain originated in the criminal forensic field where it has been used in multiple investigations and the methodology has been thoroughly peer-reviewed and subject to numerous scientific journal publications during the past 20 years.

This year, Oritain partnered with iconic brand and Woolmark licensee Country Road in an Australian first, with the fashion label releasing a stunning campaign titled ‘A Good Yarn’ to not only highlight the brand’s use of luxury Australian Merino wool, but also offer a narrative on traceability to its customers. Shot in the beautiful Tasmanian countryside, A Good Yarn combines fibre, fashion and science to determine where the Merino wool used in certain garments originates. Utilising the forensic science and the geochemistry of the environment provided by Oritain, Country Road was able to definitely determine where the Merino wool in its Traceable Merino Knits collection originated. “What we’re here to do is to verify a claim: this product is being sold that says it’s Australian Merino – is it truthful?” explains Oritain Australia Managing Director Sandon Adams. “Some environments are nutrient rich, some are poor, some are high in elements, some are low. These differences are what we measure, using the results to create a chemical fingerprint,” he said. “We’ve mapped the chemical fingerprint of Australia and the majority of the world for wool, which we then use to verify where a product has originated.”



This scientific approach to fashion and fibre is one which continues to grow and The Woolmark Company is currently developing its own traceability program for Australian wool, aiming to trace back the origin of wool used in an end product. This involves investigating the science behind objectively measuring the growing location of wool, something which is currently unavailable within the industry. The Woolmark Company is exploring the feasibility of applying small quantities of a unique molecular DNA-based tracer with fluorophore material to wool fibres and following it through the manufacturing process, until it reaches the end garment. Additionally, the global authority on wool is also looking at ‘product test methods’ which work to measure the naturally occurring chemical elements that exist within the wool fibre and vary from one growing location to another. It is used to supplement existing paper-based traceability methods and monitor the accuracy of product claims; for internal validation and to maximise transparency of supply chains. “The service offers a scientifically proven and robust method to test a product and verify its origin claim,” explains The Woolmark Company Managing Director Stuart McCullough. “This approach has been used commercially to deliver a resolution back to country, region and farm of origin.” Australian woolgrowers have also been given another tool to help champion their fibre, receiving a stencil of the Woolmark logo for branding use on their bales. “This will help to identify wool bales – and its contents - as Australian. It provides an alternative to just having the Woolmark brand as a quality assurance mark for garments, it will move to becoming a supply chain integrity mark.” ∞

Green is the New Black





More and more brands across the world are taking responsibility not only for the production of their clothing but the entire lifespan of the garments they produce, including how clothing is worn, washed, and disposed of; many shunning the idea that disposal is even a viable option, writes *Lisa Griplas*.

If there was anything that could be branded as “so last season”, it’s the linear approach to, well, anything. But particularly fashion. Increasingly, designers, retailers and consumers are waking to realise that everything they do, wear, buy and even eat should be beneficial for both human and ecological health. For designers particularly, the idea that waste is a design flaw is starting to resonate, with practices such as zero waste, mono-materiality and design for disassembly key to closing the loop.

Perhaps this need to close the loop was brought to public attention in the Ellen MacArthur Foundation’s report *A New Textiles Economy: Redesigning fashion’s future*, which presents an ambitious vision of a new system, based on circular economy principles, that offers benefits to the economy, society and the environment. And, as MacArthur rightly says, we need the whole industry to rally behind it. But while the Ellen MacArthur Foundation champions the need to rid the linear approach, Patagonia founder Yvon Chouinard took it even further a decade earlier in his iconic book *Let my people go surfing*, famously saying back in 2006 that “most of the damage we cause to the planet is the result of our own ignorance”.

Amidst the glitz and glamour of the fashion industry is a dark and dirty underbelly; an industry that can cause more harm than good if not managed correctly. Fast fashion is on the rise, as are the world’s sea temperatures. Clothes are being worn less, yet according to the Euromonitor International Apparel & Footwear 2016 Edition, in the past 15 years clothing production has approximately doubled, driven by a growing middle-class population across the globe and increased per capita sales in mature economies. However, it’s not all doom and gloom. The 2017 WRAP report found that the amount of clothing in household residual waste destined for landfill has reduced by 14 per cent since 2012, although this amount still adds up to 300,000 tonnes. The same report found that by extending the active life of 50 per cent of UK clothing by just nine months would save 8 per cent carbon, 10 per cent water and 4 per cent waste per tonne of clothing. In addition, if 5 per cent to 10 per cent of clothing sales were via hire and repair models to extend their active life, the savings could be 30 to 60 million cubic metres of water and 80,000 to 160,000 tonnes of carbon dioxide equivalent. Not only does extending a garment’s first – and even second – use phase offer a less impactful environmental solution, renew and repair services can provide growth opportunities for businesses.

WOOL...

- ... is made of *carbon*, and part of the climate solution
- ... is an *annual* gift from the sheep
- ... can take part in *regenerating* land and vegetation
- ... is often *grown* on land not suitable for food crops
- ... is *repairable*
- ... needs *less* washing
- ... is *durable* and stays longer in your wardrobe
- ... deserves a *second life*
- ... microfibrils *biodegrade* in both water and soil
- ... *composts* into valuable soil nutrients
- ... is easily and often *recycled*



Care and repair

A Mend to Extend program is offered by Revel Knitwear, which creates luxury hand-knitted pieces for the modern minimalist. If a sweater gets snagged, Revel Knitwear will send its customer a sample of wool to sew into the sweater – should you have the skillset – or it can be posted back for an in-house repair. “I started the Mend to Extend program to promote people investing in clothing and cherishing their purchases,” says Revel founder Shannyn Lorkin. “I want our customers to be able to easily extend the life of their knit, to hold onto it and enjoy wearing it for as long as possible. It’s important that as a business we are innovative on not only how to create quality, sustainable pieces but also how the customer can continue the lifecycle of the garment. By educating on how to wash, care and repair the garment, we are empowering them too.” Like so many Millennials who have learned the age-old skill of knitting, Lorkin was inspired and taught by her grandmother. “When she sadly passed, I wanted to create this brand as a legacy for her, to carry on

the tradition of hand-knitting and create knitwear that has a huge emphasis on not just the finished product, but the process of making it,” she said. Available exclusively online and made-to-order, all Revel pieces are hand-knitted by a small team of makers for the purpose of creating ethical and sustainable fashion. “I work with wool because it naturally is a first choice with knitting. It can be so strong and last such a long time when cared for well and in that way holds very strong quality. You also don’t need to wash wool very often, you can air it outside when needed, and so therefore is actually low maintenance. I want to reduce our impacts on the environment by making quality clothes that last and have fibres that will break down well. We also save all of our offcuts and soon want to re-spin it into new wool, to be made into more knits in the future. It can become circular because you can use it, reuse it and repurpose it for its whole lifespan.”



Tread a little lighter

Many consumers may not think about fibres when purchasing new clothes. What goes into a garment is just as important as how it was made. Wool, for example, is resistant to stains, odour and wrinkles, with garments made from the fibre requiring less washing and drying, saving time and ultimately reducing the household energy bill. It's factors such as these which drive conscious consumption. As Dame Vivienne Westwood famously champions: "buy well, choose less, make it last". Or, "can I wear this item at least 30 times?" as Eco-Age's Livia Firth has popularised in the 30-Wear Challenge. "If consumers want to consume fashion more sustainably, the first thing is to buy less, and buy better," agrees sustainable fashion critic Alden Wicker. "Avoid spending on items that will be dated in a year or two. If you really want to try out a trend, rent it from a place like Rent the Runway. If you want to buy something new, invest in versatile items that are made with high-quality materials that you can

wear at least 30 times. Look for items made with 100% Merino wool and other natural fibres." Brands and designers must also become problem solvers, creating products with low environmental impacts. "Brands can encourage a more sustainable life for clothing by taking responsibility for the whole life of the clothing they make, from production, to purchase, to the secondhand market, and recycling," says Wicker. "The goal is to keep it from ever going into the landfill, and instead keep the product and material continuously cycling through the fashion ecosystem. Brands can start by designing clothing with long-term value in mind – it should still be wearable beyond one or two seasons, both because it's a classic style and because it's still in good physical shape."

One such example comes from Swedish sports brand Houdini Sportswear, which recently announced that 100 per cent of its fabrics are recycled, recyclable, renewable, biodegradable or Bluesign certified. "Designing for circularity is essential if you look at the systemic perspective of people and planet," explains the brand's CEO Eva Karlsson. "Humanity needs to use the planet's natural resources more wisely and with circular design we can make sure the resources we use don't get wasted but instead can be used as resources again and again. Moving from a linear to circular model will enable us to eliminate the concept of waste, one of humanity's greatest design flaws of all times. We believe that as a business we have an obligation to strive towards becoming regenerative – a company that contributes to the world rather than take from it."

Lives long lived

Wool provides the global apparel industry with the most reused and recyclable fibre, of the common apparel fibre types, with data in the UK suggesting a high donation share for wool, three-times more than the fibre's share of new material use. In fact, wool's recycling industry is 200 years old, so it comes as no surprise wool has the highest share of fibres recycled. Most Lifecycle Assessment (LCA) studies for clothing incorrectly assume that garments are immediately landfilled (or disposed of) at the end of their first life phase. A common thread throughout the clothing lifecycle is the opportunity to better inform consumers about what to do with clothing when items are no longer wanted, but also placing greater value on the clothes they buy and wear. End of first-life options for garments can generally be broken into four main categories: reuse, recycle, incineration and landfill. Recycling of clothing can involve either open or closed loop approaches. It's widely agreed the Sustainable Apparel Coalition's Material Sustainability Index (MSI) will bring consumer attention to the lifecycle of a garment and have a positive effect on the industry.

However, a recent study by Dr Stephen Wiedemann and Dr Kalinda Watson of Integrity AG & Environment has identified weaknesses in the underlying science that informs the MSI. The study concluded the index currently fails to include two main parts of the product lifecycle in its calculations – the use phase and end of life. The former of these is generally the highest impact stage of a product’s lifecycle, while failing to explore the latter ignores the major and urgent problem of fast fashion. Furthermore, microplastics are not included in the MSI’s scoring, creating more gaps and less balance in the results. Yet in positive news, the study also identified some of the steps that can be taken to strengthen the index to become a tool the entire industry can trust and embrace with confidence. “We need robust, accurate and reliable methods to generate meaningful ratings that can be trusted by all parts of the supply chain, including consumers,” said Dr Wiedemann. LCA-based results currently reflect only a part of the environmental impacts of a product. Renewability, biodegradability, carbon cycling and biodiversity are all aspects which, although difficult to integrate into LCA, are part of the equation and need to be considered in a comprehensive environmental measurement.

According to Wicker, not including the use phase or second-life phase in LCA ratings has led to confusion amongst consumers. “For a simple example, Lifecycle Assessments that compare cotton and plastic bags say that plastic bags are actually anywhere from 100 to 10,000 times better for the environment, in terms of greenhouse gas emissions, water usage, etc,” said Wicker. “But, that doesn’t account for the fact that marine animals eat and choke on plastic bags, and they never biodegrade. Consumers are being asked to compare apples to oranges and make a wild guess as to what is better. So LCAs should absolutely take into account how often the average consumer washes or dry-cleans a material, how many times a material can be worn or used before it starts to fall apart, whether it can (and actually will) be recycled, and how long it takes to biodegrade in the environment. Polyester is technically recyclable, for example, but very little of it is because it has to be a pure, high-quality polyester that is collected and sent back to the one Japanese manufacturer that does that. Right now, with technology being what it is, pure wool and cotton are the most likely to be turned into other products.”

100 per cent natural, renewable and biodegradable, readily recycled and requiring less laundering, wool has a compelling story to tell at every stage of a garment’s lifecycle, with many brands championing the eco-credentials of the fibre.

“Nature is our blueprint for circular design,” explains Karlsson. “In nature, nothing becomes waste but instead stays a resource. In our product design we mimic nature’s cycle, either in a natural cycle using organic and renewable and biodegradable raw materials, or in a technical cycle using

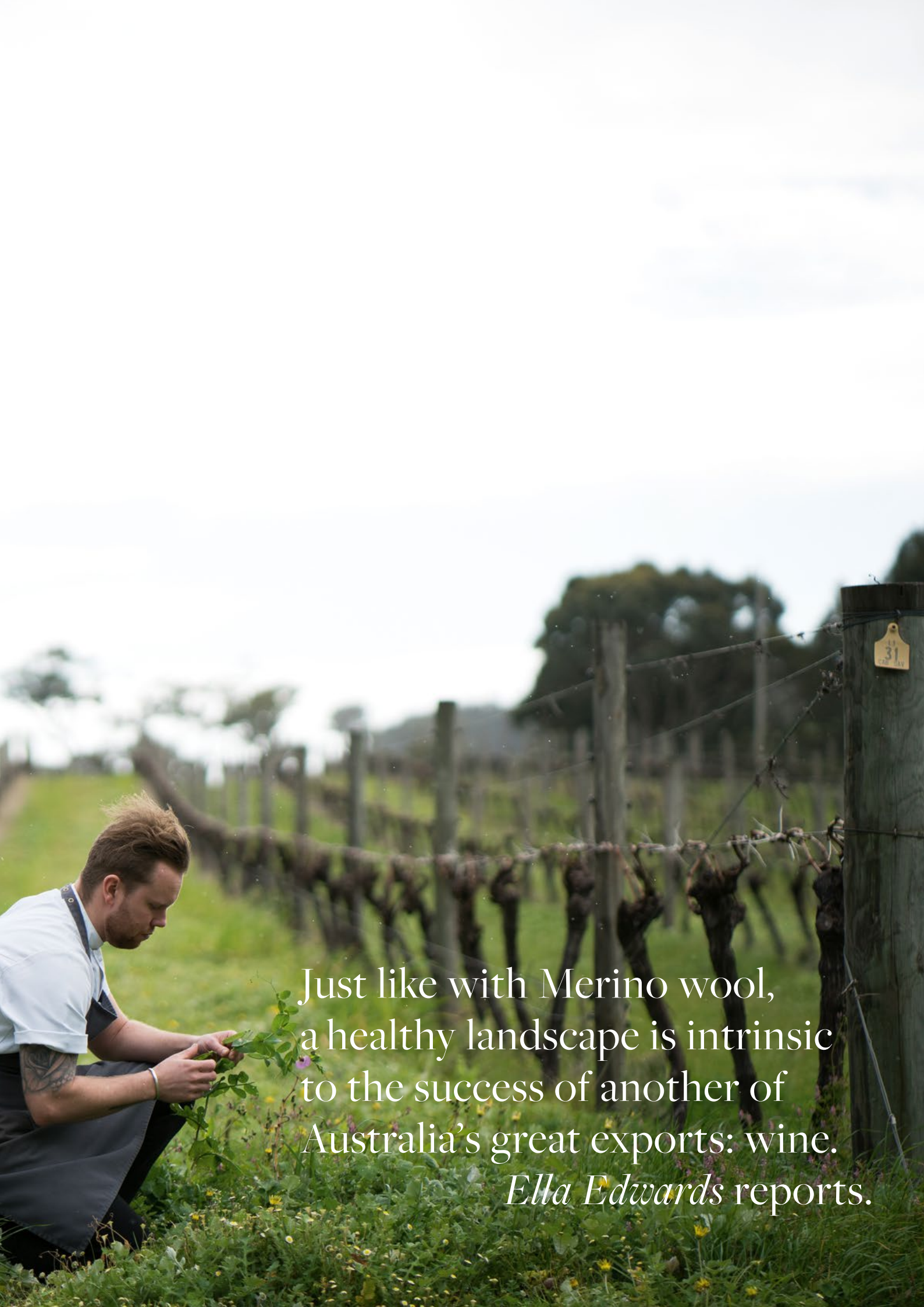
recycled mono materials that can be recycled.” The Swedish sports brand recently released the Lana Pants and Lana Jacket – crafted from 100 per cent Australian Merino wool using the latest Optim™ spinning technology – which the brand claims is natural performance at its best. “Lana is circular by design, meaning the textile raw materials used are all organic, renewable and biodegradable resulting in a product that is pure enough in its form to be recycled or composted at the end of life. We did extensive field testing with for a wide variety of hardcore outdoor sports in tough conditions together with authorised mountain guides, who demand as much from their apparel as they do with the rest of their equipment. By questioning conventions and stripping fabrics from unnecessary treatments, membranes and coatings we can form beautiful partnerships between nature and technology. In the case of Lana, this is nature’s 4 billion years of innovation in partnership with state-of-the art weaving technology.” ∞

This page and opposite:
Garments from *Houdini Sportswear*, the fabrics of which are 100 per cent recycled, recyclable, renewable, biodegradable and Blue-sign certified.

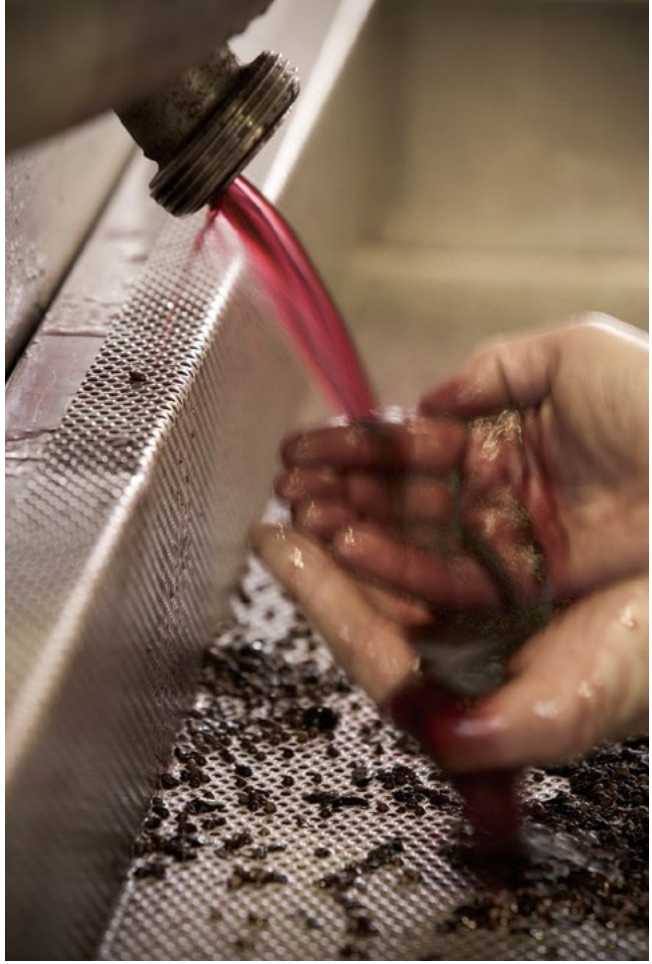


The Importance of Place





Just like with Merino wool,
a healthy landscape is intrinsic
to the success of another of
Australia's great exports: wine.
Ella Edwards reports.



Established in 1967 by regional pioneer Dr Tom Cullity, Vasse Felix is the founding wine estate in Western Australia's Margaret River, home to some of the world's best wine and Merino wool. Steeped in history and tradition, Vasse Felix has been owned and operated by the Holmes à Court family since 1987, with Paul Holmes à Court representing the second generation continuing the tradition. When asked what history means to Holmes à Court, he frankly states: "An overwhelming sense of responsibility, to be honest. To our region, to our founders, and to everyone who has helped make Vasse Felix what it is today."

Although leading the region's winemaking reputation could be a formidable task, Holmes à Court says quality means everything to Vasse Felix and striving for excellence is what gets them up in the morning. That and the beach, as not only is Vasse Felix situated in an isolated corner of the globe, some of the most beautiful beaches in the world lie a mere four kilometres from the Vineyard rows.

This landscape is not only an inspiration but the defining energy for Chief Winemaker Virginia Willcock, who believes the distinctive style of Vasse Felix wine can be attributed to their pristine environment. "There is energy in the environment and the people that plays into the wine. The Margaret River landscape incorporates the ancient soil of the cape surrounded by the ocean with a pure clean sea breeze coming from the south west blowing through the vineyards and cooling the vines," Willcock explains. "The vineyard itself is a beautiful undulating site with rolling aspects, creating excellent air and water drainage. The gravel-loam



soils of Margaret River are among the oldest in the world having never been disturbed by earthquakes, volcanoes or floods. With excellent conditions for organic compost to develop, these well drained, lean soils provide optimum balance between vine growth and yield."

Each vineyard is matched to the best possible grape varieties and farmed sustainably using traditional and organic practices. By nurturing their soils, the team at Vasse Felix achieve better plant health and balance which leads to higher quality fruit. Without working with synthetic herbicides, fungicides, pesticides or fertilisers each parcel of fruit is vinified with minimal intervention, fermented with natural yeast from the vineyards and bottled within their pristine winery.

Willcock believes that working with nature is about sharing the sensitivity of the season and being able to express that in the product made from that landscape. "Wine is a very special drink that reflects its environment and the people if made with respect. That is all we try to do, reflect the place where that variety grows and share that with as many people as we can."

This ethos is engrained in Vasse Felix and as Holmes à Court explains, ultimately, Vasse Felix wine is a reflection of a place and of its people. Drawing on the history of Margaret River, the rich wool-growing tradition Australia is renowned, Holmes à Court notes the similarity between making wine and growing wool. "The vines and the sheep do the magic work of course, but when you taste the wine or wear the wool, it's the place and the people you think of." ∞



Vasse Felix is a proud partner of the International Woolmark Prize.



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Merino Wool Sets Sail

In April 2020, Luna Rossa will set sail as part of the America's Cup World Series, as it vies for the world's oldest trophy in international sport, writes *Lisa Griplas*.







Merino wool-rich garments
for the training outfits and
racing uniforms of the Luna
Rossa Prada Pirelli team.

“It’s the first time wool will take to the seas on such a large scale and allows us – along with Australia’s 60,000 woolgrowers – to see Australian wool used in such an innovative way.”

The Woolmark Company has worked with Luna Rossa Prada Pirelli to develop high-performance Merino wool garments ideal for the challenging conditions of the America’s Cup. As the official technical partner, The Woolmark Company has supported the Luna Rossa Prada Pirelli product development team to create wool-rich technical garments to be worn by the entire sailing team during training, sailing and offshore activities. This partnership highlights the strong link between the world of sport and the world’s original performance fibre – Merino wool.

“Our physical activity is very demanding in terms of clothing: the garments we wear must be as isothermal, elastic, breathable and water resistant as possible,” says Luna Rossa Prada Pirelli Team Director Max Sirena. “Well, I discovered on my skin that Merino wool is all this. It really is a performance fibre, and besides that it is also absolutely sustainable and biodegradable. I must say that our new uniforms are a wonderful surprise that makes our body – and our spirit – feel good.”

As the world’s oldest fibre, wool is 100 per cent natural, renewable, biodegradable and is the most reused, recycled apparel fibre on the planet. Moving away from uniforms made from synthetic fibres, the use of wool in the Luna Rossa Prada Pirelli team uniforms offers a natural solution with reduced environmental impact and will be tested by the best through this technical partnership.

The pinnacle of yachting, the first America’s Cup was contested in 1851 and in its 160+ year history has enchanted the world’s most famous and high-profile personalities and companies. The Luna Rossa team is the most respected team in the

America’s Cup fraternity. It is the only team in the history of America’s Cup to have challenged six times. An extremely competitive and well renowned team, Luna Rossa was the winner of the Challengers’ Selection Series in 2000, was a finalist three times out of four challenges and includes some of the world’s highest talented sailors and designers.

“The partnership between the Luna Rossa Prada Pirelli team and The Woolmark Company is based on a shared philosophy, inspired by innovation and technology, as well as research into new materials and social responsibility,” said Prada Group Head of Marketing and Communication Lorenzo Bertelli. “I am certain that having The Woolmark Company as technical partner will add even more prestige to the team.”

“The America’s Cup has always symbolised the best of the best – from the best boats, to the best crews and now the best fibre,” explains Stuart McCullough, Managing Director of The Woolmark Company. “It’s the first time wool will take to the seas on such a large scale and allows us – along with Australia’s 60,000 woolgrowers – to see Australian wool used in such an innovative way.”

In 2020, the first regatta of the America’s Cup World Series will take place in Cagliari, Italy. Additional World Series events will be held around the world in the lead up to Auckland, New Zealand, where in early 2021, the Prada Cup will decide the Challenger who will race in the 36th America’s Cup, presented by Prada, scheduled for March 2021. ∞



NA ROSSA





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LUNA ROSSA
36th AMERICAS CUP
CHALLENGER



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LUNA ROSSA
36th AMERICAS CUP
CHALLENGER



PANERAI



CVS

SURVI



Built to Change

New innovations pave the way forward for the Merino wool industry, allowing it to be a dynamic one that is forever changing. Innovations can be introduced into Merino wool at any stage in the manufacturing process – reaffirming Merino wool as versatile, cutting-edge and a clever alternative to other fibres. These are the latest developments with the world’s favourite natural fibre.

Styling
MITCHELL OAKLEY SMITH

Photography
PAUL SCALA







Lightweight Wool Terry Loop Jersey

This sweater pioneers as one of the only true 100 per cent Merino wool jersey sweatshirts available in the market, knitted in comfortable terry loop wool jersey. Fluffy loop structure yarns inside the knit adds moisture management and thermal insulation through air pockets, keeping the wearer dry and warm. The relaxed silhouette coupled with this slightly stretchy knit allows for a comfortable and lightweight garment, that has been finished to be machine washable. Marback Tricot is a specialised knitter based in Sweden/Estonia, supplying multiple brands in Northern Europe.

This page: *Marback Tricot* wool sweater; *Merino Country* wool shorts; *APL* wool sneakers.

Opposite: *Marback Tricot* wool sweater; *Devold* wool tights; *APL* wool sneakers.

Merino Wool Denim

Denim is a twill fabric traditionally made from a dyed cotton warp yarn with an undyed weft yarn. Previous attempts to create wool/cotton blends in denim have used an intimate blend of wool with cotton – two fibres which are not easy to combine in a yarn. Yet production developments including the use of machine-washable wool yarns have led to a more cost-effective way to produce Wool Denim without having to blend it with cotton.

The Woolmark Company has worked with development partners to produce a wool/cotton denim blend which uses exactly the same warp yarn as traditional denim, but replaces some, or all, of the weft yarns with machine-washable wool. The fabrics are finished in the same way as traditional denim, so style isn't compromised, whilst all the natural benefits associated with wool are gained, including its natural resilience and elasticity to create new textures, drape and next-to-skin comfort, and most importantly, an increase in the level of warmth in your denim apparel.

2019 International Woolmark Prize womenswear winners Colovos cleverly used wool denim fabrics in its winning collection. The US-based brand partnered with mills including Marini Industrie to create indigo-dyed wool that's traceable from farm to firm.

For Fall/Winter 2017, Italian luxury brand Max Mara cleverly incorporated wool denim into its already wool-rich collection, offering consumers a luxury alternative to traditional denim apparel. Using ecological dyeing recipes that imitate natural indigo, the 100 per cent wool denim pieces were fade resistant. "[Traditional denim] is too casual for the Max Mara collection and so we needed to find something that was easy to care for but sophisticated at the same time," said Max Mara Fashion Director Laura Lusuardi. "Wool denim not only fulfills this need, but it's also a fabric that allow us to dress up different women in different occasions."



This page: *Facetasm* wool denim jacket.

Opposite: *Cos* wool sweater; *Max Mara* wool denim jacket.



This page and opposite:
Prototypes from the
Woolmark x Santoni x
Südwolle collection designed
by *Studio Eva X Carola*.





Seam-Free Workout Wear

Seamless garment technology is the ultimate in knitting technology, with Karl Mayer, Santoni, Shima Seiki and Stoll the four major players. Traditionally, wool base-layer apparel was made by cut and sew production with limited possibilities for variety. Now, circular and flat-knitting technologies are being employed to manufacture not only next-to-skin base-layers, but an extensive range of mid- and outer-layer garments too, with seamless construction.

What's so unique about seamless apparel is that it allows for a combination of different patterns and knit stitches in different colours on the one piece of fabric. By engineering a garment to have features such as compression and breathability points on a single surface, it encourages greater structure diversity and comfort along with enhanced protection.

With sustainability front of mind, Nagnata set out to create its most eco-friendly collection to date, choosing to work with Australian Merino wool to develop an original seamless knitwear collection designed for yoga, pilates, cycling, dance, cardio exercise and studio-to-street style. Designed with minimal seams and a high content of natural fibres, the collection blends superfine Australian Merino wool with Tencel for breathability, sustainability and an extremely soft hand feel. "We wanted to work with Merino wool initially for sustainability reasons, as wool is a natural, biodegradable and renewable fibre," said Nagnata co-founder Laura May. "Merino wool is also one of the world's most technically advanced fibres and works in total harmony with the wearer's body."

World's First Wind- And Water-Resistant Wool

Using the latest Optim™ fibre stretching technology, Merino wool fibres are pre-stretched and spun into yarn before being woven to create the first-ever wind and water resistant fabric made from 100% Merino wool. The Merino wool fabric is constructed at very high levels of thread density in warp and weft using fine Merino wool yarns that have been stretched, but not set, during what is known as Optim™ processing. It is only when the fabric is wet-finished that the stretch is released causing the yarns to contract, thus leading to an extreme tightening of the fabric structure and the creation of the immensely dense fabric. After optimising the spinning, weaving and finishing processes, the fabrics made from these elastic Merino wool fibres have enhanced water and wind resistant properties (while retaining all Merino wool's fine properties such as breathability) without any chemical treatments, and are also machine washable.

Since the fabric's unveiling, a number of global brands have been quick off the mark to get it into production, with Norwegian sports brand Devold and Swedish brand RÖJK Superwear even picking up prestigious ISPO Awards at the sports and outdoor trade show in Germany.

Devold's Trollkyrkja jacket uses Optim™ technology to construct a wind and rain resistant jacket for its active customer. More recently, it has launched the Trollkyrkja insulated Merino wool coat, combining Optim™ technology and Devold's Spacer material to create a breathable wind and water resistant coat with added warmth, without the weight.

"We at Devold love this product and fabric: it is 100% natural and at the same time it is water and wind resistant. It also has all the benefits of wool such as temperature regulation, breathability and warmth even in wet conditions," said Devold Head of Business Development and Products Vidar Thorvik. "The jacket has now been in market for one year and we've had a very positive response from our customers, who are surprised it is 100% Merino wool without any treatment, membrane or coating. For Devold, we see this as a great alternative to synthetic shells, especially now that there is a large focus on microplastics. We have this alternative in natural fibres, and it's biodegradable too."

RÖJK Superwear, the relatively young outdoors brand from Sweden, is dedicated to creating highly sustainable, innovative and functional products for outdoor enthusiasts. It created the Badland Jacket, made using the innovative wind and water-resistant Merino wool fabric. "Other brands fight over who can bark the loudest about using recycled synthetics, and sure, they may be better than non-recycled ones, but they are neither biodegradable nor natural and they still contribute to demand from the supply chain. This is not the way to rid our oceans and forests, or even food, of microplastics," said RÖJK marketing director Linus Zetterlund. "Unlike our competitors, we are fully determined to do whatever we can for the benefit of our planet, even if it costs us a little profit." And their customers are definitely loving the fact there are no synthetics used in the Badland jacket. "Customers have got used to the idea of wearing a jacket made from 100% Merino wool, and they are surprised at how well it works to keep you warm and dry without having to use any synthetics or membranes. It's a very positive reaction."

The Woolmark Company's technical innovation team has continued to work on the development of the Optim™ fabric, which is now commercially available in three different weights: 180g/m² plain weave, 240g/m² warp rib, and 265g/m² gabardine. A fourth option – the lightest of all at 130g/m² – has a small percentage of nylon blended with the wool, to allow for extra resilience in the lightweight fabric. The differing weights and the inherent properties of the wool fibre allow for interest from both the activewear, streetwear and smart-casual sectors of the global apparel industry.

Another fabric called Neulana Double is also available and once again made using the innovative Optim™ technology. This double-weave, membrane-free fabric provides maximum insulation whilst minimising fabric weight, making it suitable for high-end casual jackets. Made from 100 per cent Australian Merino wool, one side is smooth like a traditional outer-shell, while the other side is soft and brushed to offer next-to-skin comfort if needed. What's of particular interest is that whilst this fabric appears to be bonded, it is actually woven and so eliminates the need for any synthetics, glue, membrane or lining.



*Devold wool jacket, wool shorts and wool leggings;
Neeman's wool sneakers.*



*“We at Devold love this product and fabric:
it is 100% natural and at the same time
it is water and wind resistant. It also has
all the benefits of wool such as temperature
regulation, breathability and warmth
even in wet conditions,”*



Opposite: *Black Diamond*
wool t-shirt; *Merino Country*
wool shorts.

Hair: Sophie Roberts.
Male-up: Victoria Baron.
Models: Conlan Munari/
Chadwick Models; Atty
Mitchell; Priscillas.

World's Lightest Technical Wool Performance T-Shirt

Utilising the natural properties of Merino wool, such as odour resistance, moisture wicking and breathability, the Rhythm T-shirt by Black Diamond is the world's lightest technical performance Merino wool T-shirt. Available for men and women, this ultralight T-shirt features breakthrough Nuyarn Merino wool fabric technology, weighing just 95gsm. This makes the Black Diamond Rhythm T-shirt significantly lighter than previous wool shirts, while retaining durability and performance benefits iconic to wool.

The fabric is also engineered for incredible stretch and much faster drying times, making it the ultimate climbing or hiking shirt. To complete the hardiness of the garment, it is also machine washable. The Rhythm Tee sits well amongst Black Diamond's high-performing quality gear, but it also aligns with the company's consciousness of their environmental and social responsibility. "Along with its environmental credentials of biodegradability and renewability, Merino wool lends itself to our brand's need for multifunctional design," says the brand's vice-president of apparel, Trent Bush. "Our athletes and staff have tested the Rhythm Tee extensively backcountry skiing, climbing, hiking and running. Universally everyone is impressed with its properties of thermoregulation and odour management, which is natural to the Merino wool fibre and ground-breaking Nuyarn innovation and technology."

Tech by Nature

There is a fundamental curiosity at the core of the latest capsule collection from textile innovation studio BYBORRE. *Ella Edwards* uncovers the result.

Amsterdam-based textile innovation studio BYBORRE works on the frontiers of material development, functionality and aesthetics to innovate with fibres, yarns and fabrics. By pushing the limits of technical performance textiles and designing from the yarn up, BYBORRE relishes the possibilities of invention, each season stretching fibres to new technical heights. This approach has earned BYBORRE a strong reputation across the world and with a strong sense of purpose, the studio continues to reinvent textile design.

BYBORRE's Textile Development Kit (TDK) is a true celebration of this pursuit. The TDK is a space where inventive textiles are developed with an open mind and serves as a marker for these tools and textiles to be opened up to others worldwide. It provides the steps needed to develop textiles the BYBORRE way, allowing professional designers to custom engineer textiles that can be produced at scale, locally and fully transparent in all steps of the

supply chain. By supporting brands to realise novel textiles specific to their requirements, the TDK provides a framework for the development of a unique fabrication presenting options on fibre, yarn, fabric structure, weight, design and colouration, allowing for the selection of multiple variables all based upon intended or required outcomes.

"It is in essence built for creators," said Borre Akkersdijk, Founder and Creative Director of BYBORRE. "As a creator you are not able to get into the supply chain so easily but if every creator could understand the function of the fibre, yarn, garment construction, their design would better suit the desired function for the consumer. We want to show the material to the creators."

For Spring 2020, BYBORRE challenged convention and using the tools of the 2020 edition of the TDK, created a nine-piece Merino wool capsule collection that speaks to BYBORRE's history of rule-breaking. Reflecting the special way of working at the BYBORRE studio, this Merino wool capsule collection utilises the tools and openness funda-





mental to the TDK and embodies the True Colour approach. This approach is a design ideology created by BYBORRE as a way of developing product with a more environmentally and socially aware route. It can have many facets that represent important steps towards better social and environmental outcomes. The first iteration of True Colour used undyed wool as an anchor fibre with complementary performance fibres and materials in their rawest purest form inviting brands and consumers to examine their desire and expectations of colour.

“The reason why we wanted to use wool was that we were working on the True Colour concept and building these pieces, we were looking at fibre that was very good for next to skin,” explained Akkersdijk. “We start with the function of the yarn, what functions will suit the consumer need, then the construction of the textile, as every knit or woven can have a construction, and we work up to the desired function for the consumer. Wool became the go to material for the capsule collection.”

Drawing from the natural characteristics of the yarns entwined in the collection, signature fabrics were rendered using a unique combination of undyed Merino wool and Coolmax® yarn, and NILIT Heat – an environmentally friendly yarn which integrates coffee charcoal (from coffee bean shells) into the recycled nylon fibre – the resulting fabric is 75 per cent Merino wool with enhanced breathability and moisture wicking properties. Combining the natural offerings of the coffee charcoal with the

nylon fibre results in greater thermo-insulation and anti-bacterial properties and highlights the powerful possibilities of marrying nature and technology. The 75 per cent Merino wool fabric combines the NILIT Heat fibre properties with wool’s inherent and intuitive warmth, breathability and moisture-wicking capacity, whilst the Coolmax® fibres adds strength and durability to the fabric structure.

Built for enduring appreciation, the capsule collection includes wear that embodies the everyday. The oversized tee and long-sleeved tee, loose hoodie, lightweight map sweater, over tee jacket, reversible vest, shorts and tapered cropped pants all play on the idea of removing waste whilst enhancing experience. Nature and technology combine with function and form not for a transient use, but for an enduring life. This Merino wool capsule collection embraces the TDK; it is the result of the design team playing with the tools on offer and questioning how they could be of use to others, to make better clothing for everyone.

This is the second time BYBORRE has worked alongside The Woolmark Company to realise the potential of Merino wool. It is this collaborative approach that allows for the development of more intelligent wool products and processes and this symbiosis of information and innovation is at the core of the BYBORRE studio ethos. The first collaboration with The Woolmark Company saw the development of BYBORRE’s Layered Edition alongside GORE-TEX which was showcased during Paris Men’s Fashion Week in January. In this edition, the brand’s Fundamentals garment range was refined and for the first time, luxurious Merino wool variations of all of the signature fabrics were realised, utilising Merino wool’s inherent properties to further push the performance functionality of the garments.

“The most important thing is that we are a textile innovation studio,” explained Akkersdijk. “There are so many steps in the supply chain we are pushed for higher quantity and have lost quality. What BYBORRE wants is to show creators the building blocks of the textile so to go back to the quality and durability of the textile.”

With the revelation of the technical capabilities of wool, BYBORRE has this time, gone further than previously known possible and the Merino wool capsule collection shines through as a true example of the potential when nature and technology combine with an open mind and a curiosity of spirit. ∞



In a constant bid to clean our oceans, *Lisa Griplas* discovers why surf and lifestyle brand Outerknown has turned to the original performance fibre to unveil the world's first 100 per cent Merino wool boardshort – the Woolaroo.





Soul Surfer



Just like traditional fashion, swimwear trends can be traced throughout history as representations of society. From wool gowns of the 18th Century to the introduction of synthetics in the 20th Century – and of course the infamous itchy bitsy teenie weenie yellow polka dot bikini – swimwear has cycled through styles and fibres for both professional athletes and those keen on simply catching the sun’s rays. Now, finding the perfect balance of technical innovation and nostalgia, lifestyle brand Outerknown has released a swimwear trunk made for the modern surfer.

The brainchild of surf legend Kelly Slater and designer John Moore, Outerknown has created the world’s first boardshort crafted from 100 per cent Australian Merino wool, aptly named the Woolaroo. Developed and certified by The Woolmark Company, the Woolaroo is a throwback to the golden age of surfing, when trunks were considered equipment and made from a heavy twill fabric. But unlike wool swimwear from yesteryear, which was heavy and partial to sagging, the Woolaroo offers everything you’d expect from a swim short: quick-drying, durable, soft on skin, effortless drape, natural shape retention and the ability to be washed in a household washing machine.

“We like to pioneer new ideas, especially ones that align with our mission to make everything with the highest regard for the people we work with and this planet we call home,” explains Outerknown Co-founder and Creative Director John Moore.

“The Woolaroo is the latest addition and a great complement to the rest of our trunks. Most importantly, the Woolaroo is the world’s first 100 per cent Australian Merino wool surf trunk, and we’re proud of this fact for a bunch of reasons. Wool has always been a part of surfing’s heritage – the forefathers of our sport wore woollen onesies for a lot of good reasons 100 years ago, and we made the Woolaroo for the same reasons today: Merino wool is natural and renewable, it regulates temperature, and it’s also odour resistant, so these trunks won’t stink after a few wears. The best part is that wool won’t shed harmful microfibers in the ocean like traditional polyester or nylon trunks and, like a pair of your favourite jeans, these Woolaroos will take shape to the movement of your body – the more you wear them and beat them up, the better they get.”

Made entirely out of nature’s original performance fibre, Merino wool’s natural benefits come into their own in the world-first Woolaroo. Using the latest Optim™ spinning techniques, Merino wool fibres are pre-stretched and spun into yarn before being woven to create the fabric used in Outerknown’s Woolaroo. During manufacturing, the fabric then super contracts creating a highly compact fabric and the ‘jammed’ weave structure delivers a resilient handle able to withstand surf conditions. “There’s a lot of talk in fashion, and a lot of marketing ideas, but very few are leading with their actions and actually investing in sustainable practices,” says Moore. “As more brands put responsible innovation at the fore-



The Outerknown 'Woolaroo' is the world's first Merino wool boardshort.

front of their decision-making, there will be more resources and planet-friendly options available in the marketplace - after all, demand drives innovation. We're hopeful for a day in the not-too-distant future when sustainability isn't just a marketing buzzword, but it's actually business as usual for the fashion industry and beyond. That's when things will truly change for the better."

Partnering with like-minded brands, such as The Woolmark Company, and choosing responsible fibres such as Merino wool is a clear expression of Outerknown's commitment to sustainability for both people and planet. 100 per cent natural, renewable and biodegradable, wool offers a less impactful solution to the environment, with research showing the fibre biodegrades in both land and marine environments and so it was important for the entire Outerknown team to make a swim short that won't contribute to plastics choking our oceans. "Protecting our natural resources is paramount for Outerknown. We're surfers, so the health of the sea is always on our mind. We've got to clean our act up before there's more plastic than fish in the sea, and we don't have much time. Since the beginning, we've given revenue from the sales of our items to organisations that are working on solutions to the crisis in our seas. Additionally, you wouldn't want to eat harmful chemicals, and you wouldn't want to wear harmful chemicals either. But it's not just for the health of the wearer - knowing where and how our clothes are made also means understanding

that we're working with suppliers that take care of their employees and consider their environmental impact. Wearing responsibly-made clothing is not only good for the customer, but it's also good for the workforce and good for Mother Earth."

Microplastic particles, including microfibrils from synthetic clothing and textiles, are now ubiquitous in aquatic and land-based ecosystems across the world. In fact, it is estimated that 0.6-1.7 million tons of microfibrils are released into the ocean every year, with new research by the University of Manchester, recently published in *Nature Geoscience*, finding the number of microplastic pieces in the world's waterways is vastly greater than originally thought. Microfibrils can enter the environment through sources such as fibres shed from apparel during use and washing, or through other secondary sources, predominantly degradation and fragmentation of larger pieces of synthetic textile waste. A new review into microplastic pollution from textiles recommends an increased use of natural non-synthetic materials, such as wool, in global textile markets, because wool biodegrades in marine as well as land environments and therefore does not cause microplastic pollution. The review, published in February by Consumption Research Norway (SIFO), was conducted by Adjunct Associate Professor Beverley Henry of the Queensland University of Technology and researchers from SIFO, with support from Australian Wool Innovation (the research arm of The Woolmark Company) and the Cotton Research and

“Wool has been part of the surfing lifestyle since Duke Kahanamoku wore his woollen tank suits in the early 1900s.”

Development Corporation. “An effective strategy for consumers to reduce their contribution to microfibre pollution would be to choose garments made from natural fibres which are biodegradable and do not contribute to the build-up of microplastics in the environment,” Dr Henry said of the review. “The positive attributes of wool in terms of durability, recyclability and low impact care (less frequent washing, at lower temperatures with less detergent/conditioner) are consistent with strategies to minimise shedding of microfibres to the environment.”

Outerknown prides itself on the vast number of efforts to reduce and recycle and not cause harm, such as transforming nylon from fishing nets into jackets and boardshorts, or choosing natural fibres such as Australian Merino wool. Yet it's not only wool's eco-credentials which Outerknown was attracted to, but also the fibre's legacy within the surfing community. “Wool has been part of the surfing lifestyle since Duke Kahanamoku wore his woollen tank suits in the early 1900s,” says Moore. “Surfers have worn woollen flannels and sweaters for years, and wool's been used in wetsuits and now hardgoods like surfboards. All the natural attributes that made wool the best option for Duke in 1915

also makes for a great modern boardshort. The surf industry is used to the rubber band feeling of synthetic trunks, but the natural stretch and durability of the Woolaroo is such an epic alternative. They get better each time you get them into the water and won't shed harmful microfibres into the sea. Duke had the right idea 100 years ago, and we're thankful the team at Woolmark partnered with us to make the Woolaroo a modern reality.” ∞





Tested by the Best


Three elite athletes put Merino wool to the ultimate test, wearing this season's latest pieces for all the challenges that their daily lives throw at them.

Photography
LIZ HAM

Styling
SARAH GRAHAM

Rhys wears *Merino Country*
wool tank; *XTM wool*
leggings and wool socks.





With its unrivalled breathability, moisture management properties and odour control, there's no denying that wool is the ultimate performance fibre. To prove it, we put wool to the test, with three Australian athletes – three-time Olympic middle distance runner Jeff Riseley, elite rock climber and *Ninja Warrior* contestant Andrea Hah, and former Houston Ballet dancer Rhys Kosakowski – wearing head-to-toe wool for their workouts. Here, we captured them as they sprinted and stretched, climbed and crunched during their daily routines, wearing lightweight pieces from the likes of Devold, Black Diamond, APL and Nagnata.

For Kosakowski, the lightness and stretch of the garments gave them extra appeal. “The feeling of the clothes was what really surprised me, because everything was really soft and fine,” he says. “It almost felt as though I wasn't wearing clothes, which as a dancer is excellent as it gives me the freedom to physically move.” Riseley agrees, noting in particular wool's ability to regulate body temperature and minimise moisture. “I typically find it difficult to find a product that can keep me warm early in a run when I'm still cold, and that can cope once I've warmed up so that I don't overheat or sweat. Wool minimises the need for multiple layers that need to be shed as a run goes on, making it really versatile.”

Hah was already comfortable with the benefits of wool, given the prevalence of the fibre in rock climbing apparel, however technical developments meant that many of the newer garments performed even better than she imagined. “There's a fine balance between being too hot while climbing, too cold while belaying, and not wanting to wear too many layers, which can feel restrictive and cumbersome while trying to move freely,” she explains. “The wool I wore was amazing at regulating the temperature. Living in the Blue Mountains (New South Wales, Australia) exposes me to large variations in climate, so this is really important. I love that I don't have to do multiple outfit changes between running on the trails, climbing on the cliffs or training indoors.” ∞



*Rhys
Kosakowski*

This page: *M.J. Bale* knitted wool sweater; *Devold* wool base-layer leggings; *XTM* wool socks.

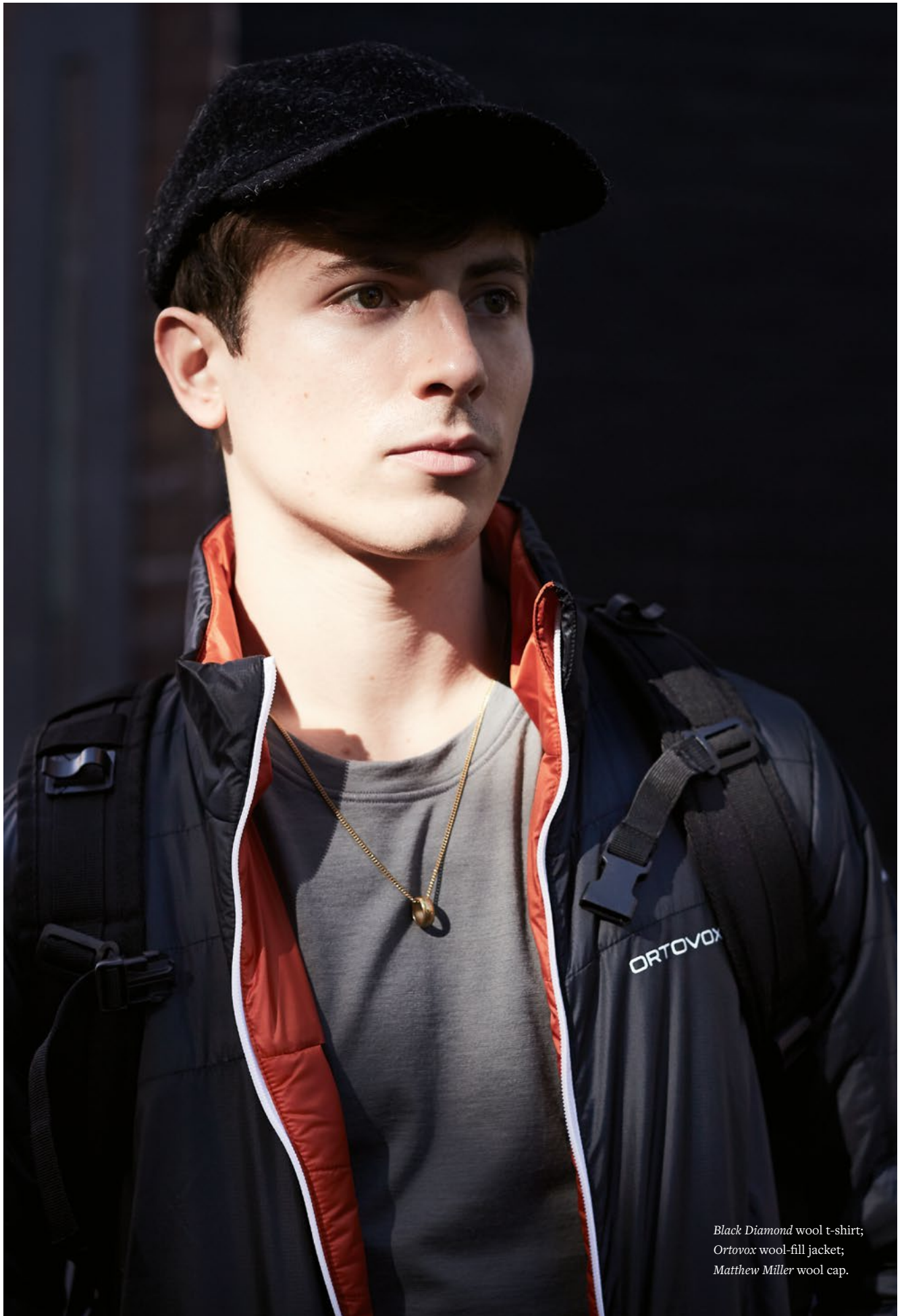
Opposite: *Merino Country* wool singlet and drawstring pants; *M.J. Bale* knitted wool jumper; *XTM* wool socks.







*Black Diamond wool t-shirt;
Ulvang wool shorts; APL
wool sneakers.*



*Black Diamond wool t-shirt;
Ortovox wool-fill jacket;
Matthew Miller wool cap.*



Below: Andrea wears APL wool crop-top; Tracksmith wool jacket; iOMerino wool compression leggings.

Andrea Hah



Below: Aclima half-zip wool top.



Opposite: Wilderness Wear wool t-shirt; Aclima half-zip wool top; Devold Tinden Spacer wool jacket; Merino Country wool leggings; APL wool sneakers.



Wilderness Wear wool t-shirt; Nagnata wool bike shorts.





APL wool crop-top and wool sneakers; Smartwool wool racerback bra (worn underneath top); iOMerino wool compression leggings.

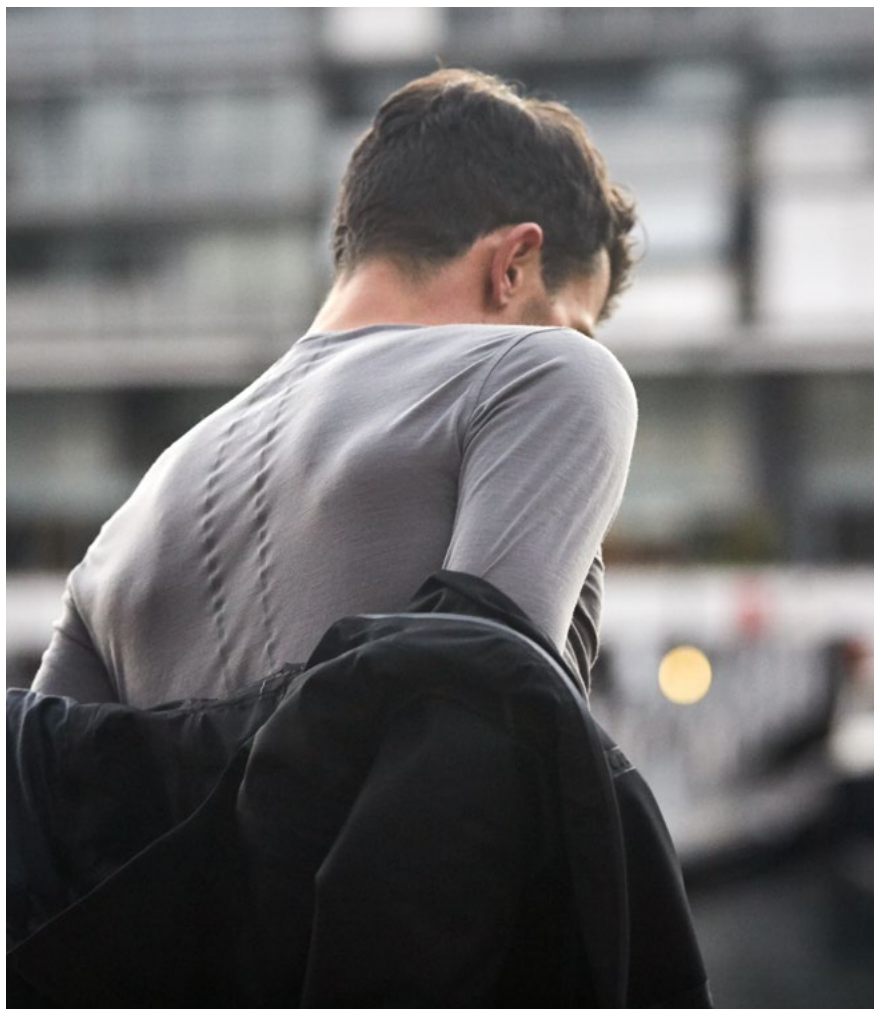
XTM wool jacket.



Jeff Riseley

Jeff wears *Ashmei* long-sleeve wool shirt; *Devold* wool jacket.

Opposite: *Ashmei* long-sleeve wool shirt; *Smartwool* wool vest and shorts; *Bluey Merino* wool leggings; *XTM* wool gloves.



Bluey Merino wool jacket; *Outerknown* wool boardshorts.








Devold waterproof wool jacket; *Smartwool* wool shorts; *Bluey Merino* wool leggings.



Ashmei long-sleeve wool shirt; *Smartwool* wool vest and shorts; *Bluey Merino* wool leggings; *XTM* wool gloves.



Tracksmith hooded
wool jacket.



EDWARD



CRUTCHLEY

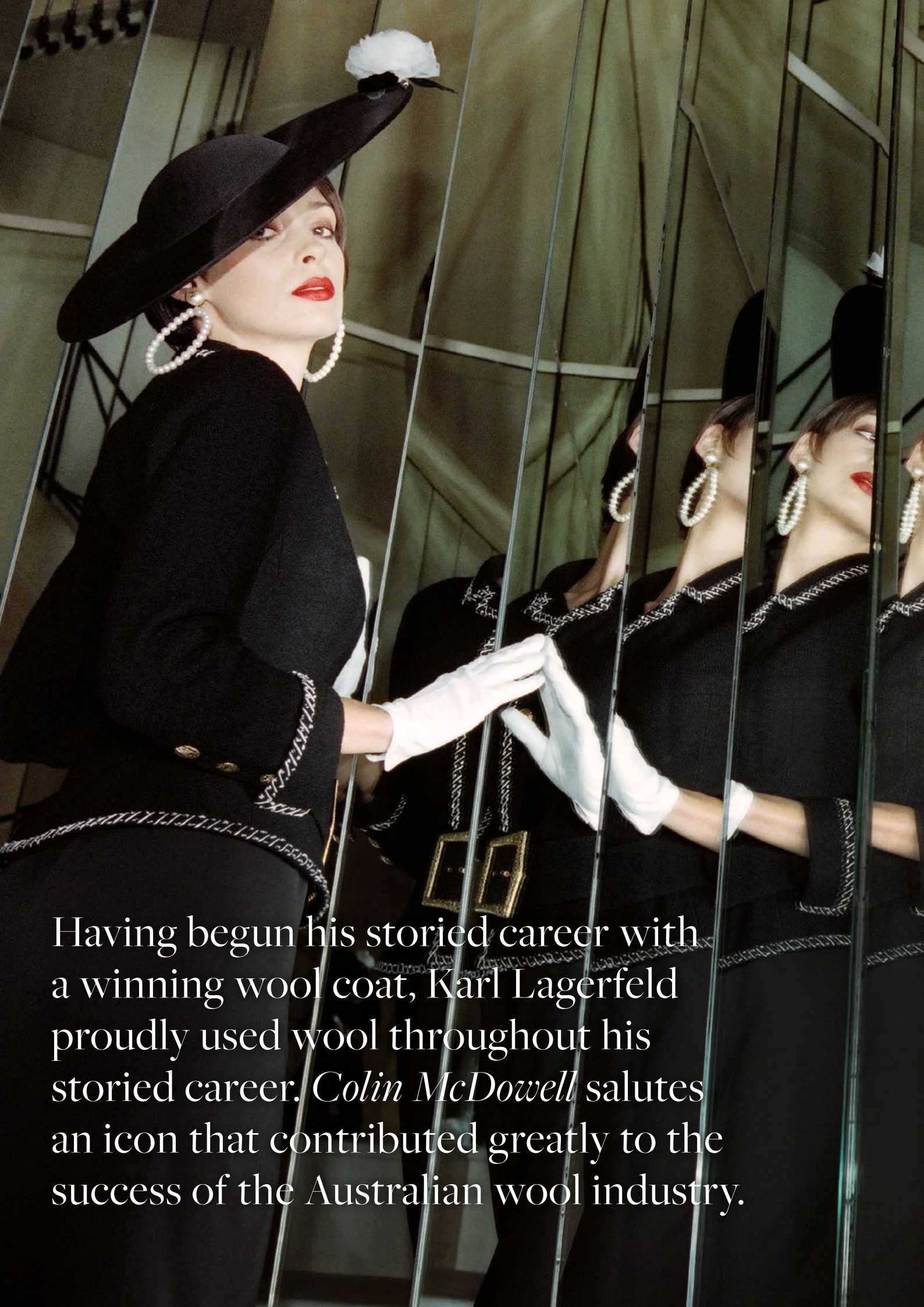
INTERNATIONAL WOOLMARK PRIZE COLLECTION

Fashion

Photography Anna Pogossova



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Having begun his storied career with a winning wool coat, Karl Lagerfeld proudly used wool throughout his storied career. *Colin McDowell* salutes an icon that contributed greatly to the success of the Australian wool industry.

Farewell to an Icon





Any attempt to assess Karl Lagerfeld and his phenomenal success must start with Gabrielle “Coco” Chanel, whose eponymous fashion house he took over as chief designer after she died. In her long life she had fought for her own label like a lioness for her cubs and even managed to brazen out her indiscrete relationship with a German officer during World War II despite the fact that Paris was under occupation by the German forces at that time and ‘collaborators’ were liable to be shot or imprisoned. That was a rare misjudgement in a carefully calibrated career.

The House of Chanel, entirely of her creation, was based on the practicality of clothes designed to be worn by women, not the other way around. She would not accept the adage ‘clothes make the woman’, preferring to create her own doctrine, which was to design clothes for women every bit as practical and elegant as those for men – especially upper-class Englishmen. She was a loner as a designer, looking neither left or right in her determination to have a label totally unique to her aesthetic and view of how the modern woman should be.

As I hope the above makes clear, Karl and Coco shared so many attitudes and beliefs, certainly in his early days at Maison Chanel that he could have been her son, although he used to say, rather mischievously, that she would have hated what he was doing to bring the revered label up to date. The most important thing was that they were both individuals of strength and courage and she would have loved that.

For the last 40 years Karl Lagerfeld has been the leading personality of the fashion world. Referred to, not always with affection, as Kaiser Karl in response to his German background and upbringing, Mr Lagerfeld’s name first emerged with his win in the coat category of the International Wool Secretariat fashion design competition (later to become the International Woolmark Prize) in 1954.





This page: Karl Lagerfeld, with a model wearing an outfit of his design, at the International Wool Secretariat Award in 1954.

Opposite: Models wear wool garments by Karl Lagerfeld for *Vogue*, 1975, photographed by Deborah Turbeville.

Previous: A model wears a wool-crepe look from *Chanel's* spring 1995 collection, designed by Karl Lagerfeld.

Karl Lagerfeld went to work for Pierre Balmain, who had a very successful establishment in terms of clientele. After working with Balmain and others in Paris, by the early nineties Karl was designing not only Chanel, but also for Fendi and Chloe as well as his own namesake label. At Chanel, he lost no time in rejuvenating the Chanel suit and, despite many individual reservations about fur as fashion, he created complex furs for the Italian Fendi of a standard never seen before. They were soft sculpture which could rival creative works in traditional materials.

The Lagerfeld look was well established and famous across the globe as the twenty first century began. In fact, he was a world figure, his appearance (and sharp-tongued statements), made him an instantly recognised figure with his own unique uniform which he never altered in order to look a fashion figure. Why should he? He was above all that and, in any case, there was nobody in the world who looked as he did. And that remained virtually unchanged for the rest of his life, with only subtle minor additions as age began to take its physical toll. I believe it was his own way of annoying the fashion world by showing that, contrary to the generally held fashion belief, style is unchanging.

The picture of him walking out at the end of the show was powerful, a study in the discipline of black and white: knee-length leather boots, high stiff white collars up to his chin and fingerless gloves, plus the large blacker-than-black sunglasses. He could have been taken as a villain out of a James Bond movie.

Karl Lagerfeld was an outstanding designer appreciated by young and old fashionistas across the globe and, in his last years, with a huge internet following, especially when he posted details of the daily doings of his adored and very beautiful cat. Let's leave the last word to Karl himself (he would like that): "When it is over, it's over. There comes a time when you have to pack it in." Nevertheless, I do think that he would have maintained his unique position no matter how long he lived. Like Schiaparelli before him, he had the eternity gene – and will never be forgotten. I think, deep down, Karl Lagerfeld knew that. ∞



In Bloom

Photography
MARILOU DAUBÉ

Weavers
MUYA ATELIER

Lemlem's latest collection beautifully weaves together historical and cultural references from Australia, Italy and Ethiopia, as *Lisa Griplas* discovers.





Far away from the bright lights of international fashion weeks, a group of weavers in the Ethiopian capital Addis Ababa continue to perfect the age-old tradition of hand weaving, this time, learning – for the first time – to work with Merino wool. The weavers at the city’s Muya Atelier are learning to work with the natural, renewable and biodegradable fibre for a new travel collection to be unveiled by lemlem – the fashion label created by supermodel, actress, designer and maternal health advocate Liya Kebede.

Meaning to ‘bloom and flourish’ in the Ethiopian language of Amharic, lemlem is an artisan-driven collection committed to elevating craftsmanship and expanding production and jobs across Africa. Women are at the heart of the label, which is committed to helping them thrive both within its workshops and beyond through its support for the lemlem Foundation, which drives maternal health and women’s empowerment programs. “Ethiopia is one of the few places left where traditional clothing is still very much a part of everyday life,” explains Kebede. “There are so many interesting and historic design elements incorporated into Ethiopian weaving and we work together with our artisans to include these in our



lemlem designs. It is such a thrill for our weavers to see women in New York and Paris wearing a lemlem piece that symbolises a part of Ethiopian culture and history.” Pairing this traditional craft with the world’s oldest fibre, lemlem has partnered with The Woolmark Company and chosen extrafine



“With their support we are running a wool masterclass for some of our women weavers to learn the special characteristics of wool, and techniques to make beautiful creations with it.”



Merino wool yarns from leading Italian spinner Zegna Baruffa Lane Borgosesia to create a 12-piece travel collection, comprising a poncho, wrap, blouses and lounge pants in a palette of slate grey, blue, beige and an eye-catching pink. The Woolmark Company's product development and process innovation team provided technical transfer to Muya Atelier, introducing Merino wool to their weaving production. Lemlem marks the first brand partnership for The Woolmark Company to come from Africa.

“Our collections are best-known for summer weather with our light, gauzy handwoven signature cottons. Now, with Woolmark, we have this incredible opportunity to incorporate wool into a new sustainable travel collection. The soul of lemlem definitely shines through – the silhouettes and patterns are recognisably lemlem while the wool adds warmth, dimension and texture and offers our customers a special new perspective, to see them through their travels from the airport, to their plane seat and final destination.”

In a bid to democratise the supply chain, each lemlem x Woolmark item will include a small NFC chip, allowing consumers to trace their garment back to the source of the fibre - Australia - to the spinner - Italy - all the way to Addis Ababa and meet the artisans who craft the clothes. “As part of this collaboration The Woolmark Company is sharing its farm-to-factory sustainability expertise with our design team and our artisans. With their support we are running a wool masterclass for some of our women weavers to learn the special characteristics of wool, and techniques to make beautiful creations with it. Our aim is to help our weavers advance their skills and versatility so they can earn a good, sustainable living doing work they love and at the same time to build global awareness, encouraging the fashion industry to look to Africa as a source of incredible high-quality craftsmanship.”

The lemlem x Woolmark collection will be available exclusively in early September from lemlem.com and farfetch.com. Five per cent of all direct sales will be donated to the lemlem Foundation. Additionally, the wool masterclass will be creating scarves that will be sold exclusively on lemlem.com in December and 100 per cent of the sales will be donated to the lemlem Foundation. ∞



The Future of Knitwear



Photography
ANNA POGOSSOVA

Styling
SOPHIE JOY WRIGHT

From knitwear experts and innovative yarns, to sustainable design practices, *Lisa Griplas* uncovers the future of knitwear.

Gone are the days when a traditional knit one purl one technique was the only way to create knitwear masterpieces. Today, knitwear is fashioned by a number of guises, from whole-garment knitting technology to knitted footwear and innovative yarns, and the future of knitwear is bright, with many designers making this once traditional handicraft the DNA of their brand.

We caught up with knitwear expert, Design Director at Carruthers Associates and Honorary Professor at Heriot Watt University, School of Textiles and Design, *Sheila-Mary Carruthers* to find out what the future of knitwear looks like to her.

Knitwear is no longer a traditional sweater or cardigan; what major changes have you witnessed in the past few years, or decades?

Sheila-Mary: Opportunities within the knitwear industry have developed incredibly within the past decade, with knitting machines which produce a complete product now widely available. The design options for silhouette and fabric structures, combined with the possibility to knit a completely innovative product, have given the creatives options not previously dreamt of. Unbelievably realistic 3D simulation programs now eliminate sampling, aiding communication, help to achieve fit, cutting costs and time. And the possibility to use this new machinery to make a complete garment, reducing cost though eliminating a whole sector of the industry, such as garment make, is so inspiring and stimulating.

What excites you the most about the knitwear industry?

Sheila-Mary: Brands making investment pieces in the industry have begun to exploit the extra dimensional opportunities for fabric structure, mimicking embroidery and embellishment to such an extent that the garments rival the hand worked. Such pieces – combined with intelligent fibre choices that are consid-

erate for our planet's future – are becoming customer favourites. Merino wool knitwear fits well into the multi-faceted requirements of life today. It travels well, it is easy to wear and works with many different options within our wardrobes. And because it is compostable, it does not add to landfill or ocean pollution at end of life.

What trends are you seeing emerge in the knitwear industry?

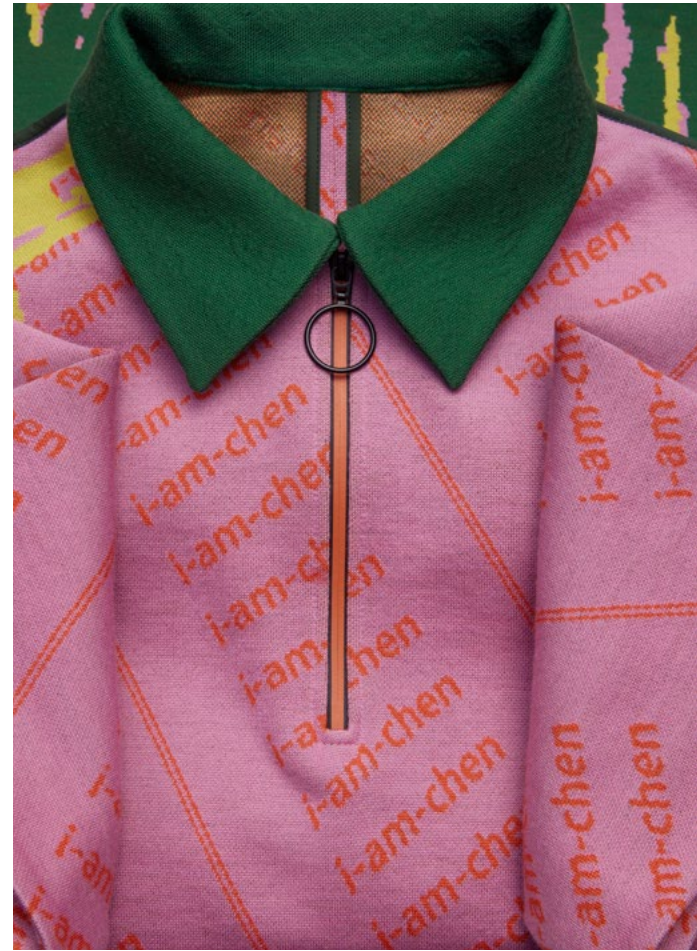
Sheila-Mary: The major movement within the knitwear industry, as there are no longer specific seasonal trends, is to add value and benefits. That can be a notable creative visual statement, or added longevity through fibre and special finishes, such as microencapsulation; or personalisation, which is continuing to grow, with the desire for unique and distinguishing qualities in garments. Consumers need a reason to buy, and for the discerning, it is no longer price.

What advice do you have for emerging knitwear labels?

Sheila-Mary: If I was at the beginning of my design career I would most certainly be looking to familiarise myself with all options, in terms of yarn qualities, silhouette options and methods of make which reduce waste and add lasting advantages that do not contribute negatively to the environment. I would be alive to exploiting the new stitch combination possibilities, which create the heritage pieces of the future, marrying perfect make with covetable design. Also, I would advise emerging labels to strongly explain the special qualities of their pieces; point out to the consumer and retailer the merits of fibres selected, quality of make and the end of life possibilities for the garment. Above all, highlight the design provenance of the piece. Clear communication gives appreciation of added value.

What does the future of knitwear look like for you?

The future looks so exhilarating. With a depth of knowledge, designers with appreciation of options of new technology can apply their creative skills: out with traditional knitwear and into new, and possibly undiscovered, opportunities. Imagine how air and road travel could be revolutionised by combining the comfort of Merino wool with the strength of graphene to offer lightweight parts, or knitted fully-formed three-dimensional furniture making lighter aircrafts. The industry will flourish through innovation and blue-sky thinking. ∞



i-am-chen

Knit products in today's market only show about 10% of what knitting can accomplish; a fact that Hong Kong-based label i-am-chen constantly looks to rectify. Designer Zhi Chen develops the label's own unique fabrics through yarn selection, swatch testing and designing based on testing results. Chen challenges the definition of knitting by pushing the limits of advanced machines and creating unexpected knitted structures to demonstrate that knitwear is much more than just "fluffy clothes". i-am-chen's mission is to revolutionise knitting, change the understanding of knitted products and commercialise innovations.

To show how lightweight Merino wool is, i-am-chen changed the fundamental knitting structure by floating a 100 per cent superfine Merino wool yarn over a monofilament so that the wool floats decoratively on the surface. The shirt made with this technique only weighs 60 grams and was part of the label's 2019 International Woolmark Prize collection.

i-am-chen also created a washable knit with a 21-gauge circular knitting machine as well as different stitches to create a mottled effect with 100 per cent superfine Merino wool. Due to the high density of the 20-gauge knit, the wool fabric does not shrink and is machine-washable. Continuing to push the boundaries, i-am-chen also created a flat-knitted puffer coat as part of the International Woolmark Prize. Shying away from traditional down or polyester filling, Chen chose 100 per cent extrafine Merino wool for the insulation inside the jacket and 100 per cent superfine Merino wool for the outer, all of which were knitted in one single piece by China-based Aussco's research lab inDhouse.

BAN XIAOXUE

Chinese designer and International Woolmark Prize alumnus BAN XIAOXUE has released a traceable knitwear collection for Fall/Winter 2019. Partnering with The Woolmark Company and working with leading spinner XINAO, Merino wool was sourced exclusively from XINAO-owned farms in Australia. The collection features 30 creative and innovative knits, in a mixture of 100 per cent Merino wool and wool blends and includes dresses, skirts, blouses sweaters and vests.

Inspired by roaming clouds, the English translation for this collection is wanderlust, marrying oriental romance with traditional eastern elements into knitwear and blending this with contemporary design. “Different forms and techniques have been used to interpret different states of wanderlust; for example, combining flowers with Chinese brush drawing ink techniques and the warmth of the knit to achieve a sense of flow,” explains Ban. “A three-dimensional pattern is used to form the shape of the flower scattered in the mottled geometric jacquard pattern creates interesting innovations in this collection.”

The collection is divided into three parts, which express the concept of wanderlust through capturing the process of a flower germinating, blooming and fading. Each part uses different methods and shapes to interpret a different state. “The first part hides the brush ink under a clear material, which is a symbol of germination and growth, corresponding to the concept of ‘roaming’. The second part is a mosaic of complex three-dimensional flower decoration on the geometric jacquard, which means that the flowers bloom and compete to bloom, which corresponds to the concept of ‘fighting’. The third part adopts material splicing, meaning that it is withered or reborn, corresponding to the concept of ‘hiding’.”

Knitwear has always been a particularly important part of the BAN XIAOXUE brand, remaining at its core to this day. According to Ban, it’s the charm of knitwear and an element of the unknown which can bring innovation to the design. “From my first autumn/winter collection to today, the ratio of knitwear present in my collections has increased year by year. From simple knitwear products we had to begin with, I have turned to a combination of shuttle knitting, knit accessories, and even adopted increasingly more sophisticated knitwear crafts and techniques. This plays an increasingly important value; it is irreplaceable for me.”

Knowing where the Merino wool comes from and selecting yarn from a single spinner allows for a great sense of supply chain transparency and a roadmap for the Wanderlust journey. It helps complete the full circle of design and shies away from the traditional linear model of fashion. “The product itself doesn’t uniquely measure its value but the whole cycle of the product does; the sale of a piece of clothing is not the end of the cycle but the beginning of its mission. The origins of the product, the realisation of the design and the after sale are all integral parts in building the real story of a product.”



PH5

New York-based contemporary womenswear label PH5 challenges the conventional vision of knitwear by marrying whimsical designs with architectural dimensions of knitting techniques. Founded by Wei Lin and Mijia Zhang, PH5's moniker is based on the numeric pH scale, which ranges from 0 to 14, with seven as neutral. If seven represented androgynous unisex labels and one represented the extreme feminine or sexy brands, PH5 would be a brand that's leaning more towards the edgier side while keeping a touch of femininity.

Pushing the boundaries of traditional knitwear, PH5 has created a wool-rich puffer jacket for its Fall 2019 collection, using extrafine Merino wool blended with other natural fibres. "The process of making a knit-puffer jacket is quite time consuming," explains Lin. "We had to engage both a knitwear factory and a puffer manufacturer. To make sure the puffer is actually functional, we lined it with a heavy-duty waterproof fabric and made the hood removable. It's a perfect example of how we bring knitwear to new and unexpected categories."

Innovative, functional and hugely stylish knitwear is at the heart of PH5 – which was nominated for the 2018/19 edition of the prestigious International Woolmark Prize. Empowered by its scientific name, PH5 is set out to inspire people to completely rethink knitwear and tell the world that knitwear is more than just a winter fabric. Knitwear is breathable, lightweight, colourful and fashion forward. "Knitwear, in general, is more complicated than wovenwear because the design process starts from the very beginning of picking the right yarns. After we come up with our inspirations, we pick the core yarns for the season by evaluating their content, size and count of the yarns, and colour offering. Then we test stitches using these yarns in our factory development centre. After about four-to-six weeks of testing, we decide on our core stitches for the season and that's when designing garments actually begins. Our knit garments are fully fashioned, which means we computer program knitting panels in the silhouette we design. Once panels are knitted and sewn together into garments, we then fit and revise into the style we envision."

Using knit as a vehicle of innovation, PH5 strives to create a fashion label that reaches beyond womenswear, into other categories and industries, redefining knitwear and what knitwear can be for generations to come. "For us, we think the future of knitwear is to bring knits into other fields and industries, for example robotics, automobiles, travel accessories, wearable tech, interior design, and medical applications. There is so much knitwear can do, and we want to be a driving force for this."



Woolmark x Santoni x Südwolle collection

Acting like a second skin, seamless Merino wool apparel encourages greater structure diversity and comfort along with enhanced protection. Traditionally, wool base-layer apparel was made by cut and sew production with limited possibilities for variety. Now, however, circular and flat-knitting technologies are being employed to manufacture not only next-to-skin base-layers, but an extensive range of mid- and outer-layer garments too in a seamless construction. What's so unique about seamless apparel is that it allows for a combination of different patterns and knit stitches in different colours on the one piece of fabric. By engineering a garment to have features such as compression and breathability points on a single surface, it allows for greater structure diversity and comfort along with functionality zones designed into the garment with the body in mind.

A new prototype collection developed by The Woolmark Company with knitting machine manufacturer Santoni and designed by innovative knitwear label Studio Eva x Carola illustrates the full potential of Merino wool used in technical seamless performance apparel. Introducing Merino wool to Santoni's state-of-the-art circular knitting machines, The Woolmark Company's processing innovation team saw a gap in the market for seamless yoga apparel made from Merino wool. The original performance fibre, Merino wool is soft next to skin, breathable, naturally elastic and odour resistant. In addition, the eco-credentials of the fibre – namely being 100 per cent natural, renewable and biodegradable – align with yoga's connection with both nature and mindfulness. Through rigorous product development, a 10-piece collection was created which will now be shown at the world's leading trade shows. Created in a vibrant colour palette, Woolmark x Santoni x Südwolle collection includes leggings, a loose-fit pant, crop top, tank top, T-shirt and jacket, all designed with performance in mind.

“The inspiration behind this collection is the concept of marrying the worlds of fitness, fashion, music and healthy lifestyles – how all of which are combining to produce a new movement that looks here to stay,” explains designers Eva de Laet

and Carola Leegwater. “Marrying worlds is also translated via the use of wool, a lifestyle material with functional elements such as thermoregulation, odour resistance, naturally elastic, breathable and soft next to skin. For this capsule collection we investigated patterns that have a future-forward creative sensibility and that complement the female body. Structures have been uniquely developed on a stitch-by-stitch level with the specific aim of reaching our target in combining functionality, 3D structures, softness and colour experience/dimension.”

Entrenched in the entire supply chain, The Woolmark Company works closely with spinners to develop Merino wool and wool-rich yarns for specific categories, such as performance-wear, and drive new growth opportunities for wool. Choosing the perfect yarn was a major factor for the design of this collection, with Studio Eva x Carola finding the right balance between pushing a next level three-dimensionality in seamless products with a certain level of performance, whilst also retaining the right touch and feel. The collection's hero yarn is a superfine 15.5 micron Merino wool yarn from Südwolle Group. “For our next-to-skin yarns we use superfine Merino wool, ranging from 15.5 microns upwards to ensure next-to-skin softness and comfort,” says Michel Mastio, Director Circular Knitting and Hosiery Yarns, Südwolle Group. “The persistent rumour that wool is itchy is outdated and clothing made from this Merino wool has a wonderful soft touch. Choosing the right twist level is always a balancing act between the yarn's hairiness and softness. Next-to-skin clothing must be abrasion resistant and so a higher twist level is needed.”

Finally, this seamless Merino wool collection was constructed using the latest seamless technology circular knitting machines from Santoni Shanghai. What started as a way to manufacture comfortable under garments, these machines are now opening new markets. “Seamless technology from Santoni Shanghai is key to creating graphics within the textiles,” explains Santoni Shanghai Marketing Director Leila Guo. “When seams are removed, fantastic results can be achieved; the garment attains a new level of comfort that is seldom found with conventional methods. Combining wool with Santoni Shanghai's technology means we can create a unique touch experience with fine gauges, no seams and mindful engineering. Clothing has that all-important second skin effect that feels soft and sensual against the skin. The beauty and sophistication of this natural fibre means we can create styles with an unparalleled level of fineness and softness, creating innovative patterns and structures on a single finished fabric.

The Woolmark x Santoni x Südwolle collection will be on display at the world's leading trade shows, kicking off with ISPO in Munich, January 2020.

*The collection's hero yarn
is a superfine 15.5 micron
Merino wool yarn from
Südwolle Group.*



BYBORRE

Continuing to push the boundaries of textile innovation, Amsterdam-based textile studio BYBORRE unveils a Merino wool capsule collection in partnership with The Woolmark Company, as part of the label's Spring/Summer 2020 TDK (Textile Development Kit) Edition™.

The TDK Edition™ is a celebration of the BYBORRE process: a history of rule-breaking and re-thinking how textiles are made and used. The nine-piece Merino wool capsule collection fully embodies the tools on offer within the TDK. This open source movement marks a conscientious design process and showcases steps that can be taken to uproot an industry that is wasting unnecessarily. Through the TDK, BYBORRE creates functional, ethical, well-designed textiles using the tools outlined in this design process.

The Merino wool capsule has one seamless colourway which derives from the true colour of the materials or yarns that have been sustainably dyed. The different BYBORRE fabrics have been knitted using a unique combination of Merino wool and Coolmax® yarn, NILIT Heat – an environmentally friendly yarn which integrates coffee charcoal (from coffee bean shells) into the nylon fibre. The resultant fabric is 75% Merino wool with enhanced breathability and moisture wicking properties. The capsule collection includes an oversized tee and long-sleeved tee, loose hoodie, lightweight map sweater, over tee jacket, reversible vest, shorts and tapered cropped pants.





KnitWarm[®]

The Woolmark Company has been working alongside wearable technology company KnitWarm to implement its eponymous patented knitting technology into wool apparel and accessories. KnitWarm is a first-of-its-kind, self-heating textile, with unique softness, flexibility and breathability. It will heat up within 30 seconds to offer instant warmth after plugging into a portable 5V/2A power bank, which can be controlled by a mobile phone app and can also be made to be machine washable.

Using 3D knitting machines that create seamless garments and accessories, special Merino yarns from Woolmark licensees Südrolle and Xinao are knitted together with an innovative silver conductive yarn which heats up when a charge is passed through it.

One such product to come on the market is an intelligent Merino wool eye mask, using KnitWarm technology together with 100 per cent 17.5 micron Merino wool from Südrolle. The benefits of KnitWarm products are two-fold. Firstly, they can keep the wearer warm in extremely cold temperatures. Secondly, and as is the case with the eye mask, KnitWarm complements the health and wellbeing sector, with the eye mask heating up to 40°C, replicating a hot spring or sauna and improving blood circulation and muscle relaxation, aiding the onset of sleep.



Aussco

Chinese manufacturer Aussco is a leading global knitted lifestyle powerhouse, with the experience and capacity to transform business through technology, innovation and creativity coupled with a bold and sophisticated approach.

Specialising in innovative knitwear design, Aussco's in-house designers and technicians continue to push the boundary with knitwear and provide product development solutions for fashion brands. "The market is so static that customers are crying out for newness and knitwear has always been fun to play with as it can drive one's imagination," says Aussco's Sales Manager Willis Wong. "Over the past decade, we have experienced an extraordinary change of technology. From a knitwear aspect, innovation happens in terms of biotechnology updates in materials, or technological enhancement in machineries such as spinning and knitting."

Aussco uses the latest knitting machine technology from Stoll to enter markets previously not an option. "Using the Stoll machine, especially the latest technology with Stoll ADF or with the fine knitting gauge machine of 188GG, drives us to a different area, such as athleisure, knits with compression performance and 3D-knitted footwear or even homewares. This allows us to show that knitwear is more than just a traditional sweater. It could be any kind of wearable item like a cap, leggings, bra and shoes or even unwearable items including furniture, automotive or decoration as well. Construction could also be done in more complex and compact forms of shape."



Yarn Trends

Merino and Lenzing TENCEL™ fibres

Innovative blends also drive the way forward for the knitwear industry. An exciting development to come on the market is the unique blend of Australian Merino wool and TENCEL™ branded fibres from Austrian cellulosic fibre manufacturer Lenzing AG. Derived from sustainably managed wood sources, blending Lenzing AG's cellulosic TENCEL™ fibres with fine Australian Merino wool opened new markets for performance apparel that's gentle on the planet. This unique blend of two fibres offers the sports and outdoor industry an advanced knitted fabric with thermal balancing and moisture absorption benefits. The addition of TENCEL™ fibres offer enhanced softness with natural drape and the naturally inherent benefits of Merino wool such as odour management and natural elasticity combine to enhance wearer performance and comfort.

Lifestyle and movement brand NAGNATA chose yarn comprised of Merino wool and Lenzing AG's TENCEL™ fibres for its seamless collection, created using circular knitting machines. With sustainability front of mind, NAGNATA set out to create its most eco-friendly collection to date, developing an original seamless knitwear collection designed for yoga, Pilates, cycling, dance, cardio exercise and studio-to-street style. Designed with minimal seams and a high content of natural fibres, the collection blends superfine Australian Merino wool with TENCEL™ fibres for breathability, sustainability and an extremely soft hand feel.

Zhejiang XINAO textiles Inc.

For leading worsted spinner XINAO, innovation is driven by both consumer and cultural demand. What has come from the China-based spinner's research and development is that different markets want different benefits. For some markets, recycled yarn is crucial, others look for a strong environmental angle, whilst for some brands and markets the future of knitwear remains with oversized, chunky knitwear.

For Autumn/Winter 2020/21, XINAO has released a Chunky range of yarns for oversized sweaters, largely driven by the influence of K-pop and M-pop culture. The coarse count yarns are produced on coarse gauge machines such as three and five gauge. With sustainable practices a key driver for many brands and labels, XINAO has created a range of chlorine-free machine washable yarns which meet Woolmark standards for dimensional stability for knitted outerwear products. In addition, XINAO has extended its HOPE range of yarns for both flatbed and circular knitting which combines Merino wool with recycled polyester. For every kilogram of yarn produced, XINAO estimates that 14 plastic water/soft drink bottles are saved from ending up in landfill.

Chemical-Free Classicism

Inspired by workwear from the 1930-40s – the kind of workwear that pre-dates synthetic fabrics – with an emphasis on form and function, designers Nicole and Michael Colovos look to how clothing can not only function for its wearer but how it can contribute positively to the planet, writes *Sophie Joy Wright*.







Colovos wool looks from the label's International Woolmark Prize-winning collection.



“Sustainability with regard to manufacturing clothing means giving back more than you take.” This phrase from the COLOVOS designers sums up everything their approach to design and relatively new brand is about. After meeting in 2001 and founding Habitual to critical acclaim, Nicole and Michael Colovos became co-creative directors of Helmut Lang for eight years before then founding their namesake brand in 2016. And in February of 2019, COLOVOS gained the Womenswear Award at the prestigious final of the International Woolmark Prize during London Fashion Week, with a circular proposition for their wool capsule collection.

“We chose new wool textiles that challenged old ideas,” explained Michael. The designers were able to do this by partnering with mills that they saw to be leading the way in their commitment to sustainability through the Greenpeace Detox Program, which works to eliminate toxic chemicals from the dyeing and manufacturing process. “It’s important for us to work closely with the mills to understand the properties of the fibre and how the fabrics are woven, and for us, the end-life of the garment has to be considered.” Given this non-toxic processing behind the garments and that wool is a natural and biodegradable fibre, should these garments ever end up beyond a point of repair, the fabric can be simply put in the compost to biodegrade. Alternatively, wool’s durability lends itself well to upcycling, which is what COLOVOS leans into for their manufacturing off-cuts, particularly with their cut-and-sew garments. “Once we finish cutting the production, we will take all the wastage and it will be re-spun to create new yarn,” the designers explained, concluding that “the fibre dictates all of these things”.

It’s this circular proposition of COLOVOS garments that make their pieces timeless, both literally and stylistically. Given The Woolmark Company’s rigorous testing practices, “our chosen fabrics were tested for strength and colourfastness to help identify any areas we needed to improve on to ensure a long life for the garments,” explained the designers.

Stylistically, Michael and Nicole focus on archetypal garments – dresses, jackets, shirts and trousers – with great attention to fabric quality and detail. “The challenge for us was making sure each fabric met our exact vision for both sustainability and luxury; we searched many mills and spent time selecting the best choices. It’s important to us that a garment not only look and feels luxurious, but is functional.”

Denim is one classic the Colovos duo explored in their International Woolmark Prize collection, and worked with one mill to create a broken twill weave in a blend of Merino wool, silk and linen, something they’d never seen before in the world of denim. “We weren’t looking for wool that literally felt like denim, rather we were looking for fabrics that could be worn in the same way that denim is. It’s super soft and luxurious while being more du-

rable than denim. These garments are meant to be worn every day, on any occasion and are versatile. We chose indigo for colour and used contrast top-stitching so people will identify with it in the same way as denim, [so] we got the look with a different feel, and a more versatile garment in the end.”

COLOVOS also presented a standout puffer jacket in their collection, which is as beautiful on the inside as it is out. Made with Merino wool fill, rather than down or polyester, this jacket is lightweight yet incredibly warm. When temperatures pick up in the middle of the day, it can be slung over the body like a shoulder bag and clipped in place, allowing for a simple transition. The outer 90% Merino fabric is also entirely traceable. “One of the key points of our collection revolved around changing outdated perceptions about wool, such as being too itchy, coarse or you can only wear it when it is cold. We wanted to treat it in a new unconventional way bringing to light the innate properties of wool such its ability for natural heating and cooling, its ability to fight odour along with breathability and natural UV protection.”

With a constant eye on the bigger picture and the impact their brand can have, Michael and Nicole also looked to the smaller details in their garments to be compatible with their vision; details that are often overlooked. All of the brand and garment labels are made from recycled materials, as are

the trims, which sit perfectly on, for example, the tonal blue parka that uses “the only Merino wool in the world that is waterproof and breathable without the use of a membrane”. This total garment integration points to how genuine the COLOVOS intention and output is.

“Environmental and sociological transparency in any business today is becoming extremely important; the impact and responsibility you have when you make anything new for consumers needs to have accountability.” And it’s not just up to designers, but also consumers – a group to which, assumedly, everyone reading this article belongs, regardless of their profession. “Consumers can make choices about where to spend their money. If we are buying a product, we are supporting the company that produced it. The more we know about where and how products are made the more equipped we are to make conscious choices about what companies we want to support.”

∞



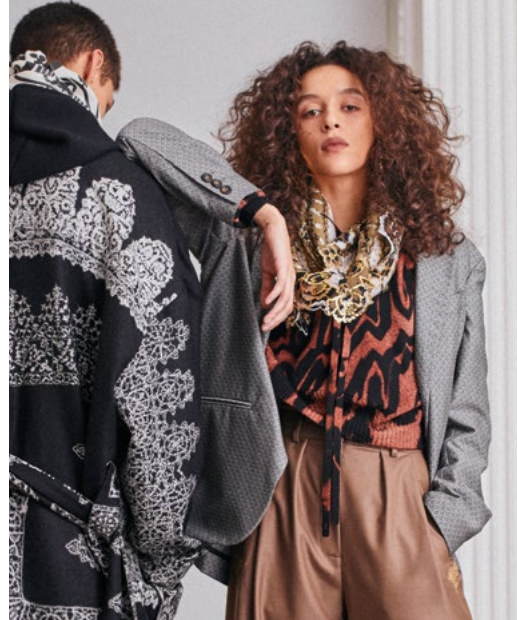
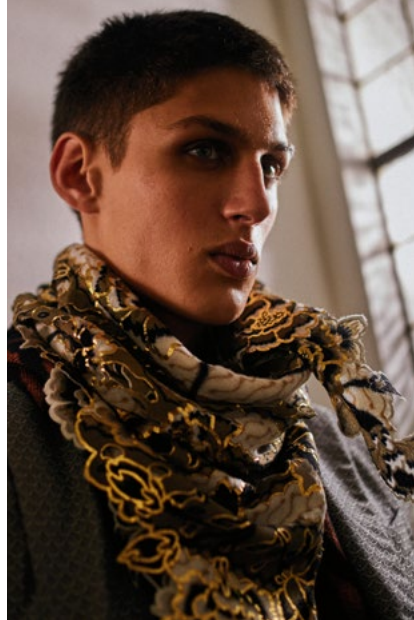




Fashion's New Hero

As the winner of two categories at this year's International Woolmark Prize, Edward Crutchley is redefining what we think about wool, writes *Mitchell Oakley Smith*.

Edward Crutchley wool looks from the designer's International Woolmark Prize-winning collection.



When Edward Crutchley won two award categories – menswear and innovation – at the International Woolmark Prize 2019 global final, he set a new precedent, and took home some AU\$300,000 in prize money. “I think it speaks volumes that there is such a clear consensus on the winner for menswear and innovation,” said Tim Blanks, one of the judges at the event, held during London Fashion Week in February. “I don’t think there’s ever been a designer like Edward Crutchley in the competition. I find the whole idea of him being a winner and the figurehead of creative, innovative use of wool in the fashion industry so exciting.”

Indeed, Crutchley didn’t just use Merino wool materials in his finalist collection; instead, he radically evolved and reinvented the fibre in myriad ways, challenging our perceptions not only of wool, but of the entire fashion and manufacturing systems in which it sits. Through an exploration of global cultural references and aspects of material culture, Crutchley created a collection which explored the

boundaries of form, silhouette and surface. Inspirations as varied as French Breton lace, Javanese court dress batik prints, and the embroidery covered column-like silhouettes of eastern Europe and Japanese kabuki costumes all feature within the British designer’s 100% Merino wool collection.

Looking outside of traditional cultural signifiers to more sub-cultural references, Crutchley fuses a biker jacket with an 18th Century frock coat, reimagines the grungy tie-die on an American college knit with the help of the head of Kyoto Guild of Shibori Masters, whom he convinced to work with wool for the first time, and references the cowboy’s role within America’s identity. As the designer explains: “I have used a wide range of techniques that celebrate the touch of the artisan. My approach to innovation within this collection has been very much focused on artisanal skills and how these can be celebrated and used in a relevant and modern way.”





A key innovation includes Crutchley's creation of a lightweight 100% Merino wool weave that is hand-printed and treated by a master of screen-printing in Kyoto. First printed with beige strips and then black ink, the textile was then discharged using a protein-dissolving pigment to give the lace-effect and scalloped hem, a process uniquely suited to the protein fibre of wool. This effect was then highlighted with a gold foil edge, a technique the screen-printer had never done before. Elsewhere, a 100% wool cavalry twill – a traditional coat fabric made by Dormeuil possessing the weight and drape of leather – was wax-finished to make the textile durable and waterproof. This was then used to make items that are otherwise iconic leather pieces, such as bomber jackets and utilitarian boots, though this time in a renewable and animal-friendly alternative.

That every fabric used in Crutchley's garments was exclusively developed for this collection is testament to his innate understanding and appreciation of textiles, a skill he has honed as the director of fabric and graphics for Dior Men, and prior that for Louis Vuitton, working with acclaimed

artistic director Kim Jones, as well as roles with Pringle of Scotland and Richard Nicoll. In 2015, the Central Saint Martins-trained designer launched his namesake label at London Fashion Week, fast gaining reputation as one of the city's rising stars with a growing stockist base.

Winning the International Woolmark Prize – which boasts an illustrious hall of fame, inclusive of Yves Saint Laurent, Karl Lagerfeld, Valentino Garavani and Ralph Lauren – was, for Crutchley, a sign of confidence in the unique nature of his design ethos. "It was a total shock but also signalled that what I am doing is interesting and exciting," he explains. "It's rare to receive any type of constructive feedback as a designer, but to get such kind and generous comments from such an amazing panel of judges whom I really respect was something that meant a great deal to me. Of course, this has meant a higher level of scrutiny, but that also comes with a higher level of exposure which I very much welcome." ∞



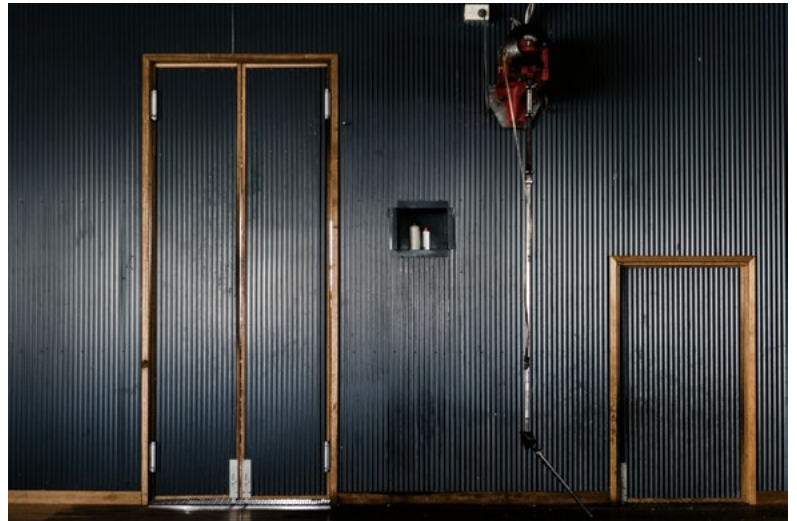
A Winter Preview

The Wool Lab is a seasonal guide to the best commercially available wool fabrics and yarns from across the world, bringing together The Woolmark Company's global supply chain network. Each season, we reach out to hundreds of spinners and weavers to source their latest fabric developments. With this, we curate a seasonal sourcing guide with a selection of the best textile and yarn swatches, which can then be ordered directly from suppliers through The Wool Lab.



Suiting

Sombre tones polish the AW20 suiting selection that highlights formal patterns with unexpected details. Traditional houndstooth flecked with a woody brown from Tollegno Group (Italy) is elegant yet nuanced, as is the current cream and beige in the warp of Marzotto's (Italy) textile. The classic plaid from Altinyildiz (Turkey) looks to similar tones.



Composition:
96% Wv 4% Ea
Manufacturer:
Altinyildiz



Composition:
66% Wv 34% Co
Manufacturer:
Marzotto



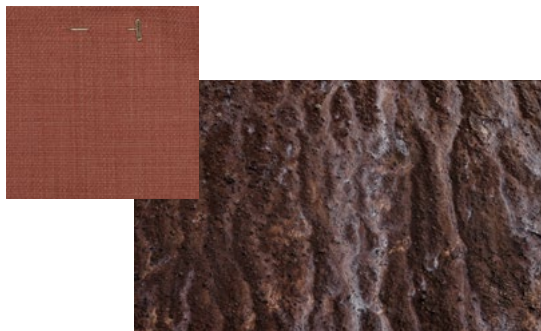
Composition:
75% Wv 25% Pa
Manufacturer:
Tollegno 1900



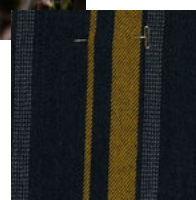
Blazers & Bottoms

Comfortable and easy, these wovens are selected for their potential with separates. Casual trousers and skirts, as well as jackets and blazers lend themselves to the solid hues from Bahariye (Turkey), while the strong stripe in the 18.5 micron Super 100's wool textile from Shandong Ruyi Woolen Textile (China) nods to classic sportswear codes in a more tailored context.

Composition:
44% Wv 54% Pes 2% Ea
Manufacturer:
Bahariye



Composition:
100% Wv
Manufacturer:
Altinyildiz



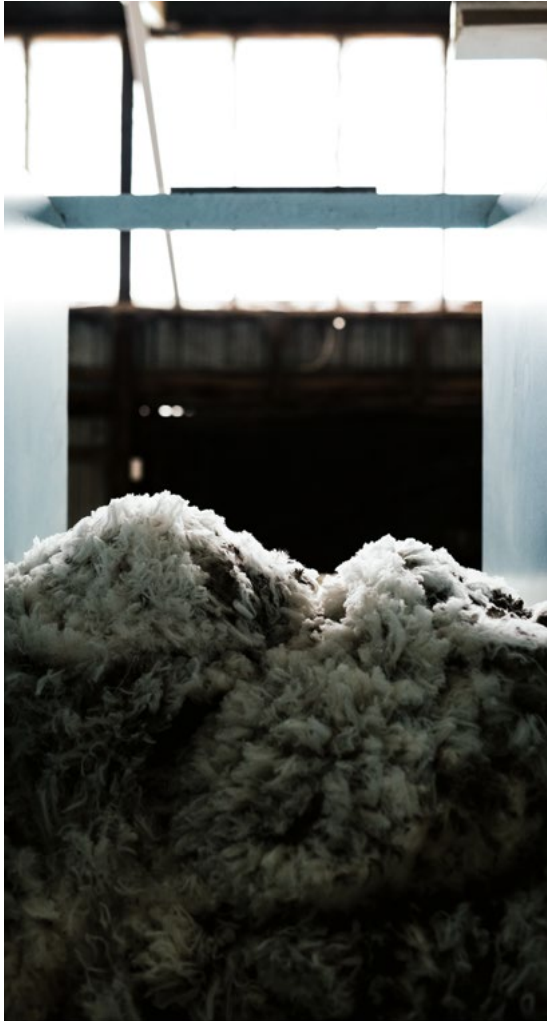
Composition:
100% Wv 18,5 µm
Super 100's
Manufacturer:
Shandong Ruyi
Woolen Textile







Composition:
100% Wv
Manufacturer:
Tessilbiella

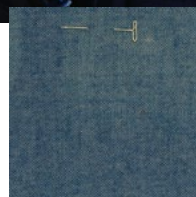


Composition:
100% Wv
Manufacturer:
Bhuttico



Shirts & Blouses

Lighter-weight wovens selected for shirts and dresses open the doors for warm but airy, transitional layers. The beautiful ecru open-weave in 100% wool from Tessilbiella (Italy) presents trans-seasonality at its best and the chambray from Albiate-Albini Group (Italy), with indigo-dyed wool warp, is alluring yet modest for unisex shirt-ing, while the madras check from Bhuttico (India) brings vibrance to the category.



Composition:
45% Wv 55% Co
Manufacturer:
Albiate-Albini Group

Jersey & Knitwear

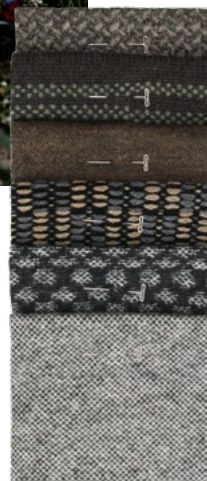
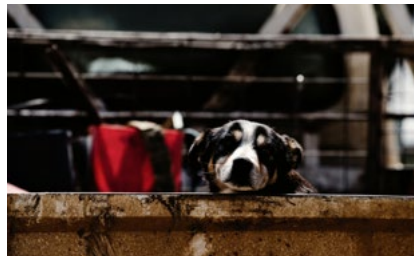
This season's collection of knitted fabrics and yarns allow wool to express all its charm, from the contemporary and painterly ultrafine Merino from Think Positive Prints (UK), to the classic marle from Dicart (Italy). Knitwear is of course a huge category for autumn/winter, all the more reason for the immense variation that's on offer this season.



Composition:
58% Wv 42% Pi
Manufacturer:
Dicart



Composition:
100% Wv
Manufacturer:
Think Positive Prints





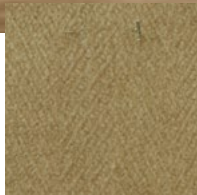


Jackets & Coats

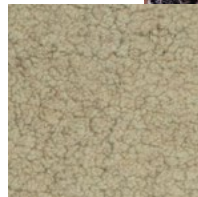
More than just textural, wovens for AW20 are smooth to touch, brushed like a cloud and wonderfully cosy, particularly the tonal options from Lanificio Becagli (Italy) and Mallalieu (UK). The three-dimensional surfaces of the wool-rich blends from Zhe Jiang Shezhou Woollen Textile Co (China) and Dinamo Contemporary Fabrics (Italy) would add to any oversized outerwear's volume play, and serve to remind us that indeed, wool for winter makes all the sense in the world.



Composition:
83% Wv 17% Pa
Manufacturer:
Dinamo Contemporary Fabrics



Composition:
100% Pure New Wool
Manufacturer:
Mallalieu



Composition:
70% Wv 20% Pa 10% Pl
Manufacturer:
Lanificio Becagli



For more information on The Wool Lab, visit www.woolmark.com/thewoolab or contact your local office to make an appointment to view this AW20/21 edition.





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Lifestyle

Photography Victoria Zschommler



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Photography
VICTORIA ZSCHOMMLER

Styling
NATALIE TURNBULL

Do You Care?

Wool doesn't need to be washed as often as other fibres, as it's naturally odour-resistant, stain-resistant, and bounces back to its original shape after resting. So after wearing, let your wool have some down-time before taking it out again for a spin.

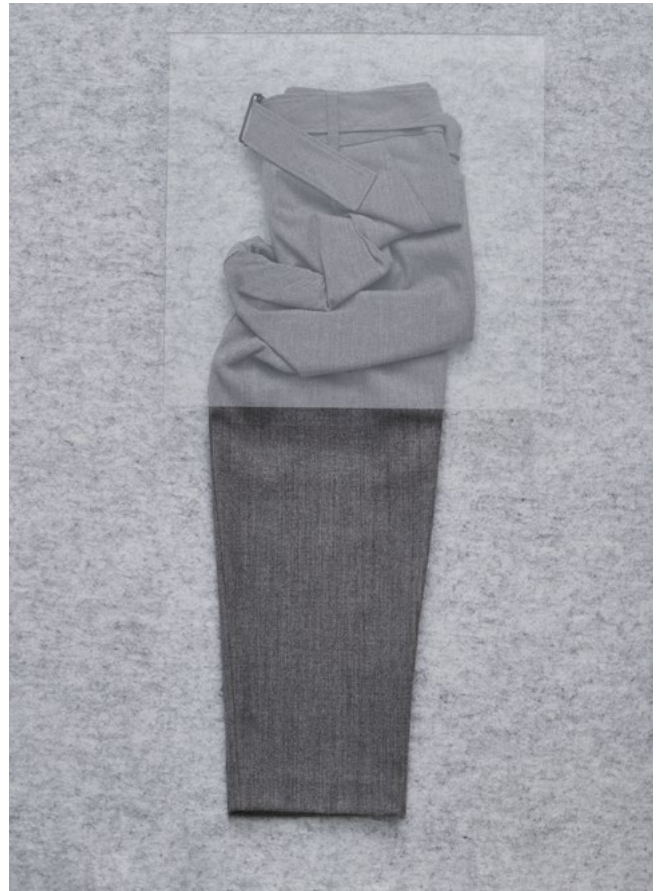
Wash

If you've worn something a few times or really made a mess, you can throw most wool garments in the washing machine. Using a wool wash is essential, as normal washing detergents contain enzymes that can act to break down the same proteins wool is made of. That's not what we want. Remember to also check the care label, which often means using cold water. Turn the dial to the wool cycle, which makes for the simplest way to wash wool and is gentler on the environment than dry-cleaning.









Store

You can only wear so much wool at a time, so for all the pieces not currently on your body, we recommend that the wovens are hung up and knits folded. Woven garments should also be brushed lengthwise to remove surface soil that might evolve into stains. Also, if you're storing garments at the end of the season, make sure they're freshly washed before being put away into airtight bags or containers.





Repair


Wool is incredibly durable, though sometimes needs small touch ups (as we all do) to look its best. Repairing clothing is rarely an impossibility, and can add character to your favourite jumper, and fuzzy pills can be removed gently by hand or with a de-pilling comb.









An impressionistic oil painting of a rural landscape. In the foreground, a group of sheep with thick, woolly coats in shades of grey, white, and brown are grazing in a field of golden-yellow grass. To the left, a large, dark tree with dense foliage stands on a slight rise. In the middle ground, a dark horse is visible, and a fence line runs across the field. The background is a soft, hazy expanse of light grey and yellow, suggesting a bright, overcast sky. The overall style is textured and expressive, with visible brushstrokes and a focus on light and color.

Riding on
the Sheep's
Back

Located deep in Australia's wool-growing countryside, a public art museum houses a collection of works that serve as a reminder of the rich importance of the fibre to Australia's history, writes *Alison Kubler*.



It is a truth long held by Australians of a certain vintage (that is, post 1950) that the nation rides on the sheep's back. This is in part still very much true today. Australia is the largest grower of wool in the world and for more than 200 years the miraculous multi-purpose fibre has been one of the country's most significant exports; indeed, Australia's post-war growth is inextricably linked to wool. Today, there are around 70 million sheep in Australia, producing an average of 4.2kg of wool per head each year, and a total wool yield of 298 million kilograms of shorn wool. Wool production continues to fuel many of Australia's most loved rural towns, the breadth of this wide brown land – towns such as Armidale, in the New England Region of New South Wales, located half way between Brisbane and Sydney. A picturesque small town filled with churches and pubs, Armidale is quintessentially Australian, a charming, nostalgic throwback to a slower, simpler time.

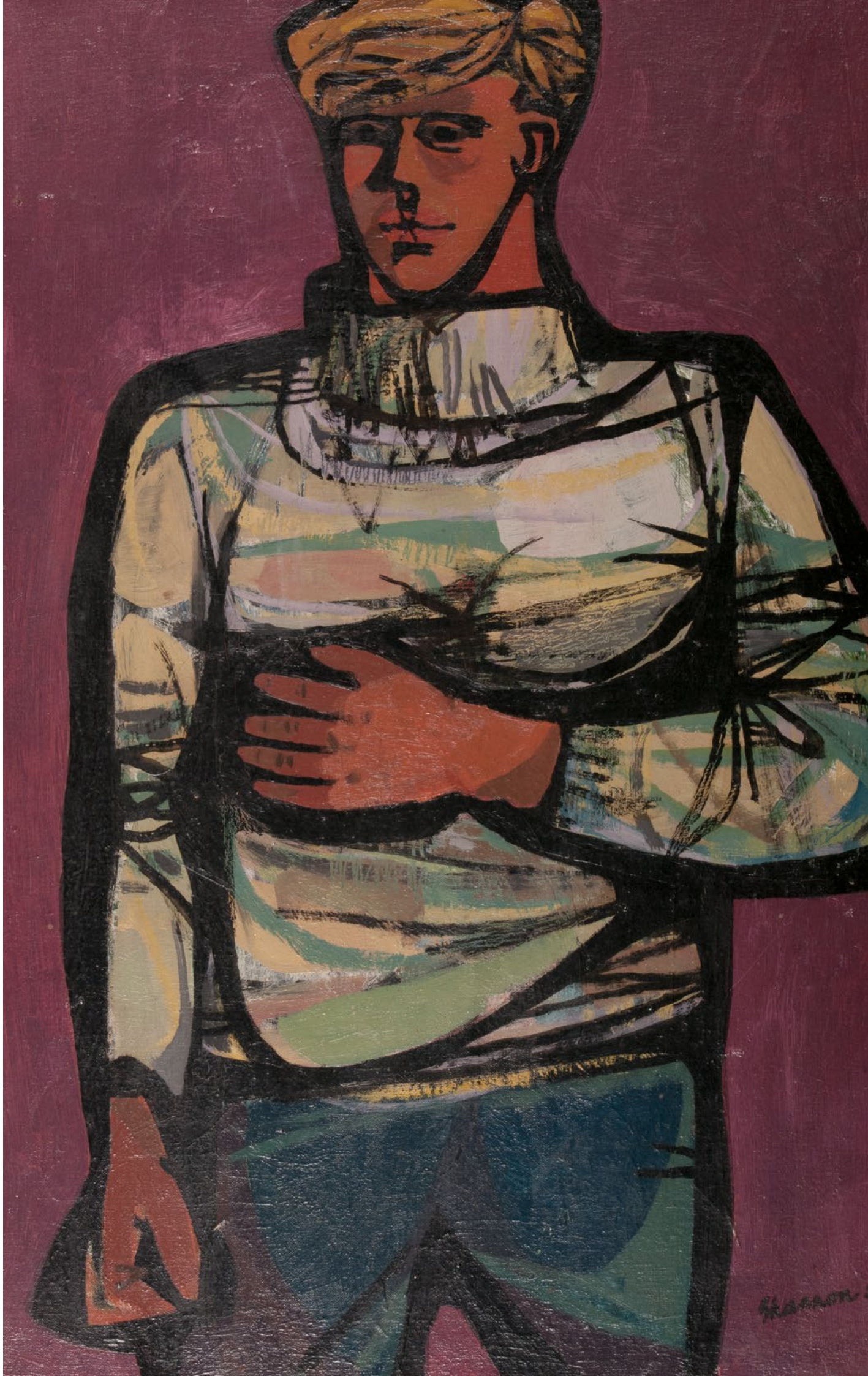
Surrounding Armidale, which only has a population of just more than 24,000, are some of the country's largest wool producers. One of Australia's most iconic woolsheds, a popular subject for landscape painters, is located on the outskirts of Armidale; built in 1872 the unique octagonal building, Deeargee Shed, on Deeargee Station (formerly Gostwyck Station) is something of an architectural marvel and a tourist must-see. Still in use, it can only be viewed from the roadside. One of the region's niche producers is Achill Farm, suppliers of fine Merino wool to Ermenegildo Zegna; so special is the station's blend that it is trademarked. Zegna acquired the majority share of Achill, which continues to be run by 6th generation woolgrower Charlie Coventry, in 2014.

And herein lies a beautiful story about wool and art, because one of Australia's best loved and most precious collections of art resides, as it happens, not in the nation's capital, but in Armidale.

This page: Robert Johnson, *Shearing Shed*, c. 1933, oil on canvas on board.

Opposite page: Michael Shannon, *Le grand Meaulnes*, 1953, oil on canvas.

Previous page: H.A. Hanke, *Stormy Skies*, 1945, oil on canvas board.



KARSON



This page, from top: Thomas Cooper, *Head of Sheep*, oil on paper on wood panel.
Ernest Warner, *Sale Yards*, 1935, etching.

Opposite page: Michael Shannon, *Shepard*, 1950, oil on canvas.

The New England Regional Art Museum (NERAM) is home to both the Hinton Art Collection, belonging to Howard Hinton, and the Coventry Collection, belonging to Chandler Coventry, a relative of Charlie. The extraordinary benefaction of both patrons means Armidale is home to some of Australia's most significant artworks.

Howard Hinton (1867-1948) was an avid collector and patron of the arts, and he used his modest wealth acquired through a career in shipping to develop a beautiful collection. His intention was to provide a comprehensive overview of the development of Australian art from 1880 onwards, and for this collection to be publicly available for the education and enjoyment of the college's students, staff and Armidale residents. Hinton donated more than 1000 artworks to the Armidale Teacher's College between 1929 and 1948, where it was displayed before it was handed over to the council in 1974. The New England Regional Art Museum Association was formed in 1978 and since 1983 the Howard Hinton Collection has been held by the New England Regional Art Museum. As collections go, it boasts some of the most significant artists from early 20th century art in Australia including Arthur Streeton, Margaret Preston, Elioth Gruner, Tom Roberts, Adrian Feint, Norman Lindsay and Nora Heysen. 132 works selected from the Howard Hinton Collection indicative of his generosity and connoisseurship are on permanent display within the gallery.

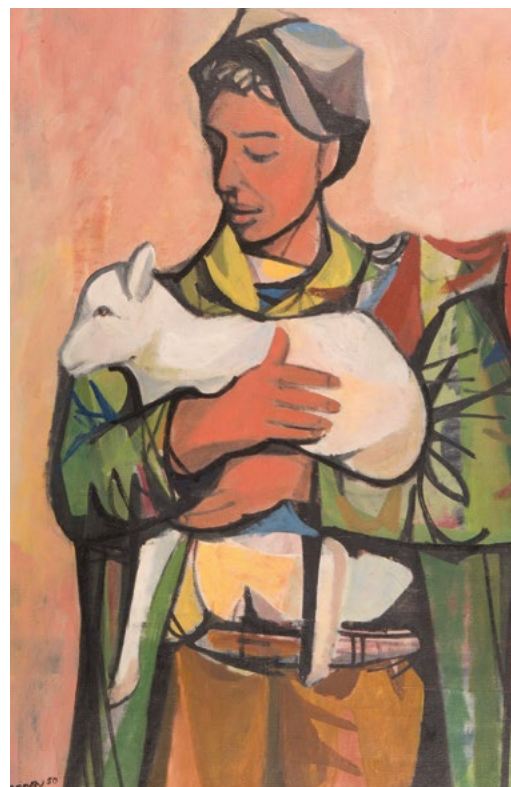
One of the many gems in Hinton's gift that serve as a permanent reminder of the town's connections to wool and sheep is Thomas Cooper's *Landscape with sheep* (c.1860), a small painting of five sheep. Though it depicts an English landscape it could well be the New England countryside. *Head of a sheep* (n.d.), also by Cooper, is a similarly exquisite study of these creatures. Cooper manages to imbue the sheep with a gravitas and elegance seldom afforded the ovine species. By contrast, Lance Solomon's *Sheep country* (1938) is a distinctly Australian interpretation of wool-growing, the sheep grazing amongst the gums in the characteristically harsh sunlight a halcyon dream. Here, the realities of the deprivations of drought feel far away. Elsewhere, H.A. Hanke's *Stormy skies* (1945) depicts a stoic herd of sheep gathering as a storm approaches. It is unmistakably an Australian scene. Hinton's collection is peppered with gentle landscape studies of sheep and cattle, serving as a reminder that Australia's cultural history is deeply entwined with that of our farming economy.

Hinton's gift to Armidale was richly supplemented by that of Chandler Coventry (1924-1999). Coventry, as compared to Hinton, was born into an established grazing family in New England. The land, and its use, was engrained in his character. An art collector, gallerist, art dealer and art patron, Coventry established his own collection of contemporary Australian art that recognised innovation and exciting artists of the time with a focus on expressionist and abstractionist painters. In the late 1970s,

Coventry offered his collection to Armidale on the understanding that an art museum would be built to house both his and Hinton's collections. He became a founding trustee and patron of NERAM, and to the great fortune of Armidale, donated the bulk of his collection of contemporary art to the museum. The Chandler Coventry Collection reflects the art movements of the 1960s and 1970s. Australian artists represented include Ralph Balson, Peter Booth and Brett Whiteley, shown alongside works by international artists such as Christo and Jeanne-Claude.

The sheer breadth of these works points to the historical importance of wool-growing to both small Australian communities and country's economic prosperity more broadly, having helped Australia emerge from global catastrophes over the past century with much to offer.

Taken as a whole, the New England Art Museum's collection is a significant cultural asset, exemplary of the extraordinary stories to be found in rural Australia. ∞





Photography
BEC PARSONS

This page: *Calida* wool
singlet; *Albus Lumen*
wool shirt.

Opposite: *Dagsmejan*
wool top and pants.

The first and last line of protection of our bodies to the outside world is often the most neglected, though studies are showing that taking care of what we put next to our skin can improve its health and our sleep quality,

writes *Ella Edwards*.



Next to Skin





This page: *Dagsmejan*
wool top and pants.

Opposite: *Hanro* wool
singlet and leggings.



This page: *Rewoolution*
wool bra.

Opposite: *Calida* wool top.





This page: *Rewoolution* wool top; *Calida* wool briefs.

Opposite: *The Wool Company* wool slip.





STY GLDN wool bra
and briefs; *Seljak*
wool blanket.

The single largest organ of the human body is also the most exposed to the environment around us. Our skin covers an area of up to 2m² and acts as a physical barrier between us and the external environment. But our skin is not only our first line of protection. It also minimises water loss, regulates our body temperature, has antibacterial capacity, contributes to innate immunity and is key for sensory perception. With such a wide range of functions, it is no surprise that the health of our skin is essential, but it may be a surprise to find that its function is influenced by what garments we wear.

New studies are showing that the fibre type and fabric structure of the garments worn next-to-skin affect the health of the skin in more ways than you'd expect. From redness and irritation to eczema and even sleep, the fibre content of the clothing you wear influences the health of your skin. Recent research shows that wearing superfine Merino wool next-to-skin significantly improves the severity and symptoms of eczema – atopic dermatitis – and also challenges misconceptions that all wool is prickly and itchy. Furthermore, wool has been found to benefit the sleep of the wearer.

In the most recent study, scientists from AgResearch in New Zealand tested human skin reactions to different fabrics – and initial findings show benefits for skin health from wearing the natural fibres Merino wool or cotton compared to the synthetic fibre polyester.

“We set out with our 32 volunteers – 16 men and 16 women ranging in age from 25 to 63 – to look at how their healthy skin reacted to different close-fitting fabrics,” said AgResearch scientist Dr Alex Hodgson.

“Part of the experiment involved the volunteers wearing Merino wool base-layer shirts, with a patch of polyester on one side of their upper back area, for a minimum of six hours during the day.

“We discovered that polyester tended to reduce the hydration of the wearers' skin and also – especially for men – resulted in increased redness or inflammation of the skin. By comparison, the skin covered with wool did not show any negative effects during the study. From this we can see that wool promoted the maintenance of healthy skin whilst polyester had a drying effect with some inflammation.”

“Ultimately this work is about providing guidance or reassurance for consumers. Our aim is

that people will be able to make informed choices about what they wear, and what that might mean for the health of their skin,” Dr Hodgson said.

Three published studies have demonstrated that wearing superfine Merino wool next-to-skin reduces the severity of eczema, otherwise known as atopic dermatitis.

The first study led by Associate Professor John Su at Murdoch Children's Research Institute and published in the *British Journal of Dermatology* showed that superfine Merino wool clothing reduced the severity of paediatric mild-moderate atopic dermatitis as compared to cotton clothing.

A second study of adolescent and adult sufferers of eczema in Brisbane, led by Dr Lynda Spelman at the Queensland Institute of Dermatology, demonstrated the beneficial effects of wearing superfine Merino wool next to the skin. Published in the *Biomedical Journal of Scientific & Technical Research*, the study concluded superfine Merino wool base-layer garments could provide a valuable adjunct therapy in the management of atopic dermatitis. A third study of child and adult sufferers of eczema undertaken in Louisville, Kentucky also demonstrated the beneficial effects of wearing superfine Merino wool next to the skin. The study, published in the medical journal *Dermatitis* and led by Professor Joseph Fowler, confirmed that wearing

The benefits of wearing wool next-to-skin don't stop there; studies have also shown that wool sleepwear improves the sleep of the wearer.

Merino wool clothing compared to standard clothing provided improvements in the severity of atopic dermatitis as well as the quality of life of atopic dermatitis patients.

The benefits of wearing wool next-to-skin doesn't stop there, studies have also shown that wool sleepwear improves the sleep of the wearer. Sleepwear plays an important role in thermoregulation and fabrics made from natural fibres allow higher rates of heat and moisture transfer than synthetic fibres thereby promoting thermal comfort. Dry wool fibre, for example, absorbs moisture vapour up to about 35 per cent of its dry weight in saturated air, whereas cotton can absorb around 24 per cent, while polyester absorbs about 1 per cent.

The effects of sleepwear fibre type on the sleep of older adults have never previously been studied. A recent study, undertaken by the University of Sydney compared the effect on sleep quality of wool, cotton and polyester sleepwear, in warm conditions (30°C and 50 per cent humidity) for participants aged 50-70 years old. Thirty-six healthy participants (18 males and 18 females) participated in the trial with polysomnography, skin temperature, microclimate temperature and relative humidity measured. They completed four nights of study in sleepwear fabrics of either single jersey Merino wool, cotton or polyester. The sleepwear was long sleeve tops and long pants and the participants slept without a blanket or sheet.

The study observed small but meaningful sleep benefits for wool over cotton and polyester sleepwear for multiple sleep parameters while neither cotton nor polyester was responsible for any statistically significant sleep benefit. Sleeping in wool significantly reduced the time taken to get to sleep compared to sleeping other fabrics. For older participants, sleeping in wool reduced sleep onset (12.4 minutes) compared with sleeping in either cotton (26.7 minutes) or polyester (21.6 minutes). The study also demonstrated less fragmented sleep in wool sleepwear compared to polyester but not different to cotton. Poor sleepers had less wake time after sleep onset when sleeping in wool compared with sleeping in cotton. Overall, wool performed better than cotton and polyester for the majority of sleep quality parameters.

With this growing body of evidence indicating superfine Merino wool worn next to skin is beneficial for human health, it's not surprising that more brands are looking at Merino wool for their base layer ranges. ∞

Opposite: *Armadillo*
Merino wool top.





Merino Country wool singlet,
briefs and socks.

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