

FASHION'S FIBRES AS PLANETARY FLOWS

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INTRODUCTION

Fibre, the basis of fashion's materiality, is experiencing a rising demand year on year, reflecting the insatiable desire for 'more' that defines the dominant fashion system. With an annual consumption of 124 million tonnes in 2023, a doubling in twenty years (Textile Exchange 2024), humanity's appetite for fibre has never been more voracious. Recent studies on fashion's fibre are diverse: including technical analyses of different fibres' sustainability benefits or challenges (e.g., Subramanian et al 2021), analysis of their value chains (e.g., Mellick et al 2021) and cultural histories (Stanes and Gibson 2017; Smelik 2023). In industry contexts there are calls for fibre to be traceable from all sources – whether from forests, oil fields, farms, or laboratories – and their impacts to be quantified and reduced (e.g., UNECE 2021; Changing Markets 2022).

The fourth issue of Fashion Highlight Journal proposes a planetary perspective on fibre, viewing it as a dynamic interplay of material flows and forces shaped by both human and non-human actors, the living and the technological, and the crowded continuum between them. In this Introduction we will first briefly situate our study of fibres within theoretical perspectives of new materialism and posthumanism. Then we will introduce the thirteen peer-reviewed papers through three thematic threads that we have detected among and across them.

FIBRE AS MATTER

When we chose a focus on fibres for this issue, the idea was born within the framework of both new materialism and posthuman theory. New materialism involves a turn (or return) to matter and materiality: researching fibres means to take matter seriously (Colman and Van der Tuin 2024). This means looking in detail – and wonder! – at the non-human elements that are so prominent in the world of textiles and of fashion. New materialism allows that particular spotlight on the very materiality of fibres. This emphasis on matter and materiality is reinforced by posthuman theory, which advocates for a rigorous non-anthropocentric perspective. By decentring the human subject, posthumanism enables a deeper understanding of fashion as a materially co-produced phenomenon within a complex network of interconnected human and non-human actors (Braidotti 2013, 2016). The term posthuman reflects the idea that

humans are inherently entangled with the broader material and technologically mediated world (Braidotti and Hlavajova 2018, 3). Posthumanism challenges binary thinking by recognizing a nature-culture continuum, blurring distinctions between humans and their many non-human counterparts. Similarly, new materialism highlights that things—whether objects, art, fashion, or people—are composed of matter, encompassing organic, mineral, vegetable, and synthetic materials (Fox and Alldred, 2018; Smelik 2018). We – and they/those – are agentic matter on a continuum (Barad 2003). In the case of textiles, the non-human can be made of ancient natural fibres like wool, linen, silk, cotton, or hemp; of semi-synthetics like rayon, viscose and bamboo; and of technologically produced synthetics such as nylon, polyester, acrylic, or mylar—to just name a few. As we will see below, most of the papers in this issue focus on natural fibres rather than synthetic ones.

One of the fundamental insights of new materialism is the entanglement of subject and object. People and clothes are not distinct entities but rather form “hybrid agencies,” as Tim Ingold (2016: 69) describes, mutually shaping one another within what he terms the “meshwork of things” (2012: 437). We wear the fibres on our skin: silk gives an either warm or cool sensation in diverse weather circumstances; cotton receives our sweat; wool keeps us warm but can also prickle our skin; and polyester makes us feel sweaty. Ingold observes that in discussions around materiality there is often a lack of attention to actual materials. As he reminds us, “to know materials, we have to follow them” (437); and this is precisely what so many papers in this issue attempt to do. To know the materiality of our clothes—the fabrics of our T-shirt, jeans, or dress that we wear on our bodies—we must follow its trajectory from beginning to end—starting from the very beginning: the fibres.

From a new materialist perspective, matter is not merely passive or inert but should be recognized as an active and meaningful force in the world (Barrett and Bolt 2013, 3, 5; Ingold 2012). Materials and objects possess agency—not in an anthropomorphic sense, but rather, as Ingold (2010) describes, as an emergent flow. For him, things are gatherings of dynamic forces and movements. We are all familiar with the agency of fibres: wool prickles, linen crinkles, silk soothes. This perspective aligns with Jane Bennett's concept of the vitality of things and non-human materials, which she terms “vibrant

materiality” (2010: viii). Matter, she argues, is not brute or inert. Rather, drawing on Bergson, she describes materiality as a dynamic flow (2010: 92). Recognizing the vibrancy and vitality of things, she contends, allows us to fully acknowledge matter and “the force of things” (2010: viii). The central aim of these and other theories of materiality is to reveal the deep entanglement between humans and things (see Brown, 2001, 2015). The papers in this issue contribute to this discourse by highlighting the materiality of fibres within the field of fashion. New materialist and posthuman perspectives on fibre recognize its vitality, or as Ingold (2013) describes it, a “world of active materials”. These perspectives also enable a deeper understanding of the politics, power dynamics, exchanges, and agency involved in the creation of fibre as matter—encompassing humans, non-humans, and more-than-humans. In this sense, a posthuman approach provides a framework for analysing the dynamics, ethics, and materiality of fibre on a planetary scale. Here, we may follow Morton (2013) to understand fibres such as polyester as ‘hyperobjects’: objects so vast, so planet-wrapping in their spatial impact and so long in their temporal lifespan (from ancient fossil fuel origins to eventual photo-degradation), that they resist comprehension.

In using the term ‘planetary’ rather than ‘global’ we seek to recognise the Earth as the primary living system of human and non-human entanglements. This notion of the planetary has roots in the Gaia hypothesis, first proposed by atmospheric chemist James Lovelock and extended by microbiologist Lynn Margulis (Margulis and Sagan, 1997). For us, the term ‘global’ carries a narrower view of human-centred trade and governance, whereas the term ‘planetary’ can encompass the more-than-human nested within numerous living systems; the planet – the ‘blue marble’ – as life itself. In recent decades, analysis of planetary boundaries has brought new awareness of the convergent crises facing the Earth system (Rockström et al 2009), demonstrating the ways in which a view of the planetary can aid understanding.

Viewed through a planetary lens, fibres are unruly: no corner of the earth is free of microfibres, as they persist in air, water and soil, and coagulate in oceans. The production of fibre reshapes entire landscapes (UNCCD 2024). Fibre envelops every human body. Fibres can be living technologies, in the case of genetically modified cotton plants, or blended combinations of biological and synthetic

matter in stubborn melanges that resist easy separation. Fibres are traded: they are commodities hedged on the futures markets, travelling the planet and criss-crossing national borders. Recognizing fibre’s importance and agency, invites a more expansive, ethical, and material-driven understanding of fashion in a planetary context.

FIBRES: THREADS AND THEMES

The issue Fashion’s Fibres as Planetary Flows showcases reflections, provocations, and speculations on fashion’s future, focusing on the tiny strands of fibre that are aggregated by the tonne, traded as commodities, spun into yarns, branded as products, and wrestled over in the marketplace. While we invited papers on individual fibre stories of all forms, from viscose, cotton, wool, silk, polyester, nylon and beyond, we were struck that synthetic fibres make an appearance only obliquely, and as a predicament – synthetic fibre contaminates, it is artificial, it sheds micro plastics, accrues falsehoods, makes recycling troublesome. It is interesting to see that the authors (and indeed, the wider pool of submissions) chiefly selected to discuss natural materials: wool, silk, cotton, hemp, fungi, nettles and brambles. This obviously has to do with the urgent issue of sustainability; almost all authors take sustainable textiles as a desirable goal, and the development and processing of new – or ancient – fibres as a way of achieving that. Considering the focus on sustainability, several papers focus on the problems and possibilities for recycling fibres. The papers for this issue Fashion’s Fibres as Planetary Flows write about the pivotal role of fibre in a circular economy, the governance of fibre, the ethics of fibre, the cultural histories of new and old fibre technologies, fibre and place, and provocations on fibre’s agency and materiality. As editors we have organized the papers in different sections, detecting some threads and themes between and across the diverse papers.

RELEARNING AND UNLEARNING

The first of these themes explores a relearning and unlearning in engagements with fibre, place-based knowledge and culture. In these papers we see a return to ancient knowledge and the need to reinscribe the traditions and heritages of place. In ‘Prospering Wild Fibres: Twisting Cords of Belonging’, Dagmar Venohr provides a reflective account of the embodied experience of working with wild fibres such as nettles and brambles, an invitation for

reconnection and understanding. In 'Weaving Nature: The Flow Of Ainu Elm Bark Fibres Through Hokkaido's Ecosystems', Elisa Palomino describes the Ainu people's approach in Japan as one founded in ritual and respect for the tree as non-human gift giver. She advocates for a shift from resource-intensive, petroleum-based materials to sustainable, nature-based solutions inspired by Indigenous practices. In 'Unstitched Narratives' Megha Chauhan and Pramila Choudhary investigate the cultural and ecological significance of the fibre desi oon, an indigenous wool from India, commonly formed into versatile unstitched garments known as Pattu, a handspun and handwoven textile found in both the Thar Desert in Rajasthan and the Himalayas in Himachal Pradesh. In 'Cheap Silk: A More-Than-Human History Of Sericulture In Slovenia's Goriška Region', Mateja Fajt investigates the deep place-based cultural histories of fibre, in this case, sericulture and the language and stories that arose around it. This is a story of anthropomorphised worms: silkworms cosseted and pampered, cared for like babies due to the wealth they brought the community. Rather than human-centred fibre extraction, in this story, insect, mulberry tree and human act back and shape one another. The paper asks what is lost or now absent, as this region no longer has these practices embedded in the daily life of its community.

FIBRE, PLACE, AND VALUE/VALUES

The notion of absence also comes through in Joanne Benham Rennick's account of a New England cotton mill's transformation into a museum. In 'Material Culture: the Transformation of a New England Cotton Mill into a Centre for Learning and Cultural Preservation', Rennick explores how a post-industrial nation has romanticised its past in cotton production when a former mill becomes a museum, linked to the national parks. Through museums such as this, the origins of the cotton of today are disguised rather than revealed. Cotton yarn and fabric production become something historical and cultural rather than a present-day industrial reality.

Themes of place and value/values continue in the next two papers, each examining a natural fibre. In 'From Sheep to Shelf: a Case Study on Circularity and Value-Sharing in Australian Wool's Global Value Chain', Tiziana Ferrero-Regis and Zoe Mel-

lick take the case of a single brand's wool supply chain that, while still spanning the planet, connects supply chain actors closely through shared values. The authors propose this as 'value shoring', in which supply chain partners may be far-flung, but are united in ensuring ethical treatment of the animal at the centre. Paige Tomfohrde and Jaleesa Reed's analysis of the 'soil-to-soil' vision of the Fibershed movement acts as a counterpoint to the long supply chains described by Ferrero-Regis and Mellick. In 'Fashioning Fiber Futures: The Fibershed Approach To Revitalizing Regional Fiber Networks', they examine Fibershed's 'strategic localism' with natural fibres which centres knowledge from the margins, prioritising the soil and centring the communities producing the fibre. As they put it, "Fibershed recognizes that more is not needed, but a better approach to what exists is necessary".

CRITICAL REFLECTIONS ON NEW FIBRE STORIES

Increasingly, as sustainability concerns and the opportunity for circular fibres is trumpeted, fibre can be branded as products. Fibres that are 'recycled' or 'organic' and so on, carry an aura of goodness about them that a conventional or virgin fibre may not. As sustainability credentials continue to be fiercely contested, the eco-labels associated with varieties of cotton or wool (whether certified as 'responsible', 'organic', or 'regenerative') now command a premium. What futures do these fibres promise?

In 'Familiarizing With Fungi for the Textile Sector: A First-Person Journey into New Materialist Technologies, from Leather to Yarn', Clizia Moradei explores the future of fungi for new materials. She experiments in style by writing into the first person as 'we fungi' to challenge human-centredness. Emma Lynas, Juliana Luna Mora, and Rebecca Van Amber's paper 'Fibre Fantasies: A Critical Examination of Wellness Claims in Textile Marketing' uncovers some of the pseudoscientific claims or even mystical claims regarding the properties of fibres such as bamboo. The tension between synthetic fibre and natural is explored by Isabella Alevato, Timo Rissanen, and Stefan Lie's. Their paper 'From Bio-Based to Fossil-Based to Bio-Based: Exploring the Potential of Hemp as a Material for Next-Gen Fur' weighs up the fibres' qualities and puts forward the opportunity that hemp may present as the feedstock for a new faux fur.

circular economy, Giovanna Danies and Carolina Obrégon examine the revalorising of what was deemed waste to create new fibres with regenerative characteristics, made from agricultural residues of the stems of *Cannabis sativa* L. (grown for medicinal marijuana) and coconut fibres. Beyond a circular economy approach, Daniel and Obregon prompt reflection on the scale and place-based approach in the Colombian context.

The final two papers look further at circularity and fibre. Magdalena Kohler's paper 'Challenges and Solutions for Recovering Mixed Fiber Waste from Knitted Used Textiles' takes a design-led approach to proposing that fibres be considered and reclaimed as part of a conscious approach to reclamation. Kohler usefully steps through the processes around what this reclamation involves and what will be required for it to be realised.

Harkening back to the notion of absence explored earlier, the last fibre story takes a technology – Resortecs dissolvable thread – to discover what a vanishing fibre can mean and do. In 'Stitching Sustainability: Threads as Catalyst of Change in Fashion', Erminia D'Itria and Acerina Trejo Machin explore how the Resortecs dissolvable thread becomes an agent to 'undesign' and disassemble the garments that contained it.

The thirteen contributions to "Fashion's Fibres as Planetary Flows" capture the diversity of fibre stories possible and demonstrate the opportunity for extended understandings of fibre and its place within human and more-than-human worlds. The planetary flow of fashion's fibres foreground the interconnectedness of material, human, and ecological systems, urging a reimagining of fashion's global impact and its role in the complex, shared fabric of the Earth. We hope that this issue stimulates a dialogue about fibre as the fundamental element of fashion, shaping its present and future.

REFERENCES

Barad, K. (2003). Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter. *Signs: Journal of Women in Culture and Society* 28(3), 801–831.

Braidotti, R. (2013). *The Posthuman*. Polity Press.

Braidotti, R. (2016). Posthuman Critical Theory. In Banerji, D., Paranjape, M. (eds) *Critical Posthumanism and Planetary Futures*. Springer. https://doi.org/10.1007/978-81-322-3637-5_2

Braidotti, R., and M. Hlavajova, eds. 2018. *The Posthuman Glossary*. Bloomsbury.

Brown, B. (2001). Thing Theory. *Critical Inquiry* 28 (1), 1–22.

Brown, B. (2015) *Other Things*. The University of Chicago Press.

Changing Markets Foundation. (2022). *Synthetics Anony-*

mous 2.0: Fashion's persistent plastic problem. <https://changingmarkets.org/wp-content/uploads/2022/12/Synthetics-Anonymous-2-online-reports-layout.pdf>

Colman, F. and I. van der Tuin (2024). *Methods and Genealogies of New Materialisms*. Edinburgh University Press.

Ingold, T. (2012). Toward an ecology of materials. *Annual Review of Anthropology*, 41, 427–442. <https://doi.org/10.1146/annurev-anthro-081309-145920>

Ingold, T. (2015). *The Life of Lines*. Routledge, 2015.

Ingold, T. (2013). *Making: Anthropology, archaeology, art and architecture*. Routledge.

Margulis, L. and Sagan, D. (1997). *Slanted Truths: Essays on Gaia, Symbiosis and Evolution*. Springer.

Mellick, Z., Payne, A., & Buys, L. (2021). From Fibre to Fashion: Understanding the Value of Sustainability in Global Cotton Textile and Apparel Value Chains. *Sustainability*, 13(22), 12681. <https://www.mdpi.com/2071-1050/13/22/12681>.

Morton, T. (2013). *Hyperobjects: Philosophy and Ecology after the End of the World*. University of Minnesota Press.

Payne, A. (2019). Fashion Futuring in the Anthropocene: Sustainable Fashion as "Taming" and "Rewilding". *Fashion Theory*, 23(1), 5–23. <https://doi.org/10.1080/1362704X.2017.1374097>

Rockström, J. et al. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32. [online]: <http://www.ecologyandsociety.org/vol14/iss2/art32/>

Smelik, A. (2018). New Materialism: A Theoretical Framework for Fashion in the Age of Technological Innovation. *International Journal of Fashion Studies* 5(1), 31–52. https://doi.org/10.1386/inf5.1.33_1

Smelik, A. (2023). Polyester: A Cultural History. *Fashion Practice*, 15(2), 279–299. <https://doi.org/10.1080/17569370.2023.2196158>

Stanes, E., & Gibson, C. (2017). Materials that linger: An embodied geography of polyester clothes. *Geoforum*, 85, 27–36. <https://doi.org/10.1016/j.geoforum.2017.07.006>

Subramanian, K., Sarkar, M. K., Wang, H., Qin, Z.-H., Chopra, S. S., Jin, M., Kumar, V., Chen, C., Tsang, C.-W., & Lin, C. S. K. (2022). An overview of cotton and polyester, and their blended waste textile valorisation to value-added products: A circular economy approach – research trends, opportunities and challenges. *Critical Reviews in Environmental Science and Technology*, 52(21), 3921–3942. <https://doi.org/10.1080/10643389.2021.1966254>

Exchange, T. (2024). *Materials Market Report 2024*. <https://textileexchange.org/app/uploads/2024/09/Materials-Market-Report-2024.pdf>

Tsing, A. L. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton University Press.

UNECE. (2021). Policy brief – Harnessing the potential of blockchain technology for due diligence and sustainability in cotton value chains. https://unece.org/sites/default/files/2021-04/ECE_TRADE_C_CEFAC_T_2021_12E-Textile-PolicyBrief_0.pdf

UNCCD (2024). *Fashion & Land: Unravelling the Environmental Impact of Fibres*. United Nations Convention to Combat Desertification (UNCCD), Bonn. https://www.unccd.int/sites/default/files/2024-12/UNCCD-Fashion%26LAND-FINAL%20online%20publication_final_single%20pages.pdf

