

THE FOUR ELEMENTS OF FASHION

Edited by
Anneke Smelik and Alessandra Vaccari

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The *Four Elements of Fashion* brings together international scholars to rethink fashion through the prism of the archetypal elements of earth, water, air, and fire. Emerging from a conference held at the Università Iuav di Venezia and curated by Anneke Smelik and Alessandra Vaccari, the volume offers a new perspective on fashion studies at a time of profound ecological and cultural change. The Book aims to investigate new paradigms of fashion cultures through those elements of matter as they are intertwined in the clothes we wear. The research papers shift the attention towards the material and sensory aspects of fashion. This approach fits in with the 'material turn', inspired by a re-centring of matter and the materiality of things, objects, technologies, and bodies. In readdressing fashion and its histories through the lens of new materialism, the authors envision possible future fashions in multiple ways: from contributing to an environmentally and socially aware fashion to disseminating good practices in the field of fashion design.

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The Four Elements of Fashion

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and Alessandra Vaccari

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time and constructive comments, helping to improve the manuscript.

2 INTRODUCTION

THE FOUR ELEMENTS OF FASHION

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I. THE SUBSTANCE OF FASHION ①

The four elements—earth, water, air, and fire—can be found in most of the clothes we wear. Cotton, linen, and even synthetic fibres, need all four elements to grow and blossom. Without them no cotton or polyester—and no clothes. This insight makes us literally appreciate how everything is made up of the four elements. It also reveals more-than-human connections that we are usually not aware of. This is not only a spiritual way of thinking in the sense of an awareness of inter-relationality, but it is also a highly materialist way of thinking.

In the era of ecological crisis, the papers in *The Four Elements of Fashion* aim to investigate the new paradigms of fashion cultures through the four archetypal elements of matter. By doing so, the authors shift the attention towards the material and sensory aspects of fashion—features that have been largely neglected by fashion studies over the past forty years. This approach fits in the current debate on the material turn inspired by de-centring of the human and a re-centring of matter and the materiality of things, objects, technologies, and bodies (Latour, 2007; Rocamora and Smelik, 2025; Smelik, 2018). The book intends to analyse this ontological shift through the redefinition of the substance of fashion and its histories.

The four elements typically refer to earth, water, air, fire, to explain the nature and complexity of matter. In Western and non-Western cultures, matter is conceived as a coexistence of multiple elements following a tradition that includes, among others, the cosmological treatise of Aristotle, the Hinduist and Buddhist meditations on the primary material elements (*mahabhutas*), and Jābir ibn Hayyān's alchemy. Ancient cultures in India and Tibet worked with the four elements, for example in Buddhism,

which developed a four-element meditation, where earth is grounding, water is going with the flow, fire is warming up to impermanence, and air is breathing with all beings (Selassie, 2020).

In the West, the idea of the four elements dates from pre-Socratic times and persisted from Greek antiquity throughout the Middle Ages and into the Renaissance, deeply influencing European thought and culture. The four elements of the cosmos at large were taken to mirror the microcosmos of inner life. For example, Leonardo da Vinci wrote: “as man is composed of earth, water, air and fire, his body resembles that of the earth; ... as man has in him a pool of blood in which the lungs rise and fall in breathing, so the body of the earth has its ocean tide which likewise rises and falls” (Da Vinci, 2005, p. 71). Humans were understood to be made up of earth (flesh), water (blood and other fluids), air (oxygen), and fire (energy, the heat). Recently, Astrida Neimanis has argued that we are predominantly “bodies of water”. As she writes: we are “made mostly of wet matter” (Neimanis, 2017, p. 1).

Western medieval thought and medicine not only postulated four elements, but also four qualities—hot, wet, cold and dry; four humours—sanguine, phlegmatic, choleric, or melancholic; and of course, there are the four seasons—often represented in art and music, like *Le Quattro Stagioni* written by Antonio Vivaldi, born in Venice in 1678. It is important to note that modern science does not support the classical theory of the four elements—earth, air, water, and fire—as the fundamental constituents of the physical world. Contemporary understanding recognizes that matter is composed of atoms and molecules, and over a hundred chemical elements, which combine in countless ways and exist in different states depending on conditions. For instance, water can appear as steam when boiled or as ice when frozen, illustrating the dynamic nature of matter far beyond the classical framework.

Interestingly, in *The Posthuman Glossary*, Gary Genosko (2018) gives a new reading of the four elements as earth that he understands as dust; water as blood; air as lethal fog; and fire as flammables. Translated into the era of the present climate crisis he argues that the earth today means electronics—which are made of rare-earth elements; water is now bottled in plastic; air refers to greenhouse gases; and fire has become seasonal wildfires.

2. NEW MATERIALISM

We conceived the theme of the four elements for this book within the framework of new materialism. To take the four elements seriously is to take matter seriously. It invites us to attend to the non-human—or more-than-human—forces that are deeply embedded in the world of textiles and fashion. New materialism not only legitimizes this elemental focus but also offers a framework for understanding the human as always already entangled with the wider material world. Through this lens, the four elements are not just symbolic; they are active participants in the ongoing processes that shape both fashion and the environment.

One of the foundational insights of new materialism is that subject and object are not distinct or oppositional categories, but are deeply implicated in one another. Rather than privileging human agency over material reality, this perspective emphasizes the mutual constitution of humans and the material world. People and clothes are not separate entities but “hybrid agencies” writes Tim Ingold (2016, p. 69), that constitute one another in a process of what he calls this the “meshwork of things” (Ingold, 2012. p. 437). 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” (p. 437); and this is precisely what so many papers in this book attempt

to do. To know the materiality of our clothes—of cotton, of polyester, of the dress or jeans that we wear—we must follow its trajectory from beginning to end.

Fashion studies is not alien to such an approach, as it has produced quite a lot of hands-on research, not necessarily inspired by new materialism, but definitely taking the materiality of fashion and the clothing industry very seriously. For instance, the book that traces the travels of a T-shirt in the global economy by Pietra Rivoli (2005), or several recent non-academic books on the textile industry, unravelling the material conditions of the clothing we wear. Victoria Finlay (2022), Maxine Bédard (2021), Virginia Postrel (2020), Kassia St. Clair (2019), and Sofi Thanhauser (2023) all wrote critical histories of textiles in the last few years, arguing that the material conditions of fabric demand serious attention—especially given that we live in a world surrounded by cloth. Across these works, a shared recognition emerges: textiles have been fundamental to human history and culture, shaping everything from daily life to global economies.

These authors also express surprise—and at times dismay—at how little awareness there is of the immense effort that has gone into the invention and refinement of techniques for producing yarn and textiles from plants, animal fleece, or insects. Understanding the history and technology of fabric-making is especially urgent today, in an era dominated by *fast fashion* and *ultra-fast fashion*, where clothing has become a disposable commodity. When we lose sight of the labour, knowledge, and resources involved in making—or discarding—a garment, we risk becoming careless consumers. This casual attitude stands in stark contrast to the reverence our ancestors, and even our grandparents or parents, once held for cloth, which remained a valuable and often cherished resource well into the mid-twentieth century. As Postrel (2020, p. 248) puts it: “We suffer textile amnesia because we enjoy textile abundance”. That amnesia comes at a cost—not only because it obscures vital

aspects of our human heritage, but also because the over-production and devaluation of garments have contributed to making fashion one of the most unsustainable industries today. The urgent message, then, is clear: if we hope to build a sustainable future for fashion, we must take the material culture of textiles—and the elemental forces that compose them—seriously.

There has been a significant reshaping of knowledge production within the humanities and social sciences, and the field of fashion studies has not remained untouched. A renewed interest in materialism—particularly through the lens of new materialist theory—has gained considerable traction. In recent years, we have seen a growing body of scholarship in fashion studies that re-engages with materiality, emphasizing the tangible, sensory, and elemental aspects of fashion as critical sites of inquiry. To name just a few: Heike Jenss and Viola Hofmann (2019), Ulrich Lehmann (2019), Sophie Woodward (2020), Susanne Kuchler and Daniel Miller (2005), and Caroline Evans and Jussi Parikka (2020). Focusing solely on materials and materiality is, however, insufficient. It is essential to incorporate considerations of economics and inequality into the dynamic flow of materials—particularly in the context of fashion, which has a profound impact on both the environment and the labour conditions of workers within the industry. This represents an epistemic shift inspired by new materialism, and specifically by Karen Barad's (2003) inquiry into how objects—such as the textiles and garments we wear against our skin—'come to matter'. New materialism goes further than just taking materiality seriously. New materialism bypasses dualistic oppositions and thus empowers new ways of thinking. It allows bridging divides, such as between the human and non-human, and think more affirmatively about the continuum between these different plateaus. In that sense new materialism helps create crossover connections

that are so important for the social and ecological challenges of today (Colman & van der Tuin, 2024).

New materialism marks a turn—or perhaps a return—to matter and materiality. From this perspective, matter is not inert or passive but must be understood as an active and meaningful force in the world. Materials possess agency—not in an anthropomorphic sense, but as part of an emergent, dynamic flow. As Ingold (2010) describes, things are not static objects but gatherings of forces and movements. Similarly, Jane Bennett (2010, p. viii) speaks of the "vitality" of things, of non-human matter, which she terms "vibrant materiality." Matter, in this view, is not 'brute' or inert; rather, it is in constant flux. Drawing on Bergson, Bennett argues that materiality is a flow (p. 92), describing it as "wonderfully vibrant, dangerously vibrant" (p. 13). Recognizing this vitality, she contends, allows us to fully acknowledge "the force of things" and to grant matter its due significance (p. viii).

This is what the reader can expect from the contributions to this volume: a critical engagement with the four elements within the field of fashion. The central question is, why does it matter to pay attention to matter? Why focus on the four elements? We argue that it is because the pressing issue we face is sustainability—both ecological and social. Addressing this challenge requires scholars to reconsider the material foundations of fashion, not only in terms of environmental impact but also in relation to the social inequalities embedded in its production and consumption. As Jane Bennett (2010, p. ix) writes, the idea that matter is vital and has some kind of agency, may help to achieve "more ecological and more materially sustainable modes of production and consumption".

3. GENERATION ANTHROPOCENE

Venice provided the setting for our first reflections on fashion and the four elements. The city emerged from water through a process of significant anthropization, and its life rhythms and movements historically coexisted with, and depended upon, a critically changing environment. Venice has long experienced phenomena such as high tide (*acqua alta*) and the gradual submersion of the land over time. The city also suffers from air, water and land pollution due to the nearby petrochemical hub of Porto Marghera and the cruise ships traffic, although in recent years the large ships can no longer enter the historic lagoon.

While we were drafting this introduction, the Venice Sustainable Fashion Forum (24-25 October 2024) was taking place in the city. ② The forum described itself as an opportunity to “work jointly towards a concrete objective of sustainable transition, bringing together the companies all along the supply chains from materials to brands” (Venice Sustainable Fashion Forum 2024). We certainly align with this purpose, even if in the forum’s case it was motivated primarily by industrial and economic interests rather than research objectives. However, some speeches were less *concrete* than promised. A case in point is the address delivered by Peter Pernot-Day, head of strategic and corporate affairs for North America and Europe for the ultra-fast fashion giant Shein. Pernot-Day focused on *on-demand fashion*, presenting it as a promising way to lead to a more sustainable production model based on AI and data analysis.

This model delegates the main responsibility for the development of fashion production to the consumers, reaffirming the well-studied notion of fashion as an abstract mechanism shaping Western societies (McKendrick et al., 1982). Indeed, much of the discourses on fashion history stems from the Western paradigm of consumer capitalism, which turns matter into commodity through a process

of abstraction. Karl Marx considered fashion as a metaphor for the capitalist system (Leslie 2018), the consequences of which are tangible and can be observed in the deadly impact on both the environment and the workers' lives.

The fast fashion system is increasingly showing signs of strain: depletion of natural resources, the use of chemicals in bleaching and dyeing, pollution of land and water, and the exploitation of garment workers are all well documented (Fletcher, 2016; Fletcher & Tham, 2014). Moreover, waste generated by overproduction and overconsumption creates growing challenges for recycling used textiles, which end up in landfills or, worse, are improperly disposed of. In short, fast fashion represents a profound problem. Bédard (2021, p. 116) observes: "The current system is destroying the planet, ignoring the losers, and creating precarious jobs with precarious futures". The fashion industry has spearheaded a "race to the bottom".

If the human is decentred and we recognise the interdependence of the human and non-human worlds, sustainability becomes not a luxury but a necessity. This awareness begins with taking the non-human world seriously — the objects, the things, the four elements — and assuming responsibility for them. We need the four elements for our survival, and we need them to be clean—clean earth, clean air, clean water.

As long as capitalist system prioritises on profit and growth without addressing overproduction and overconsumption, —thus perpetuating the prevailing *throw-away* mentality in consumer culture, sustainability remains unattainable. To counter that *buy-fast and throw-away mentality*, it is urgent to cultivate a society in which materials matter. Kate Fletcher defines "true materialism" as "a switch from an idea of a consumer society where materials matter little, to a truly material society, where materials—and the world they rely on—are cherished" (Fletcher 2016, p. 188). A new materialist perspective emphasises the environmental

grounding of the fashion system and the material conditions necessary for a sustainable practice.

If we have learned from new materialism that humans inevitably form assemblages with the non-human, it follows that we must cultivate meaningful alliances. If we recognise that the non-human world, including animals, objects, a dress, or a pair of jeans, is rich and complex, we are called not only to take it seriously, but also to assume responsibility for it—*response-able* as Donna Haraway terms it. This notion of response-ability includes our capacity, as storytellers, of “conjugating” (Haraway 2012, p. 307) multi-species encounters, potentially contributing to new narratives about how we coexist on this earth. In this way, *The Four Elements of Fashion* seeks to reinforce our historical awareness for members of the “generation Anthropocene” (Macfarlane, 2016; Braidotti & Hlavajova, 2018). Addressing the unsustainability of human impact is crucial to confronting the current ecological crisis, compelling us to view the landscape, including its ruins, with critical awareness. Through this book, we also aim to fill the gap in historical analysis regarding how the capitalist process of commodification has contributed to a widespread devaluation of matter.

4. ORGANISATION OF THE BOOK

This book presents the outcomes of the fashion international conference *Earth, Air, Water, and Fire: the Four Elements of Fashion*, we co-organised and co-hosted at Iuav University of Venice (Italy) on 16-17 March 2023. The concept of the four elements as an engaging analytical framework emerged during Anneke Smelik’s visiting professorship at Iuav in 2021, where she was invited by Alessandra Vaccari to deliver a lecture series on sustainability, posthumanism and new materialism in the field of fashion (Vaccari, 2022). The title of the conference reflects the enduring presence of these elements in our imaginaries. It also aims to envision

possible futures shaped by an environmentally and socially aware fashion culture and industry (Vaccari & Vanni, 2021).

The conference gave voice to scholars, educators, researchers and designers from five continents, fostering interdisciplinary dialogue. Across two days of parallel sessions, participants explored the four elements in connection to the fashion industry, circularity, processes, im/materiality, design, activism, time, history, media, and ecosystems. When we first conceived the four-elements framework, we were uncertain whether it would resonate with the scholarly community, but the response exceeded our expectations. We received over a hundred abstracts, demonstrating that fashion scholars are eager to examine the four elements as a lens for researching dress, clothing, and fashion. The papers included in *The Four Elements of Fashion* provide a fertile ground for interdisciplinary and transnational dialogue, responding to the sustainable fashion challenges posed by the Anthropocene (Payne, 2019).

The Four Elements of Fashion features short papers based on the presentations at the conference, covering fashion theory, history, and design. Each abstract underwent double-blind peer review prior to the conference, and each full paper was again double-blind peer reviewed after the event, for this publication. We organized the book – predictably – along the four elements.

EARTH evokes a sense of being grounded, connecting the material impact of clothes to its lifecycle – between *hyperobjectivity* (Morton, 2013), recycling and biodegradation. Earth is the site where millions of tons of garments are disposed of annually in landfills, particularly in developing countries. It recalls the history of extractivism and overexploitation of natural resources [Magdalena Germek and Kristina Pranjić; Kayla Owen; Wajiha Pervez], but it is also provides the foundation for biomaterials. Bacteria, mushrooms, plants and agricultural by-products actively contribute to technologically advanced efforts to reconfigure

the boundaries between nature and artificiality [*Dorothea Burato; Clizia Moradei*]. The notion of *earthbound* (Latour, 2019) carries implications for hybridised and symbiotic life forms. Current disruptive anthropogenic impacts make vital the reassessment of fashion studies' and design's role [*Eleonora Campana and Giovanni Maria Conti; Erminia D'Itria and Federica Vacca*] in shaping increasingly entangled, queered and multispecies existence on the planet (Barad, 2011; Tsing, 2015). It also *reconfigures* the designer's role "positioning them as collaborators who work with the natural capacities of materials" (Cho & Joo, 2024, p. 7) [*Beata Hamalwa*]. Finally, this session addresses the intersection of earth as both land—a geographical place—and as a space of cultural meaning [*Giulia Rossi*].

WATER constitutes most of the human body, and thus highlights the close bond with corporeality, life and liquid imaginaries in fashion studies and fashion design [*Marie Schiele*]. The attraction to glimmering surfaces might may reflect our primordial need for water [*Silvia Vacirca*]. Marine Serre's *Marée Noire* fashion film (2019) evokes a silhouette emerging from a black petroleum sea, while today's dispersion of microplastics makes coexisting with contamination inevitable. Water-related themes span the toxic and fashionable aniline dyes of the Nineteenth century (Matthews David, 2015) leather industry [*Ori Topaz*], the water footprint across cotton production chains [*Susan B. Kaiser*], and the forgotten histories of weathered garments, worn by workers in inhospitable climats, [*Elizabeth Kutesko*]. The section also encompasses underwater sea histories, fashion archaeologies, and conservation policies [*Sandra Biondo; Sandra Coppola; Elisa Palomino*], as well as emerging the concept of blue fashion, which unites fashion and water, in line with the blue economy. In other words, fashion history should not focus solely on human activities, but should also recognise the agency of both animate and inanimate entities.

AIR is an element closely linked to the issue of environmental pollution [Isabella Alevato, Stefan Lie, Timo Rissanen and Alexandra Crosby]. Atmospheric residues leave textured patina [Rachael Cassar] on objects, reminiscent of the moulds and microbes infestation on Margiela garments at the Museum Boijmans in 1997. The interplay of air and clothing is further illustrated by historical practices, such as the use of scented garments to counter foul air and disease in Sixteenth and Seventeenth centuries [Pauline Devriese]; the relics of the atomic bombing of Hiroshima and Nagasaki—as photographed by Ishiuchi Miyako (2008); and the post-Chernobyl fashion of the anti-contamination protective clothing. Albeit its negative impact, air pollution can also inspire alternative creative and social practices in fashion. As with music, fashion is always in the air [Ailsa Weaver].

FIRE is the only element not commonly available in nature and is therefore considered a human prerogative. It represents a process of energy exchange essential to human survival and possesses, through the calories, transformative power over the body (Vince, 2020). In fashion and cultural industries, fire enables exploration of different sources of energy for production. It is both a powerful and dangerous force, responsible for turning overconsumption and overproduction textile waste from overproduction and overconsumption into pollution and dust. Fire is also associated with solar energy and alchemical processes, which can be interpreted as the vibrating force of matter and fashion regeneration [Paolo Franzo]. It combines vital and psychic energy, bridging embodiment [Pamela Flanagan] with a renewed spiritual experience. Finally, two papers address the four elements simultaneously, investigating curatorial practices and the discourse of fashion museums [Virginia Spadaccini]. The interconnection of the four elements also provides framework to interpret the fashion dynamics between overconsumption and underconsumption;

non-conformity and conformity; and the reduction of ecological footprints versus clothing as a mean of self-expression [Anna Keszeg; Judith Brachem].

We hope that *The Four Elements of Fashion* offers an innovative perspective for fashion studies, focusing on this new prism of the four elements. The research papers in this volume envision multiple possible futures for fashion: from contributing to environmentally and socially aware practices to disseminating good practices in fashion design. Moreover, they generously test the conceptual framework, helping us helping us re-examine fashion and its histories through the lens of new materialism.

NOTES

①: The authors have contributed equally to the conception, design, and manuscript preparation of the Introduction. “The Substance of Fashion” and “New Materialism” were written by Anneke Smelik; “Generation Anthropocene” and “Organisation of the Book” were written by Alessandra Vaccari.

②: The forum is conceived and organised, since 2022, by leading organisations in the field of industrial and economic policies: Sistema Moda Italia and Confindustria Veneto Est, together with the think tank and management consulting TEHA The European House-Ambrosetti.

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3 EARTH

3 · 1 THE IMAGINARY OF COAL

TOWARDS SUSTAINABLE FASHION

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I. INTRODUCTION

Amid ecological crisis and climate change, it is increasingly important to critically analyze human material production, particularly fashion. Fashion must be sustainable and care for the planet must be a priority not just in fashion but in our relationship with the environment. This means that effective ecological changes in lifestyle and behaviour first require a change of the social imaginary that constitutes our subjectivity.

The fashion industry, which according to the United Nations represents a significant contributor to the environmental crisis, poses a threat to 6 out of the 17 Sustainable Development Goals (SDGs). It produces nearly 20% of global wastewater (SDG 6) and emits around 10% of global carbon emissions (SDG 13). Cotton farming, despite utilizing only 3% of the world's arable land, is responsible for 24% of insecticides and 11% of pesticides (SDG 3). Furthermore, the textile industry is identified as a major contributor to ocean plastic pollution (SDG 14). Fast fashion, in particular, is associated with unsafe working conditions (SDG 8) due to hazardous processes and substances in production (SDG 3) ("UN Partnership on Sustainable Fashion and the SDGs"). The referenced data was presented at the *UN Partnership on Sustainable Fashion and the SDGs* event, hosted at the High-Level Political Forum on Sustainable Development (HLPF) on July 10, 2018, in New York. At this gathering, ten distinct UN organizations reached a consensus to form a UN Alliance on Sustainable Fashion. This collective initiative underscores the global significance and recognition of the sustainable fashion agenda within the broader framework of the SDGs.

One crucial aspect of tackling the issue of unsustainability in fashion is to consider the concept of the imaginary of materials, and its interconnectedness with design and fashion. In addition to developing new sustainable and

natural materials for production and addressing the problems of fast fashion, waste, and the processes of defuturing in design (Fry, 2020), discussing the imaginary of materials can be an effective way to deal with the challenge. This paper recognizes the interconnectedness of imagination, fashion, and materiality. Addressing the relationship between them opens the potential to restructure the relationships we have with nature and our social reality. We will discuss the ecological crisis and explore the idea of shifting towards a more environmentally conscious present and future. Our focus will be on the controversial resource and natural material, coal, in the context of fashion and design. Fashion continues to be a significant phenomenon in the modern world, as it reflects the human inclination towards consumerism and materialism, as well as its significance in forming human identity. Therefore, the discourse surrounding fashion serves as an important indicator of a certain social mechanism that extends beyond the field of clothing or dress alone (Svendsen, 2006; Lipovetsky, 1994), which is also the way we understand fashion in this paper.

The authors have previously researched the topic of coal in fashion and design as part of the *Coal Story* project using the approaches of semiotics and material culture and applying these to the work of Marjeta Hribar, a designer from Zasavje (Slovenia) who creates handmade jewellery and other artistic objects from coal (Germek & Pranjić, 2020). The paper builds on previous research and focuses on the sociological concept of radical imagination by Cornelius Castoriadis, the understanding of the concept of decolonizing the imaginary through Serge Latouche's theory of degrowth, and the poetic philosophical concept of imagination by Gaston Bachelard. It is the latter author who establishes a direct connection between the concept of imagination and the four natural elements, which will be used for the understanding of fashion and design on the example of ecocritical conceptualisation and usage of coal as a natural

material. In this way, the paper aims to support new theoretical and social tendencies that seek to establish a sustainable way of thinking and acting in the field of fashion.

2. SOCIAL IMAGINARY AND RADICAL IMAGINATION

The path of sustainability or even degrowth requires us to transform our relationship with the world, break away from the logic of growth and decolonize our imaginary about the natural environment (Latouche, 2015). Nature is not simply something that stands outside of us as a platform for our consumption and production. Human beings are a part of nature, and our perception of nature significantly influences the constitution of the natural environment. According to the philosopher and social critic Cornelius Castoriadis, “the only attitude to adopt is that of the *diligens pater familias*”, which means we must treat the natural environment with the utmost care, with the greatest caution (Castoriadis, 2003, p. 111). Castoriadis defines ecology as “the understanding of the basic fact that social life cannot fail to take into account in a pivotal way the environment in which social life unfolds” (Ibid., p.109). He sees this very clearly in traditional societies when people had a “naïve” but firm awareness of their vital dependence upon the environment – this changed radically with capitalism and modern technocracy, which are based on continuous and rapid growth. Thus, to stop a destructive behaviour resulting in the ecological crisis, deep changes must take place in “the psychosocial organization of Western man, in his attitude toward life, in short, in his imaginary. The idea that the sole goal of life is to produce and to consume more – an idea that is both absurd and degrading – must be abandoned; the capitalist imaginary of pseudorational pseudomastery, of unlimited expansion, must be abandoned” (Ibid., p. 113).

Castoriadis developed the category of *social imaginary* in 1975 in his work *L'institution imaginaire de la société*

(*The Imaginary Institutions of Society*). At the same time, he conceptualizes the concept of *radical imagination* of the singular human psyche as a permanent flux of representation, affect and intention not subject to determinacy; in this way, he gives a new ontological status to the imagination, which is not deterministic. Here, imagination refers to the creation of and not an image or a copy of something. Our creativity is important because the world is not articulated once and for all but is in each case created anew.

In the current situation, it is unavoidable to start *decolonizing our imaginary*, as insists Serge Latouche (2015), who refers, on the one hand, to the mentioned Castoriadis's concept of the imaginary, and on the other hand, to the concept of the decolonization introduced by anti-imperialist anthropologists (e.g. Gruzinski, 1988). If we follow Latouche's insight, radical change needs another economy; another view of science that would go beyond the concept of Promethean technoscience; another conception of life and death; a different conception of wealth and poverty; another notion of time that would no longer be linear, cumulative, continuous; other conceptions of space; other intergenerational, gender relations; a different concept of work (placing social relations in the centre, instead of, e.g., efficiency or value accumulation) (Latouche, 2004).

The concept of radical imagination and the demand for a change of imaginary, as proposed by Castoriadis and Latouche, can be applied especially to creative areas of human activity. Art, design, and fashion are those forms of individual and social practice that directly and non-aggressively affect our subjectivity, the way we perceive reality and nature. Emerging artistic and design expressions are developing novel concepts and opening space for another horizon of experiences that can offer visions and ideas of a sustainable future.

3. THE MATERIALITY OF IMAGINATION: NATURAL ELEMENTS

Gaston Bachelard, a French philosopher, has provided a theoretical foundation for comprehending the intricate socio-natural symbolism that coal embodies in the realm of the imagination. He delved into the intimate relationship between our imagination and the natural elements of earth, water, air, and fire. In his work Bachelard established a very specific poetics about natural elements, that he developed in the following books: *La psychanalyse du feu* (1938; *The Psychoanalysis of Fire*, 1964), *L'eau et les rêves* (1942; *Water and Dreams*, 1983), *L'air et les songes* (1943; *Air and Dreams*, 1988), *La terre et les rêveries de la volonté* (1948; *Earth and Reveries of Will*, 2002), *La terre et les rêveries du repos* (1948; *Earth and Reveries of Repose*, 2011).

From the very titles of his works, it becomes clear that the phenomenological, poetic, and epistemological analysis of our imaginary of natural elements is an analysis of our subjectivity. Bachelard names these four natural elements the “hormones of the imagination”, showing their constitutive role in one’s subjectivity. In Bachelard’s work, we find philosophical resources for alternative thought and practice that promote a harmonious relationship with nature. In his poetics of elements, Bachelard wrote about earth, air, fire, and water using verbs like *participate*, *interiorize*, *merge*, etc., pointing out that each phenomenon involves the other.

Bachelard’s study of imagination is primarily poetic-philosophical. He understands imagination as the force of our creative ability to imagine things beyond the status quo. He calls this creative power *poetic* because it is the power of giving new forms of reformulation and transformation. Bachelard goes beyond psychology because psychology understands imagination only formally as images and what he wants to show is that besides the images of form, there are also images of matter, “images that stem *directly from matter*” (Bachelard, 1983, p. 1). As he puts it: “The eye assigns

them names, but only the hand truly knows them. A dynamic joy touches, moulds, and refines them. When forms, mere perishable forms and vain images — perpetual change of surfaces — are put aside, these images of matter are dreamt substantially and intimately. They have weight; they constitute a heart.” (Ibid.)

Despite his poetic style, Bachelard is truly a philosopher of materialism, of matter. In his epistemology of science, for example in his book *Le matérialisme rationnel* (*Rational materialism*, 1966), he insists on the idea of materialism, which, due to its scientific, experimental, and dynamic character, must be carefully distinguished from the naïve, and *obsolete* materialism of the philosophers. When Bachelard talks about rational materialism, he focuses on the concept of matter as known by scientific rational practice and is opposed to the concept of matter that comes from naïve philosophy that represents “materialism without matter” (Bachelard, 1966, p. 49). Thus, we need to think of matter from a new scientific perspective, but at the same time, when we are in the field of everyday experience, we need to allow ourselves to be affected by matter through our material images. The *matter matters*. In this sense, there is a substantial connection between the imagination and the four natural elements, since the material imagination itself can be classified based on its connection with fire, air, water, and earth. According to Bachelard, it was not a coincidence that the pre-Socratics sought to justify their philosophical principles through the four basic natural elements.

There is another interesting point here: Natural elements cultivate our imagination. Bachelard insists on the formation process of our imagination. The author is not saying that we need to perceive things around us better, but that we need to imagine external things better. When Bachelard says that we need to *sing reality*, he means that our relationship to our natural reality is not only about precise description and analyses but that it is about very intimate

participation *in* and *with* our reality. The way we imagine our natural reality affects the way we will treat it. As expressed by Joanne H. Stroud: “To read Bachelard’s books on the elements is not to acquire more knowledge, but to change one’s way of looking at the material world” (Stroud, 1983, p. viii).

The latter is very important when we think about ecological crises today. Climate change is not just an urgent question for scientists and engineers, it represents an important question for all of us in our everyday experience. The situation calls upon rethinking and changing our imaginary about the materiality and nature that surrounds us. Nature is not just our tool or an external object – we need to learn to see it differently. And what Bachelard highlights is the fact that this is not enough to coexist with nature, but that we need to merge with nature. We can find a similar point in the work by Castoriadis when he talks about ecology (Castoriadis, 2003); ecology is not a matter of science, but of politics. Science can provide us with necessary information, but how we use this information depends on our activation, and on changing our social imaginary. In this respect, the field of fashion is also in an exceptional opportunity to make innovative and important interventions in the direction of changing the social imaginary towards ecological sustainability. As we will show in our case study of fashion objects made of coal, it is possible through the innovative use of coal to place fashion under ecological principles, but also to enable the possibility of seeing coal in a different light than it has been until now (as one of the world’s biggest polluters) and thus also to spread ecological awareness and gradually to form a social imaginary sensitive and susceptible to ecological problems.

4. *FASHION OBJECTS MADE FROM COAL*

In the following, we will present the *Coal Story* project and the transformation of the imaginary of coal, which is made possible by an innovative design practice. The mentioned project was initiated as an experiential case study in 2019 and was funded by the European Commission and the Slovenian Ministry of Culture. It represented an opportunity to conduct interdisciplinary research on the creative use of coal with students coming from different study fields: Media, Communication, Design, and Psychology. The research was conducted on the example of Zasavje, a Slovenian coal mining region that is still influenced by closed mining and heavy industry legacy. With coal excavation as the main driver of the region's past-day development that is completely abandoned today, the consequences are evident not only in the economic sector but in all areas of community life. Since its most important raw material is considered to be dirty and harmful, this poses considerable problems for tourism and creative development in both the national and international contexts.

Mentors and students investigated past and present stories related to the rich history of industrial coal mining in the mentioned region. The main motivation behind this research was to present coal as a symbol of the past, which can be restructured in a new visionary mode for its future. The central part of the project was dedicated to collecting and recording personal stories of miners and young people of the Zasavje region whose lives and identities were shaped by coal. The second focal point was design practices that find inspiration in coal as an unconventional means of artistic expression.

While investigating the imaginary of coal in the Zasavje region, researchers discovered many paradoxes that arise between the symbolic and material value of coal. This research thus revealed that coal is, in fact, an extremely

controversial symbol, as it represents, on the one hand, impoverishment and degradation, environmental pollution and disorientation of local young people, and on the other – a means and source of life.

To present the story of coal in this region in its entirety, it was crucial first to examine the history of the various uses of coal. Important historical facts showed that in the Seventeenth century, before the development of the coal mining industry, coal was used for medicinal purposes. The healing possibilities of coal became a sign that this raw material was not only suitable for burning and heating. To this positive aspect of coal another constructive element was added, acquired via conducting interviews with former miners. In these interviews, one thing was evident – for all former miners, coal represents a symbol for *bread, safety, hard work, and life*. This suggests that people are emotionally attached to coal, which means that coal also has a value that is not directly visible to us.

This indicates that our imaginary has an even stronger effect on our perception of reality than the consequences of concrete practices that create the reality we live in. This is reflected in the example of coal which simultaneously symbolizes our relationship to social reality, to the very social connection that was established through coal. In addition, coal can be considered a representation of our connection with nature and its elements. Being a natural, earthy substance, coal can burn and therefore also represents a fiery element. Additionally, to burn, coal requires air, which can also be seen as an airy natural element. Paradoxically, the biggest polluter of air, land and water – coal – has now become the unifying representative of the four natural elements. In this sense, and inspired by Bachelard's philosophical poetics of natural elements, we can say that coal embodies our imagination of a profound and intimate symbiotic relationship between humanity and nature.

The sustainable and informed approach to design, coupled with an innovative yet ecologically conscious utilization of coal in fashion, serves as an exemplary model for fashion's transition toward sustainable objectives. Marjeta Hribar's handmade coal jewellery KUOLMi (Figs. 1-2) exemplifies sustainability on multiple fronts: Not only does she employ environmentally conscious production processes and materials, such as locally sourced and repurposed coal (she harvests coal from the nearby forest, but often, residents contribute unused coal as gifts), natural resins for sealing the coal's porous structures, steel and other metals. Each item is crafted by the designer, who personally oversees the entire hand-making process. The procedure of sealing coal with natural resins is a secret within her artistic methodology. Coal is, in fact, a soft and porous material, and the artist seals it with resins, allowing her to shape it and embed pieces of coal into the metal. It is not known how long the coal piece will retain its formed shape through this method, as the process does not guarantee permanent protection against external influences. In this sense, the objects made of coal will revert to their original version in the future. Promotion and selling strategies are managed by the designer herself, who manages her external image through digital channels. She primarily offers her products in local and national boutique stores affiliated with tourist souvenirs and hand-made fashion items.

After the end of the project, the scientific paper "Constructing New Signifiers with Aesthetic Intervention: Using Coal in Design" (Germek & Pranjić, 2020) was published, using the approaches of semiotics and material culture to show what mechanism may lie behind a simple saying that design can change meaning, as well as how design affects the signifier itself and our relationship to the material. Design was presented as a certain form of communication or a form of language showing that through the process of design, coal is not only a material,

but it also becomes a particular object of material culture. It has been five years since the publication of the paper, and we can now observe how this research has influenced the daily work of the designer. Through the theoretical understanding gained, the designer was able to contextualize and communicate her creative practice more effectively. This has resulted in her gaining international recognition and collaborating on many individual and collaborative projects, which she sees as a tribute to generations that earned their livelihood through coal mining.

CONCLUSIONS

The recognition of the possibility of transformation of imaginary is an extremely important process because it shows the creative ability that we have in discussing and directing our future under the signifier of sustainability, which does not mean removing or eradicating previous concepts and objects, but using them in a different way that will be ecologically acceptable. This would mean taking into account human, non-human other, all matter that surrounds us, and “the environment in which social life unfolds” (Castoriadis, 2003, p. 109). Changing the purpose of the symbols and materials is important for the social imaginary of an individual. When we replace an old symbol or give new meaning to resources and materials, we do not create a vacuum. Instead, we replace it with something new. Through the concept of radical imagination and transformation of the imaginary, we can understand the importance of envisioning new relationships through design and fashion and actively realizing them in daily life.

With her fashion and design work, Marjeta Hribar offered a new imaginary of coal. Instead of a dirty and polluting material that coal has become through historical and industrial use, it is now being given an alternative existence – as a fashion element – that can be thought of in an

ecologically significant way. The significance of this object goes beyond being just a representation of the work, sustenance and security for miners and the local communities. It also symbolizes the life on our planet that must overcome the current ecological crisis.

Exactly this “active zone of imagination” (Stroud, 1983, p.viii) should be actively used in the “fashion zone” of the future. We need to approach fashion from the perspective of a new relationship between us and our natural surroundings in the way that we experience fabrics and materials we wear not only as a superficial and external thing. As Ulrich Lehmann stressed in his book *Fashion and Matter*, fashion is often connected with consumerism and is regarded as “a superficial reflection of ideas”, we most often do not see it as “a field in which general histories, modes of thinking or perception are formed” (Lehmann, 2018, p.4). Wearables and fashion materials are not external to our imagination, therefore we can and should use our imagination of sustainability to model fashion in a sustainable direction, and conversely, we can use fashion to model our subjectivity in a new way. Therefore, changing the logic of our imaginary of materials is a crucial step towards ecological sustainability in fashion.

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FIGURES



Fig. 1 Necklace KUOLMi, Handmade Coal Jewellery.



Fig. 2 Bracelet KUOLMi, Handmade Coal Jewellery.

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3 · 2 THE WEARER AS DESIGNER

*APPROACHES TO LEATHER PRODUCTION, DESIGN, AND CULTURAL
VALUE*

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I. INTRODUCTION AND RESEARCH ISSUE

Leather has had a bad rap, and this study serves to emphasise the value in re-aligning thinking, and highlighting new approaches to leather production, value, and significance, as a starting point for cultural discussion. There is a common misconception that leather and the tanning industry are not ethical or environmentally conscious, often regarded with very high-water consumption. This study seeks to oppose this myth by highlighting current industry sustainability initiatives, and emphasising leather as a flexible, natural material, whose durable properties mean, if cared for, it can last a lifetime and therefore is one of the most ethical fashion materials available.

From a fashion perspective, it is important to recognise the environmental value of ethically produced leather within the circular economy. Case studies and profiles of companies (Blum, 2021) central to this movement, such as Patagonia, Veja, Christopher Raeburn, and Stella McCartney are useful to provide a viewpoint, however, this research provides focus to misled assumptions around real leather specifically. The study considers circularity, whilst devolving stagnant beliefs to develop new thinking. Leather is circular beyond any other material. It can be repaired, restored, and enjoyed for a lifetime, and passed down through generations. Thus, making leather craft the ultimate upcycling activity, turning an industry's trash into treasure. And so, focussing on leather fashion means durability, longevity, and flexibility, encouraging an ethos of nurture and preservation beyond any other material. The theory is that recognising the value in materials could alter consumer behaviour, challenge current consumer habits and the fast fashion industry. Approaching our garments as experiences offers the wearer the power to breathe new life into their wardrobes (Bravo, 2020). Using existing garments which have meaning, ritual and value elevates them far

beyond what fast fashion can offer. Siegle (2011) is clear, in her expose of the fashion industry, that a sharp rethink is necessary, further re-enforced by Barber (2022) whose book is a stark reminder that every item consumed remains on the planet.

However, to create a sustainable leather fashion system, a paradigm shift is required to acknowledge and disseminate the potentiality of leather, and an examination of the way it is represented is key. Organisations like *The Sustainable Leather Foundation* (founded in 2020) have environmental, social and governance responsibility at its core, and are working to reduce water use by tanners. Whilst *Lineapelle Fair* (launched in 1981), the most qualified international exhibition of leather offers insight into trends, design and manufacture innovation and represents the sub-groups who harness the value and flexibility of leather as a material. Leather's long lifespan and the fact it needs very little care, means that once manufactured the carbon footprint of leather clothing is much smaller than alternative materials. Wearing leather is not harmful to animals. Cowhides are by-products of the meat and dairy industries, meaning no cows are killed for them. If unsold, hides are simply thrown away, becoming part of the larger waste problem (@choose-realleather, 2023).

Therefore, the principle of this study is to align this knowledge with an awareness of specific artisan handcraft techniques, to develop, and strengthen the current leather fashion landscape ethically and sustainably. The beauty of real leather's durability is that it can be repaired, restored, altered, enjoyed for a lifetime. This research examines whether looking to a specific sub-group of artisans within the leather handcraft industry could offer a more sustainable, long-term outcome. Therefore, the study led to immersing myself within a sub-group of sport shoe craftspeople, where elevating, personalising, restoring, and coveting leather footwear plays a significant part. The research

and potential outcome aim to offer knowledge mapping, and a blueprint to demonstrate how leather craft restore and repair techniques can be transferred to garment and offered to plural networks and the wider fashion industry. To advance ethical consumer behaviour and support the environment, aligning with leather organisations responsibility governance. Through interacting with the sub-group, it became clear that there was a real sense of community and comradeship. The subscribers and artisans were passionate, and truly cared about their vintage/ second-hand/ used footwear. Preserving their attire, repairing, restoring, customising their trainers was the goal. Interviews with artisans from the trainer sub-group, provide support to the principle, just as observations at trainer festivals, retail outlets and action research via workshops were undergone to bolster recognition of the skill and craft involved, in addition to heightening the value of community, nurture and preservation as key. Ultimately, it is hoped that examining this specific sub-group of artisans and craftspeople within the trainer community will provide a blueprint. Looking to those who readily provide quiet activism against disposable fast fashion by breathing new life into used sports shoes, hopes to unearth and reframe the benefits of such a flexible, durable, and valuable material as real leather to alter consumer behaviour and challenge the fast fashion industry.

Interactions and knowledge exchange within the sub-group, aim to highlight the leather craft techniques and processes which too can be applied to leather garment in the same way. This act of sharing practice and the requirement to lavish care and attention on the clothes one already owns can only bring positive environmental impact as well as personal reward (de Castro, 2021). Encouraging nurture and inspiring the value of attire from both a material and emotional durability perspective will promote the power of memories attached to our attire, and the reality that our clothes do not need to be fixed as the item we originally

bought. The fact that our clothes can be altered, improved, and made unique aids this research in addressing broader questions about the embodied experience of the wearer as designer and the effect adaptable/ repairable leather fashion may have on the way we see our existing wardrobes.

This study seeks to alter perception through outlining the sustainability of tanneries and offering a new way of seeing leather as a fashion material which is flexible, and worth nurturing. Research aims to offer a new paradigm of fashion culture, by adopting footwear craftsmanship techniques from artisans within the industry, and applying this to garment, to develop a blueprint for new ways of thinking, seeing, and doing fashion. By establishing flexible techniques at consumer-level, leather fashion items can offer endless options and longevity, to adapt to the wearers needs and mood on any given day or occasion. Thus, creating commodity exchange, heightening an object's value. This creative freedom in how we see existing leather fashion extends and deconstructs the norm. Amplifying emotional and material durability, shifting, and cultivating an object whose "cultural biography" (Kopytoff, 1986, p. 64) outlives the present and improves with age. This research seeks to assess whether, if we approach our clothes as experiences rather than things, a flexible, sustainable approach to deconstructing/ constructing our clothes, may give the wearer power to breathe new life into their fashion. Take design ownership, construct meaning, ritual, and value on individual terms. Interrogating whether the significance of fashion is transformed, due to an established realisation of the value of the emotional, non-monetary substance our clothes possess once worn. They can become priceless and irreplaceable to the owner, disrupting the conventional hierarchy of our value systems. Elevating objects far beyond what fast fashion can offer.

This research is concerned with revaluing existing leather garments, as fashion can hold connection like no other

object. Described by Chapman (2015) as emotional durability, a bond between consumers and their material things, with meaning at its centre. He examines consumers' experiences within object relationships and the role of possessions in our lives. Objects relate to people and place, and witness a continuous, systematic narrative of events. They become a personal record of lived experiences and gather their own history. Earlier research by Kopytoff describes the narratives we collect around our possessions as a "cultural biography" (1986, p. 64) made up of events he calls "singularisations" (1986, p. 73). He examines the process of commodity exchange to understand how changes in context can shift the meaning of these singularisations, and how this relates to an object's value. This research considers each aspect of material innovation, technique, and process, in relation to our wardrobes and current fashion landscape, by highlighting that ownership, dress, tactile contact, maintenance, and repair may play a far greater part in our relationship with attire, than commerce, consumption, and exchange. By considering the unspoken intimacies we have with the things we own, and wear and the connections they make to events in time and place. Material artefacts can come to hold a place within our psyche like nothing else, fusing materiality, ethics, culture, and identity.

Acknowledging that garments produce a multi-sensory experience, which both mediate and create our experience of the world, supports this theory. Tactile experience of our garments binds us to them. As we use clothes, they become records of our experiences, archives of the experience of wearing. Worn things are the outcome of our *being in the world*; they are a mediating layer at the confluence of environment and bodily self. As such, our used garments hold a particular place in our networks of things, at once intimate and public, visible and on display (Spivack, 2021). Through use, garments and wearers become entwined. If garments and shoes can affect us, then our relationship to

and awareness of garment production, maintenance, wearing, cleaning, and repair should be embodied within our practice and things (Sampson, 2020). Whilst embracing this notion, this study seeks to emphasise the ways that material culture exists outside of the body but can more readily become part of it; that we as users can become makers. We can take control of design and the use of fashion, so that garments develop over time to become integral parts of ourselves. Approaching our garments as experiences offers the wearer the power to breathe new life into their wardrobes. Material frontiers provide invaluable design impulses for researchers, designers, educators, and students alike. Treating materials as an active source of design information and inviting the making of tacit knowledge through direct material handling, re-establishes/ establishes an intrinsic relationship between material, maker, and user which sees a connectedness emerge which drives new interpretations of materiality (Lefteri, 2014).

This research challenges the status quo, examining a specific sub-group who readily restore, repair, and upcycle leather footwear. A community of like-minded individuals, keen to own or acquire the most vintage unique *1 of 1* trainers possible. An example of best practice, this sub-group embrace the used, second-hand, handed down. They share knowledge and passion for the fashion item, putting it at the most coveted position in terms of their wardrobe, dressing the *feet upwards* every day. It is hoped that by adopting the values, and material, techniques, and processes of this specific sub-group and creating new plural networks of subscribers who seek to consume/ rework fashion differently, will develop an actualised possibility for re-alignment and new thinking around leather, production, consumption, and value as a starting point for cultural discussion. In turn challenging the fashion industry in terms of ethical, sustainable, environmental, and social aspects by presenting a new slow, flexible, and creative philosophy. One

where the consumer/user takes ownership and material and emotional durability become key to encouraging a nurture *not buy new* thinking. Chapman identifies "mutual evolution" (Chapman, 2015, p. 24) as a key feature of emotional durability. The development of a deep relationship through craft and the ability to alter a garment by restoration, customisation and repair are ways in which clothes can evolve. Sennett (2008) asks "what the process of making ... reveals to us about ourselves" (Sennett, 2008, p. 8) and Marx also identifies the value of making as an attribute to our emotional well-being (Trainer, 2017). Therefore, the purpose of this research is to position restoration, customisation, and repair as ways to cultivate mutual evolution of product and owner. To promote that investing in extending a products life will increase durability of the relationship, as well as providing a solution to the environmental crisis we are facing. To consider that, elevating, nurturing, and preserving our attire allows us more control over our appearance and identity construction and acknowledge that this in turn proposes greater influence over dressing choices, appearance, and ready-to-wear consumption. Providing almost unlimited possibilities to individuals, instead of purchasing fashion from a pre-existing offering, will allow us to possess clothing that better reflects our personality.

2. METHODOLOGY

This study has an emphasis on material culture and ethnographic approaches which reflect on the practical research experience. The enquiry aims to establish if fresh perspectives on circular leather production, examination of a specific sub-group, and heightened awareness of the durability and flexible design opportunity of leather, may encourage the construction of plural networks who challenge the current fast fashion landscape and consumer

behaviour. Research design within the study includes interviews, participant observation, and action research.

Current research undertaken at Lineapelle Fair (NYC, January 2020), the most qualified international exhibition of leather, accessories, components, fabrics, synthetics, and models, altered perception on the sustainability of tanneries. By offering a new way of seeing leather as a fashion material which is ethical, flexible, customisable, and worth nurturing, this industry dialogue reinforced the importance of material value, and highlighted specific sub-groups who subscribed to the philosophy of nurture and preserve. Findings guided the investigation into footwear craftsmanship techniques, and processes, specifically integral to the sports shoe. Entering a group of people with a shared identity at trainer festivals, workshops, and retail outlets, allowed the exploration, experience, and recording of specific leather handcraft, techniques, and process. Workshop participation (leather embossing, engraving, and hand-making a leather casual shoe) embedded skills and knowledge, and encouraged design discussion, with artisans within the field. This led to semi-structured interviews, which supported understanding of practice, concepts, opinion, and experience, integral to the sub-group. ‘Making’ gives the researcher the ability to alter or enhance their experience of the research subject in a manner that would not be possible through observation alone (Sampson, 2020). Galvanising an understanding of the flexible, ethical, creative, and emotional durability of footwear via interactions with the trainer community and using this experience as a blueprint gives authenticity to the study. On the topic of creative and emotional durability, a field which is under-represented within academia, more attention has been paid to aspects of history and sensory elements of fashion rather than physical attributes. Chapman says, “object meaning ... is a relatively untouched” area of research (2015, p. 43). Steele (1998) claims that scholars have ignored the potential

of objects as primary sources of data, preferring written sources and images. Whilst Mida and Kim (2015) draw attention to the lack of research using objects, adding significance to this study.

Observation, particularly participant observation, has been used as a tool to collect data about people, processes, and cultures which immerse the researcher into the sub-culture of restoration, customisation, and conversion of trainers from both a subscriber and craftsperson perspective. This interaction naturally led to fundamental semi-structured interviews with three key craftspeople within the field. To gain credible qualitative data and examine said relationships, a long-term approach was taken to foster trust and develop networks where research subjects were as aware and as committed to the potential of the study as the researcher. Strong bonds, trust and relationships were formed over the duration of the study, meaning each interview was open, trustworthy, and highly fruitful – to the point, that due to this interaction and knowledge, a new strand of research was realised – Sole-Zine (Figs 1–3), a post-zine research output dedicated to archiving and recording *British Trainer Culture*.

Using ethnography, adapting methods of material research, and studying a specific creative sub-group, has impacted value systems to the point of realignment, transferring skills and knowledge from one leather object (trainers) to another (garment). The resulting framework reflects on how skills and knowledge from a footwear context, if transferred to garment, could offer a new way of seeing leather fashion in a more ethical, sustainable, and enduring way at wearer/consumer level. This new knowledge when applied to networks and spaces inspires the *material turn* approach of de-centering the human, and re-centering matter and the materiality of objects, technologies, and bodies (Rocamora & Smelik, 2016). This sub-group highlights how the wearer/consumer can become the creator of

the object of enquiry, and how to bolster the potentiality of the material (leather). A blueprint for new ways of thinking, seeing, and doing fashion, is created: One by which the wearer/consumer nurtures, preserves, and adds value to leather fashion, making this an important methodology within a fashion context, reinforcing the development of a more sustainable alternative wearer/consumer product relationship – the wearer as designer philosophy.

3. *RESULTS AND CONCLUSIONS*

This study set out to explore the hypothesis that adopting new ways of seeing leather and leather fashion could alter wearer/consumer behaviour and develop a desire to nurture and preserve. The research demonstrates that by highlighting individual artisans who subscribe to, or are central to, a distinct area of leather production, specifically, the craft of restoration, customisation, and repair and harnessing the material and emotional durability with the clothes we own, it may be possible to disrupt wearer/consumer value systems. That this knowledge if applied to garment could offer plural networks a fresh approach to existing leather fashion, which may encourage a more ethical consumer behaviour and sustainable way of seeing attire. In turn moving garments with low exchange value outside normal commodity categorisation to an area of great importance.

Through ethnographic approaches this research has recorded an open inventive, collaborative knowledge transfer of a specific material and craft of fashion via a specific sub-group. By promoting current circularity and sustainable initiatives adopted by tanneries and highlighting the durability of leather as a material that can be restored, altered, and handed down to generations, the fast fashion industry is challenged on ethical, environmental, and social aspects, presenting a slow creative leather fashion philosophy. One where the user has an elevated sense of ownership

and in-turn, belongings are cherished. Participant observation and subsequent interviews and analysis, validate the concept that objects gather their own histories and their interaction with the surrounding social context provides a cultural biography worth appreciating. In this scenario craftspeople extend their talent to create compelling ethical and inspired narratives within the trainers they craft, and restore, to heighten desire for unique items and in-turn inspire consumer responsibility. Establishing that fashion is about authentic experiences and freedom. These shared ideas and practices gained strength throughout the study.

The resulting enquiry encourages a new generation to reconsider their relationship with leather and leather fashion. To look at their existing wardrobes with a fresh perspective. To conclude, these findings could trigger plural networks to redefine current customary behaviour, challenge the fast fashion industry and nurture and preserve a material which if cared for could last a lifetime. Placing the subject within arenas for larger debate, raising awareness to bridge gaps within the field, and forming fundamental requirements for future progress within this area. In this context, these deductions could be used to enrich theories of fashion and material culture, as well as provide efficient and sustainable options for fashion within the leather industry. As confirmed, creative and emotional durability has the potential to influence consumer-product relationships, creating an alternative that withstands pressure from capitalist industry to buy new clothes and therefore, reduce consumption. Academically, this research could influence a new generation of designer/ consumer to push social boundaries and blur the relationship between the wearer, design, and attire. Achieving total ownership of fashion, changing wearer/consumer paradigms, and creating an adaptable circular fashion system with a wearer as designer philosophy.

FIGURES

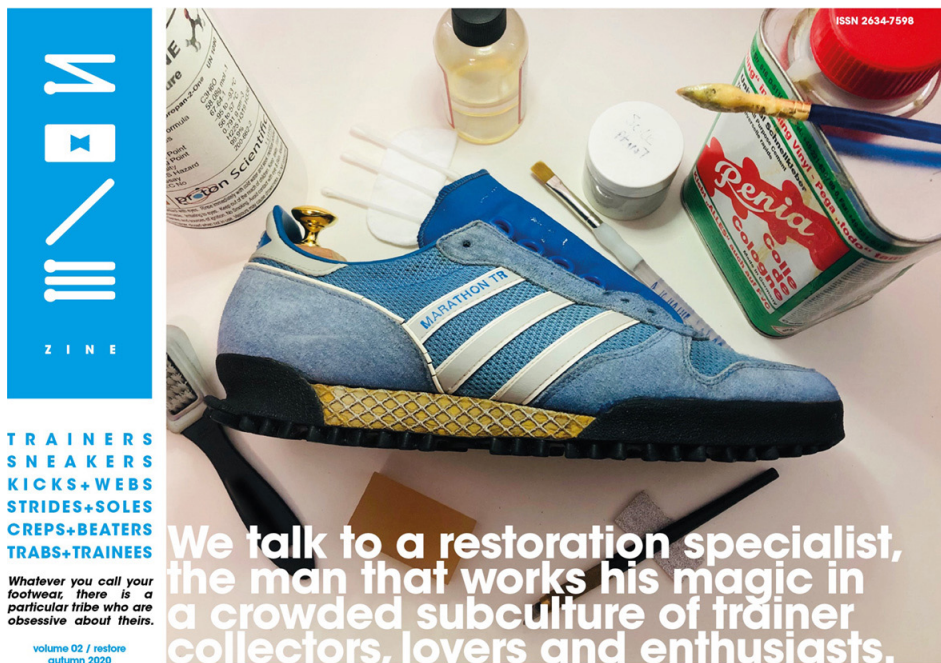


Fig. 1 Sole-Zine: Volume 02, Restore. A poster-zine dedicated to archiving and recording British trainer culture. ISSN



Fig. 2 Sole-Zine: Volume 03, Conversion. A poster-zine dedicated to archiving and recording British trainer culture.

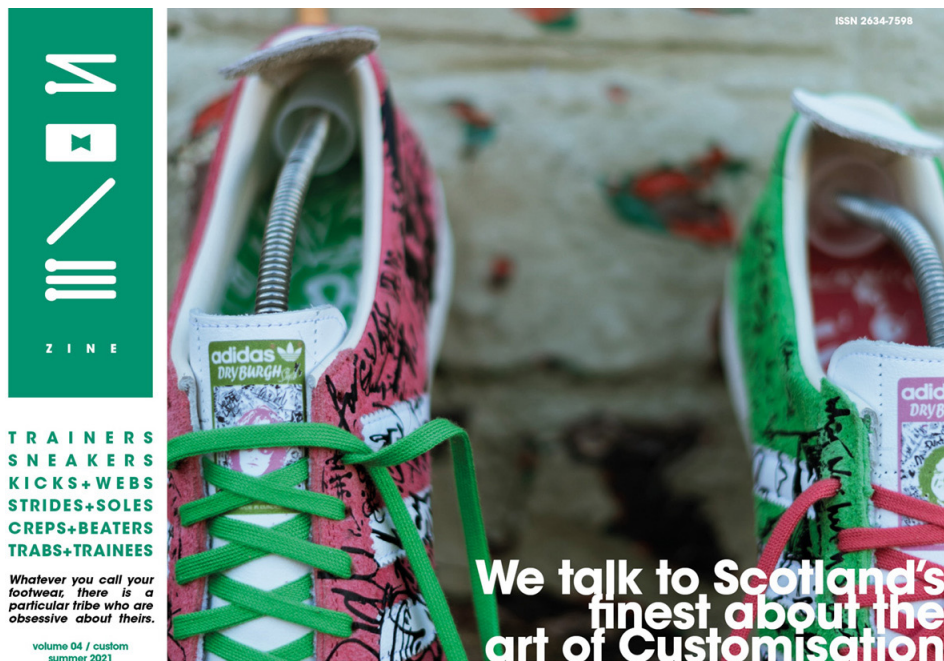


Fig. 3 Sole-Zine: Volume 04, Custom. A poster-zine dedicated to archiving and recording British trainer culture.

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Kayla Owen is MA Fashion programme leader, Ph.D. researcher and fashion designer. Currently working with leather, her research seeks out new advances to preserve material, techniques, and processes. She is co-creator of Sole-Zine, architect of stitchless technology, currently developing workshops to build plural-networks nationally and internationally.

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3 · 3 ATHLEISURE COUTURE

*AN ADVERSARIAL DESIGN FOR DISASSEMBLY APPROACH FOR
DESIGNING ATHLEISURE GARMENTS IN A CIRCULAR ECONOMY*

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I. INTRODUCTION

This research is set in the context of athleisure clothing's contribution to the rapidly escalating environmental crisis. The expansion of athleisure clothing into the fast fashion system has led to exponential quantities of athleisure garment waste, making it urgent to take new approaches to study the athleisure clothing problem for its critical sustainment in the fashion ecosystem, as presented in this research.

Athleisure clothing is a textile and garment innovation-driven combination of *athletic* and *leisure clothing*. It is defined as “casual clothing designed to be worn both for exercising and for general use” (Lipson et al., 2020, p.5). It follows a long history of collaboration between sports apparel and designers to enable an active female body (Craik, 2019). Present-day athleisure clothing incorporates engineered plastic-based stretchable fabrics. It emerged as a partnership between fitness apparel companies and designers to enable active, working women to engage in urban sports and fitness culture (yoga, gym, biking, etc.) and look fashionable while doing it (Horton et al., 2016; Wilson, 2018). Examples include *Adidas x Stella McCartney*, *Gucci x North Face*, *Roksanda x Lululemon* etc. (Fig. 1).

2. RESEARCH ISSUE

2.1 Athleisure clothing and the broader problem of consumption

The athleisure clothing industry is expected to reach USD 549.41 billion in global revenue by 2028. That is 500% more in projected sales revenue than other fast fashion categories for the same year, making it the most financially successful fashion segment with a combined 42% revenue in 2021 from luxury to mass market retailers (Grand View Research, 2021; Business Wire, 2020; Business Wire, 2021; McKinsey

& Business of Fashion 2021). While it is difficult to fully understand the social, ecological and economic degradation caused by fast fashion, athleisure clothing is exponentially adding to these impacts, especially in the realms of labour, sociocultural costs and environmental waste.

2.2 Athleisure clothing and the circular economy

There is no one-size-fits-all sustainability solution in an industry as complex as athleisure clothing. However, the concept of circular economy appears as one of the most desirable approaches to avert the fashion-induced climate crisis (Charter, 2019). Products within a circular economy should be designed keeping in mind technical and biological energy flows. It is a complex economic system in which resource inputs, waste, emissions, and energy leakages are minimised through various design approaches (Geissdoerfer et al., 2017).

2.3 The politics of athleisure clothing and adversarial design

Acknowledging that athleisure clothing is made in complex supply chains and design systems with underlying socio-cultural and environmental implications opens the opportunities to break down and alter the agency of those variables to extend the boundaries of the circular economy. Investigating two such critical political aspects of athleisure clothing, i.e., *plastic-based blends and using slow making in a designer's studio* through the *Design for Disassembly* methods lies at the heart of this research.

2.3.1 Research question:

The research asks the question: Can natural fabrics be used to make critical athleisure garments within a circular economy through hand-stitched fabric manipulation techniques (such as smocking and pleating) to *disassemble* the assumption of plastic-based and chemical-intensive synthetic textiles as vital materials for making athleisure garments?

Natural in this context refers to fibres grown through agriculture, such as cotton and linen.

This research uses adversarial design theory in its methodology. It builds upon the author's continual research on finding a critical design for disassembly solutions for developing athleisure clothing within a circular economy (Pervez, 2022). The approach is contestational. It questions conventional sustainability claims and design assumptions through agonism – a political theory developed by Chantal Mouffe that informs the adversarial design framework and emphasises contestation as foundational to democracy (Mouffe, 2007). It is expanded further in the author's research (Pervez, 2022, p. 63-65). Contestation under adversarial design is not a radical shift in design but a new lens to look at how things could be if certain systematic, material, financial, and aesthetic restrictions do not exist (DiSalvo, 2012).

2.4 Athleisure clothing and design for disassembly

Athleisure garments are made from a combination of natural and synthetic materials, and they are treated for colour, stretch, performance, and texture. These treatments add further complexity to the problems of material recovery, reuse, recycling, or composting at the end of product life. McDonough and Braungart (2002, p. 99) have termed such materials and products “monstrous hybrids” because they cannot be separated into clear technical or biological material domains at scale for a foreseeable future. Therefore, the popular design for disassembly proposition to innovate plastic-based clothing such as athleisure garments within a circular economy by creating technical, biological or cyclable product solutions is problematic. It needs critical thinking and design practice to question the use of plastic-based materials.

3. METHODOLOGY

3.1 Athleisure design for disassembly: A critical perspective

Athleisure clothing design for a circular economy is a question of transforming the design process, change in consumption patterns and a paradigm shift. Athleisure garments are a product of complex clothing supply chains, systems, processes and services, and there are designed structures and protocols to manufacture them at an industrial scale. Thus, the practice of critical athleisure clothing design requires extension beyond products and investigation into the political aspects guiding athleisure clothing design and consumption. For their critical sustainment within the design for disassembly discourse, athleisure garments also need to provide spaces of political confrontation and opportunities for usually excluded participants such as natural materials, time, labour, natural materials and craft to contribute to contestation (Tab. 1).

3.2 Studio practice

3.2.1 *Adversarial design*

Adversarial design can provide spaces of confrontation “in the form of products, services, events, and processes — through which political concerns and issues can be expressed and engaged” (DiSalvo 2012, p. 125). Adversarial design is expanded upon in the author’s extended research (Pervez 2022, p. 64-72); summaries of its themes are provided here. This research questions and contests preconceived plastic-based athleisure clothing materiality through agonism.

By deploying manual labour, natural materials (calico and linen) and craft-based interventions (smocking), the garment prototypes in this research reveal insights about the labour, process, time and material assumptions for manufacturing

athleisure garments – a key factor when discussing the circular economy in athleisure clothing. Furthermore, adversarial design debunks the myth that athleisure clothing needs chemical-based dyes to look aesthetically pleasing, textile treatments to enable light fitness activities (an intention that differentiates athleisure from athletic wear) and that these treatments can only be produced via mechanical assembly processes.

With an agonistic reconfigurative approach, the objects are designed with an arrangement of parts, capacities, concepts, and limitations provided in familiar settings. But it is done in a manner that is provocative and that is intentionally different from familiar configurations. These provocative reconfigurations are derived from the understanding of standard configurations both technically and socially (DiSalvo, 2012). Hence, for a practice to be ideally termed as an adversarial design process, it should perform all or one of the functions within the three themes of adversarial design. The two sets of studio practice experiments in the following section correspond to the themes:

1. *Reconfiguring the remainder*: Agonistic reconfiguration corresponding to creating stretch allowance in woven natural fabrics through slow making and hand-stitched smocking techniques;
2. *Forming an agonistic collective*: Relationalities corresponding to translating smocked fabrics into full-scale garment prototypes and getting feedback through a moving female body for light exercise and functional use.

3.2.2 *Reconfiguring the remainder: Slow-making and hand-stitched smocking techniques*

“Reconfiguring the remainder is an agonistic tactic of including what is commonly excluded, giving it privilege, and making it the dominant character of the designed thing” (DiSalvo, 2012, p. 64). Designing athleisure as an adversarial design practice allows one to explore what it

means to design with and for the moving female body. So, the set of experiments in this research kept the female body, movement, aesthetic appeal, and light fitness activities at the heart of the athleisure clothing design process without internalising a specific materiality. Additionally, the design does not compromise on comfort, visual appeal, and wearability.

The most prominent feature of athleisure garments is their ability to stretch in multiple directions to adapt to the changing contours of a moving body and allow unrestricted body movement. Therefore, for the first set of studio experiments, the cotton calico fabric was manipulated through smocking (a hand-stitching process to gather the fabric in calculated patterns so it can stretch in desired directions) to discover various linear, diagonal and directional stretch tendencies for the body (Figs. 2-3). Calico was chosen because utilising a seemingly inappropriate material is an important agonistic endeavour for the practice of adversarial design as it asks how would the inclusion of a certain condition or product, as the remainder, draw attention to a hegemonic process (DiSalvo 2012, p. 64).

This paper includes a few examples of the smocking sample research. The full set of experiments is documented and reflected upon in Pervez, 2022 (p. 112-123). The smocking samples revealed that natural fabrics can be used to create directional stretch using craft-based manipulation techniques. They might seem unusual to look at, feel different to wear and even strange to appreciate as athleisure clothing. Still, it provides evidence that a craft-based circular economy alternative exists that is different from the *design for disassembly* potential afforded by industrially produced plastic-based fibre blends, which is why these samples were further folded into the next stage of *reconfiguring this remainder* to build an *agonistic collective*.

3.2.3 *Agonistic reconfiguration*

According to DiSalvo, under an *agonistic reconfiguration*, “the object is still designed by a custom arrangement of parts, capacities, affordances, and concept” (DiSalvo 2012, p. 63), but it is done in a manner that is purposefully different from familiar configurations. However, the reconfigurations under adversarial design are not arbitrary. Rather, the reconfiguration activity leverages “the understanding of the standards of configuration, both technically and socially” (DiSalvo 2012, p. 63). The act of *reconfiguring the remainder* for this research thus became translating the calico reconfigurations into athleisure garment prototypes that put the female body in the centre of experimentation and deploy labour to care for its mobility needs.

To compare the capacities provided by some of the studio samples vs. conventional athleisure clothing, some of the sections of the author’s old athleisure garments were replaced with a combination of smocked and pleated calico (Fig. 4). The modified garments were tested while exercising. the notes from these observations were used to make further garment amendments and final garment prototypes (Pervez, 2022, p. 130-136).

3.2.4 *Preliminary observations from agonistic reconfiguration*

The researcher observed that the amended garments were comfortable. The calico sections were breathable and allowed good airflow, but they were not quick drying when sweaty, and the exercise needed to be paused to allow drying. The manipulated calico parts had limited stretch in comparison to the plastic-based parts. Due to the fragility of stitches in the smocking part, there was a risk of unraveling some of them if the movement was too aggressive. This natural fabric behaviour highlighted caring for all garments, even those intended for everyday mobility and exercise use. The craft-based premise of making athleisure garments affords them the possibility to be seen as a fashion genre

where slow making, care for materials and body movement are at the centre of attention, which is important for the practice of circular economy (Tab. 2). Furthermore, this approach allows a continued dialogue about aspects such as time in the studio (making) vs. time in use (consumption), material (natural vs. blended), the female body and labour (labour of getting fit vs. labour of dressing up to seem as fit and the labour taken to maintain those expressions and positions) through the process of forming an agonistic collective which is discussed in the next section.

4. METHODOLOGY

4.1 Forming an Agonistic Collective: Exploring alternate relationships between a research-based maker (labour), natural fabrics (material), hand-stitched smocking technique (process), and a moving female body (user)

In adversarial design, “the tactic of *articulation* constructs linkages between objects, people, and actions that transform them into an *agonistic collective* — an open space of contest in which the elements gathered together can act out a plurality of conflicting practices, values, and beliefs” (DiSalvo, 2012, p. 96). Although athleisure clothing has helped break down the divide between the work, social and leisure persona, it has also created a uniform-like identity of its own. It is hard not to imagine tight black stretchy pants while thinking about athleisure clothing. Similarly, avoiding that materiality when buying or making athleisure is also hard. But one can always ask what it would look like to construct athleisure garments with time, craft, the female body and labour collaboration. What would they be made of? How would they enable movement? How would they behave? How would they feel? How would they be received as opposed to conventional athleisure garments? To find the answers to these questions and explore these nuances, the

act of *forming an agonistic collective* was staged to experiment with complete garment prototypes with smocking.

After experimenting with multiple natural fabrics, the results with linen were found to be the most appropriate. It was lightweight, natural, breathable, undyed, had good length and flexibility, and smocked very well. It was further decided to use a crosshatch smocking pattern since that allowed the most flexibility and four-way stretch. The author decided to make a basic crop top, pants, and an experimental wraparound jacket. All of them could be worn separately or together to assemble different looks.

These garments served as devices of articulation that connect the maker, craft, time and natural fabrics to develop alternate athleisure garment alternatives that otherwise do not exist. Further to these devices of articulation, the author partnered with a dancer and yoga practitioner, a photographer, and a stylist to use and interpret the garments through a collaborative photoshoot so that these devices of articulation could be tested. This became an agonistic collective through an adversarial design process because products designed under adversarial design do not merely show that the alternatives exist. Instead, they provide spaces and environments to interact with the products made with adversarial design intention.

4.2 Planning the prototype garments

The garment prototype making started with the crop top and then progressed towards larger-scale and more complex pieces (Pervez 2022, p. 137-158). Earlier experiments showed that planning is essential for making athleisure garments with the smocking process because the technique is inherently zero waste. One must carefully utilise the entire width of the fabric and take twice the required length to account for shrinking after smocking (Fig. 5).

The jacket/wrap-around piece made for this research was intentionally the most experimental. The entry points into

the garment were randomised because the author wanted to shift the agency in the use stage and let the wearer decide the wearability. To provide maximum flexibility for it, a network of drawstrings was provided that could control the garment. It had seven sleeve and collar options. Any of them could be used to enter the garment, or the user could figure out other creative ways to wear it.

5. RESULTS

- ♦ **Fitting:** In the testing and photoshoot collaboration, the garments fitted well, were comfortable, flexible, soft to the touch, enabled the body to move freely, were stretchable and allowed good airflow around the body;
- ♦ **Wearability and Durability:** The wearability of garments was easy and intuitive (Fig. 6). Even though the pants were not tested to the limits, they were still strong and durable;
- ♦ **Stretch and sweat-wicking:** Although the garments were not intended for intense fitness activities, they were still tested with a 45-minute yoga flow. It took considerable time for the pants to dry after intense sweating due to the amount layered of fabric required for smocking.
- ♦ **Styling and playfulness:** As intended, the wrap-around garment turned out to be the most playful of the prototypes. It could be worn through the sleeves and tied up to encase the body or used in other creative ways as desired by the collaborators. The drawstrings added further character to it and acted as an aid for different placements (Fig. 7).
- ♦ **Visual appeal:** All collaborators observed that although the garments were free of any colours or printed patterns, they looked interesting due to smocking. Smocking, therefore, provided functionality and ornamentation to the garments. It was important to note that though

this research started with using smocking for its technical advantage, its aesthetic quality is also valuable and adds to the visual appeal of the garment.

6. CONCLUSIONS: EXPLORING A RESEARCH-BASED DESIGNER'S AGENCY TO MAKE ATHLEISURE GARMENTS THROUGH ADVERSARIAL DESIGN

Making redefined athleisure garment prototypes under adversarial design parameters and extending them to collaborators for experience completes the process of *articulating an agonistic collective*. But, more importantly, these garments disassemble many conventional athleisure clothing myths. A detailed account of these observations is expanded in Pervez, 2022 (p 164-166). A brief account is discussed here:

- ◊ **Sustainability and ethical factors:** The garments prototypes made under this research give practical evidence that it is possible to develop athleisure garments free from the politics of geographically disconnected supply chains and the hegemony of plastic-based fibres, toxic chemicals and a multiplicity of factors that destroy earth's ecosystems including waterways, farmable land, and air quality.
- ◊ **Slow making and labour relationships:** Developing athleisure garments through smocking allowed the researcher time to slow down and reflect on the making process to engage critically with aspects of the supply chain that are not always made prominent to achieve a collective circular economy. Some of these relationships include bypassing the retail and distribution channels and making a direct link between the user, materials, the female body and the maker (Tab. 3).
- ◊ **Materiality:** It is also important to note that although the athleisure garments produced in this research were free from any colours, plastic-based materials or printed

patterns, they had a unique look and movement due to smocking. Smocking, therefore, provided functionality, but also pattern, texture and ornamentation to the garments.

It was important to note that though this research started with using smocking for its' technical advantage, its' aesthetic quality is also valuable and adds to the visual appeal of the garment. It indicates that there is value in continuing this research and exploring further possibilities afforded by craft-based practices, critical and slow-making, natural materials and hand-stitching techniques to make athleisure garments.

FIGURES



Fig. 1 Lululemon x Roksanda FW 19 athleisure collection (Dion, 2020).



Fig. 2 Sample 1 – Pinched Diagonal Stretch (diagonal stretch in the opposite direction of the smock).



Fig. 3 Sample 2 – Crosshatch stretch (linear and diagonal stretch).



Fig. 4 Wearability of the modified running top and shorts.

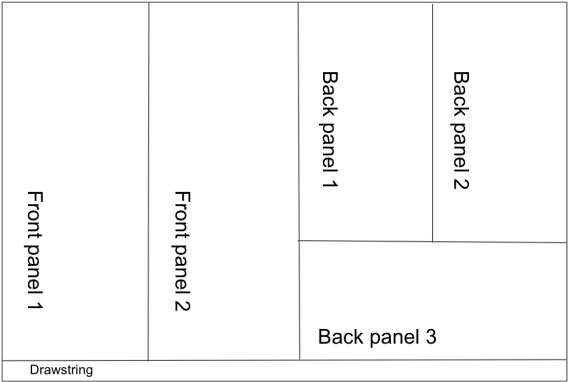


Fig. 5 Zero-waste garment patterns (Crop top).

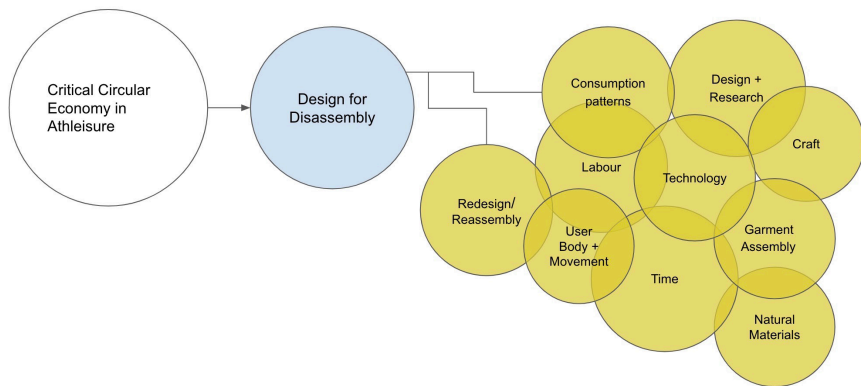


Fig. 6 Model performing yoga with the crop top and pants combination.

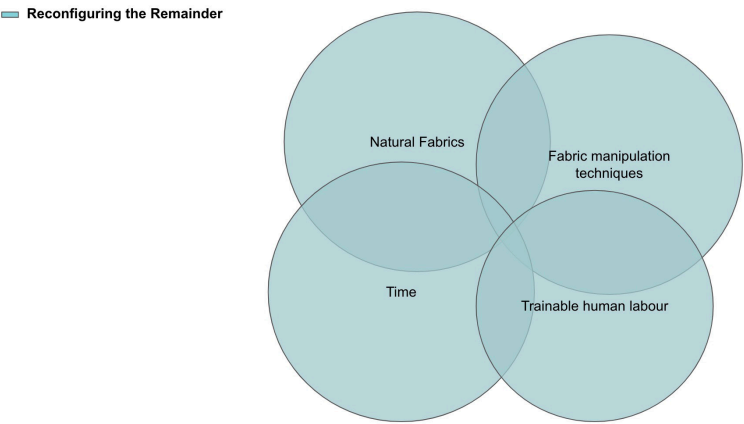


Fig. 7 The wrap-around jacket's wearability.

TABLES

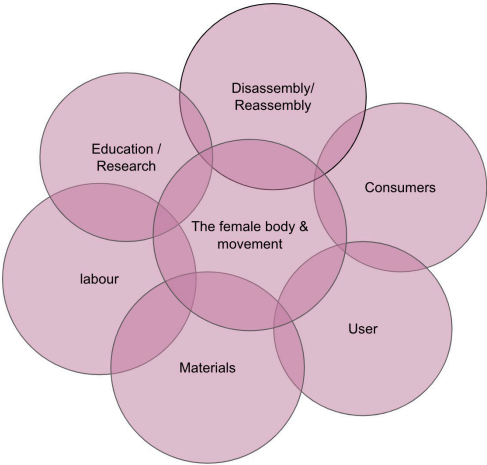


Tab. 1 Athleisure Design for Disassembly - Critical Proposition.



Tab 2 Reconfiguring the Remainder: Including the Excluded Factors.

■ New Agonistic Collectives & Alliances



Tab 3 Forming an agonistic collective: Extending critical adversarial design garment prototypes to collaborators for the experience.

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3 · 4 SUSTAINABLE FASHION AND AUDIOVISUAL PRACTICES

HOW THE FASHION FILM CAN RAISE ENVIRONMENTAL AWARENESS

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I. INTRODUCTION

Widely recognized as one of the most polluting industries on the planet, the fashion industry is increasingly embracing solutions to environmental problems caused by over-production and excessive consumption. As underlined by Vaccari and Vanni, although it is believed that fashion industries do not have moral obligations toward the future, the “association between fashion and a sustainable future is acquiring more relevance and communicative strength”, and in this context the “seduction of bio textiles, the zero-waste lifecycle and the use of new technologies in the garment industry are just some examples of the forward-looking agenda of 21st-century fashion” (Vaccari & Vanni, 2021, p. 3449). In the context of a growing demand for a better future and in order to fight the climate crisis, fashion industries have started developing new business models as well as using advertising campaigns to raise awareness of threats to the ecosystem. Furthermore, they have started to look for new ways to communicate and collaborate more directly with their consumers.

Due to its large-scale sensorial impact, fashion film has emerged as a new communication strategy, capable of influencing viewers or, at the very least, getting people to reflect on a certain topic. Fashion film can be considered a film genre characterized by its focus on fashion as a narrative and visual element; it is mostly a promotional tool employed by fashion designers and brands to market their products and ideas. These film forms allow costume to become a significant, sometimes dominant, element of the *mise-en-scène*. As a critical vehicle, the fashion film has started to stimulate debate around current issues, both ecological and social, of the fashion industry. As further evidence of this trend, some leading fashion film festivals have incorporated this topic into competition subdivisions, creating new categories that involve sustainable realities within

the international fashion scenario – such as the *Best Green Fashion Film Award* at Milano Fashion Film Festival or the *Conscious Fashion Award* at A Shaded View on Fashion Film Festival, Paris.

Joining the current scholarly dialogue between film studies and fashion studies, this article is meant to investigate the principal transformations that fashion film practice – both commercial and non-commercial – is bringing to sustainable fashion communication. I will analyze a series of fashion films, some produced within the fashion industry, and others made by independent creatives. These films come from very different realities, use diverse aesthetics, and address heterogeneous audiences. This sample will show how this medium is used today to create more awareness of the issues caused by the fashion industry.

2. THE FASHION FILM: A DEFINITION

The term fashion film is a broad definition. It appears to be an umbrella term that accommodates and breaks down the boundary of a great variety of existing genres. Marketa Uhlirova, curator of the *Fashion in Film Festival* project, raised important questions about the legitimacy of the fashion film as a genre – given its cultural intermediality – and gave a proper analysis of the relationship between the fashion industry and the fashion film practice:

At first explored primarily by independent designers, stylists, and photographers, fashion film began to be adopted more widely around 2010 by brands and fashion magazines who were waking up to an ever-growing appetite for time-based creative content online and, consequently, the possibilities of creative expression and promotion in this sphere. Typically produced without the involvement of advertising agencies, and thus having the essence of authorial productions, fashion film was

embraced for its capacity to communicate in a less processed, less commercial tone, with an apparent capacity for seamlessly blending branding, creative, and entertainment elements. (Uhlirova, 2021, p. 354).

As a relatively new genre, the definition and boundaries of fashion film are still evolving and its potential for artistic and commercial expression is yet to be fully realized. Uhlirova also suggested differentiating between films in which fashion is the central concern (for commercial, creative, or aesthetic reasons) from those in which fashion is a subsidiary element. From the point of view of the language being used, the fashion film shows several elements from pre-existing audiovisual forms; by encapsulating a spectrum of film genres from traditional commercials to art films, from music videos to experimental shorts-feature film, the fashion film's ecosystem "crosses the creative industries of fashion, design, and image with the media industries of promotion, communications, and film" (Rees-Roberts, 2018, p. 21). The fashion film appears to be a super-short format, with a length that ranges from thirty seconds to one minute and a half, and it is particularly suitable for fruition on the internet and social media (Spaziante, 2017).

2.1 Promotional fashion film

Although the link between fashion brands and the audiovisual industry is certainly not a novelty, the fashion film is the evolution that fashion houses need in the digital era, forced "by the digital behavior of the young consumers, and distinctive type of experiential marketing" (Diaz Soloaga & García Guerrero, 2016, p. 49). As the natural evolution of the printed advertising campaign, nowadays fashion film is the perfect tool to communicate with customers and to build their brands. The term *promotional film* better captures the commercial nature of several moving-image productions "by differentiating types of fashion communication that

are straightforwardly commercial from those that are more conceptual, artistic, or experimental” (Rees-Roberts, 2018, p. 44). Scholars ① have highlighted some main characteristics of this sub-genre, that can be summed up as follows: the importance of the costumer’s experience, with a closer, interactive, and more intimate relationship; the pursuit of an aesthetic delight; the dematerialization of products: Fashion films set the product apart from its physical characteristics and, sometimes, it became a real subject of the narrative with their own life and personality (Díaz Soloaga & García Guerrero, 2016). Nowadays, in which the fashion designer operates as a creative director, the moving image plays an increasingly important role in the construction of fashion campaigns. Fashion films are now supported by a range of visual para-texts: Rees-Roberts suggested that posting teaser shots of individual looks from a collection, which are to be shared or reposted on the brand's social profiles, such as Facebook or Instagram, "aims to build up momentum until the release of the campaign film, which is now conceived as a social media event complete with a traditional cinematic release date. It is also a way to prolong a campaign across the season" (Rees-Roberts, 2018, p. 36).

A brief analysis of these fashion films' characteristics is in order. First of all, these promotional films show the presence of famous testimonials or top models; a main feature is the rather total lack of dialogue that is sometimes filled by a voice over. The glossy atmosphere that usually characterizes these films is created by the choice of exotic, prestigious and recognisable locations. These films often borrow from the language of contemporary art to create a unique and subjective viewing experience. Finally, music is also an important feature and involves well-known directors or musicians. These features can be incorporated in the *displaying dimension*, one of the four dimensions of a fashion film (Spaziante, 2017). Another type of dimension is the *narrative* one, that was clearly derived from contemporary

feature films and, more generally, from cinema language. A commercial fashion film nearly often shows a short or micro-story, with one or more characters acting. The *narrative dimension* has been recognized as one of the key elements of the fashion film, that establishes a “shift from the viewer as consumer to the viewer as spectator” (Khan, 2012, p. 237). The third dimension that is important for this analysis is the *aesthetic dimension*, that can be related to the brand identity as well as to a director’s aesthetic. Finally, Spaziante identifies in the promotional fashion film a *rhythmic dimension*, that is derived from the music video.

2.2 Non-commercial fashion film

Within the macro-genre of the fashion film, a label which gathers together products that differ greatly in terms of production context, purpose, technical-stylistic characteristics and duration, it is possible to identify a self-reflexive sub-genre, that we can define *non-commercial*, which investigates the fashion industry itself and its representation. Although the analysis of the fashion film has mostly focused on the promotional sub-genre, it does not always have a commercial purpose and it is not always a direct expression of a fashion house.

In these cases, the fashion film is used as a communication tool by magazines, video-makers, independent or young designers, organizations and activists to build an emotional connection with existing and new costumers or viewers, and it is an effective medium to raise interest on fashion in the digital age. This trend becomes more evident if we take a survey on the multitude of films presented at fashion film festivals. Festivals are focused expressly on fashion film with the aim to foster creative exchange among image-makers, producers, and agencies working in the industry: Diane Pernet’s Paris-based A Shaded View on Fashion Film (the first festival that used the definition of fashion film, since 2008), Constanza Cavalli’s Etro’s Fashion Film Festival

Milano, Niccolò Montanari's Berlin Fashion Film Festival, Ditte Marie Lund's Copenhagen Fashion Film, and others.

The FFFMilano, for example, can be considered as a mixed space crossed by commercial interest, specialized fashion knowledge and tourist trajectories and it is one of the oldest fashion film festivals in the world (founded in 2013); it includes non-commercial films into his competition. Starting from its first edition, FFFMilano aimed at being a place where the audience can engage with sustainability and, in 2018, a new category was created. Among its sixteen categories, the *Best Green Fashion Film Award* intercepts artworks that, with traditional or experimental language, reflect on problems related to the fashion industry or use fashion as a tool to think about urgent issues, such as environmental problems. The fashion films which circulated in the dedicated festivals are usually niche products, rarely attended by celebrities and realized for an online dissemination.

3. A NEW WAY TO EXPLORE THE FASHION INDUSTRY

Having identified the main characteristics of the fashion film genre and made a necessary distinction between promotional and non-promotional fashion films, I can proceed analyzing a sample of films that can be considered as a critical vehicle realized to stimulate debate around current issues in the fashion industry and to make the viewers more aware about the social and environmental problems. I am going to start exploring some fashion films which are produced outside the fashion industry and, more precisely, realized without a commercial purpose. These fashion films leave traditional narrative cinematic languages and glamour aesthetics, which have been featured fashion advertising spot, to a new innovative and experimental language. They draw their roots in experimental cinema, video art, videodance, music video, and performing art. In

particular, the incorporation of videodance and music video is not limited to a mere citation of forms, images and acts, but is aimed at greater interaction and involvement with the viewer, due to the presence of the performers' bodies, which is at least as central an element as the dress.

Directed by Hernán Pérez and produced by X-presion Creativos②, the first creative studio specializing in research, development and innovation in the hairdressing industry, the fashion film *Pollution* was nominated in 2016 at La Jolla Fashion Film Festival, an annual three-days international festival, founded in 2010 and held in California. Inspired by the effects of contamination, the film aims to raise awareness of waste emissions and air pollution, generating a strong visual impact. The project brings together some of the most relevant professionals in their disciplines without any commercial purpose, using the power of fashion as a means of protest. A total of 30 professionals took part in this production. X-presion, together with the costume designer Carol Gamarra and the performer Lasha Demestresvelli realized a costume collection specifically for the film; a series of garments were designed with ideal fabrics, silhouettes and accessories to convey the concern about pollution and its harmful effects. Hair was also processed and headgear was made from plastic, fiber, silicone and pins to simulate the texture and appearance of natural hair.

In essence, a kind of coexistence was created between the natural and the synthetic. Graphic elements and special effects give the idea of toxic air. As is evident in the first half of the film, the dark colors (in shades of blue, grey and black) give the viewer a sense of suffocation, as does the artificial smoke. The black dress of the first performer and the mask of the second performer are made to arouse a sense of fear (Fig. 1). The broken movements taken from contemporary dance practices and the use, in filming, of slow motion as opposed to acceleration also contribute to

create a hostile and uncomfortable atmosphere. On the opposite, the second part of the film shows the positive effects of a return to a decontaminated atmosphere: The female figure (reminiscent, among others, of Fritz Lang's *Metropolis*'s Maria), white dress, with loose and light-coloured hair is the symbol of this purification. The filming and direction of the film by Pérez was enhanced by graphic elements and special effects to deliver: Concern for the environment. This project is a continuation of the previous campaign *One comb, one tree* launched by X-presion, to repopulate the burnt forests of the Sierra de Gredos (a mountain range in central Spain) and part of the profits obtained has been used to plant new trees in this forest.

In the last few years – as evidence of interest in fashion industry issues – some leading fashion film festivals have incorporated the sustainability topic into competition. Among several interesting films, I will focus my analysis on the first winner of the *Best Green Fashion Film Award* at FFFMilano, that is an interesting case analysis, for several reasons: Firstly, it belongs to the sub-category of non-commercial fashion film since it is not produced by a brand; secondly the film uses a rather mainstream narrative (very different from *Pollution*'s experimental one) to better capture the attention of the average viewer; unlike most of the fashion films about sustainability, which focus on the environmental problem, this film is part of the *#FashionRevolution* campaign, that aims to raise awareness on workers' exploitation in the fashion industry.

Who Made My Clothes? (2018) was the first winner of the *Best Green Fashion Film Award* at FFFMilano. The film is directed by MJ Delaney and produced by Futerra, an international agency founded in 2001 and specialized in branding, strategy, behavior change and consumer campaigns in the field of sustainability. As a training agency, Futerra works across continents to deliver sustainable development solutions that help make the earth a better place, as a

communication agency it published in 2008 the *Greenwash Guide*, that can help consumers to spot and avoid the 10 signs of greenwash. *Who Made My Clothes?* was released to mark the start of Fashion Revolution Week and brings together the stories of the invisible people who make clothes around the world, with the *fil rouge* of a dance inspired by different cultures. The video is like a flow of bodies moving, choreographed by Christopher Bordenave (Fig. 2). Characters hailing from different countries – Nigeria, Bangladesh, China and Italy – dance to an impactive, rhythmical music, and movements are accelerated and decelerated in synchrony with the soundtrack. As it is increasingly in fashion film's practice, the dancer becomes a performing element: This creates a link with *screendance* (Amaducci & Manca, 2021). As the dancer does, the dress turns into a preforming element, taking into life and moving together its creator. The audiovisual mediation of a choreographic performance has complex implications that cannot be discussed in depth here.

As pointed out by D'Aloia in his analysis of Kenzo's commercials (2020), performance studies are of great interest in fashion film's analysis, mainly due the concept of *kinesthetic empathy* (Reynolds & Reason, 2012). Watching a dancer's performance on a screen elicits in the viewer "the tendency to move and evokes the sensation of movement on the base of neural mirroring mechanisms that support the internal simulation of the observed movements, as well as on proprioception and activation of other non-audiovisual sensory dimension" (D'Aloia, 2020, p. 110). Following a trend in contemporary fashion film practice, *Who Made My Clothes?* guides the viewer in visions of imprisonment and dreamed freedom, made particularly strong by the choreographic interpretation of the dancers/workers: The dancing bodies "activate a kind of participation that involves the viewer's physicality and the sensoriality by virtue of a motor and affective resonance" (D'Aloia, 2020, p. 110). The

music draws inspiration in each scene from the part of the world depicted and every scene is linked to the next – with the orange piece of fabrics – showing how these people are all connected by the same chain. The film aims not only to awaken consciences, but also to make a younger, global and fashion-loving audience aware of the lives of the people in the fashion industry chain, who often live in poverty, exploitation or danger. As the director of the film stated:

We're surrounded by the media telling us we need to have an entirely new wardrobe with each passing season, but for most of us it's not affordable to do that ethically. We need to be more conscious about where we're shopping, what we're buying, and who was involved in the production of the garment. Buy quality, buy less. It's about shopping clever (Nyfeler, 2018, para. 11).

Following this type of production, a series of fashion film have been released and selected by the Milano festival in the following years. Among them, *The Unseen* (Fashion Film Festival Milano, 2019), an experimental journey (realized by William Farr and Jon Emmony for Nowness) with the environmental activist Satish Kumar who explores the grotesqueness and beauty of man's interaction with the planet,^③ and *We Got Your Back*, by Elvin Jay Macanlalay, (Fashion Film Festival Milano, 2021), a film about the social enterprise Taclob (Philippines), which employs disaster survivors and people with hearing impairments to create fashionable bags made from reused clothing that respond to responsible and sustainable consumption. Finally, it is worth mentioning the film *Preservation of Hezhen Fish Skin Tradition Through Fashion Higher Education* by Zhongjin Zhang for Fishskinlab, winner of the *Best Green Fashion Film 2021 Award*. Directed by Elisa Palomino, Zhongjin Zhang and Joseph Boon, the film is a medium-length documentary that “identifies the historical, cultural, environmental, and

socio-economic importance of fish skin as an innovative sustainable material, and proposes a vision of sustainability as an anthropological study of the resourcefulness and resilience of the Hezhen indigenous peoples, their lifestyles and fish skin practices” (FishSkinLab, 2021, para. 4). The documentary (Fig. 3) is one of the outcomes of the FishSkinLab project, that “aims to generate a deeper understanding of fish leather as an alternative to conventional leather to encourage more sustainable fashion practices” (Palomino, 2022, p. 1).

In the last two decades brands have discovered the advantages of fashion films practice and the power of seduction of these audiovisual products, as they secure a more engaging and collaborative experience than traditional advertisements. I will focus now on a film produced by the Anglo-Nigerian designer Adele Dejak. Adele Dejak is an African luxury fashion and accessories brand, founded in 2008 in Nairobi, which represents style and quality, designed and handmade in Kenya using reclaimed and recycled materials from across the African continent. Their products are original and unique pieces made by recycled metals, brass and aluminum, Ankole cow horn, Maasai and West African glass beads. The company has invested in communities in East Africa by training people in new skills to enhance their livelihoods and contribute to the local and global community: The brand trained refugees in Kakuma to produce the pieces to earn money usually to educate their families. Inspired after seeing their early collections of bags made from recycled rice sacks and cement bags, a coordinator of the Lutheran World Foundation contacted the brand to collaborate with refugees of Kakuma (Dadaab) and training them to make bags from donated food sacks which they could then sell. Tailors and Production managers of the brand travelled to Kakuma to train selected refugees and equip them with new skills to earn a living. This program gave the refugees a new skill as well as a sense of purpose.

At Cape Town Fashion Week 2018 Adele Dejak launched the *Love* collection, created using the opposing yet essential life-giving natural elements of fire and water as inspiration. The film *I'm Africa* (AFI Fashion Film, 2018) has been produced by the brand in collaboration with African Fashion International (AFI) to launch its collection of statement, tribe-Inspired accessories. The film examines the ancient Maasai tradition as proof that the future of fashion is to be found even in its past. It shows the lifecycle of a piece, jewellery or garment, from where and how it is created, and focuses on the material and sensory aspects of fashion. The film opts for the representation of the natural elements, through impactful images and sounds. The audio — both sound and music — is as integral to this film as style and contributes to visualizing the theme of natural elements. The aim is to attract attention through all senses: Fire, which can destroy but can also create, water, which is a symbol of life and celebration, and soil are essential elements for fashion and jewellery. At the same time these elements are necessary for human and planet survival. Water, fire and soil as well as garments become significant elements of the *mise-en-scène*, dominating the dramatic structure, narrative composition, and thematic content of the film (Fig. 4). In the context of a growing demand for a better future Adele Dejak started using advertising campaigns to raise awareness of threats to the ecosystem; the fashion film *I'm Africa* can be considered a significant example of how a sustainable fashion company uses the fashion film for a commercial purpose and, at the same time, to address the issue of sustainability.

CONCLUSIONS

In the present day, the fashion film is an integral component of brands' digital marketing strategies, and an innovative form used to establish more direct relationships with

consumers. As seen in this brief survey, the fashion film can also raise awareness about urgent issues in the industry and promote sustainability through circular economy practices. Since the fashion film is the natural evolution that fashion brands must undergo in the digital era (shaped by the costumers' digital behavior), and seeing as the interest and demand in eco-conscious and ethical fashion is growing, fashion film must be considered for its impact on the contemporary sustainability turn.

Media studies have already witnessed an emerging interest in fashion film, seen as one of the leading trends not only among audiovisual media, but also in the fashion scene. As Uhlirova underlined, one of the main characteristics of fashion film, which can be related with the *cinema of attractions* or the *early cinema*, is to treat dress as a visual, affective and performative phenomenon. This explains why, in fashion film practice, dance is heavily used: The dancing bodies or garments activate a strong physical and emotional viewer's participation. In what might be called green fashion film – a sub-genre of fashion film^④ – the protagonist is no more the dress, or the accessory, but the message, reflection on fashion. Adopted by brands to gain large-scale sensorial impact on international consumers, these films not only are especially important within the global economies of symbolic cultural productions, but also gain relevance for their ability to circulate ethical ideas and practices. Regardless of its commercial or not-commercial purpose, this audiovisual product is made to offer the audience a chance to expand the culture of sustainability and shows a narrative involving sustainable realities. Its creative purpose is to make moving-image statement about fashion, showing perfectly the distinction between the concept of cinematic representation and presentation (Uhlirova, 2021). As a new audiovisual genre capable of generating an innovative vision of fashion, mixing research languages, and circulating through different web channels, the fashion film

practice is an important tool for the dissemination of a new idea of fashion.

FIGURES



Fig. 1 Frame of the fashion film **Pollution**, 2016, © X-presion producciones.



Fig. 2 Frame of the fashion film **Who Made My Clothes?**, 2018; © MJ Delaney and Futerra.



Fig. 3 Frame of the fashion film **Preservation of Hezhen Fish Skin Tradition Through Fashion Higher Education** by Zhongjin Zhang for Fishskinlab, 2021; © FishSkinLab.



Fig. 4 Frame of the fashion film **I'm Africa**, 2018; © Adele Dejak

NOTES

①: For a deeper analysis of promotional fashion films, see the works of Diaz Soloaga & García Guerrero, Scaglioni & Suma, Ramos & Pineda, and Uhlirova.

②: Based in Madrid, X-presion Creativos is the first company dedicated to R&D in the artistic field of hairdressing industry, developing new techniques of cutting and coloring (they realize the Pixelated Hair using a revolutionary technique).

③: Winner of the Best Green Fashion Film 2019 Award.

④: I use here for the first time the term *green fashion film* referring to the homonymous award category introduced by the FFFMilano in 2018.

AUTHOR BIOGRAPHY

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3 · 5 THE INVISIBLE FUNGI

*GROWING FASHION AS METHOD FOR HUMAN/NON-HUMAN
COLLABORATION*

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I. INTRODUCTION: DESIGN FOR THE SIMBIOCENE

Fungi are small and marginal organisms whose significance has long passed secondary (Rigotti, 2017), nonetheless they are unsettling today's culture and imaginary due to the increasing popularity within the literary debate – not restricted to the world of fashion. The growing interest in fungi by emerging fashion brands, designers, and research centres, inspired my ongoing doctoral research on which this contribution is rooted. The specific focus here is on mycelium-based applications, to analyse the renewed relationship instituted between designer and dress directing towards sustainability. Fungi are protagonists of a growing trend fascinated by smart and sustainable manufacturing that utilise biological growth to upcycle agricultural and forestry residues into cost-effective, highly versatile materials (Srubar III, 2020; Gandia et al., 2021). They are organisms part of a kingdom on their own ① whose hidden, invisible roots constitute the mycelium: an entangled web of generations that potentially make fungus immortal. Despite humans, for whom identifying the border where the individual stops and another starts was given for granted before medical artificial implants, fungi are born of continuity (Sheldrake, 2020, p. 22). Mycelium, in mycorrhizal relationships, allows fungi's reticular hyphae system ② to connect to certain types of higher plants in order to mutually exchange nutrients – but not only or always. Within the current existential and economical crisis, characterised by the scarcity of resources, fungi are taken as the representation of the natural element of the earth. They are seen as a living, concrete example of the possibility to destroy but also to reconstruct from the rotten, inspiring alternative practices of interspecies interaction. Fungi seem able to contrast what Albrecht (2019) defines as the epoch of *solastalgia*, marked by highly individual experiences in dealing with climate disorders, where many primitive emotions

long suppressed struggle to re-emerge. These consist of the *psychoterratic* emotions or *eco-emotions*. As a consequence, to the extent of healing the pathologies of our century, Albrecht substitutes the term Anthropocene with Symbiocene: an invitation for the humanity to reconcile the separation with nature. Whereby items made of alive matter appear to play a central role.

The contribution adopts the theoretical approaches of posthumanism and new materialism to re-define the role of materials. The first paragraph focuses on the main philosophies sprouting from the posthumanist trend, which de-construct the imaginary of individual to introduce the concept of symbiosis and interspecies design, drawing a specific notion of sustainability. The second focuses on the new materialist turn and its implications, by examining and re-elaborating the notion of growing design. The objective is to investigate how the use of mycelium in fashion influences primarily the design process and secondarily the items perception, as it requires dealing with living organisms and their life cycle. Nonetheless, to probe limits and potential of interspecies collaboration, in order to demonstrate if we can talk about mycelium for fashion in terms of productive and (mainly) cultural sustainability, by applying the notion of *growing fashion*.

2. POSTHUMAN FASHION: TOWARDS CULTURAL SUSTAINABILITY

Posthumanist philosophies offer the possibility to review the way of studying and making fashion going beyond its traditional anthropocentrism. In this direction, the contribution aims to demonstrate how fungi are capable of triggering the overcoming of individuality in favour of collaborative, interspecies systems. The discourse on the posthuman was initially translated into fashion studies by Smelik (2020; 2021) and Vänskä (2018). Unlike the two scholars, who focus respectively on the human-technology

and human-animal relationship, the posthuman tends here towards a communion with the organic, inanimate world. Recalling the definition of Symbiocene, derived from the concept of symbiosis coined by biologists Margulis (2008) and Gilbert et al. (2012), it implies the association or coexistence of different species. According to the endosymbiosis theory, some forms of life do not only live next to us but inside of us, blurring the distinction between host and parasite (Margulis, 2008). Haraway reworks this concept as *sympoiesis*, featuring shared configurations called *oloents* (Timeto, 2019). Hence, the urgency also for fashion design to welcome forms of living or organic otherness, usually unfamiliar, in order to establish an ecology of intimacy (Moradei, 2023).

In the saturated debate on the issue of fashion industrial unsustainability, it is fundamental to underline the relevant role played by material experimentation. Badalucco and Cristofoli Ghirardello (2020, p. 30), agreeing with Ricchetti (2017), assert how the growing sensitivity towards the environmental impact of fashion has determined a renewed interest in the exploration of innovative fibres and materials. Demonstrating how simple ingredients can be alternative solutions to overcome costs, time, massive production (Pylkkänen et al., 2023, p. 10). To be noted, however, how on the one hand fungi seem to introduce new positive practices – as demonstrated by Tsing (2015) in her anthropological studies linked to the matsutake picking – while on the other they could become the new fast fashion of materials, leading to unsustainable drifts of this resource. In this particular frame fashion, which has more or less consciously used natural resources and fibres since its origins, thanks to the use of organisms like fungi becomes a key to criticising cultural and design historical anthropocentrism by de-centring the human and re-centring interspecies relationships. The posthuman condition is an opportunity to encourage the search for alternative patterns of thought,

knowledge, and self-representation to the dominant ones, necessary to face a profound transition (Braidotti, 2020, p. 18). These thoughts open to a perspective oriented towards an interspecies design practice (Roudavski, 2021), strongly entangled with interspecies art forms (Mohajer va Pesaran, 2017). Interspecies is a term used in biology to define a relationship between organisms belonging to different species that share the same ecosystem, to be distinguished from the term multispecies, which indicates something that is aimed at multiple species.③

The inflation in the use of the term sustainable makes it essential to explain that the vision of sustainability embraced here is strongly connected to the cultural dimension. Cultural sustainability is the fourth pillar of the sustainable development plan, as from the World Commission on Culture and Development 1995 report.④ Linked to this notion is the idea of sustainability as ethics of care, drawn by Smelik from the feminist studies of the nineties on the politics of interdependency.⑤ In this direction, it is eye-opening the on-going testing of an engineered mycelium 3D printing system to create living complex materials able to self-repair, regenerate, and adapt to the environment (Gantenbein et al., 2023). Similarly stimulating is the project *Mending with mycelium* by researcher Emma Huffman. The act of design for care aims at the recovery of worn out shoes, mended by the growth of mycelium inside sole-shaped moulds⑥ as well as the workshop entitled *Moda interspecie. Progettare con i funghi* (20 October-24 November 2022) held at Università Iuav di Venezia as part of my PhD investigation, which explored the parallelism between a collaborative fashion design approach using fungal material and the engagement in mycelium cultivation.

3. NEW MATERIALIST DESIGN: GROWING FASHION

The overcoming of anthropocentrism advocated by posthuman studies appears possible through the reinterpretation of what Deleuze and Guattari (2007) defined as *becoming*, more specifically *becoming-animal*. Concept that Haraway (2019) develops in *becoming-with* that is to *become-with-the-other*, indicating an interactive rather than transformative form of entanglement. These notions are paraphrased in *growing-with*, a process which stands for to *grow-with-the-other*. This is made real through unprecedented experiences featured within the debate on *growing design* (Ciuffi, 2013; Camere & Karana, 2017). Growing design is defined as the manufacture of materials and products from living organisms, frequently according to do-it-yourself type of practices (Karana et al., 2015); often generically associated with biodesign (Myers, 2012, p. 8) or bioart (Myers, 2015). Similarly, professor and practitioner Collet (2017; 2021) theorises *biotextiles* or *grow-made textiles*. In general, the notion of growing design appears to be addressed as a design procedure, hence a gap in the theoretical contextualisation that this investigation intends to fill. Through the case study, the notion of growing design is re-elaborated into growing fashion. In this context, advanced fashion experimentation is seen as trailblazer in the primary translation of solutions for the industrial supply chain and in challenging the cultural paradigm.

A first translation into fashion studies of the new materialist approach is again provided by Smelik (2018), who inscribes fashion within the current *material turn* referring to Barad (2003) – a movement which touches multiple disciplines. For the purpose of the research, it is relevant to remark the possibility that fungi offer to go beyond the iconographic representation to establish an intimate experiential connection between body and dress. In contrast with the example provided by the work of designer Iris Van Herpen,

limited to drawing pure inspiration from the fungal world for her *Roots of rebirth* 2021 collection. The new materialist perspective includes the vital and *vibrant* components of matter proposed by Bennet (2010), which recognise the performative autonomy of both humans and non-humans (Barad, 2017). Alive matter finds an interpretation in the concept of *neomateria*,^⑦ derived from the contraction of the Italian words new and material, which indicates the object of a renewed modality of interaction with material resources (Baldelli et al., 2023). It outlines a perspective aimed at re-balancing the relationship between designer and nature, where the material becomes the starting point and centre of attention.

4. FASHION MYCELIUM-BASED APPLICATIONS

Despite the craze for fungi in academic and non-academic environments, the studies carried out on fungi-based fashion applications are still scarce, incomplete, and sometimes imprecise. Therefore, the relevance of this contribution. This paragraph presents an overview on contemporary uses of mycelium in the fashion industry. It shows the overall advancement of the main technologies and identifies its players in the worldwide panorama.

In the fashion industry and research fungi are transformed into faux hide made of mycelium or of parasitic fruiting body, and used as natural ink. Among the pioneers of mycelium leather are the R&D centres: Bolt Threads with *Mylo*,^⑧ MycoWorks with *Reishi*, Mogu with *Ephea*[™], Ecovative with the AirMycelium technology using solid state fermentation.^⑨ Their final products are very similar to synthetic leather from petrol, even if their characteristics and composition may vary.^⑩ Except for Mogu, based in Milan (Italy), all the rest are based in the USA (the first two in California, the second in New York State). *Mylo* was first adopted in 2020 by Adidas for the iconic *Stan Smith* model,

and by Stella McCartney for a selection of garments and accessories.

A further development of *Reishi*, called *Sylvania*, in 2021 took the form of the Hermès *Victoria* bag, which remained only in prototype stage (Lottersberger & Celeste, 2021). *Ephea*TM has been used for outerwear and accessories by Balenciaga for the Fall/Winter 2022-23 collection. From a material perspective, mycelium leather constitutes a material made mostly – but not always only – of a compound of lignocellulose substance derived from fungus enzymes action of soil degradation (Jegadeesh et al., 2022, p. 2; Kumla et al., 2020). As their cell-wall components are not constant, atmospheric agents can provoke degradation; therefore, processes of plasticising,¹¹ coating, crosslinking, and other applications are fundamental but should be compatible with mycelia biomaterials (Jegadeesh et al., 2022, p. 15).

It must be pointed out the difficulty in collecting technical material information and TRL¹² data from producers and suppliers, due to the industrial secrecy characterising material R&D working environments. At a pilot scale, is VTT Technical Research Center of Finland primed technology for the production of a continuous mycelium film using submerged fermentation inside bioreactors, process that takes about six days (Vandelook et al., 2021), which results into a material similar to a latex membrane. Meanwhile, Neffa in the Netherlands has introduced an innovative technology to 3D model mycelium for clothing, avoiding seams and material waste. On the more experimental side, mycelium opens to the opportunity of dealing with a living organism – as previously illustrated – for potential surface repairs or sizing adjustments. Even if these examples present solutions that cannot yet be scaled, they are significant in this context, as demonstrated by the following case study.

5. THE CASE OF PAULA ULARGUI ESCALONA

Paula Ulargui Escalona (hereinafter referred to as U. E.) is a Spanish designer, whose work is exemplary of how a living organism can collaborate to generate garments and accessories.¹³ She studied at IED University in Milan and Madrid. Currently, she is engaged with personal fashion and textile research projects, besides working as sustainability consultant for the industry. Even if in my research I have noticed some recurrences, apparently there is no linkage for the designer's work to be set in Spain.¹⁴ The interview allowed collecting qualitative data regarding the grass-germinating pieces developed with Loewe for the Spring/Summer 2023 menswear runway show held at Paris Fashion Week 2022, under the creative direction of Jonathan Anderson (Fig. 1), which have made her internationally known. Plus, it allowed investigating on her independent mycelium *Mutualist nature* project (Fig. 2). By seeing her early works on living garments, Loewe proposed her a collaboration that lasted about four months before getting to the catwalk – considered the conspicuous trials supported by a gardener (Figs. 3-4). These one-of-a-kind grass-germinating pieces weren't meant to go into production, as stated by U.E. (personal communication, February 3, 2023): “[...] when we talk about natural living materials, we can't speak in terms of usability or production”. As I tried to check what happened to those pieces after the show – if they had been planted, sold as limited editions, archived, or thrown away – it was interesting to learn how she was not aware of it. She explained how she kept some pieces for herself, but being living garments after a few weeks they dried and died. She answered this question showing a picture of a pair of grass-dried Loewe sneakers. Most surprisingly for me, she seemed to find neither my query, nor the process of archiving such pieces particularly significant. The same reason why she has

been reticent to share pictures of their current state to be inserted into this article.

For the *Mutualist nature* project that resulted in a mycelium corset, an agronomist engineer supported her. The project took place in a dedicated room in her studio in Madrid. The process of environment sterilisation, the inoculation of the fabric, and the mushroom cultivation were very delicate (Figs. 5-6). The full project included the numerous testing, took approximately four months: It was a big challenge. “Anything, at every single stage, could have affected the whole project” she remarked. They tested two types of mushroom but the only one that worked was Oyster mushroom selected for two main reasons: it is one of the strongest species, and it is quite common in Spain. An overall important aspect that emerges from dealing with living textiles is the choice of the base fabric. Its fibres need to provide enough air and humidity to the guest organism, while the nutrients have to be necessarily inoculated. “In *Mutualist nature* the big challenge was not only growing the mycelium, but to make it grow inside the selected textile” explained U. E. She also clarified how the corset will not completely biodegrade because of the mix of fibres composing the fabric layer contained inside. This aspect opens to a contradiction, partially justifiable due to the highly experimental degree of the project. To the question regarding further development of the idea, she replied that the corset needed much engagement, however, “This is just the start, my goal for the mycelium textile is to manage the growth of multiple types of exotic mushrooms, more appealing for colours and shapes. Talking as a designer of course”. To be noted here the distinction that she sets in her hybrid nature of designer/material scientist, whereby the challenge to overcome the aesthetic limits of mycelium. Nonetheless, U. E. does not only refer to the aesthetic factor, but intends to exploit fungal medical properties for curing common human-fungi diseases: “This could open to

a new parameter for clothing design that includes healing”. She worked on the mycelium project during the pandemic, which was a useful moment for investing on experimentation but limiting to reach an audience. Only a girl tried the corset on when it was already dry, so there are no relevant proofs of wearing experience. As for the Loewe pieces, I checked the current state of the corset. In a former email she wrote that it dried and shrunk (personal communication, September 19, 2022, 09:22am), in the interview she hesitated, explaining that it was still in her studio but significantly damaged (personal communication, February 3, 2023. Following quotations *Ibidem*). Thus, considering that the garment would not have been shown at its best condition, she preferred again not to share images, limiting my research but stimulating my thoughts. In fact, a relevant aspect is evidenced: the disinterest and/or difficulty to display, preserve, and unveil the whole lifecycle of living garments, to witness their status beyond the luxuriant sprouts.

Some questions were then posed to investigate the kind of relation she institutes with her living textiles, for example, if she felt at ease or frustrated during these interspecies collaborations. U. E.:

“[laughs] Actually, every time I am invited for a talk I tell about this fact. All researches I held on the topic of growing materials have been very intense on a personal level and very important for my life. Because in the end, what I am trying to communicate with these pieces is to connect humans and nature, to make humans understand how to take care and be part of it. By spending hours checking each plant, each stem, being careful to water them well, controlling their life cycle... paying attention to all these details really made me develop a third sense”.

By reconnecting with nature she refers to what our ancestors used to do through animist practices that enabled them to decode the Earth signals. It seems that her commitment has been to create garments with a soul – her soul and the plants'. As a consequence, it is evident that the relationship established with the garments through the manipulation of living organisms generates a strong and affective bound; demonstrating a nexus to the notion of cultural sustainability as ethics of care, as well as to the natural element of the earth. Discussing the added value of using living organisms for fashion products she said: "I would never consider them products. Besides, my concept of design is to see myself not much as a creator but as nature's collaborator. This is how I work: I help nature to reveal its inner beauty". Positively surprised by the general growing sensitivity, U. E. reported: "One day, during a lecture, I mentioned the *Mutualist nature* project. Suddenly a girl asked if I considered myself a murderer – as if fungi were animals!" Fungi, in fact, can be cultivable or wild, thus subject to harvesting in their fruiting excretions. It is worth spending a reflection on the expression "mushroom hunting" as an alternative to "mushroom picking" (Hadke, 2015, p. 9), which by recalling animal hunting supports the breakdown of the hierarchies between animate and inanimate.

As a conclusion, it must be noted how even if the work of U.E. proves the potential of interspecies exchange and the added value of designing with living organisms in light of cultural sustainability, the sustainable aspect strictly connected to materiality slips into the background. Living textiles appear to be considered only at their fully living stage, while what happens after germination is secondary. Design for circularity in the industry is full of obstacles due to the complexity of the supply chain, but within research this should be an alarm to implement efficiency on the small scale. In the frame of this contribution, it appears fundamental to recognise to the process of degradation the

same importance as to its conception. This issue could be addressed to the traditional rush that nurtures fashion, its constant search for novelty, for life, manifesting – on the contrary – the urge to a shift of pace to re-tune on deeper cultural and emotional values.

CONCLUSIONS

Comparing the primary thoughts elaborated from posthumanism and new materialism with the information collected in the interview on the notions of cultural sustainability and growing fashion, a few connections as well as some contradictions upraise. Recalling the initial query, aimed at probing limits and potential of interspecies collaboration through living textiles to understand if (and how) we could talk about mycelium for fashion in terms of sustainability, a gap emerges: a short circuit prevents living materials to comply with the concept of productive circularity, hindering the full management of the process from germination to the end of life. The risk of this phenomenon is to confine experimentation into a pure paradigm of spectacle. On the contrary, the role of symbiosis is enhanced by U.E., who insists on the cultural and affective value of living textiles in inspiring more intimate relationships between wearer and garment, and most importantly during the design process. The invisible fungi addressed in the title of the paper, the mycelium, are brought from the dark of the subsoil to the surface of the debate, stimulating a multifaceted challenge. It is not a matter of mere substitution of materials and objects, nor it is enough or necessary to imitate nature; it is rather vital to reconfigure fashion traditional anthropological parameters by revising the perspective on the binomial human/non-human, and this is made possible thanks to fungi.

FIGURES



Fig. 1 *Germinating fleece trousers* by Loewe during the show. The visible humidity due to watering enhances the living nature of the garment (Courtesy Paula Ulargui Escalona).



Fig. 2 *Mutualist nature mycelium corset* photographed in her studio (Courtesy Paula Ulargui Escalona).



Fig. 3 Ingredients to grow plants on Loewe textiles (Courtesy Paula Ulargui Escalona).



Fig. 4. Grass cultivation on Loewe sneakers (Courtesy Paula Ulargui Escalona).



Fig. 5 Process of sterilisation and inoculation of the mycelium textile (Courtesy Paula Ulargui Escalona).



Fig. 6 Mushroom growth on the mycelium textile compound (Courtesy Paula Ulargui Escalona).

NOTES

- ①: Since 54 years fungi are no more considered plants but constitute a separate reign, including moulds and yeasts (Whittaker, 1969).
- ②: A social network defined in the nineties as *wood wide web* (Simard, 2021).
- ③: Tsing (2015) introduces the idea of *multispecies landscapes* in relation to the partnership between matsutake, pickers, and trading system.
- ④: Further information in Kangas et al. (2017).
- ⑤: The idea emerged in the seminars cycle *Fashion Matters: Beyond the Canon of "Made in Italy"* held by Anneke Smelik at Università Iuav di Venezia, 2-30 March 2022.
- ⑥: Further information in Huffman (2022)
- ⑦: The concept was conceived in the multidisciplinary PhD seminar *Green Studies: Traiettorie di ricerca* held at Università Iuav di Venezia, 13-14 June 2022.
- ⑧: Which has recently quitted the production due to a financial investment shift, event that for some marks the failure of next-generation materials (Bittau, 2023).
- ⑨: Further information on solid and liquid fermentation in: Gandia et al. (2021).
- ⑩: Further information in: Hakansson et al. (2023).
- ⑪: The most commonly used natural plasticising agents are glycerol, polyethylene glycol, PEG 400, mono/di/oligo-saccharides, lipids, and lipid derivatives (Janjarasskul et al., 2010).
- ⑫: Technology Readiness Level.
- ⑬: It is worthy a note that she repeatedly made a quite common yet significant mistake by referring to mushrooms as to plants.
- ⑭: The reference is to the project *Be grounded* by Lara Campos, Argentinian living in Spain. Who graduated at Fabricademy Barcelona, an institution strongly committed to biodesign.

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Clizia Moradei's (PhD in fashion at Università Iuav di Venezia) research themes include sustainable fashion practices with a focus on biomaterials at the intersection with botany, biology and new ecologies; the educational aspect intertwining visual arts, product, and fashion design; the relationship between design, craftivism, and industrial production.

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3 · 6 THIS IS NOT WASTE

*A DESIGN TOOLKIT TO ENGAGE BRANDS AND DESIGNERS IN THE
UPCYCLING OF PRE-CONSUMER TEXTILE WASTE*

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I. INTRODUCTION

1.1 The issue of pre-consumer textile waste

The textile and clothing (T&C) sector is known to be characterized by substantial losses, fed on one hand by a well-rooted *culture of waste* and on the other by widespread overproduction (Filho et al., 2019). Less than 1% of the fabric produced gets recycled into new products, about 12% instead is used as padding, cleaning cloths, and insulation materials, thus implying a *drop-in performance* compared to the original function and ending up, after a few more uses, into a form of end-of-life treatment, usually landfill or incineration (Franco, 2017; Notten, 2020).

If, however, it is well known the massive amount of textile products that are discarded by consumers every year, less so is the fact that a vast amount of fabric is wasted even before reaching them (Gambi, 2021; Reverse resource, 2017). In most cases indeed, insufficient attention is given to pre-consumer textile waste streams consisting of all materials used during the manufacturing of an item that does not become part of the final product and therefore does not reach the final consumer (Reverse resource, 2017). Among these materials, some examples are offcuts, surplus fabric, end-of-rolls waste, fabric samples, sample collections, and above all deadstock fabric and garments, which contribute significantly to the total volume of textile waste and have great potential for reduction and reuse (Dobilaite, 2017; Koszewska, 2018).

It is estimated that even excluding the loss during the distribution phase, around 25% of resources including fibers, yarn, and fabric used by fabric mills and garment factories get wasted during the manufacturing process ("Supply Chain Action Plans Leftovers," n.d.). The majority of the formerly mentioned material is fabric. Research indicates that these numbers may be even higher due to the lack

of data on actual cutting waste, materials that do not meet quality standards and unsold items. (Child, 2018; Green & Xepoleas, 2020; Reverse resource, 2017). This wastage of resources occurs despite a growing commitment from governments and firms to adopt circular economy principles to address textile waste overproduction and reduce the textile industry's environmental impact (Ellen MacArthur Foundation, 2017).

1.2 The upcycling trend

Along with this wastage of material, new trends are currently emerging and rapidly evolving. A growing number of designers, especially emerging ones, are showing interest in creating value from leftovers resulting from the production and distribution phases, often transforming their reuse into a signature trait (Fletcher, 2008; Phau et al., 2022). Similarly, few brands, especially in the luxury fashion field, are starting to draw from their production leftovers or excess fabric to create new lines or capsule collections (Paras & Curteza, 2018; Phau et al., 2022; Stobart, 2016).

This rapidly expanding trend is usually associated with the term upcycling, which embodies an overarching concept, including processes such as re-thinking, repairing, renovating, reusing, and upgrading in which a new/higher value is given to materials that otherwise would be discarded (Sung & Yoon, 2019) thus employing them in a transformation process in which the tangible characteristics of the material are retained and recontextualized (Bergmann & Magalhaes, 2018).

2. RESEARCH ISSUE

2.1 The benefits of upcycling and its implications

Working by recovering pre-consumer textile waste is accompanied by a series of choices that make this business

model more sustainable. Generally, few quantities get produced, often made-to-order, made-to-measure, or seasonless, and manufacturing usually takes place locally with short production chains (Han et al., 2017; Sung, 2015).

Craftsmanship skills such as manual weaving, knitting, and garment making are crucial for the flexible reuse of waste materials. Consequently, handcraft laboratories and social cooperatives specialized in textile craftwork often play a role in waste reuse projects (Han et al., 2017). It can be stated that the valorization of textile craftsmanship represents an opportunity to give value back to materials and garments that would otherwise get discarded (Koca, 2019). Concurrently, reuse projects can become a means of preserving and exalting artisan skills. Unsurprisingly, the upcycling trend is also visible in Italy where an increasing number of large brands and smaller young entrepreneurs are experimenting with it, supported by the wealth of knowledge and know-how in textiles and fashion production that has always represented the hallmark of the country (De La Garza, 2021; Gambi 2021).

Another factor influencing the upcycling trend is the development of a growing segment of consumers increasingly interested in responsible consumption and whose demand drives the market (Phau et al., 2022). A shift in consumer sensitivity is indeed required, especially when considering upcycled products where uniqueness, given by the use of materials available in limited quantities and resulting in one-offs or a few pieces productions, must be perceived as an added value (Yu & Lee, 2019). As Chapman (2009) argues, the sustainable crisis can be traced back to a complex behavioral problem, and new sustainable products must seek to infuse new meaning and value into a critical area of human activity that, to many extents, has become aimless and superficial. It can be stated that creating an added value associated with upcycled products contributes to the reinforcement of the emotional relationship between

products and consumers, therefore helping to strengthen a more holistic approach to design for durability and helping to avoid further consumption and waste of resources (Yu & Lee, 2019).

In support of the previous statements, along with desk research on the topic, field research was also conducted during the study discussed in this paper. It comprised six semi-structured interviews with stakeholders operating within the fashion sector, aiming to propose alternative solutions to the overproduction of finished/semi-finished products as well as the mapping and analysis of 34 case studies, Italian and international, reflecting how the practice of upcycling and reusing leftovers is developing in the T&C industry both from the point of view of brands and products and the services currently being developed. The results evidenced how, despite upcycling of textile production waste being a growing trend, what is missing are solutions able to facilitate and scale up the process, making giving value to waste the norm. From this consideration follows the study's main research question, guiding the development of the design solution: How might we encourage remanufacturing processes of leftovers, unsold garments, and archive pieces among brands and provide them practical tools that help them to exploit their full potential in terms of re-use and valorization?

3. METHODOLOGY

3.1 The toolkit as a means to promote discussion and new solutions

By definition, a toolkit consists of a set of tools designed to suggest procedures, guidelines, and criteria to a specific audience, deal with a specific issue and achieve a specific result. They represent a useful medium in emerging situations, thus lacking a predefined process to follow. Tools

can be digital or physical depending on purpose and target and may or may not require a mediator. A key feature is that they are flexible and adaptable to the user's needs. (Collins Dictionary, 2022; Thoele et al., 2020)

Toolkit development is often associated with DT, defined as a “non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test” (The Interaction Design Foundation, 2022). DT represents an approach of increasing relevance to organizations and industries, not only because of its problem-solving capacity but, above all, because of its ability to frame challenges by analyzing them from different points of view and generating new definitions (Pressman, 2018; Tschimmel, 2012).

Within this frame, the purpose of contemporary toolkits is to guide brands, companies and teams through problems by providing practical means to deal with their complexity or simply to change their perspective (Freach, 2018). In addition to framing problems and providing visualization frameworks, toolkits usually facilitate the collection and organization of insights and encourage dialogue among stakeholders (Dubberly et al., 2014). Some of the most frequently used tools are indeed card decks, digital archives and templates, which provide a new syntax that enables communication within diverse sectors or teams, making the design processes visible and clear while enabling an extreme synthesis of information (Dubberly et al., 2014; Lomas et al., 2021).

In the specific context of this study, the development of a toolkit should not be perceived as a solution to the complexity of problems and challenges related to textile waste generation and reuse. However, it represents a means to trigger a conversation and change the mindset over what a design-driven approach can do in the T&C industry context, with the ultimate goal of suggesting a new approach and *modus operandi* that companies can embrace and apply over time.

3.2 A co-design approach to develop the toolkit

For the development of the toolkit structure and components, a collaborative and co-creative approach has been implemented. Co-design represents a widespread practice, especially when applying a DT approach (Steen, 2013). It implies the direct involvement of stakeholders and/or experts in the design process to take on their point of view, thus allowing designers to gather important feedback, pre-test the idea, improve it, and tailor it to the users' needs (Interaction Design Foundation, 2021).

One of the actors involved in the co-creation process undertaken for the development of the toolkit discussed in this paper is a consulting agency born in 2019, working between Italy and the UK, and offering ad-hoc solutions to luxury brands to address the issues of production leftovers and deadstock. In particular, the repurposing of the material is achieved through a network of social enterprises and artisans.

The co-design session was conducted remotely with the two founders of the agency, using Miro to carry out the programmed collaborative activities. With the participants being experts from the fashion sector, activities were thought to guide a creative conversation in an open and stimulating way, avoiding a strict and rigid structure. The main goals of the session and, consequently, of the activities carried out were:

- ♦ Define the strengths and weaknesses of the toolkit proposal from an expert point of view as well as its precise objectives, in order to be effective;
- ♦ Have a clear vision of the clients that approach the agency and understand how a toolkit can meet their needs;
- ♦ Explore how a toolkit can guide and suggest an approach to brands and designers interested in undertaking textile waste reuse projects by exploring the approach that the agency applies with its clients.

By trusting the guests' long experience in the field, the activity helped to identify the potential recipients of the toolkit and their needs, as well as to frame the toolkit's precise purposes and define the characteristics of the tools, illustrated in the following paragraphs.

4. RESULTS

4.1 Goals of the toolkit

This Is Not Waste represents the result of the research work conducted. It consists of an open set of tools for design-driven solutions to foster upcycling and support fashion designers and brands interested in exploring the creative reuse of pre-consumer textile waste as a sustainable approach. To meet the goals, the toolkit is outlined based on the user's needs and insights resulting from the research work conducted and the co-creation activities. The ultimate aim, as anticipated, is to foster and contribute to the shift from a linear to a circular textile supply chain thanks to a more conscious use of materials. The strategy applied to reach the goal, then formalized into the tools, can be summarized in the following key points:

- ◇ Provide open-source educational resources;
- ◇ Guide by suggesting an approach/method professionals can apply when taking on a new creative waste reuse project;
- ◇ Inspire by fostering brainstorming of ideas about potential uses of textile waste materials and providing practical examples and case studies;
- ◇ Provoke by asking meaningful questions able to trigger a reaction and stimulate a conversation about the benefits of upcycling and the possibilities of application.

4.2 The toolkit prototype: Components and features

The toolkit structure is characterized by two main components: A set of downloadable analog tools that include a cards deck, activity guides, and maps, as well as an online platform prototype. The toolkit elements may be used during different phases of the design process, supporting activities such as case studies research, benchmarking, brainstorming, concept definition, project development, and evaluation.

The Cards Deck: It comprises 54 cards organized into four sections: *Material*, *Output*, *Technique*, and *Trigger* (Fig. 1), representing key variables characterizing textile waste upcycling projects. They can be either employed freely or during guided activities and are conceived not only as a playful tool but also as a source of didascalical information. *Material* cards illustrate the different clusters of waste materials that may be taken into consideration for an upcycling project. Each card presents a description of the material, how it gets generated, and its strengths and weaknesses for reuse. *Output* cards are designed to suggest possible end-uses of waste materials. One side of the cards presents a description of the output, while the other a linked case study. *Technique* cards illustrate possible approaches to creative reuse. Each card presents indeed a description of an upcycling technique, indicating what it consists of, the pros and cons and when applicable. Finally, *Trigger* cards consist of *what if* questions that intend to provoke, become food for thought, or be used as a means of brainstorming.

Activity Guides & Activity Maps: The Activity Guides (Fig. 2) are educational elements in the form of booklets developed to guide the user through different stages of the upcycling project by illustrating a set of activities using the other tools. They are divided into three sections, each with a different aim:

- ♦ The section called *I want to get inspired* accompanies the user in the analysis of case studies;

- ♦ The section named *I want to brainstorm ideas* proposes brainstorming activities to conduct using the card deck, combining and brainstorming over them, together with activities to evaluate ideas;
- ♦ The section *I want to take on a new project* provides a structured approach for planning a design-led strategy and process, providing the user with an overview of key elements that are significant to define during an upcycling project.

Activity Guides are combined with Activity Maps, a collection of templates applicable as guidelines during the activities, and note-taking supports (Fig. 3).

The Online Platform: An online platform has also been prototyped. Its function is to introduce the project and the tools, allowing their digital download. The platform also comprises a blog/magazine section and an archive feature consisting of a collection of upcycling projects regarding pre-consumer textile waste. Each case is neatly cataloged with tags that allow their filtering. One characteristic of the Projects Archive is that it is conceived as an open blog and, therefore, thought to accept external contributions and be accessible to everybody. This collection of projects aims, on the one hand, to build an archive of use cases able to demonstrate the range of possibilities when undertaking a creative reuse project with textile waste materials. On the other hand, a tag-based catalog potentially allows the expansion of the number of cards available in the toolkit, improving their selection.

4.3 Testing the toolkit

One of the crucial phases characterizing a DT approach is the iteration of prototyping and testing processes. Its aim is to verify how and how well the implemented solution solves the problem and gather further feedback to improve it (Wolniak, 2017). More specifically, the toolkit has been tested through an online moderated workshop conducted using

the platform Miro and involving the founders of two young Italian fashion brands already contacted during the field-work phase of the study. The main goal of the session was to present the toolkit structure, deepen some tools, see if they are perceived as valuable, and outline adjustments for possible future project iterations.

After an ice-breaking activity using the *Trigger* cards, participants were presented with use cases of textile production waste. Starting from them and applying the Cards Deck and activities proposed in the Guides, the participants outlined a few project ideas to creatively reuse the waste material presented. To conclude the session, first, they were asked to share positive feedback, then move on to what they felt was lacking or could be improved.

The workshop had a positive outcome; the participants were collaborative and expressed interest in the tools, appreciating the attempt to introduce a new approach to a topic that they address only from a fashion designer's perspective. Then, by observing the participants using the tools during the workshop, no particular difficulty in using and understanding them was evidenced. They expressed particular interest in the deck of cards and the online archive feature, concurrently generating meaningful feedback for future improvements.

5. CONCLUSIONS

5.1 Final considerations

This Is Not Waste represents the final output of the study and, as illustrated in this paper, it consists of a set of tools developed to promote the creative reuse of textile and garment leftovers resulting from production processes. This set of tools is mainly aimed at fashion brands and designers interested in exploring upcycling as a sustainable approach, representing a resource professionals can exploit in their

creative process. The choice of having mainly brands as a reference target, through the development of a B2B solution, was determined by the acquired awareness that the choices users can undertake during the use and post-use phases of garments, although crucial, are inevitably conditioned by choices made in the previous stages of the system such as textile and garments production, manufacturing and distribution.

Based on the small-scale case study illustrated in this paper, the toolkit developed has documented some potential in terms of aiding sustainable development through circular strategies for practice and education. More generally, the study has evidenced the capability of a design-driven approach as well as DT tools and methods in stimulating conversation and developing new solutions that can contribute to the shift from a linear to a circular textile supply chain, therefore decoupling the generation of value from the exploitation of non-renewable resources.

Finally, it is also worth highlighting the socio-cultural implications of this study. Findings reflect indeed a transformative change within the T&C industry, a sector that is historically permeated by widespread overproduction and a rooted culture of waste. The growing trend of upcycling, which has been discussed extensively in this study, represents an indication of this shift. It reflects this perspective of change that values creative reuse, craftsmanship, and uniqueness, ultimately contributing to a broader cultural shift towards more conscious fashion practices in which waste is perceived as a resource.

5.2 Further developments

As concerns future developments of the toolkit, further iterations of test and prototyping should be considered in order to optimize the use of the tools and verify more deeply their usefulness and effectiveness in different contexts since the testing phase conducted until now involved a limited

number of actors. Another crucial future step to undertake would be to transform the prototyped website into a live and functioning platform, thus allowing the toolkit to become known and the tools to be downloaded and openly deployed.

FIGURES



Fig. 1. Mockups representing examples of cards from different sections of the deck.



Fig. 2. Mockups representing Activity Guides.



Fig. 3. Mockups representing Activity Maps.

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3 · 7 SHIFTING TO CARE

*DURABILITY PROCESSES AND PRACTICES OF USE OF THE
ANTHROPOGENIC MASS*

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I. INTRODUCTION AND RESEARCH ISSUE

Today, we face enormous challenges related to the aggressive phenomenon of global warming. Having set climate change in irreversible motion, we are facing the possibility of ecological catastrophe. As Morton (2013) discussed, climate change is perhaps the most dramatic example of hyperobjects consequences. Concepts such as world, nature, and even environment are no longer meaningful horizons against which human events take place. Still, they are now entities that put tangible limits on our common ways of reasoning. In light of modern indeterminacy and sudden emergencies linked to climate change due to the globalization phenomena of an increasingly anthropocentric system, industry at large is reconsidering its unsustainable systems. In this context, fashion companies are in a moment of crucial change in their sustainable vocations: Undergoing sustainability processes to lessen their planetary impact (Dhir, 2022; Arrigo, 2021).

As the Ellen McArthur Foundation (2017) discussed, fashion is one of the industries with the greatest ecological impact. Its processes are found to be highly invasive, especially those involving environmental aspects and exploiting the limited resources of our planet (European Commission, 2022). Such productive processes consume indeed large amounts of water, exploit land, and contribute to emissions.

As a major water user, the fashion system consumes 93 billion cubic meters of water annually (Ellen Macarthur Foundation, 2017). The textile treatment and dyeing processes are estimated to be responsible for about 20% of global clean water pollution. Furthermore, laundering synthetic clothes accounts for 35% of primary microplastics released into the environment. Washing synthetics releases an estimated 0.5 million tonnes of microfibres annually into the ocean (European Parliament, 2022). Also, specific cultivation for this industry, such as cotton, needs water

to grow. Around 9,700 liters are required to produce just 1kg of cotton (House of Commons Environmental Audit Committee, 2019). This generates enormous pressure on this resource and has significant ecological consequences. One example is the desertification of the Aral Sea, where cotton production has entirely dried up the water (Hoskins, 2014).

Soil is another critical element of our ecosystem. Healthy soil ensures the production of food but also the absorption of CO₂. The fashion industry plays a major role in soil degradation in several ways: First, by overloading pastures with cashmere goats and sheep bred for their wool; second, by degrading the soil through the massive use of chemicals to grow its raw materials; and third, by causing deforestation with wood-based fibers such as rayon. Massive global soil degradation is a major environmental problem to address. It seriously threatens global food security and contributes to global warming. Furthermore, the global fashion industry generates many greenhouse gases due to the energy used during the production, manufacturing, and transportation of the million garments purchased yearly. As discussed by Masson-Delmotte et al. (2021), the climate change phenomena are one of the results of such increased greenhouse gas emissions. Indeed, the resulting global warming is the climate system's response to warming produced by human operations. Both the fashion complex supply chain, usually located in developing countries, and its energy-intensive production generate 1.2 billion tonnes of CO₂ equivalent. UNFCCC (2018) reported that this is almost 10% of world GHG emissions.

The discussed impacts are the direct results of the development model based on the linear economy that is adopted by the fashion sector (Dissanayake & Weerasinghe, 2021). This model has supported a growing consumer demand that the proliferation of the fast fashion business model has exacerbated. Maintaining this model requires substantial exploitation of natural resources. According to the Ellen

Mac Arthur Foundation (2017), the fashion industry will account for about 25 percent of the global carbon budget by 2050. Specifically, to meet the growth of the linear development model, more consumption of natural resources will be needed, leading to increased ecological degradation and climate change (Berg et al., 2021). The result of such a development model is an overproduction of material output of human activities, the human-made mass. Evidence of this is the fact that fiber production almost doubled between 2010 and 2020. Globally, it went from 58 million to 109 million tons (Textile Exchange, 2021).

In the Anthropocene context, we referred to such mass as *anthropogenic mass* (Elhacham et al., 2020). In the scenario presented, the evolution of human-environment interactions is connected to the development of international fashion economies. The industry needs to reimagine its way of thinking to initiate an understanding of the world through how changes in clothing production and consumption patterns have affected environmental systems by shifting to design-led care practices for resources enhancing durability.

2. METHODOLOGY

According to the authors' investigation, a mapping of European Fashion companies' materials/resources take-care practices is carried out through an iterative process to model the data.

Methodologically, an initial desk research phase is followed by applying a case study methodology to narrow the selected research scope into defined topics, and the last phase combines all the data to outline the study interpretative model. This process has enabled the identification of ecological approaches – specifically for preserving virgin resources, regenerating, reusing, and manipulating secondary materials extracted from the anthropogenic mass. They inform the study: understanding current industry strategies

to activate design-driven actions that target the generation and potential use of various types of leftover fabrics and deadstock from garment production; and implementing sustainability by offering an alternative to consumption itself through the retention of those resources that are already processed/owned towards durability.

The desk research was further deepened and developed with data obtained from the knowledge repository produced by the Fashion in Process Research Lab at the Design Department of Politecnico di Milano, of which both authors are members. The data were generated from the research conducted by the research Lab (DGGROW, Mapping Sustainable Fashion Opportunities for SMEs, 2019; Erasmus+, FashionSEEDS, 2019) and the doctoral research of one of the authors (D'Itria, 2022). This phase allowed us to map 48 international companies located worldwide. The composition of the company was almost homogeneous. They were apparel brands (97%) and accessories brands (3%). Of the 48 companies mapped, four were selected as case studies. All these companies have addressed resource care practices by working on waste elimination aspects. Dobilaite et al. (2017) state that textile waste can be classified into two categories: Pre-consumer (production) waste generated by textile and clothing manufacturers and post-consumer waste generated by the public.

These companies use pre and post-consumer waste to reinput them in their production cycle. Tab . 1 represents how the companies are grafting the fashion supply chain. They are recovering different kinds of waste from different supply chain stages to reinput them in the design step. Such waste ranges from deadstock, textile waste, which includes all the waste generated during the production of the textile, to fashion waste, which includes the finished fashion garment (Clero, 2023). All these reinputs are processed according to different design-driven strategies. They all address the involvement of design in reconfiguring

an increasingly intricate relationship between multispecies understood as resources and their users.

A selection of case studies, which emerged from this research phase, is presented here as evidence of the narrated process. Cases such as Bug Clothing and Tonlè represent actors of change operating through design to repurpose industry resources – deadstock and production leftovers – that would have otherwise gone to landfills (Eike et al., 2020; Hawley, 2006). Tu Lizé and Garbage Core are examples of designers maximizing the value of resources by proposing alternatives to the need for early dismissal of garments, which is more semiotic than physical, and rethinking the entire production system with their upcycled garments (Sommermeyer et al., 2023). Such case studies explore a metamorphosis of fashion industry waste. The purpose of applying such methodological approaches is to focus on particular cases to model the whole context that embraces many different factors and attributes to frame the illustrative knowledge (Rashid et al., 2019).

3. RESULTS AND DISCUSSION: EXPLORING A POSTMODERN ECOLOGICAL APPROACH

This paper codifies the data collected to model the directions that drive current design-led practices related to new ideas of exploiting the existing anthropogenic mass for the fashion industry. This section presents the results of the adopted methodology. It introduces several case studies to describe the main approaches identified by the study that could be an exemplar for eliminating waste from the fashion supply chain. Such pathways could support designers in promoting a closed-loop system for rethinking resource exploitation, recovering secondary raw materials, or reactivating the fashion product – at different stages in the supply chain (Tab. 2).

Operationally, the study identified two macro directions in working with waste through design-driven practices. They emerged from the case studies analysis. Companies such as Bug Clothing or Tonlè are working to capitalize on the rethinking of waste for their products. They are developing actions to foster new approaches to significantly reduce textile waste by experimenting with the designer's role in creating characteristic pieces enhanced by their materials' attributes (Albuquerque et al., 2023). On the other hand, companies like Tu Lizé and Garbage Core are working on eliminating waste by strategically extending their products' semiotic dismissal. They work on exploiting both the tangible and intangible value of the scraps from which their products were made and their conscious manufacturing attributes (Barosi et al., 2023). The study examined these directions and how they work towards a common goal but, at the same time, are different. The analysis aims to describe the identified behaviors comprehensively. However, the authors acknowledge the limits within which these behaviors are performed and investigated. Therefore, despite reporting a common scope, each case must be understood and evaluated in its specificity. This must be done to the context, territory, and actors involved. The selected cases are presented in the following sections.

3.1 A metamorphosis of fashion industry waste: Leftovers recipes

The first direction refers to companies working to reactivate the system by redesigning the processes of access and use from materials to production, lessening the anthropogenic mass impacts. In their practice, fabrics and leftovers, dead stock, or unsold can be the starting point for a new production cycle for designing something different through design-driven solutions (D'Itria, 2023).

Companies such as Bug Clothing operate according to what authors define as an *eco-logic rethinking*. This means

looking for high-quality fabrics to make new collections by exploiting materials from the haute couture houses that they are stocking and not using. They have a very focused perspective and an environment-driven ethos. Companies concentrate on the ecological dimension to engage in design-driven practices that aim to recover waste to lessen their own impact on the Planet. Through the strategic alliance among fashion actors, what is overplus for one player becomes raw materials for the other. These practices preserve resources as well as create positive synergies toward sustainability.

Tonlè operates according to a *system-logic*. They rethink the waste created by the system to minimize its production as much as possible. They are trying to eliminate waste before it occurs, which implies the need to support a production system and market for waste planning in the textile industry. Although brands may have different design directions, Tonlè exploits the common element of intentional and thoughtful design that considers minimizing the impact of garments through action on waste. They represent actors of change operating through design to rethink industry dead resources that would have otherwise gone to landfills and contribute to the sector's impact.

3.2 A metamorphosis of fashion industry waste: Pre-loved makeover

The second direction characterizes the strategies that fashion companies adopt through a project approach that enhances the use of discarded fashion goods' materials and components to transform them into new, high-value products (Cuc & Tripa, 2018). They adopt strategies to implement sustainability by providing an alternative to consumption by retaining those resources that would have otherwise gone to landfills, contributing to exacerbating the anthropogenic mass. They work on embracing imperfection, repairing clothing, or providing industry and consumers with the

necessary knowledge to care for their garments and materials (DeCastro, 2020; Fletcher, 2016).

Companies such as Tu Lizé are now reactivating fashion resources from obsolescence. They redesign a garment from a simple act of renewing the appearance of an item to stimulate people to take care of that resource and also educate them. This case explains how the fashion sector strives to eliminate waste to mitigate its impact on the planet and facilitate conversations about sustainability across the fashion industry by maximizing the value of resources by proposing alternatives to the need for an early semiotic dismissal of garments and rethinking the entire production system with their upcycled garments.

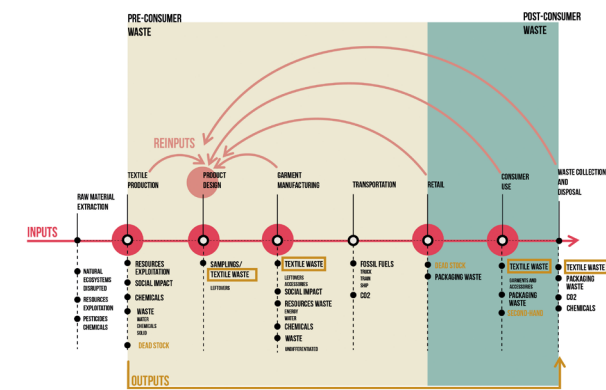
Garbage Core is a case that represents how some companies are reactivating people's care for a garment. These companies strategically exploit design actions that produce emotional garments that give old clothes and materials a second life. Companies operating in this category aim to keep the garments' history, their previous lives, and the people who wore or created them. Storytelling related to defects, whether scratches, stains, or holes, makes the traces of a previous life explicit and provides an affective dimension that establishes a caring relationship between the person and their garment. This can be a way of making a statement to give the garment an expanded lifespan and create awareness of resources and their management.

CONCLUSIONS

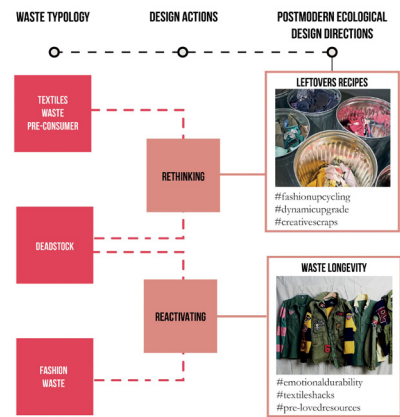
The results discuss how more process innovations are developed through the implementation of new ecological and symbiotic design-driven approaches: Establishing a cooperative or interdependent relationship between actors along the fashion supply chain – from textile/materials suppliers to waste management companies – to offer resources a second life as they are turned into a new product to

take care of. These qualitative knowledge implementations consider a mix and aggregation of new productive patterns enabled by innovative technical know-how to offer new consumption scenarios. This is about resources or items that get re-adapted and re-purposed and whose lifespan is, therefore, expanded towards durability by a design-driven act of resistance to destructive Anthropocene systems (Payne, 2019; Brooks et al., 2018). According to the conference's aim, such an act can enable envisioning the possible futures generated by these phenomena of environmental awareness for exploiting the processed anthropogenic mass as an existing resource for the fashion industry.

TABLES



Tab. 1 Supply Chain Representation: Inputs, Outputs, and Reinputs.



Tab. 2 Supply Chain Representation: Inputs, Outputs, and Reinputs.

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3 · 8 EXPLORING SUSTAINABLE FASHION DESIGN IN NAMIBIA

UNLOCKING THE POTENTIAL OF KALAHARI WILD SILK

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1. INTRODUCTION

For decades, sustainability has been a method for design development that focuses on ecological, social, and economic dynamics while promising profit. New technology evolving social and environmental practices and economic values continually test the credibility of sustainable design (Papanek, 2006; Black, 2010; Nakashima et al., 2012; Fletcher, et al., 2015; Pal & Gander, 2018). Achieving sustainable design is even more difficult to grasp in a developing country's economy. Namibia's fashion design sector is still in its infancy. It became clear that designers in achieving sustainable design frequently maximise some of the measures and misinterpret or ignore others (Swakara | Sustainable Fur, 2021; Torbit, 2013).

Sustainable design is becoming a hybrid by merging ancient and current knowledge into a new one (Uckan et al., 2021). As a result, the current generation employs philosophical mindsets in order to reinterpret the past today for the future (Gibian, 1997; Araujo et al., 2021) to embrace a more sustainable future. Hence, this paper proposes to contextualise sustainable design in the Namibian context by looking at the Fashion Revolution, Ubuntu Philosophy (I am because you are) and Kalahari wild silk sustainable potential (see Tab. 1).

2. HISTORY OF NAMIBIAN HERITAGE

Fashion is the oldest design form in Africa, dating 100 000 years old. Indigenous materials are the symbolic language of shared culture, emphasising the social status of the wear (Crabtree & Stallebrass, 2002; Scherz et al., 1992).

For centuries, African people have had a special affinity with their clothing and jewellery (Hamalwa, 2012). Ancient fashion often utilised sustainable practices to ensure the longevity of their societies. Beautiful painted or etched

Palaeolithic figurines (see Fig. 1), some 26 000 years old, constitute valuable historical records, providing hints about ancient Namibian dress.

Thus, the colonial and apartheid eras hampered heritage and forced the replacement of indigenous designs and materials, discarding them as *primitive* and *backward* in urban Namibia. In the 1920s, *Negrophilia*, a brief appreciation of African designs, globally reinforced the new dynamics centred on African indigenous materials and knowledge. For example, Picasso admired the "conceptual sophistication" of African arts, while Brancusi prized the "conceptual simplicity" of African designs (Archer-Straw, 2000, p. 137). Since Picasso's *African moment*, numerous fashion designers, including Yves Saint Laurent, John Galiano, and Jean-Paul Gaultier, have incorporated African fashion elements into their collections, embracing *cherry-picking* from African arts. African designs gradually influenced global fashion trends (Mbow, 1998).

Eventually, the *African Renaissance* spurred the trend's decolonisation and restating of indigenous knowledge and resources. African designs frequently inspire global fashion, whereby both cross-fertilise each other (Hamalwa, 2012).

Today, there is an increasing interest in comprehending and implementing old sustainable techniques and materials to modern design to reduce negative environmental impacts while enhancing long-term sustainability.

3. SUSTAINABLE INDIGENOUS NAMIBIAN FIBRES

For Namibian people that navigated harsh desert landscapes for decades, sustainability was inherent in their fashion as they utilised materials from their surroundings without depleting resources.

For example, leather is an omnipresent material used in traditional attire because it is derived from animal skin. Leather globally is sometimes regarded as an unfriendly

product to animals. In Namibia, however, the hide comes from animals bred for meat in a very ecological environment or sustainable hunting that controls the food chain. Therefore, it is a by-product. Besides that, traditionally, sustainable vegetable leather tanning has been passed down through the centuries (Brun & Ciccullo, 2022) (see Fig. 2).

Indigenous beadwork is a highly respected art form, and many Namibian communities continue to pass down traditional beadwork techniques from generation to generation.

The oldest beads made out of shells in Southern Africa are 75.000 years old (Physics Forum, 2007). Here are some examples of the Namibian beads. Kwanyama ladies use shells for their adornment. Their overskirts are embellished with ostrich eggshell beads. To indicate their high social status, they also wear Ekipas. Ekipas were originally carved in ivory but are currently created from cattle bones since the elephants are under protection. Also, the San people decorate their adornments with ostrich-shell beads (Fig. 3).

Copper smelting was done by Damara Smiths (Goldbeck, 2012, pp. 56-57). The oldest tuyeres used to smelt and create metal beads have been uncovered along the Okavango River, dating back to 840-50 AD. Himba and Herero people make anklets and neck jewellery out of metal beads that are part of headpieces, necklaces, and bangles (Scherz et al., 1992).

Gonometa species have an extended history of use in southern Africa, it inhabits some areas of South Africa, Botswana, and Namibia. The San People utilise the pupal cocoons of Gonometa species as ankle rattles that are part of traditional costumes (Veldtman, 2005). Kalahari wild silk is harvested from the dry cocoons of the moth Gonometa Postiga, which populates in central east Namibia (Fig. 4). Sustainability is an integrated part of traditional fashion for Namibian people living in a semi-desert and savanna climate. They utilise the materials around them without depleting the resources.

4. *UBUNTU PHILOSOPHY TO SUSTAIN*

Sustainable development is "an approach that sees cultural legacy as a baton in a relay race passed down by the ancestors", says Wienecke (2005, p.365). Indigenous cultures amplify a circular economy model and creative pursuits prospects to sustain (Islam, 2012). It validates the interrelation of the design beyond the 'form' (Zhiqiang & Sotamaa, 2011).

Ubuntu philosophy (I am, because you are) is associated with the traditional African approach, based on the idea that a person's humanity is intertwined with others.

It advocates empathy within a collaboration, recognising that we are all connected and responsible for each other's well-being by treating others with respect and dignity.

Hereafter, the Ubuntu philosophy emphasises sustainable community principles and the flourishing cultivation of indigenous territorial materials. Consequently, it cultivates long-term design thinking (Moalosi, Rapitsenyane, 2023). In the traditional setting, Ubuntu coexists with the Economy of Affection (Lemarchand, 1989; Kamwanyah, 2018), valuing collective responsibility and fair trade. Both are imperative in boosting sustainable economic enhancement.

5. *SUSTAINABLE GLOBAL FASHION STANDARDS – FASHION REVOLUTION*

Sustainability is at the forefront of the fashion revolution, with a growing demand for environmentally and socially responsible clothing. It was born after the Rana Plaza tragedy in Bangladesh, where over a thousand garment factory workers died due to unsafe fast fashion working conditions to satisfy the fast fashion market (Fernandes et al., 2020).

6. FAST FASHION - UNSUSTAINABLE CONSEQUENCES

Commercial consumers follow ever-changing seasonal trends. The rapid rise of social media puts more pressure on young consumers to stay in vogue, and their short-term satisfaction boosts fast fashion. Some believe that consumer demand drives fast fashion models, while others argue that marketing new designs speeds up production (Becker-Leifhold & Hirscher, 2019). Nevertheless, the fast fashion business model focuses on high volume, high consumption and poor quality at low prices to keep up with the market. On the other hand, the fashion industry capitalises on wealth. Sadly, fast production leads to a large amount of waste disposal.

Consequently, because of the rapid overproduction, waste, mostly of synthetic fabrics, is taking over the market on an alarming scale (Gam & Banning, 2011). Hence, fast fashion is one of the most polluting industries, negatively impacting the environment. The industry has an even more negative impact on already cheap labour (Black & Eckert, 2010; Fletcher, et al., 2015).

Commercial brands defend their point by saying they will slow down production based on shoppers' behaviour. Until then, fast fashion attempts to apply sustainability to minimise harmful production using commercial holistic methods to sustain (Araujo et al., 2021).

7. COMMERCIAL FASHION SUSTAINABLE STANDARDS

Designers concerned with human and environmental co-existence survival opt for sustainable-conscious solutions, promoting detoxing fashion (Pal & Gander, 2018). Sustainable models benchmark on criteria like self-maintenance, effects of any action, and eco philosophies: Reasoning (logic) and human conduct (ethics) (Wienecke, 2005). The emergency guidelines start with controlling the

overuse of water and natural resources and promoting fair labour (Nakashima et al., 2012).

Sachs has been promoting the cradle-to-cradle approach since the 1970s, sourcing raw materials for end-of-life disposal (Gam & Banning, 2011). The cradle-to-cradle philosophy and Designing for Recycling (DFR) suggest that recycling must be the point of departure while working on the design (McDonough & Braungart, 2007). Other sustainable designers advocate innovation, for instance, bio-based yarns, plants and fungi-based leather or reviving ancient production of mono fibres and bacterial dyes through fermentation colouring processes (Kim & Oh, 2020; dos Santos et al., 2021; Lima & Montagna, 2021).

To date, fast fashion is a complex reality, surrounded by global economic crises interwoven with social inequalities, trying to apprehend social challenges (Fernandes et al., 2020; Lima & Montagna, 2021; Uckan et al., 2021). For an example of sustainable design, see Fig. 5.

8. FASHION REVOLUTION TO SUSTAIN

Fashion Revolution is a global movement which engages with three key sustainable areas: Rights, Relationships, and Revolution (Jung & Jin, 2014; Fernandes et al., 2020). The Fashion Revolution rating system considers over 500 data points based on United Nations' 17 Sustainable Development Goals (SDGs) (Nakashima et al., 2012). It supports *Fair Wear*, about 130 small-medium companies in Europe and 160 subcontinental rooted in different sustainable models that do not involve exploitation and stand for self-resilience (Fairwear.org, nd). The fashion revolution's sustainable standards promote conserving indigenous resources and a deeper connection to long-lasting designs. Because, in an indigenous setup, nothing is 'wasted'. Everything is used, reused, consumed, and absorbed until it merges with the organic earth (Hohenthal & Veintie,

2022). Above all, Fashion Revolution advocates for transparency in design decision-making by endorsing hashtags: #WhoMadeMyClothes? #WhatsInMyClothes, popularised by smart tags (Fernandes et al.; Duarte et al., 2021). The hashtags include; the materials and their manufacturing process, the creators' backgrounds and the skills that go into the design. The other role of hashtags is to highlight the story behind each piece to trigger sustainable consumer consciousness. Fashion Revolution promotes an equilibrium of the sustainable production system rooted in sustainable design. (GoodOnYou, nd).

9. MEASURING NAMIBIAN INDIGENOUS KALAHARI WILD SILK TO SUSTAIN

Currently, several designers in Namibia are shifting toward an ethical supply chain focusing on using indigenous fibres (see Tab. 1 and Fig. 6). Hoping for a sustainable consumer that targets specific market niches aligned with the Classic Fashion Cycle that are always relevant (Kaya & Gelmez, 2013). Those rare raw materials are harvested and processed in the world's harshest climate, Kalahari and the Namib Desert.

One of them is Kalahari wild silk. Moth *Gonometa Postiga* inhabits southeast Namibia. Harvesting cocoons enhances the welfare of the animals and humans in the country's most inhospitable areas. Cocoons are harmful to grassing wildlife and domestic stock. The ingestion of cocoons creates livestock and wildlife sicknesses, even deaths. Consequently, the Namibian Agriculture Union (NAU) requested the Ministry of Agriculture, Water and Rural Development (MAWRD) to declare the moth species a national pest and called for its eradication (Cole, 2001; Veldtman et al., 2004).

In the past, the cocoons were harvested and burned. Currently, members of this rural community, most of whom

are previously unemployed women, profit by selling them to Kalahari wild silk company. The spinning and dyeing of the yarn and weaving are done manually. The process is non-toxic and chemical-free (Kendal, 2005; Torbitt, 2013). This capsule project guarantees green public procurement and resource circularity, keeping the environmental balance (Goodland, 1995; Manzini, 2010; Viezzeli et al., 2021). The company enthusiastically tells the story, ensuring transparency by using the hashtags: #WhatsInMyClothes? #WhoMadeMyClothes? (Fernandes et al., 2020), and with a passion broadcasts the portfolio as a sustainable marketing tool (Torbitt, 2013).

10. SHORTCOMINGS IN SUSTAINABLE PRACTICES IN NAMIBIA

Sustainable standards are multifaceted and complex. Measuring them is difficult as it involves complex trade-offs. Many fashion companies create a more sustainable future by reflecting on their heritage (Nakashima et al., 2012; Matevosyan, 2014). Academics draw theories, and conferences debate sustainable design, engaging in fair economies and environmental improvements. It was made clear from the *Textile Tomorrow Summit*, hosted by Aalto University Helsinki (2019) that even though the mainstream fashion industry constantly tries to align with sustainable norms, sustainable design encompasses many controversial inter-linked crises, often resulting from subjective judgments.

Talking about sustainability in developing countries is even more intricate, with no one-size-fits-all solution (Baliga et al., 2020). As fashion design in Namibia is a young economy, only a few articles debating fashion sustainability are published to date. Recently Swakara Karakul sheep bred (present in Namibia since 1907) published a booklet, *Swakara – Sustainable and Resilience in Africa - Swakara Annual Report* (Swakara Sustainable Fur, 2021), manifesting the social-economic sustainability of the company by

following United Nations 17 Sustainable Development Goals (SDGs) (Nakashima et al., 2012). The article tries to defend the sustainability of hide production but, in the process, compromises on many sustainable standards.

Over the years, numerous sustainable fashion design issues have arisen in Namibia, slowing down lucrative living in a developing economy. These include poor regard for rural life, a lack of business management expertise, financial hazards, and frequently identifying a correct target market. Over time, several NGO organisations, including some embassies, support small businesses in the hope of assisting them to become more compatible with Vision 2030 (Torbitt, 2013). Though, one must wonder whether their functions were not that of *first aid bandages*, temporarily masking more serious long-term sustainable structural issues in this entrepreneurial sector. Unfortunately, these assistances were never academically examined.

A few journal publications showed that some companies might compromise sustainable values for short-term economic gains (Ahmed, 2021; Goodland, 1995; Veldtman et al., 2004). Apart from those articles, several presentations discussed sustainability in Namibian fashion. Sadly, those were mainly about implementing recycling and needing to display more academics.

Thus, even though local companies try to keep ecological considerations at the forefront and employ local community members, it needs to be clarified how sustainable the employment conditions are. To which extent does the Namibian sustainable design reconcile with global sustainable standards? Is Kalahari wild silk truly sustainable? If so, can it strive in the competitive global fashion design industry (Ramos, 2016; Kossoff & Kossoff, 2019)?

II. NAVIGATING CO-DESIGN THROUGH DOUBLE DIAMOND MODEL TOWARDS SUSTAINABLE DESIGN

This paper proposes collaborative dialogue and co-design navigated by a double-diamond model (Tab. 3) to understand sustainable design in developing nations (see sampling in Tab. 4). Many designers in Namibia work in a vacuum, with no opportunity to interact with one another or collaborate. They occasionally base their decisions on superficial beliefs. Some designers broadcast that employing recycled or locally sourced materials is a step in the right direction. However, designing a compatible, sustainable product is a sophisticated system that extends much further.

As co-design involves the distinctive role of the designer-maker, it navigates collaboration through empathic problem-solving. Co-design allows a better comprehension of global sustainable design in the local context. It fosters iterative design processes where feedback is constantly clarified to refine and improve the product (Meroni et al., 2018).

The double diamond method aids in navigating the co-design process. The first diamond is a space where dialogue takes place by defining the *Fashion Revolution*, *Fair Wear* and *Ubuntu philosophy* and *sustainable qualities* of indigenous fibres. It entails outlining the sustainability design terms and sizing them up and down to scope the result with local parameters. Listening to each other and collective learning are needed to realise what is important or unimportant in achieving sustainable design. Moreover, through the dialogue, designers will clarify how they implement sustainable design in day-to-day practice in the fragile sustainable ecosystem of a developing nation (Lotich, 2011). Finally, designers will grasp the sustainable quality of raw Namibian fibre, by learning about sustainable harvesting and production processes of Namibian Kalahari wild silk. Looking for answers and continuously updating

knowledge on sustainable design in the Namibian context is the outcome of this diamond.

The second diamond is the design space. Designers envisage and co-create a viable, sustainable proposition in this diamond's first stage. Based on the hypothesis launching the quick prototype of the desired sustainable product is the output at this point (Liedtka & Ogilvie, 2011). The second phase of this diamond involves testing the prototype through the lens of social and environmental uncertainties, discarding ineffective solutions, and enhancing manageable ones, from local and global perspective (Kossoff & Kossoff, 2019). Since the double diamond model consents to non-linear problem-solving. It permits designers to return to the drawing board (first diamond) to rectify the prototype (Ball, 2019).

CONCLUSIONS

Given the lack of academic research on sustainable fashion design in Namibia, this paper proposes a discussion on how we could design differently, focusing on how to design sustainable products and how to design products sustainably in Namibia. In the process, evaluate the sustainable value-led qualities of Kalahari wild silk. To explore whether revitalising the sustainable qualities of Kalahari wild silk might foster greater innovation for sustainable design (Uckan et al., 2021).

Last but not least, to expand the possible contribution of this research project beyond its unique study but set in developing economy.

FIGURES



Fig. 1 *White Lady* of Brandberg (dates back over 2000 years) (Goldbeck, 2012, pp. 56-57). The rock painting depicts a traditional San hunter.



Fig. 2 This photograph was shot in 1936 by Alfred Duggan Cronin, it depicts the magnificent leather headgear, ekori, of a married Herero woman in Namibia (Crabtree & Stallebrass, 2002, p.31).



Fig. 3 (Sun girl wearing ornaments with ostrich and copper beads (Scherz et al., 1992, p.102).



Fig. 4 The cocoon and raw silk (Nuus & Steynberg, 2015).

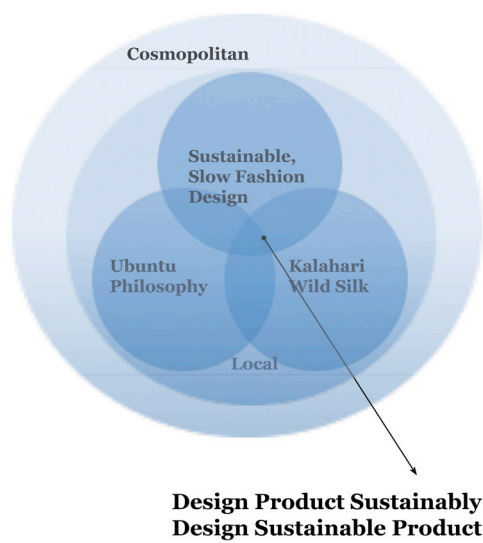


Fig. 5 Example of sustainable design – recycled; fabrics, leather, KWS. Beata Hamalwa (Designer, 2017), Meriam Hamukwaya Liswaniso (model), Marcela Kalousova (photographer).

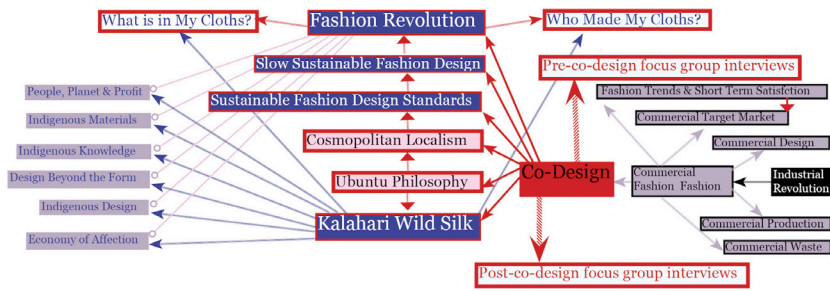


Fig. 6 Fair Trade. Kalahari wild silk price tag at the Namibia Craft Centre, Omba. Author's own photo.

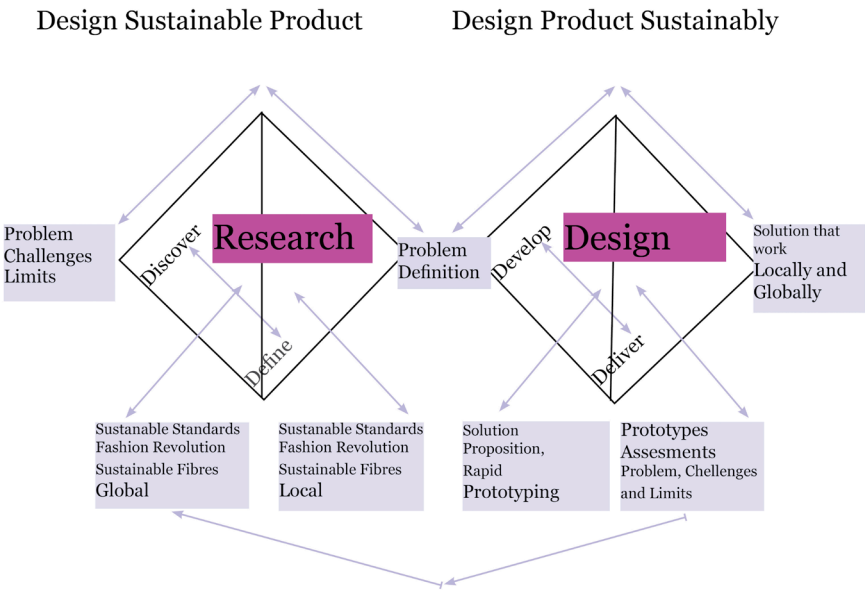
TABLES



Tab. 1 Sustainable relations between the Ubuntu Philosophy (*I am because you are*), the Cosmopolitan Localism philosophy, the Fashion Revolution sustainable standards, and Kalahari wild silk (Namibian indigenous fibre). Author’s construct.



Tab. 2 Co-design. Measuring the sustainable qualities of Kalahari wild silk. Author's construct.



Tab. 3 Double Diamond Method: The first diamond is the fashion design sustainability problem space, and the second diamond represents the solution space, the design. Author’s construct.

Delineation of the Research – Urban, and Rural Namibia
Target population: Voluntary purposive sampling, Snowballing method of sampling selection
Population
UD - Upcoming designers. D1 - Designers following Sustainable Developments Goals (SDGs) using imported eco-friendly materials. D2 - Designers following Sustainable Developments Goals (SDGs) using local, sustainable materials.

Tab. 4 Delineation and participants’ sampling. Author’s construct.

AUTHOR BIOGRAPHY

Beata Hamalwa founded Fashion Design Diploma at COTA, Windhoek, Namibia. Her versatile educational background in arts and design is from Poland, Namibia and South Africa. She holds a Master degree in Design. Her interest is decolonising fashion and achieving sustainability based on heritage. As an artist, she showcased in Namibia, Portugal, Germany, France, Poland, the United Kingdom, South Africa, Botswana, and Reunion Island.

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3 · 9 EARTH AS ART

A NEW FASHION NARRATIVE FOR THE MADE IN ITALY BRAND

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I. INTRODUCTION AND RESEARCH ISSUE

The Made in Italy brand was symbolically born in post-war Italy, from a nation rebuilding itself after a bloody defeat, a violent civil war and twenty years of fascist dictatorship that had driven the country into autarchy with the dream of becoming a great power just like the Germany imagined by Adolf Hitler. At the end of the Second World War, therefore, Italy rose like a phoenix from its ashes, and it not only rebuilt a destroyed and fragmented economy, but also created a new narrative of itself, one that would help revive its compatriots, but also sell a better image of itself abroad. At the end of the 1940s, the artistic expressions of Neo-realism (Bondanella 2004, p.35), portrayed in black and white the rubble, the uniforms and the bloodshed, while the early 1950s began to nourish the dream of that *Made in Italy* that this article intends to re-examine from several points of view. The first, but not the main one being the technical definition of *Made in*, which allows a product to be assigned a label that in theory only certifies a process, but which in fact designates characteristics of quality, attention to detail, and style. It is exactly between the tangible and the intangible that this definition is played out, which like all texts considered will need its context to be well understood.

The title of this paper is composed of two parts, the first deliberately emotional and the second explanatory. The subtitle is descriptive of the case history analyzed. The *earth* (a land, in particular Italy) is considered a source of art, a soil within whose boundaries over time certain characteristics linked to creativity and manufacturing skills have developed. As land, literally *piece of land* with its own marked geographical borders, Italy is both container and content, in an always valid, constant and continuous fusion between signifier and signified which makes form and content inseparable like two sides of the same sheet (Volli 2003).

The current reference context regarding the analysis of the Made in Italy brand is completely different from that in which the brand itself was formed. It is therefore necessary to reconsider it both in terms of technical aspects that still contain much debated nuances, and from a conceptual point of view. In the brand's definition, it is the land-identity element connected to a nation—Italy— that defines itself through geographical boundaries, but also through an ideal of 'Italian-ness' that sells well abroad, albeit not well enough.

In fact, it turns out that (Mancini & Pigoli, 2023) while Italy is the most Google-searched country, when one takes a look at the statistics on investments by foreign companies in our country, the ranking shows the *Bel Paese* ranking in lower positions. A certain winning idea of Italy abroad linked to stereotypes born in the golden age of the Made in Italy, namely those two decades, between the 1950s and 1960s, the years of the economic miracle in which everything seemed possible, remains strong.

2. MADE IN ITALY AND NATION BRANDING

In the context of the contemporary world and of a global economy such as the one of nowadays, it is increasingly necessary for a small, medium or large company to stand out and gain visibility, to bring out its strengths and to differentiate and establish itself in a selected target market that can then become loyal and continue to confirm the choice made. In this regard, marketing strategies known as place-branding strategies have been developed that focus on the promotion of *the place* (Passeri et al., 2014). We thus speak of city branding, region branding, but also of nation branding, and it is in this category that the Made in Italy falls along with the other national brands promoted. Nation branding involves private as well as public entities such as the institutions that have the task of promoting Italy abroad, making

its most positive aspects known while deconstructing the negative narratives linked, for example, to the mafia or drugs that have become established over time and that are responsible for creating a bad reputation. In this direction, the current government headed by Prime Minister Giorgia Meloni took the decision to transform the former Ministry of Economic Development (MISE) into the Ministry for Business and Made in Italy.

The concept of a national brand was born in the early 1990s, but became established about a decade later. Academically, the term was coined by Simon Anholt (1996, pp. 357–364), the main objective being to narrow the gap between what the authorities of a country wish to convey, and the objective or perceived reality that characterizes it. However, there remains the difficulty of not having a single standard for measuring the national brand that would then allow for appropriate comparisons.

Made in Italy is legally a mark of origin affixed to a product, which attributes the place of provenance of the goods (Pelaggi, 2010, p. 193–195). Affixing a *Made in Italy* mark of origin should therefore mean that a good was produced in Italy. Unfortunately for the value of *Made in*, this is only partially true, and often even products forged almost entirely abroad can affix the *Made in Italy* mark. The reference is the Union Customs Code (UCC), dated October 9, 2013, specifically Article 60, which states in point:

Goods wholly obtained in a single country or territory shall be deemed to originate in that country or territory," and in point 2, "Goods to the production of which two or more countries or territories contribute shall be deemed to originate in the country or territory where they underwent their last substantial and economically justified processing or transformation, carried out at a firm equipped for that purpose, resulting in the manufacturing of a new product or constituting an important

stage in the manufacturing process (Regulation EU2013, No. 952, Title II, Chapter 25, Section 1, Article 60)

Translated into trademarks widely known to the general public, the former would then be a 100% *Made in Italy* product and the latter simply *Made in Italy*. The biggest problems relate to products included in the second category.

We usually speak of *Made in Italy* in reference to the well-known 3Fs related to Fashion, Food and Furniture associated positively with Italy for creativity, aesthetics, quality and sophistication (Temperini et al., 2016). Using the Italian language, the group changes by going under the umbrella letter A representing the same sectors (clothing, agribusiness, furniture) to which *automotive* is added. Traditionally companies in these sectors have performed positively in international markets and have built a good self-image, the perception of a product included in these sectors, if made in Italy, gains value and the customer is willing to spend more. For this reason, companies that in order to decrease costs relocate much of the production process, taking advantage of the window of interpretation and possibility present in the law, close the last stage in Italy.

3. THE ORIGIN OF MADE IN ITALY IN FASHION

We can start talking about the fashion system and fashion production in Europe as from the Industrial Revolutions between the late 1700s and early 1800s, first in England and then throughout Europe. Throughout this first phase, Italy always looked to France as a model (Gnoli 2014, p. 9). One reason for this is related to the history of the Italian peninsula, which did not reach unification until 1870 with the annexation of Rome and was a highly fragmented country under the control of several foreign powers. An early attempt to *Italianize* fashion, albeit partial and unsuccessful,

occurred during the *Risorgimento* when, independentist newspapers such as the newly founded *Corriere delle Dame*, founded by Caterina Lattanzi, called for wearing Italian style to fortify the image of the nation. Thus were born the colors named after the epic battles of the time: the Battle of Magenta (1859) and the Battle of Solferino (1859), to which the shades of magenta red and solferino red are referred, the former still in use, the latter instead lost, but certified in the noblest Italian poetic tradition, by Eugenio Montale's "*le tortore color solferino*" (Montale 1956, p. 57).

The call is primarily political, however, and does not deeply convince the high society of the time (even those in favor of independence) that it was no longer appropriate, as it had always been until then, to have fashionable models designed or bought directly in Paris, as a status symbol of belonging to the high society of the time (Paulicelli 2001, pp. 283-291).

In the society of the time, what matters in fashion is the status symbol, the fact that a dress is a symbol of social belonging, of inclusion and thus also of contrast and strong exclusion of the lower classes. This is the *trickle down* mechanism described by many sociologists analyzing societal change in the late 1800s and early 1900s, from George Simmel to Thorstein Veblen, and which will only change from the 1960s onward with a reversal of perspective leading to *the bubbling up* formulated by the anthropologist Ted Polhemus. With regard to fashion, more on an artistic level than on an industrial and market level, Italy will experience a moment of strong identity characterization in the 1920s with Futurism, a cultural movement that will involve man and his relationship with modernity and technology. *The Manifesto of Futurist Women's Fashion* will be published in 1920. Fascist ideology will tend to promote a representation of man that is bucolic and connected to the earth, and of woman as the angel of the hearth and the guardian of family values. Ancient symbolism comes back; the *Duce* Benito

Mussolini is photographed in the fields intent on picking ears of corn, and all that is not part of this representation is banned.

French fashion cannot continue to exist in this representation. Italy must live by its myths. It will remain silent during the most critical years of World War II, of the cruel and bloody final phase of Italy divided in two, with the north in the hands of the puppet state of the Republic of Salò, supported by Hitler and the Nazis, and the south liberated by American troops, already under the spell of the *Made in USA*. This phase precedes the alliance, that is also economic, that will be made at the end of the war, and – speaking of fashion – that will have Florence, the city of Marquis Giovan Battista "Bista" Giorgini, as the symbolic city of this alliance. Already a habitué of Parisian fashion shows and fashionable circles, and in contact with many international buyers, particularly Americans, Giorgini sensed that in the Italy that was being rebuilt there was a desire and ability to express itself, not only through the arts and cinema, but also through fashion. So he decided to bring together at his Villa Torregiani, on the outskirts of Florence, a group of American investors and buyers who were travelling through Europe to see the Paris fashion shows. On February 21, 1951, the first Italian fashion show was held, featuring among others some names that would make the history of Made in Italy: Sorelle Fontana, Emilo Schubert, Emilio Pucci, Germana Marucelli and Jole Veneziani. The following year (1952) the event moved to Sala Bianca in Palazzo Pitti. Italian fashion explodes and establishes itself in the world. In just one year exports go from 125.000 USD to 1.5 million, in the 1950-1960 decade the export of knitwear grows from 364.000 to over 18 million USD, and the footwear sector rises from 125.000 USD to over 23 million (ANSA, 2021). Italian fashion is conquering a precise market segment, not *haute couture*, ruled by France,

not casualwear and sportswear, the heritage of Americans, but the so-called *prêt-à-porte* (PAP) or ready-to-wear.

The evolution of Italian fashion born in the 1950s and consolidated in the following decades is not just *Made in Italy*, it is not a geolocation within national borders. The term *Made in Italy* in the collective imagination comes to indicate a certain style that can be associated with very different brands such as Giorgio Armani and Gianni Versace, historically representative of two very different ways of interpreting femininity, for the former elegant in sobriety, for the latter sensual in exaggeration and celebration of the cult of the female body. But also Gianfranco Ferrè, Max Mara, Pucci, Elio Fiorucci, later on Dolce & Gabbana, Alberta Ferretti and many others. What holds together all these brands that are so different from each other, in every respect? Being associated with Italy and with a certain stereotyped idea of Italian style, sold very successfully abroad by individual brands and by the Italian system – An idea that is also realized by manufacturing characteristics and respect for the working conditions of workers in the sector guaranteed within the nation and not elsewhere.

The Made in Italy therefore is characterized as a living organism that grows and evolves, at least in theory, along with the country. It globalizes, capturing trends present in markets worldwide, but it keeps a certain representation true to itself. Laws change, but not the reference narrative, and talking about Made in Italy, especially abroad, it often provides a picture that reflects more what was happening in the 1960s than today.

Globalization, digitalization, and fast fashion have changed the characteristics of the fashion system, often times in a negative way, and the brands that still benefit from the Made in Italy label wanting to continue to exploit its positive value, remain anchored to the past. As if an upgrade from that framework necessarily represents a decline in quality on the international scene. However,

this static nature becomes a problem when the gap between manufacturers and consumer is stellar. When the generation of today's young consumers identified as Gen Z and Gen Alpha (Schneider & Lee, 2022) no longer buys for the same reasons as past generations, it is no longer just the tools or modes of purchase that are changing, but the concept itself and in a more profound way. Fashion no longer expresses objects of desire that are perceived as status symbols, but complements of a sense of wellbeing that marks a personal and collective identity. Genzers choose sports brands such as Nike and Adidas first and foremost, but they also love Gucci, (unique among luxury brands) – the Gucci of Alessandro Michele, its Creative Director– capable of expressing and interpreting a sense of group belonging, of a tribe that in the brand seeks at the same time a sign of uniformity and distinction (as Simmel already explained more than a century ago).

4. REDEFINING MADE IN ITALY

It becomes necessary, therefore, to rethink Made in Italy brand, in light of all the considerations brought here, and of the profound changes that Italian society has undergone in the last half century and more. Modernization is necessary for the survival of the brand itself, especially for the new generations in constant search of authenticity and truth, for fashion exists and lives nowhere else other than in society. With the ability, that has always been its hallmark, to create bridges between past, present and future. A capacity impeccably expressed in the well-known image of the *tigersprung*, the leap of the tiger described by philosopher Walter Benjamin in his *Theses on the Philosophy of History* (1940). Fashion is about today, it rides the wave of contemporary trends, always quenching its thirst from the source of its history and its past, a past that must be transformed and

recontextualized, to acquire –like any text in semiotics– its own *meaning* (Lehmann, 2000).

It is opportune to chart the Western-European-Italian cultural episteme of the fashion industry and fashion studies and dismantle it by drawing on, and out, globally-oriented and decentered approaches to the study of fashion and style. Even if in recent years the validity of *other* dressing traditions has begun to be recognized in the international contemporary debate, the colonial imprint in fashion is still very present in all areas: From aesthetics to language, from economic choices to environmental repercussions. Decolonizing fashion is equivalent to questioning every aspect of it, to redefine it as a universal cultural phenomenon that arises with equal dignity, from very distant times, in all the cultures of the world (Lorusso, 2022). From this discussion arise topics such as inclusion and diversity, cultural appropriation, the decentralization of fashion and also sustainability. The theme of the earth, as a geographical place and a place of meaning, or of the lands and countries that compose it is at the center of this debate (Gambi, 2022). In what direction should Made in Italy be resignified in the contemporary world? One of the prevailing directions is the inclusion of new inspirations from the world that break out of the stereotype of *typical Italian*. In recent years, the configuration of the Italian population has changed, and communities in this country that are fully Italian have the desire and need to express themselves and be included in the Made in Italy narrative.

The issue, at the media level, was raised by the designer Stella Novarino, known as Stella Jean, of Haitian origin, who in her fashion designs has always mixed inspirations from the world that originate elsewhere and materialize in Italy, becoming fully Made in Italy. After all, inspirations have always had no boundaries, even designers classically falling under the umbrella term of Made in Italy have referred to other worlds, including even the moon. The

protest started in 2020 when, in an interview with the New York Times, Novarino declared that she would no longer present at the Milan Fashion Week as long as she was the only black designer, thus denouncing to the world press the isolation of African creative designers within the Italian fashion system. That is when WAMI - We are Made in Italy was born, a grouping of all designers from migrant backgrounds working to substantiate the multicultural transition of the Italian fashion industry, emphasizing aspects such as diversity, equity and inclusion. WAMI was founded by Stella Novarino herself, together with Edward Buchanan and Michelle Ngonmo, founder of the Afro Fashion Association. In September 2022, Stella Jean returned to the Milanese catwalks by opening the Afro Fashion Week precisely together with the WAMI designers. Initiatives like this on the one hand are interpreted as a sign of change, progress and inclusion, on the other hand, by those most critical, they are always considered as a form of isolation and ghettoisation. The case history presented below fits into this redefinition and re-signification by following a path that leads from Rome to Africa and from Africa to the world.

5. *COLORIAGE: A SOCIAL TAYLOR LAB*

The Coloriage social tailoring lab was born in 2019 from an idea by Valeria Kone and Khassim Diagne as the Free Fashion School of the Terià Association, a project that aims to offer excellent training to refugee and migrant tailors and designers. The workshop and school are housed inside the Città dell'Altra Economia, in Rome, in the former slaughterhouse complex in Testaccio neighborhood. From the beginning, the project has been self-financed thanks to the collections made in collaboration with the students. In 2021, the Cooperative and Social Enterprise Coloriage was founded, which aims to include the former students of the School

of Fashion as working partners. The Coloriage project has a double soul: Social and entrepreneurial at the same time. These two souls are inseparable: The Free Fashion School is the creative hub of the Coloriage brand, managed by the Social Enterprise, which ensures the economic sustainability of the entire project. In the Coloriage Fashion School, designers and artisans from different backgrounds share knowledge and techniques to create collections of clothes, accessories and furnishing items. Since April 2019, the Fashion School has trained 20 students, and the social tailoring lab has activated fifteen social inclusion training placements with local partner institutions that are active in the reception sector. Among the apprentices and trainees we can list sixteen migrants, fifteen refugees and four unemployed young Italian women, one of whom is from a mental-health day centre. Today, eight of the former students of the fashion school work permanently in the Coloriage Cooperative, and five work in external tailoring labs. Three quarters of the people involved in the Coloriage team are refugees and migrants, and work in the Cooperative as handicraft workers, or have design and coordination roles. The Coloriage Fashion School works with emerging designers and teachers from Fashion Academies and Universities, with whom it realises projects and collaborations that have allowed Coloriage to participate in Altaroma 2022, with a tribute to Pier Paolo Pasolini.

In the Coloriage social tailoring lab, people's creativity and expertise are placed at the centre. Each garment carries a tag with the name of the artisan who made it and the amount of time it took to make it. In the brand's collections, batik and West African handcrafted fabrics are combined with fabrics salvaged from deadstocks: wools, cashmeres, velvets, cottons, from fashion houses, textile companies or film productions, choosing to donate or sell overstocks and stock leftovers at stock prices to entities committed to sustainable fashion. For a social tailoring

centre like Coloriage, this means recovering materials of the highest quality, in limited quantities of each type or colour, with which to make collections that enhance the handicraft element. The recovery of fabric deadstock not only significantly reduces the environmental impact of fashion accessory production, but also makes it possible to create long-lasting garments as opposed to the repeated consumption of poor quality fast fashion.

AUTHOR BIOGRAPHY

Giulia Rossi is a journalist and semiologist, specialized in fashion, food and Italian culture. She teaches in Italian and foreign universities, working on the theme of defining individual and collective identity through various forms of pop culture. Her latest publication is *F like Fashion: Connections and suggestions with art, cinema, literature and music* (Pendragon, 2023).

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4 WATER

4 · 1 FROM WET DRAPERY TO LIQUID CONDITION

DIPETSA'S CLOTHING DESIGN

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I. INTRODUCTION

This article focuses on the work of a young Greek designer, Dimitra Petsa. Trained at Central Saint Martins School, Dimitra Petsa develops research on textile material and on the history of the garment by appropriating a motif and a gesture at the crossroads of artistic technique (notably sculpture) and textile technique. This know-how is what is commonly known as wet drapery.

It seems to me that her creative process raises two questions that may shed light on the theme of this paper:

- ♦ How does material innovation inflect an artistic gesture and lead to a transversality of techniques and, in this case, a new value of the aquatic element?
- ♦ In terms of representations, how is the experience of a garment, in this case the wet look, likely to transform and modify the way in which we relate to the body, and more precisely to what the designer calls "our liquid condition" (Di Petsa, 2020, Section Wetness), both phenomenologically and socially?

I will examine these two questions by following three lines of thought. Firstly, I will follow a technical and material axis through the description and analysis of the creative process of Di Petsa. With a limitation of which I am fully aware, that of the exteriority of my gaze since I am essentially working with images of clothing, rather than with the objects themselves. That said, the possible weakness of this approach, its certain abstraction, is compensated for by the study of texts relating Di Petsa's approach, based on the narration of the lived experience of clothing. Secondly, I will develop a cultural axis by detailing the different values of the imaginary of water. Finally, I will develop an axiological and phenomenological axis by examining the values of the body promoted by a renewed conception of the imaginary of water, less aquatic imaginary than liquid imaginary and a lived experience of clothing.

2. DI PETSA'S CLOTHING CREATION: THE WET LOOK

Founded in 2019 by Dimitra Petsa, the Di Petsa brand (see Di Petsa, n.d.) has made a name for itself by developing a defining silhouette, the wet look. The designer refers to the creation of a look rather than a garment, which is by definition linked to body and size (or shaping) standards. The wet look is indeed tailor-made. Its standard is individuality. But unlike the cut technique, where the garment follows the contours of the body in order to exacerbate them, the wet look does not admit the same function. It is the material aspect of the silhouette that should be noted: The impression of fluidity, of a wet fabric that sticks to the skin, revealing its appearance in places. Leaving aside the images of seduction or sexuality that we can project onto these silhouettes linked to models as conventional as those of the Venus Anadyomena or of all the mythical creatures, the focus on technique allows us to invest the status of the body in a different way. In a way, referring only to the final result distorts Dimitra Petsa's approach. Indeed, the wet look can only be understood in a processual way, i.e. by integrating the multiple preparatory phases that are an integral part of the silhouette insofar as the designer scrupulously documents its elaboration through performances. Collective and in a segmented time-space, the performance is defined as the moment of experimentation of forms and textile materials starting from a contact with water, then comes the moment of the clothing elaboration itself by the research and development of specific materials, in particular the fishnet used for the effects of transparency, doubled sometimes with embroideries, as in the case of the preliminary collection entitled *Wetness* (Isabella, 2018).

Far from being limited to an ornamental function, the writing presented on the garment in the wetness collection verbalizes, i.e. makes intelligible something present, but insensitive, elusive, precisely the fluid nature of being. Here,

fashion design meets poetry. In a script entitled *Wetness* (Di Petsa, 2020), written in conjunction with the development of the eponymous clothing collection, the designer adopts several styles of writing, from exhortation ("Your blood is clean") (Di Petsa, 2020, Section Blood) to exercise or experimentation ("Tip your finger in your blood") (Di Petsa, 2020 Section Blood, Exercise). The formulas reproduced on the garments are not simply the transposition of a theory into practice. They are not intended to give the garment an intellectual appearance. On the contrary, they activate the garment, enabling both the wearer and the viewer to become aware of their own bodies. Comparing the text and the clothing collections gives us a better understanding of the importance of discourse in the creation of clothing, a discourse that is not about brand image but about the experience of clothing. This fluidity of being is the common thread running through Di Petsa's collections, whether through the work of fishnet or the more recent work of knitwear. Indeed, in the Spring/Summer 2023^① collection, the knitted dress acts as a revealing screen for the internal circulation of fluids by translating it into patterns. If we go back to the wetlook, in particular, that of the latest collection presented at London Fashionweek in February 2023, the creative process is the same: First of all, an experiment with wet fabrics where the participants spray themselves, play with the water before fixing the fabric's reliefs through the techniques of folding and pleating. This preparatory use of water is reminiscent of Di Petsa's own technique of wet drapery. As we know, the wet drapery is a motif with a long history in painting and sculpture. It is a preparatory stage, the modelling of liquid clay, aimed at suggesting forms and giving an impression of relief that the painter translates onto his canvas or the sculptor into marble. Elevated to the rank of a stroke of skill or a manufacturing secret by the theoreticians of the Renaissance and the classical age, the wet drapery is less akin to an actual

manufacturing process or a taught method than to an anecdote extolling the genius of an artist. This is what we find in Roger de Piles' *Discourse on Drapery* (1708, unpaginated): "Les anciens sculpteurs ont été fort entendus dans le jet de leurs draperies. (...) Ils se sont servis pour cela de linges mouillés ou d'étoffes légères dont ils ont plus ordinairement drapé leurs statues." ②

By taking up the wet drapery, Dimitra Petsa doubly inflects what looks like a cliché. She converts a preparatory stage into the finality of the artistic process, but above all she enlarges the accessory role of water – impregnating the fabrics, acting as a revelator of the body's curves – into the essential principle of a powerful and organic imaginary. A comparative analysis of the materiality of garments and theoretical texts reveals the critical function of drapery. Di Petsa's clothes are not what they seem. They are not literal reproductions of an ancient archetype, but their subversion through words that invite us not to contemplate them like statues, but to wear them.

3. *FROM AN AQUATIC IMAGINARY TO A LIQUID IMAGINARY*

As I said in the introduction, in addition to the technical aspect, the interest of Di Petsa's approach also lies in the transformations made to the cultural representations of water and clothing. More precisely, the dialogue between the imaginary of water and the imaginary of clothing. Schematically, two conceptions of the aquatic imaginary can be identified which give rise to two types of ontology in the philosophical field:

- ♦ An imaginary with positive connotations: That of universal fluidity and perpetual change, as expressed in particular by Heraclitus.
- ♦ A rather negatively connoted imaginary of water, found for example in Plato's *Cratylus* or *Theaetetus*, where the philosopher opposes the fluidity of the sensible world

to the permanence of the Forms, i.e. the principles of knowledge (Houille, 2015). To admit fluidity on the epistemic level would be to confuse knowledge with opinion. It is to lose oneself in a form of general relativism or, more radically, to resign oneself to mutism.

This ambivalence of the aquatic imaginary appears in a masterly way in the definition of the female type within the framework of the theory of humors (Hanafi & Polle, 2016). Characterized by a phlegmatic temperament, the feminine type is associated with the overflow of fluids, with their uncontrollable overflow. Allegorically, it is also the elements of turbulent, mysterious or stagnant water that the figures of the mermaid, the undine or the morbid Ophelia respectively embody. I have chosen to compare this famous painting by Everett Millais (*Ophelia*, 1851-1852) with a photograph taken by Annie Leibovitz (2021) of Paloma Elsesser to emphasize this very idea. Obviously, the photographer refers more or less intentionally to the figure of Ophelia, to the whole imaginary world of the woman as a mysterious and aquatic creature. It seems to me that this is a completely erroneous interpretation of Dipetsa's clothing design, precisely because it invokes an outdated mythology, whereas the Greek designer takes a different path. The photographic staging freezes into a stereotype something that is above all thought of in movement ③.

On the contrary, the elaboration of a different imaginary, i.e. an alternative paradigm of water appears in several ways: Through a theorisation of clothing making in the form of scripts and narratives that allow for an active relationship to clothing. More than an accessory, clothing is a device for actively and consciously relating to the body. Putting the body's fluid states into words gives them a new consistency. Through the implementation of performances or workshops (see Di Petsa, 2021) that allow the discovery and collective experience of the wet drapery. Wearing one's

own clothes means appropriating one's own fluids, being fully the subject of them.

This dynamic, reflexive and creative investment in the wet drapery gives rise to what the philosopher Jean-Philippe Pierron (2018) calls a poetics of water, i.e. a more intense sensitive experience of water, which enables us to enrich our collective representations. We are thus moving away from a pragmatic and scientific conception of water as a molecular composition, a controlled and pure water, odourless and transparent. We are also moving away from a conception of water as purification, as Ivan Illitch (1985) pointed out in *The Waters of Forgetfulness*. Water is not what cleans, what sticks to the garment or to the skin, but the wet garment by sticking to the skin, by adhering to the body, reminds us of the vital necessity of our liquid condition. This is why, rather than speaking of an aquatic imaginary renewed by Di Petsa, it seems to me more appropriate to evoke a liquid imaginary.

The shift from an aquatic imaginary to a liquid imaginary is achieved by redefining water as a liquid element, which consequently integrates all fluids, and in particular bodily fluids. The liquid imaginary carried by Di Petsa moves away from the dichotomy between cleanliness and dirtiness, from a hygienist paradigm of water to promote that of awareness of a liquid condition. In doing so, the garment, i.e. the wet look, becomes the mediator of a lived experience of fluidity, particularly from a feminine perspective.

4. ON THE CLOTHING EXPERIENCE: WHAT IS A LIQUID BODY?

The liquid condition can be understood as the general fluidity of the body in relation to its appearance, color, shape and gender assignment. By liquid condition, we can also refer to an internal fluidity: That of blood, tears, milk, etc. By liquid condition, we can finally see the different states of the feminine body. I mean here the adjective feminine

and not female in the sense given to it by the philosopher Camille Froidevaux Metterie (2021). It is not an essentialist approach determined by gendered characteristics but a body insofar as it is determined by certain lived experiences, always subjective and corporeal, for example pregnancy. In this sense, talking about pregnancy as an experience of the female body amounts to what the philosopher Iris Marion Young (2005) calls a queer state, a state of disorder. The function of the wet look, more than an alternative in terms of cultural representations, is thus doubled with an ecological and political dimension. Ecological because the mediation of the body allows a new relationship to the world, as proposed by the philosopher Iris Marion Young (2005). The way in which the body reminds us of its presence and vitality, necessarily transforms the way in which we consider the world. But only if we can fully live this experience. But it is also political, insofar as it is a question of bringing to light in a material way something that has been passed over in silence, something that is taboo, that is to say, polluted. To go through the intermediary of the wet drape is not to purify our liquid state, that is to say to rid it of its dirty envelop in order to make it acceptable, to master it. On the contrary, the wet drapery embodies the liquid condition as a state of fact, which determines both the relationship to others and to an environment. Against an objectification of the body, i.e. a form of alienation where one would become a stranger to oneself by controlling and regulating one's own fluids, the garment here gives the possibility of experiencing them as a subject.

To conclude this last part, I will end with a parallel between two quotes that make a similar point: The first is by Dimitra Petsa herself, denouncing the norm of women's withdrawal into themselves in their living of their fluid condition: "There are so many products in the market to sanitize or prevent our wetness, so many ways in which we control our expressions of water whether that is physical

(i.e. tears) or behavioral (i.e. affection) (Di Petsa, 2020, Section Wetness)". The second is by Iris Marion Young (2015, p. 107): "From our earliest awareness of menstruation until the day we stop, we are mindful of the imperative to conceal our menstrual processes. (...) Menstruation is dirty, disgusting, defiling, and thus must be hidden. (...) The normal body (...) the body that everybody assumed to be, is a body not bleeding from the vagina (Young, 2015, p. 107)".

The philosopher says no different from Dimitra Petsa: Because they disturb a worldview based on stability and order, female fluids and more broadly all fluid states of the body (trans, non-binary, disabled bodies) must be concealed and controlled. This taboo on fluidity leads to the promotion of an "ethereal conception of human life", says the philosopher, a disembodied conception. Conversely, Di Petsa's wetlook, because it allows for a renewed attention to the self, takes on its full feminist dimension. By placing fluids on the surface of the body through the mediation of the draped garment, Dipetsa converts the private experience of fluids into an open and collective experience where it is not so much a matter of controlling them as of living them more intensely.

CONCLUSIONS

The aim of this article was to understand the contrasting value of drapery in contemporary clothing design, using the example of the Greek brand Di Petsa. Using a comparative method between clothing practice and clothing theory, three results can be highlighted. The first concerns the subversion of a stereotype. The introduction of the text on clothing cancels out passive contemplation and combines draping and performance. Drapery must be experienced. The second result concerns the appropriation of an aquatic imaginary. The active relationship with drapery transforms the aquatic imaginary by pluralising it and giving a

new place to fluids in all their diversity. Finally, this redefinition of the aquatic imaginary as a liquid imaginary allows for a new conception of the body. Drapery mediates the representation and consideration of a liquid body, a body that exists through the movement of its fluids, overcoming reductive oppositions such as that between the clean and the abject.

NOTES

- ①: See Spring/Summer Collection online (<https://dipetsa.com/blogs/collections/ss23-the-moon-tastes-of-wine>)
- ②: "The ancient sculptors were very skillful in the throwing of their draperies (...). They used wet cloths or light fabrics for this purpose, with which they more usually draped their statues". (Author's traduction).
- ③: On the influence of photography in the ideological approach to drapery, See Doy (2002).

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4 · 2 MATERIALIZING IRIDESCENCE

ELISSA BRUNATO'S BIO IRIDESCENT SEQUIN

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I. INTRODUCTION

The ethereal and ephemeral nature of fashion makes it a difficult topic to define and research. As the eminently quotable Coco Chanel used to say, fashion is the art of capturing what is in the air (Morand, 1976), but then it must incarnate into something. Precisely, fashion incarnates into those movable, wearable architectures that Roland Barthes dismissed as natural “garments of no interest” (Barthes, 1983), since he observes, “rather wistfully”: “Man is doomed to articulate language” (Broyard, 1983, p. 13). Therefore, an empirical and theoretical focus on fashion’s material aspects is a suitable mean through which *grasping* fashion. According to Woodward and Fisher, although dress history and anthropological literature on clothes place the material at their core, “they do not develop ways to consider fashionable clothing as material culture” (Woodward and Fisher, 2014, p. 4).

In this paper I will argue that sustainability – as a concept with anti-fashion *nuances* – participates in fashion’s shifting identity, hence the cultural need to stabilize its ever-mutable meanings in materiality. In particular, I will focus on Elissa Brunato’s Bio Iridescent Sequin and the process of materializing iridescence, something at odds with the material aesthetics of sustainable fashion – as it is commonly understood. Iridescence both addresses a universally human desire – generally marked as *feminine* and *childish* by Western culture –, rather than *the environment’s need*, and is a material embodiment of fashion’s ever shifting quality. Iridescent – or structural – colors, “by their very nature defy our best efforts at visual reproduction” (Simon, 1971, p. 15).

While the media tend to characterize fashion as an *ugly* reality, sustainable fashion is commonly perceived as both ugly and unfashionable, since it doesn’t follow the trends and it lacks *sparkle*. This is not without relevance, since at

the center of material-culture approaches to clothing is the crucial importance of the materiality of garments; specifically, how the material qualities of garments impact upon how they are able to externalize particular cultural categories of identities. In fact, charting the history of sequins, one can note how they are deeply interwoven with the cultures in which they exist. The sequin dress has a long cultural history in women's (and men's) fashion that reveals how this trend, like all *things* (Kopytoff, 1986), possesses a social life and biography of its own, in relation to its wearers.

Even if many are not aware that sequins had been around long awhile, sequins – or spangles, as they were called – have been in use for hundreds of years. There are many surviving garments from the 1500s that have spangles as part of their embellishment. Originally, they were paste-board coated with metal dust to achieve a metallic look with less cost. They only began to be made in plastic in the last nineteenth century. Spangles were a popular form of embellishment for the clothing of the aristocracy from the sixteenth through the eighteenth century. A host of sumptuary laws governing the dress of all classes of society prevented their being worn by anyone not of the nobility. The first modern ones were made of celluloid, and there was a short-lived experiment with making them from gelatin, but they had the unfortunate tendency to melt due to body heat.

Until the mid-twentieth century, sequins were produced in an astounding array of shapes, sizes, colors; and until the electric bulb was invented in 1880, they wavered under gas lit drawing rooms. In the twenty-first century, sequins' use in the apparel industry is primarily confined to womenswear, childrenswear, and the entertainment industry (see Fig. 1). While other contemporary light-reflecting materials such as Lurex offer competition, fashion designers including Norman Norell, Bob Mackie, and Carolina Herrera have

used, and continue to use, sequins to produce eye-catching, shimmering evening wear (Rivers, 1999).

2. VITAL MATERIALITIES: FASHION THAT SPARKLES

All that said, why does shimmer give people so much pleasure? Researchers at the University of Ghent have found that our attraction to shimmer is likely linked to our innate need for water (Meert et al., 2013). Spotting a dress sparkle across the room would bring up emotions akin to spotting the glistening of water in the horizon. And there's a kind of luminosity or shimmering presence that occupies and accompanies bodies in mainstream fashion media culture (McRobbie, 2009).

In 2025, fashion's obsession with sparkle is still going strong. But to approach objects like stickers, Hello Kitty and sequins solely in terms of their significations does not tell us much about what they do to bodies (Swindle, 2011). In this regard, the vital materialists' approach is an interesting one. According to political theorist Jane Bennett (2010), "vital materialists will try to linger in those moments during which they find themselves fascinated by objects, taking them as clues to the material vitality that they share with them". Methodologies of "following the object" – in this case: the sequins – share an attempt to trouble what Arjun Appadurai describes as the "powerful contemporary tendency to regard the world of things as inert and mute, set in motion and animated, indeed knowable, only by persons and their words." Indeed, he argues that "we have to follow the things themselves, for their meanings are inscribed in their forms, their uses, their trajectories" (Appadurai, 1986, p.5).

From this perspective, sequins have a particular purchase in mainstream media culture, as fashion's visual landscape is now dominated by sparkly brilliance (Kearney, 2015). Understood in these terms, sequins might be an engaging

material because of its familiarity and its association with celebrity culture, glamour, and wealth. Sequins sparkle. However, it is not only in mainstream girls' and fashion culture that sequins are vibrantly significant. Another way to follow the material is to consider its importance in alternative, protest, religious cultures, and marginalized groups in society. One of the implications of this methodological focus is that the emphasis is not so much on what sequins are as what, as a material, they might do.

The affective experiences of sequins' sparkle are of wonder and enchantment. According to MacLure's definition of wonder as "a liminal experience that confounds boundaries of inside and outside, active and passive, knowing and feeling" and, as such, it is "simultaneously Out There in the world and inside the body, as sensation, and therefore is distributed across the boundary between person and world" (MacLure, 2013, p. 181), we can see how the affectivity of sequins moves across boundaries: inside and outside of legitimate fashion and across fashion categories. Of enchantment, Bennett writes that it is the sensation that "lives amid the familiar and the everyday, and that can be fostered through deliberate strategies" (Bennett, 2001, p. 4). According to this view, sequins can be understood as a kind of *everyday utopia*. They add some sparkle into the same-old everyday. They *fabulate* a near-future encounter into something that comes alive.

But over the last decade, sequins have become entangled with another kind of emotion: fear. Both fear of impending apocalypse and fear of an un-sequined world. In fact, while sequined dresses are appreciated for their excess and spectacle, they are also hated; and start to lose their sparkle. Many sustainable fashion blogs advise their readers to not purchase sequined clothing and accessories, reinforcing the stigma on those who indulge in the performance of glamorous femininity as immoral as it is bad for the planet. In this regard, glitter has already been banished at *Tops Day*

Nurseries – a chain of 19 nurseries across southern England – in 2017 (Fortin, 2017), setting off a frenzy that reached as far as New Zealand, where it prompted the environmental anthropologist Trisia Farrelly to call for a global ban of everything sparkling (Parker, 2017). And in 2022, organizers of a weeklong LGBTQ+ pride event in Chattanooga faced harassment and death threats after a former candidate for the U.S. House of Representatives circulated an out-of-context video on social media of children at a youth-oriented activity (Floyd, 2022). Unsurprisingly, the moment that appears to have attracted the most attention on social media shows a girl running her hand along the front of a performer's sequined iridescent mermaid costume. Faced with increasingly urgent social and environmental pressures, creativity is now understood as being a powerful agent for innovation and transformation.

3. ELISSA BRUNATO'S RADIANT MATTER

In this context, Elissa Brunato's Bio Iridescent Sequin offers a sustainable alternative to its traditional, environmentally-damaging predecessor, while addressing the fear of an un-sequined world. Elissa Brunato is a material designer researching cross-disciplinary into emerging scientific possibilities, circular systems, and materials, curious how these can respond to wider ecological systems. Brunato is the co-founder of AusBlau, a creative design studio and consultancy based in London, leading playful investigations into materiality, ecosystems, and the human experience.

After having worked in embroidery design and production for ready-to-wear and haute couture houses, where she witnessed some of the global and environmental implications of distantly-made design choices, Elissa Brunato learnt first-hand that solely aesthetically or economically driven design decisions create unnecessary waste at multiple stages of manufacture, damaging the environment and

exposing workers to hazardous materials. Brunato developed her Bio Iridescent Sequin after talking to sequin suppliers and realizing there was a growing demand for more sustainable materials from fashion brands such as Stella McCartney and the LVMH group. Since the industry had no sustainable options for embellishment components and surface coatings, in 2018 Elissa began the journey of creating a solution inspired by the iridescent splendor of nature (Simon, 1971). Teaming up with expert material scientists and engineers, the Bio Iridescent Sequin – a coming together of two worlds, fashion and material science – is still in development, and most recently, Radiant Matter was founded.

Shiny and glittery effects are commonly applied within the global apparel market, taking shape as beads, sequins, textile coatings or reflective elements embedded into fibers. Every fabric that sparkles, glitters or has a reflective property contains a high percentage of petroleum plastic, toxic coatings or metallized parts. Conventional sequins are made of polyester film (Mylar) or vinyl (PVC) which causes particularly significant environmental and health risks. They are tiny – commonly between 1mm-6mm – and they do not biodegrade. In this context, Radiant Matter has developed the world first biodegradable and brilliantly glittering bio sequin made from wood, inspired by human's awe of nature's ability to produce the brightest glittering colors. These colorful effects are called structural colors. Radiant Matters develops material solutions with sustainable structural color, while their materials are biodegradable, non-toxic, and pigment free. Working alongside material scientists Hjalmar Granberg and Tiffany Abitbol, from the Research Institute of Sweden (RISE), Brunato created sequins which utilize wood cellulose's ability to refract light and form structural colors.

Her alternative bio sequin, which is able to shimmer naturally without added chemicals, is an entirely new way to

approach color and finishes within the fashion and textile industries. The cellulose's crystalline form refracts light and makes the sequins naturally shimmery, without the need for chemical treatment. Making a Bio Iridescent Sequin starts with the growing of cellulose, which can take anything from a couple of weeks to a number of years. Cellulose is one of the most abundant polymers available on Earth. It is one of the main ingredients plants are constructed from, and it can be extracted from any type of tree. For a tree, as in the case of the first sequins Brunato has made, the cellulose takes about a hundred years to form sufficiently. This is remarkably short in comparison to crude oil, which takes thousands of years to form. At the moment it takes about a day to make the sequins in a laboratory by putting the liquid cellulose material into a mold using a pipette. They can be made in a variety of shapes and then sewn onto fabric like a traditional sequin or bead. As the material forms very strong bonds, the sequins are light and use very little cellulose per sequin. In the future, the cellulose could originate from anything from fruit peels, or algae, to used denim, and waste paper.

As a designer, Brunato loved and found pleasure in the optical surfaces that objects like sequins can create. She – like many among us – was attracted to the finishes of plastics and shimmering coatings as they create incredible visual effects. The shimmer and glitter are what attracts people to these objects and for her the starting point was exploring how these finishes could be attained naturally and sustainably. In realizing there is a stigma that sustainable fashion and textiles should be all beige or earth-toned due to natural pigments, she longed to explore a modern approach to sustainability and breaking down pre-conceived aesthetics of the term.

Radiant Matter is inspired by the way that nature creates sparkle and a lot of what they do is looking at peacock feathers and beetles' wings that have this beautiful iridescence. In one of the most striking images from

her april Vogue US cover shoot, the fashion model Cara Delevingne poses in a rolling green field while wearing a bio sequins-covered peach jumpsuit. It is worth noting the interview is focused on her successful rehab and fashionable re-birth. Designer Stella McCartney crafted the jumpsuit for Delevingne on a cotton base, then added the Radiant Matter sequins to give it an additional dazzle. “Who says sustainability can’t be sexy?” McCartney asked to *Vogue* fashion journalist.

CONCLUSIONS

Brunato’s research reveals how sequins tell the story of “an age-old human desire to attain nature’s beauty,” – not to mention the entangled histories of light, enlightenment, spectacle, and modernity. While acknowledging our attraction to glimmering surfaces might even relate back to our primary need for water, Brunato’s Bio Iridescent Sequin addresses the modern need to capture the constituent liquidity of the experience of modernity (Bauman, 2000). The sequin’s structural iridescence, the result of a process of mimesis, in its capacity to capture the movement of light turns a cloth’s surface into a mobile screen. In materializing iridescence, Brunato addresses our own existence as *aesthetical*, delicately weaving the aesthetical with the ethical, while responding to a deep seated human’s need. In the process, sustainable fashion creates a novel aesthetics.

While the predominant way in which sequins are reported on today is in terms of the environmental damage they do – or, in satire, their connection to *rednecks* – and that they therefore should be banned, this is only one of a multiplicity of politics that sequins are involved in. As Rebecca Coleman (2020, p. 1) states: “The movement of glitter in and across different worlds is transformational and future-oriented. As it moves, glitter makes worlds, it brings these worlds to life. This worlding is a process that is unsettled, or open-ended.

Glitter has the capacity to world differently, to create a variety of futures”. Also sequins are involved in the embodied and decorative practices involving the material, and how they do – and do not – become an enchanting material via which people from different walks of life can imagine their futures. As unfinished, changing, and in-the-making, sequins and glitter *worldings* (Coleman, 2020) – i.e. the capacity to make worlds – are directed towards that which fashion is not yet, as well as what fashion is.

FIGURES



Fig. 1 Screenshot taken from *Gentlemen Prefer Blondes* (Howard Hawks, 1935).

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4 · 3 PRINTING ON FISH SKINS

DESIGN STRATEGIES FOR NEW MATERIAL IMPLEMENTATION

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I. INTRODUCTION AND RESEARCH ISSUE

Garments and accessories construction methodology today is based on the utilization of flat surfaces and is the result of the Industrial Revolution. Textiles and leather raw materials are produced in massive quantities with an emphasis on uniformity and evenness in thickness. *Cut and Sew* techniques are fully digitized (pattern making, cutting, and 3D draping), maintaining standardization and mass production. This industry suffers from many faults, such as production fallout, an irreversible mix of materials that are unsuitable for recycling and do not degrade properly, the use of toxic chemicals, and a fragmented process that relies on cheap labor (Fletcher, 2013). The fashion industry is also constantly looking to incorporate changes in appearance, which is leading to a vicious cycle that makes yesterday's fashion irrelevant and manifests in a constant hunger for new materials and processes.

According to the International Council of Tanners (2023), global leather industry sales are nearly 50 billion USD a year. The European leather industry has a long-standing tradition rooted in medieval times. Europe is a significant player in the global leather trade, accounting for approximately 25% of the world's leather production. Furthermore, Europe is now one of the largest consumer markets for leather goods (Cotance, 2023). With that, it is important to note that the leather industry has the overall highest environmental impact compared to other raw materials (Lau et al., n.d.). Yet, the fashion industry is currently going through a significant change in its approach toward sustainability, with new initiatives to source new materials and promote natural processes. For example, the Italian Consortium for Vegetable Tanned Leather (*Vegetable-Tanned Leather Association*, 2023) or new innovative processes for quantifying bio-based materials (Carcione et al., 2023).

Leather, as a substance, has some great advantages. It is a natural material that is extremely durable and ages very well over time. It's breathable and supple in a way that offers grip and comfortability like no other material. Processed in a sustainable manner, this is a raw material that exceeds any synthetic or man-made material. Another important aspect of leather is its craftsmanship. Making high-end leather goods requires some amount of artisanal work or craftsmanship. This is important in this case because the proposed ways of incorporating fish skins into fashion production are also based on the traditional tablework of cutting and gluing combined with the digital process of printing and the industrial process of sewing. In the realm of fashion production, contemporary solutions now offer a diverse array of innovative approaches and mindsets that hold the potential to enhance sustainability and consciousness. Practices such as recycling old garments and fibers, establishing closed-loop chains from production to consumption, developing biodegradable materials, and embracing zero waste pattern design are among the relatively new methodologies that present valuable solutions, gradually finding implementation in real-life scenarios.

The interest in fish skins has risen since fish for food consumption is on the rise and will continue to rise in the next decades (Barange, 2020). However, growing fish for food leaves behind a substantial amount of waste, and fish skins are a significant part of it in weight. From an environmental perspective, there is an urgency to find a solution to this waste material since today it is disposed of in marine water, which depletes the available oxygen for marine species and pollutes the local ecosystem (Arvanitoyannis & Kassaveti, 2008). Salmon skins have a significant cultural heritage in Nordic people like Ainu who lived in Japan, Siberia, and Alaska (Cevoli, 2015). Tanning salmon skins is comparatively easier and faster than tanning hides (Rahme & Hartman, 2006). The result is extremely strong and

results in beautifully texturized skins. This research took part under the funding of the Horizon 2020 RISE project FISHSkin #823943 called Fish Skin: Developing Fish Skin as a new sustainable raw material for the fashion industry. Under the project, designers, scientists, and engineers collaborate to create an impact addressing the use of fish skins on an industrial scale. In this research, the collaborators are a designer who specializes in leatherwork and print design, a chemist who specializes in ink development, and an application engineer who specializes in color management, printing calibration, and prepress processes.

Since 2003, Kornit Digital (Nasdaq:KRNT) has been developing, manufacturing, and marketing digital solutions for printing on garments and a variety of fabrics. Kornit is an integrated vendor with its own development and production capabilities of hardware, software, and consumables. Moreover, Kornit Digital takes a leading and proactive part in the global textile revolution by adapting its consumable products to international standards. NeoPigment™ ink set is based on water-based formulations applied on direct-to-garment (DTG) and direct-to-fabric (DTF, roll-to-roll) digital processes for printing on textiles. These solutions allow an energy-efficient and eco-friendly process by eliminating water and other energy-consuming external steps. Kornit's developed inks currently fulfill the requirements of the Oeko-Tex Standard 100, Product class I ("Articles for babies") and have GOTS - Global Organic Textile Standard approval. Following GOTS approval and Oeko-Tex Standard 100 Approval, these inks are considered non-hazardous formulations from the process of development through distribution.

2. METHODOLOGY

The methodology of work in this project is practice-based and multidisciplinary in nature. In this section, we will first discuss the design strategy and then show how this approach correlates to the methods that put the speculation to the test. The method of work was based on first identifying specific challenges posed by fish skins, such as small irregular pieces, uneven surfaces, etc. The next step was to develop a design approach that considered those challenges. This was followed by printing a draft on transparent paper for evaluation, which required the technical team's response. Printing on the skins included a refinement process of optimization and visual improvement. Finally, the prints were tested for evaluation.

2.1 Design strategies

The starting point was to define the major challenges of working with fish skins. The fashion industry is used to working with cattle hides (cow, sheep, and goat skins), and these hides, though limited in their sizes, provide a large continuous surface, where the pattern of the designed piece usually fits comfortably within the larger sheet of leather, creating some fall-out. With fish skins, however, the reverse occurs. Even with small size parcels, the pattern panels are always larger than the skin pieces, a situation that creates not only a visual effect such as rows of stitches across the panels and a change in surface directionality but also creates several potential failure points in each pattern piece.

Other than the skin size, there are more challenges to printing on fish skins related to the material properties, such as changes in thickness, distinct texture, and sensitivity to heat, which affect the skin's ability to cure properly. The goals were to develop suitable printing strategies for fish skins, considering texture directionality and the connecting lines between the different pieces. In addition,

we wanted to plan efficient ways to connect separate pieces for the later 3D construction of an artifact like a handbag, for example. The work presented here is a result of many trials and errors. The samples were made for the purpose of exploring design ideas that overcome the challenges mentioned above. These ideas would not be able to manifest themselves without ink printing process adjustments. These adjustments will be elaborated on along with an exploration of the various design strategies.

2.2 2D surface design

Salmon skins, which were used in this case study, have a distinct texturized surface of hexagonal cell units in varying sizes and thicknesses (Fig. 1). Designing a pattern for such a deep texturized surface requires not only developing a design pattern that would complement it but also a good bonding strategy of the ink to the skin's surface to answer a durability factor – required from leather because of the long-term usage of a leather artifact. Design-wise two things were clear from the initial tests: The skin's surface creates a blur effect with prints that are realistic because of the elevated surface points. Secondly, the size of the print should correlate with the size of the hexagon cell units because they are both very dominant in the outcome.

The first design element focused on keeping the proportion between the hexagon structure of the skin and the printed triangles in a way they can complement each other (Fig. 2). The varying size of the geometry imitates the gradual change of the skin: The center of the skin, like in reptiles, contains larger units than the sides (Fig. 3). In their juxtaposition, the look created has a rich dialogue between the similar yet not identical shapes of the print and the texture. In the second design, we were looking for other geometric prints that are less defined than the triangular form, by introducing hand drawing as a method to create the

print. We chose polygons, which are geometrical shapes with flaws (Fig. 4). The print-to-texture size ratios are more dramatic, but because they are less accurate in their geometry, they blend with the texturized background.

In parallel to designing different patterns and testing their visual effect, the printing curing process including ink consumables adjustments was performed to achieve the required printing quality and functionality. Since printed fish skin has relatively low absorption capabilities, it was required to develop an appropriate printing process including the adjustment of the ink set to avoid bleed or over-fixation and to achieve vivid and accurate colors at the end. The chosen images were printed in RGB color mode to exploit maximum gamut reproduction. Linearization calibration was generated to reproduce colors and greyscale values more accurately and consistently, ensuring that the printed output matches the intended colors and image appearance. The final step of the printing process is drying and curing of the ink carried out at 110-120 °C for ten minutes. In the case of leather, curing conditions such as temperature and time exposure, were adjusted accordingly to avoid leather shrinkage or deformation. In the case of fish skin, the temperature of curing was reduced to 90 °C, and the exposure time was increased to 15-20 minutes to achieve both ink drying and dimensional stability of the fish skin.

2.3 Stonewash effect

Another design concept we used is abstract stains of colors. The idea here was to look for designs that will age well as it is one of leather's major qualities. For these stonewash effects, we ran a quick in-house abrasion test to assess the aging effect stonewash prints will have. An abrasion test allowed us to simulate an aging process and evaluate this design approach. The forgiving results are shown in the circular samples in Fig. 5. These samples show abrasion after 1000 rounds of abrasive treatment.

2.4 Gradients

Looking at historical fish-skin-made garments made by the Ainu and Hazan people, and their usage of the natural gradients of the salmon skin, the result is full of harmony and continuity. This was the inspiration behind the idea of generating a visual continuity to cover the fragmented surface. Nowadays, most fish skins are processed industrially, a process which makes them lose their natural gradient resulting in even-toned skins. The idea here was to recreate the gradient effect and use it both as a visual and a functional element: a decorative design that conceals the inaeesthetic connecting lines between the skins (Fig. 6).

Underneath the center of each geometric gradient lays the connecting line, making the potential failure point the center of the design. Our ability to adjust and control the printing heads of the printing machine for height and speed gave us the leverage needed to print on a changing thickness surface (the connecting lines had two layers of skins one on top of the other). Additionally, we used inks and pretreatment chemicals that are suitable for polyester, so that polyester threads, which are commonly used in leather construction, will absorb the inks. This resulted in full concealment of the top of the stitch.

2.5 3D construction methodology

Connecting fish skin to a continuous surface requires the following steps:

1. The edges of the skin are trimmed gently to remove the stiff edges and to straighten them;
2. The edges are glued together (one on top of the other) with leather-designated glue;
3. The connecting lines are top-stitched from beginning to end in order to hold the connecting lines in place.

Usually, in cut and sew practices, the method is to place the pattern's parts on top of the continuous surface and cut

the surface accordingly. This is followed by the construction of a 3D garment or accessory using gluing (also known as *tablework*) and sewing practices. In current practices, printing will take place on a continuous surface before the cutting of the pattern. This is important because this logic cannot be executed with fish skins, at least not with sufficient efficiency. Connecting fish skins to a continuous surface just to have a larger material to work with will result in too many connecting lines (which will influence the strength of the artifact) and an unappealing visual effect. Construction Design strategy for fish skins needs to take into consideration the materiality, drape, sewing capabilities, and overall outcome before it is considered effective in production. The focus on maximizing the potential of working with fish skins on an industrial scale resulted in two construction methodologies: Pattern Before Printing (PBP) and Mix and Match (MnM).

In the first practice (PBP) the order of actions was adjusted. The pattern is prepared beforehand. The skin's edges are cut and glued together with the best practice to fit the specific pattern at hand. The pattern is then placed on top of the continuous surface and cut out. Only after the skins are cut according to the pattern, top stitching occurs. This means that the locking stitches (back-tacks) are placed within the pattern. This is a major advantage since the locking stitches prevent the connecting line from becoming a weaker failure point. Only after the skins are cut and sewn according to the pattern pieces, they are printed on (Fig. 7). This is then followed by the traditional 3D construction of a garment or accessory. This process is more efficient for several reasons. It calls for a specific connection plan for each pattern so that the lines can be closely planned into the pattern and complement it. It puts the locking stitches within the pattern which physically supports the durability of the artifact, and it allows for better usage of the printing

table since the pattern parts can be nested tightly and printed simultaneously with minimal waste.

In the mix-and-match method (MnM), the skins are printed individually (Fig. 8). The designs all relate to a common theme or color pallet, in this case, a monochromatic color palette that complements the light blue tint of the background. The idea here is to develop a collage visual look that complements the skin's natural characteristics. Designers can benefit from this approach as it creates a variety of opportunities to establish a one-of-a-kind collection but on an industrial scale.

In this practice the order of steps was changed but in a different manner. The skins were first printed individually. The pattern was prepared. The skins were glued together in a way that would complement the pattern design. The skins are then cut according to the pattern, and only after cutting the pieces were top stitched on the connecting lines. This is followed by the construction of a 3D garment or accessory of *table-work* and sewing practices. Unlike the PBP approach, which requires an in-house printing solution, the MnM approach printing can be done remotely or in larger quantities before the construction phase. Tab. 1 visually summarizes the differences between the two construction approaches and compares them to the traditional methodology.

To evaluate printing durability on fish skin, the following studies were performed by Eurofins UK (Eurofins UK lab provides worldwide laboratory testing services):

- ♦ Abrasion resistance test: Martindale method;
- ♦ Colorfastness of leather to migration into polymer material (i.e., PVC);
- ♦ Colorfastness of leather to perspiration;
- ♦ Colorfastness of leather to water spotting;
- ♦ Colorfastness of leather to light: Xenon lamp.

3. RESULTS

The construction of two handbags was successfully completed according to the two design construction methodologies. The first handbag is a bucket-shaped design that uses the trapezoid shape of the skin to create its 3D form. The skins were cut and connected in pairs and printed with a gradient design (Fig. 9) The second bag is a tote-shaped bag that was constructed using the MnM methodology. It has different prints on each side of it, and its handle was made from cowhides (Fig. 10).

The obtained results are summarized in Tab. 2. Fish skin specimens pass the durability test while additional inline durability enhancements are considered to achieve resistance above 20K cycles. Abrasion durability can be further improved with Kornit's functional fluids. These are standardized tests and passing them means that the technology has passed quality assurance according to industrial standards.

CONCLUSIONS

The purpose of this research project was to develop an efficient method to incorporate fish skins into the fashion stream of production using digital printing. The two handbags designed and executed here are proof of concept for the viability of the suggested methods for processing the skins and creating prints that can be supported on the macro scale of production. The project shows the potential of printing on waste material as an opportunity to elevate its appearance, to create diversity, customizability, and easy-to-process solutions for designers and fashion companies. It serves as an excellent case study for incorporating waste material into fashion production leveraging digital manufacturing platforms such as in the case of Kornit's technology. This was also a great collaboration between design and

engineering professionals and their abilities to create work that supported and nurtured one another. In the future, we would like to explore the opportunity to work with other types of experimental materials, and waste materials, and to develop other design approaches. Also, it would be interesting to develop a platform that would scan the skins on the printing table for maximum calibration between the surface and print.

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FIGURES



Fig. 1 Tanned salmon skin and closeup view.

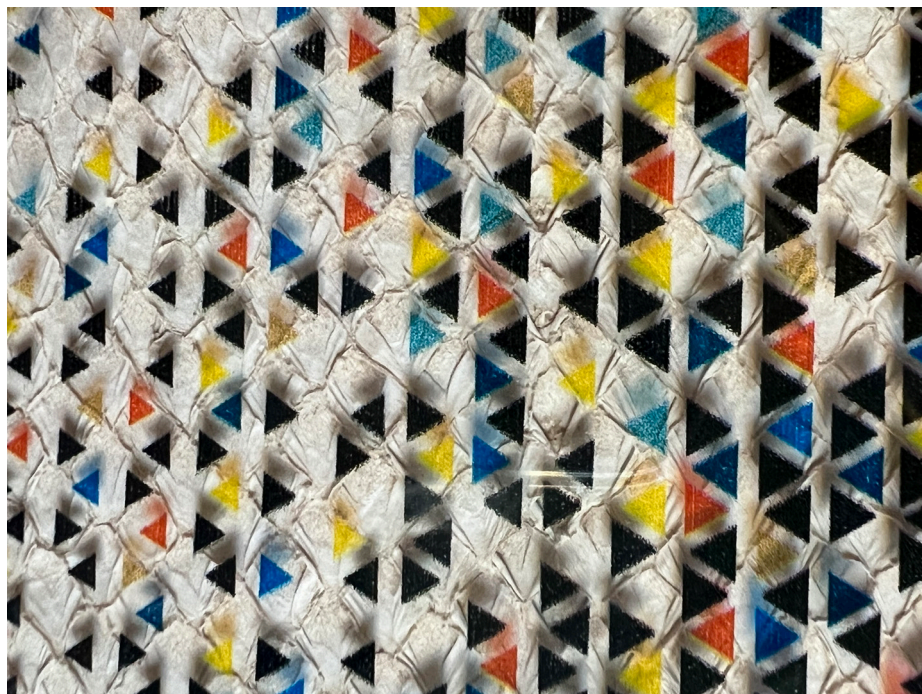


Fig. 2 Detail of print on a transparent sheet on top of a skin.

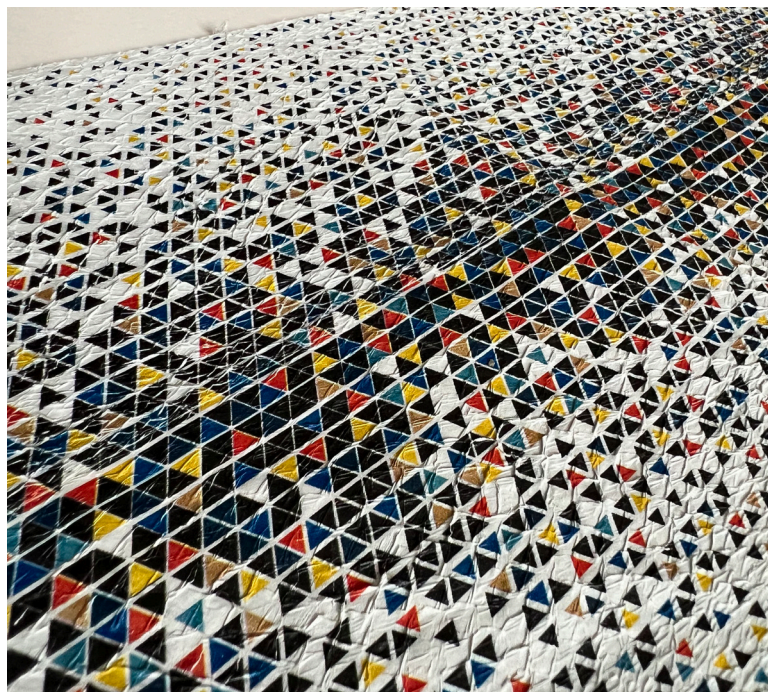


Fig. 3 Varying size of the geometry imitates the gradual change of the skin.

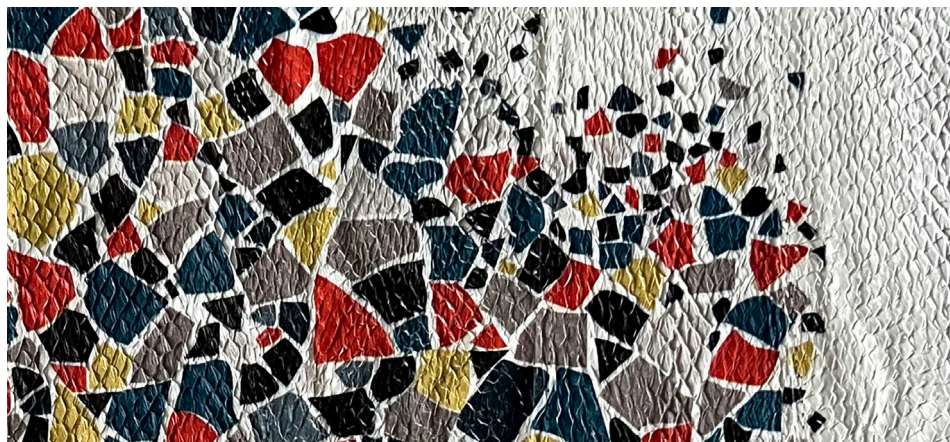


Fig. 4 Printed hand-drawn polygons

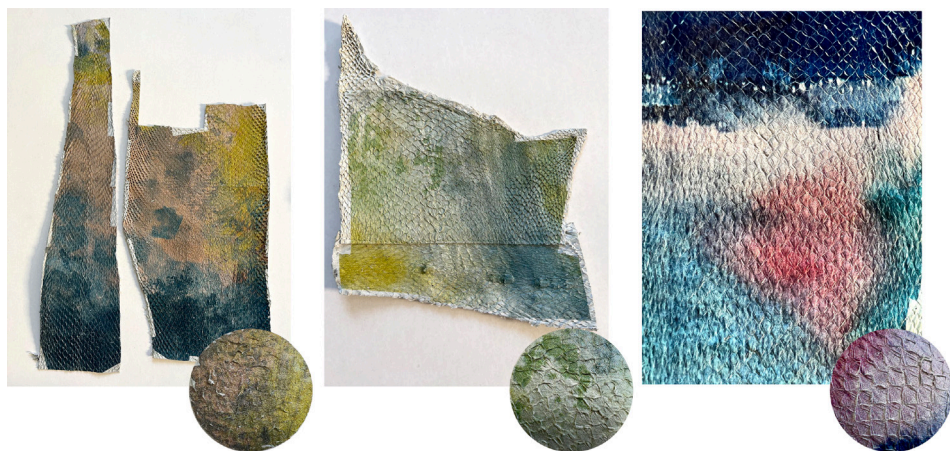


Fig. 5 Stonewash Designs in the back before Martindale Abrasion Testing (ASTM D4966) and after in the front circles.

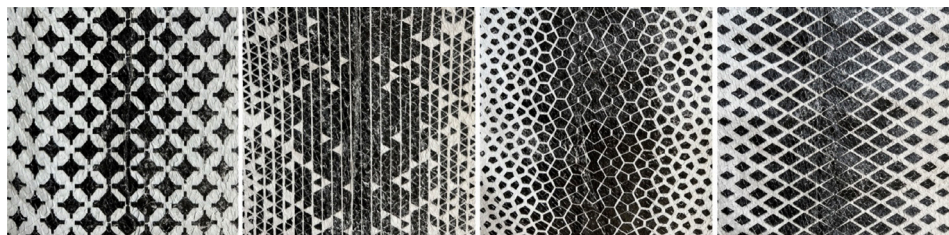


Fig. 6 Geometric gradients printed on the connection lines of the skins.



Fig. 7 Connected pattern piece on the printing table. Skins are pre-glued and pre-stitched before printing.



Fig. 8 Top row, skins are printed separately, Bottom row, connecting the skins creates a collage visual look.

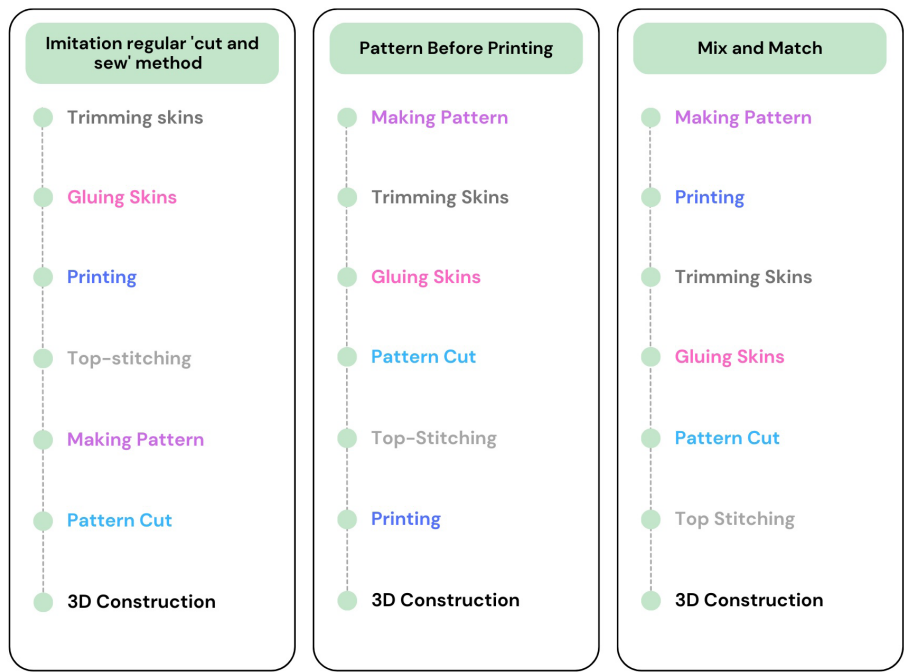


Fig. 9 Clockwise from top left: front view, top view, detailed and bottom view. Photography work: Achikam Ben Yosef.



Fig. 10 Clockwise from top left: side view, front view, front view with strap, detailed. Photography work: Achikam Ben Yosef

TABLES



Tab. 1 Pattern before Printing and Mix and Match methodologies compared to the traditional cut and sew method.

Test	Standard #	Results	Pass/Fail
Color fastness to Xenon light	BS EN ISO 105-B02: 2014	Scale >4	Pass
Abrasion	UNI EN13520	6-12K cycles- mild/moderate reduction	OK
PVC migration	BS EN ISO 15701: 2015	GSR 4-5	Pass
Color fastness to perspiration	BS EN ISO 11641: 2012	GSR 4-5	Pass
Color fastness to water spotting	BS EN ISO 15700: 1999	GSR 5	Pass

Tab. 2 Eurofins: BLC Specification for Leather 2022 –V1 (based on CMYK Olympia inks).

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4 · 4 CALIFORNIA COTTON FIBER

A CRITIQUE OF “MAN, LAND, AND WATER”

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I. INTRODUCTION

Fiber is the first link in the *supply chain* upon which fashion relies. This *chain* is hardly linear (Kaiser, 2022); rather its links kink and often become disconnected or detoured on the global circuitous route from fiber to yarn, fabric, and garment production and marketing. This is especially evident in the story of conventionally grown California cotton fiber, 95% of which is exported from the state. It is true to a lesser extent in the case of some organic, alternative approaches to cotton production (see Fig. 1). Understanding the stories of California cotton fiber-growing requires attention to the four elements of fashion: Earth (land), water, air, and fire (sun). All are relevant to cotton production, but I focus here on its relation to water and land. Whereas the naturally colored, organic cotton farm in Figs. 1, 2, and 3 is located in the Capay Valley in Northern California (to be discussed further at the end of this chapter), most of California's industrialized cotton has been grown since the 20th century in the San Joaquin Valley, in the center of the state. Once a rolling landscape, the San Joaquin Valley was levelled to support agricultural production, and its complex, natural water system was diverted into canals and dams.

The cotton grown in California's San Joaquin Valley is very high in quality, due to a long growing season with nearly constant sun. These conditions contribute to the length and fineness of the fiber for fashions in clothing and linens. Essential to cotton's viability, however, is the need for extensive irrigation. In California, water is a precious resource that depends on sufficient winter rains to deliver a healthy snowpack to the mountains. Prior to the construction of dams and canals in the San Joaquin Valley, the snow melt flowed through rivers to Tulare Lake, which was once the largest body of water west of the Mississippi River in the United States (Arax & Wartzman, 2003, p. 46; Karlamangla

and Hubler, 2023; Smith, 2023), and the spiritual and life source for Yokut Native Americans for thousands of years.

The story of industrial cotton in California cannot be told accurately without a critical consideration of its impact on Indigenous people and their stewardship of the land and water. Following Indigenous and posthuman feminist theorists on the perils of prioritizing humans at the expense of nonhumans and the environment, I argue that the production of cotton (as other fibers) needs to be part of the agenda of critical fashion studies. Unfortunately, the story of California industrial cotton production cannot be separated from resource depletion, power, settler colonialism, and racial capitalism. Colonel James G. Boswell (1882-1952), the founder of what was to become the largest agricultural company in the world, put it like this: “Our whole premise...is *the man, the land, the water*. This isn’t a place for small guys” (Arax & Wartzman, 2003, p. 107, italics added).

In this chapter, I first present the need for an intersectional, feminist posthumanist perspective on cotton production in relation to issues of water and land, alongside those of power, colonialism, and sustainability in California, or the *Golden State*. I then turn to ancient Indigenous attitudes toward water and land in the Tulare Lake basin, followed by the *reclamation* of land and water by cotton and other industrial agriculturalists such as the Boswell family, and the recent *return* of Tulare Lake in 2023 (Fig 4). Lastly, I return to Fig. 1, 2, and 3 and consider the potential of the regenerative agricultural movement for critical fashion studies.

2. LINKING INTERSECTIONAL FEMINIST PERSPECTIVES TO COTTON PRODUCTION

Feminist perspectives consider the environmental and cultural devastation wrought by prioritizing (white) *man* and profit over nature. Indigenous scholar Joanne Barker (2019, p. 15) uses water as an analytic that highlights “other

life-forms and realities,...our ancestors and futures". As a living, spiritual, spatial entity, water signifies "that humans are not the preeminent life force in the universe, nor are human political and economic systems the most important forms of governance". Barker critiques the capitalist system of resource extraction embedded in rights-based discourses that extend "human rights to other-than-human beings, including water" (p. 18).

Similarly, from a posthuman feminist perspective, Rosi Braidotti (2022) calls for "new ways of becoming human" (p. 241) in concert with Indigenous peoples, the plant and animal worlds, and nature. For example, cotton production relies on soil, sun, and judicious amounts of water at critical stages of its growth. Hence, rather than prioritizing (white) man over land, and then water in the growing of cotton, for example, a feminist posthumanist perspective would call for decentering the anthropocentric view of what it means to be human in favor of a "generosity and care" in relation to plants, animals, and nature (Braidotti, 2022, p. 237), such as that found in ancient Indigenous epistemologies. Relatedly, Donna Haraway (2016, in book title) calls for the need to "stay with the trouble" of a radically altered planet toward a future that involves "making kin" not only with humans but also non-humans. Anneke Smelik (2018, p. 34) employs the concept of new materialisms to reflect on the ways in which human bodies, textiles, and other accoutrements of fashion are all mixtures of organic, mineral, vegetable, and synthetic materials. The idea of a "material turn" is not new to those of us who study fashion and textiles (Kaiser & Smelik, 2020, pp. 10-11), but urgently needed are approaches that understand and re-imagine materials' impacts on the environment and social justice. A "feminist new-materialist vision of subjectivity" (Braidotti, 2022, p. 241) can be used to contemplate "*human-made mutations*" (p. 237, emphasis in the original) to the planet.

The transformation of California's San Joaquin Valley (SJV) began with Spanish colonizers in the eighteenth century. The Gold Rush in the late 1840s accelerated white settler colonialism, and California officially became a state in 1850. By the late 19th and early 20th centuries, agriculturalists had displaced and decimated Indigenous populations, levelled the landscape, and begun to experiment with high-intensity agriculture and high-value crops such as cotton. Further exacerbating the human-made mutations was a lack of connection to the land. The Boswell Corporation and other industrial agriculturalists have often lived and worked remotely from the sites of production in the SJV. The Boswells have lived in posh neighborhoods in the foothills east of Los Angeles, whereas the company farm in the San Joaquin Valley contains much of Tulare Lake.

3. *THE INDIGENOUS YOKUTS AND TULARE LAKE*

Before it was drained for purposes of agricultural irrigation, beginning in the nineteenth century, Tulare Lake (see Fig. 4) had been inhabited for thousands of years by the various Indigenous tribes collectively known as the Yokuts. Tulare was named for the native tule plants, or reeds, that lived in and around the lake in a primarily hunting-and-gathering society. The Yokuts had developed an elaborate material culture for subsistence on the land around the lake. They fashioned the long tule reeds into exquisite baskets, highly functional rafts, and personal dress (e.g., tule skirts, headbands, bracelets). They fished the lake for rainbow trout, perch, catfish, pike, carp, salmon, and sturgeon; and collected clams, mussels, oysters, and terrapin (Arax & Wartzman, 2003, p. 49; Gorelick, 2013). The lake attracted fowl (e.g., geese, swans, herons, ducks) and other wildlife, including deer, elk, and antelope. Tulare Lake also had spiritual significance and still does to the roughly 1000 remaining members of the Tachi Yokut Tribe (James, 2023).

The banks of the lake varied greatly, depending on the amount of rain in a given winter season and the corresponding snowpack in the Sierra mountains to the East. The Yokuts would move their mobile dwellings to higher ground as needed. They took their cues from the lake, which they believed to be the source of all life. Like Braidotti (2022), they saw human and nonhuman forms of life and the environment as interconnected and harmonious, rather than hierarchical. Beginning in 1770, however, Spanish colonists discovered the lake and surrounding region, and began to dismantle the Yokuts' harmonious ways of living with nature.

A period of "invasion, devastation, and reorientation" of the area dramatically altered its plant and animal communities, as Spanish, Mexican, and American colonists introduced diseases, and otherwise killed and displaced the Yokut people (Preston, 1981, pp. 239-240). The Gold Rush of 1849 and California statehood accelerated the alteration of the landscape and its people. In 1857, nearly 1,200 Yokuts were moved from one *rancheria* (reservation) to another; by 1905, only 154 remained around the lake's basin (Preston, 1981, p. 83). In the last half of the nineteenth century, the colonists experimented with agriculture and began to drain the lake for irrigation (Preston, 1981, p. 241).

4. THE BOSWELL CORPORATION AND WHITE GOLD IN TULARE LAKE

By the 1920s, the "great land rush" was fostering westward movement in the US to fulfill the white man's mythic mission of "Manifest Destiny" (Beckert, 2014, p. 352); the production of cotton, known as *white gold* in the San Joaquin Valley of California, had intensified first for small farms and, increasingly, for larger industrial farms. Man-made canals and dams had diverted much of the water from Tulare Lake for agricultural irrigation. According to the

settler-colonialist farmers, the “reclamation” of the lake reaffirmed “man’s right...[as] a first right, and if nature had the audacity to take over for a time, man was now back, staking what had been his all along” (Arax & Wartzman, 2003, p. 85). This *reclamation* involved a lot of political clout, governmental assistance, and technology.

In this context of *reclamation*, Colonel J. G. Boswell moved to California from Georgia in the 1920s, escaping the downturn of cotton production due to two factors: The boll weevil infestation in the South and the economic and political incentives to buy land in California. These incentives were part of a larger (new) state and national push to own, populate, and commercialize its land, based on a complicated mix of settler colonialism, the Mexican land-grant framework, and the British legal system of property rights. As an experienced cotton broker, Colonel Boswell based his business in urban Los Angeles, about three hours south of the land he had purchased in Corcoran, in the rural San Joaquin Valley (SJV) of the state.

Due to California’s long and largely rain-free, sunny growing season, its cotton is longer and finer than most of the other cotton in the United States and often yields high prices in the global fiber marketplace. This production, however, has required re-engineering the state’s system of water flow for purposes of irrigation. Processes such as “moving rain” (Arax, 2019, p. 248) and pumping the bottom of Tulare Lake (Fig. 4) enabled significant wealth for the Boswell family/company. The abundant sun and warm weather between April and October fostered long periods of growth that was especially ideal for the Acala variety of cotton in California; in 1918, a University of California scientist John W. Gilmore argued that it should be the only variety of cotton grown: “Under no circumstances whatever should short staple cotton be planted in the San Joaquin Valley” (Gilmore, 1918, p. 3). This idea was codified in California’s One-Variety Cotton Law passed by the

legislature in 1925. The concern was that shorter, less purely white cotton fibers would cross-pollinate or contaminate the quality of the Acala. Later, in the 1980s, cotton breeder and farmer Sally Fox was to experience this same philosophy and discrimination against shorter, darker fibers when she introduced *colored cotton* as an ecological alternative to cotton requiring large amounts of chemicals and water for purposes of dyeing. Acala dominated California cotton for 75 years, when it was replaced by Pima from Peru; Pima was even “longer, stronger, and creamier” (Arax & Weitzman, 2003, p. 108). Branded as Pimacott®, California cotton is mostly exported from the US, only to be re-imported once it is made into garments such as fine, silky dresses; men’s shirts (e.g., Land’s End, L. L. Bean); and high-thread-count linens.

Colonel Boswell’s cotton agribusiness was the epitome of the large *factory in the field* (McWilliams, 2000). In the 1930s, he purchased land around the lake bottom from farmers who could not survive during the Great Depression, collected subsidies from the government, and acquired critical water rights (Arax, 2003, p. 136). He bequeathed his business to his nephew Jim Boswell (1923-2009), who tripled the California acreage (Hevesi, 2009). The family business developed a cotton empire with considerable political lobbying power at both the state and federal levels. They succeeded in receiving considerable governmental assistance in building a complex system of dams, reservoirs, and pumping stations that kept the rain and melted snow water up in the mountains until it was needed for their crop irrigation (Arax & Wartzman, 2003, p. 90).

Roughly 80% of California’s water goes to agriculture, but what flowed from the mountains to the cotton-growing land was still not enough to irrigate the huge acreage of the Boswell property, which covered most of the former Tulare Lake. The ground below the dry lakebed was pumped through multiple wells as deep as 1,000 feet (Arax &

Weitzman, 2003, p. 241). One of the outcomes of this pumping has been the sinking of land, or its subsidence. Joseph Poland (1908-1991) was a hydrologist - popularly known as *Mr. Soil Subsidence* - who worked for the US Geological Survey and became extremely concerned about the loss of an average of a foot of land per year in the region. He documented “the most dramatic alteration of the earth’s surface in human history” (Arax, 2019, p. 69).

The fish in the lake had already died once the rivers were dammed up (Arax & Weitzman, 2003, p. 388), and thousands of migratory birds were killed by the toxic agricultural runoff, selenium, and other toxic salts in the lakebed (Arax, 2003, p. 103). Periodically, there would be winter seasons of heavy rain and snow in the mountains that would overflow the dams when it melted in the spring. In 1983, Tulare Lake partially re-emerged for nearly two years before drying up again (Alexander, 2023). It reappeared on a smaller scale in 1997-98 (James & Rust, 2023). Jim Boswell was determined to master the lake when it threatened his cotton and his other crops: “You never give up fighting floods in the lake bottom” (Arax & Weitzman, 2003, p. 13). As illustrated in Fig. 4, much of the farmland of the Boswell company, now run remotely by Jim’s son, James W. Boswell (Dunn & Bradstreet Business Directory, 2023), was covered with water by the *atmospheric river* rains in 2023. This return of the lake resulted in the unfortunate flooding of workers’ homes, as well as farmers’ fields.

From a Yokut perspective, the return of the lake in 2023 could also be seen as a manifestation of its spiritual memory. As history has demonstrated, once the lakebed became filled again with water, native fish populations (Moyle, 2023) and migratory birds (Rust, 2023) also returned. Most of the remaining members of the Tachi Yokut tribe, living in the Santa Rosa Rancheria near what was once the lake’s north shore, had heard stories from the elders about the lake, but many had never witnessed it themselves. As a reminder of

what was there, the leaders of the tribe agreed to channel some of the water rising toward their lands to reduce the pressure on the rise and to replenish some of the groundwater. The tribe calls the *phantom lake* Pa'ashi (translated as "Big Water"); it remains central to their spiritual beliefs (Underhill, 2023). They have traditional songs about the water's rising (James & Rust, 2023): "The lake is talking to us right now. It's up to each one of us to listen to what's being said," said the tribe's vice chairman, Robert Jeff (Hok, 2023, para. 8). The chairman of the tribe, Leo Sisco, offered prayers on its lakeshore. Kenny Barrios, a cultural liaison for the Tachi tribe, stated:

I love the fact that it came back for us. I love the fact that it took over the land that was taken from us. I love the fact that it's resilient and it still keeps returning, even through the destruction, that they tried to take it away. The lake is just like us. (Underhill, 2023, para. 6)

The Indigenous leaders argued that the lake should be allowed to stay to improve life in the valley and restore its ecosystem (James, 2023). They indicate that it is inviting their ancestors' spirits back to the lake, which also promises to "cleanse the land" (Hok, 2023, Offering gifts section).

The lake was, however, drained once again, primarily by the Boswell Company, which has owned most of the lakebed and had done so in 1969, 1983, and 1997 (James, 2023). The University of California, Davis fish biologist Peter Moyle (2023) asks:

Now, as the lake arises again, the same question persists: why is it legal to drain Tulare Lake for private gain? And shouldn't the descendants of the Yokuts bands who had their lake and lands stolen from them having something to say about what happens to their ancestral home? Sisco, the tribal chair, agrees and argues that

there should be enough room for some farming around the lake, while also retaining significant spiritual space for its natural ecosystem to be restored (James, 2023, para. 6).

By March of 2024, the lake had once again receded (White, 2024). Feminist scholar Vivian Underhill (2023) has described this process of the lake's ongoing draining and periodic return as continual "colonial unknowing" (in article title).

Fortunately, despite the corporate ownership and management of large portions of California's San Joaquin Valley for historic, economic, and political reasons, there is reason for hope with respect to the future of cotton production in California. The following, final section of this chapter returns to the Capay Valley in Northern California (Figs. 1,2 & 3) and offers closing remarks about fiber and fashion from an intersectional feminist perspective.

5. REGENERATIVE AGRICULTURE: THE MOVEMENT AND CONCLUDING THOUGHTS

As seen in the opening of this chapter, there are alternative ways of thinking about the *man, land, and water* approach to cotton production. This older model, steeped in settler colonialism, racial capitalism, and resource extraction, is not sustainable for humans, nonhumans, and the environment. The land is sinking, Indigenous continuous pleas are ignored, fish and wildlife are displaced, there are local questions about water safety, and *colonial unknowing* (Underhill, 2023) prevails due to family/corporate ownership of land and water alike.

Alternatively, Sally Fox's (Figs. 1,2 & 3) approach to cotton production has prioritized sustainability since the early 1980s. Her patented FoxFibre® has offered a means to avoid toxic chemicals required to grow industrial cotton and to

dye fabrics by instead genetically engineering and organically growing the plant to feature shades of brown and green organic cotton fiber that can be mechanically spun into yarn. Requiring neither dyes nor bleaching, the yarn and fabric production processes hence avoid toxicity and the need for large amounts of water. The fiber is used by fashion and textile companies concerned about material impacts on the environment.

Fox's farming practices also move away from the remote model of corporate agriculture by living on the land and integrating other plant crops (e.g., black eyed peas) and sheep who graze between the rows of organic cotton. Her practices exhibit a kind of intersectional, posthumanist, and Indigenous feminist approach to what Braidotti (2023) has called an "affirmative, relational ethics" that cross species (p. 237) and Haraway (2016) describes as making kin through *multi-species ecojustice*.

Similarly, the Fibershed Project in California began in 2010 by Rebecca Burgess (2019), who initiated an experiment to see if it might be possible within a 100-mile radius in Northern California to grow fiber and make it exclusively into clothes worn for one year. Although this was feasible with wool growing from sheep on farms and spinners and knitters who could accomplish the yarn, fabric, and garment processes locally, it presented a challenge with cotton and other fibers requiring more processing. The lack of an industrial infrastructure in California was the problem. In the spirit of making kin and connections (Haraway, 2016), the California Cotton and Climate Coalition (C4) bridges between cotton farmers and fashion companies in the state who are committed to more sustainable practices and networks. There are still many challenges when it comes to scaling up to industrial levels of cotton growing and processing, but the collaborative project offers hope towards a new, more regenerative textile economy (Burgess, 2019).

Indigenous Yokuts, feminists, and environmentalists agree: There is much more that needs to be done to redress the harms done to the land and its ecology, as well – importantly – to Indigenous peoples who lived in harmony with them for thousands of years before the industrial agricultural production of cotton. California cotton becomes a focal point that directs our attention to the need for new ways of imagining sustainable fiber production in critical fashion studies. Clearly, it is time to re-order the story of (white) man, land, and water. Becoming fully human requires attention to land and water for humans and nonhumans alike.

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FIGURES



Fig. 1 Connection between a FoxFibre cotton field and a top fashioned from the field's fiber. Worn by the daughter of Sally Fox plant breeder of cotton with natural color and founding organic farmer since the early 1980s). Courtesy of Sally Fox.



Fig. 2 Close view of FoxFibre® cotton top and label. Courtesy of Sally Fox.



Fig. 3 Viriditas Farm. Larger view of Sally Fox's organic farm, where she breeds and grows cotton with natural color, in the Capay Valley in Northern California. Courtesy of Sally Fox.

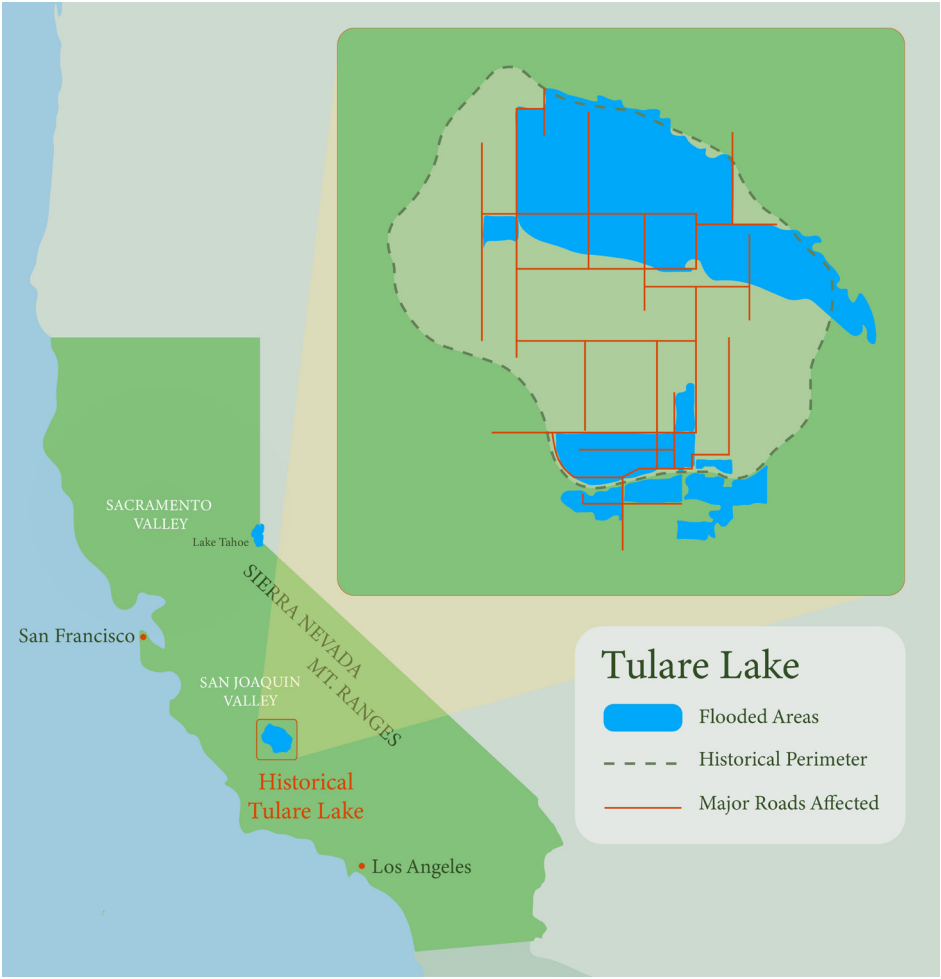


Fig. 4 Tulare Lake. The red square on the map depicts the historical lake prior to its draining for agriculture. The image reveals the lighter area drained for agriculture; this area has been typically dry – except for irrigation – for over a century, with a few exceptions when nature has intervened (as in the Spring of 2023).

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4 · 5 HEAT, HUMIDITY, RAIN AND MUD

*THE MATERIALITIES OF WORKING AND WEARING ON THE DEVIL'S
RAILROAD*

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I. INTRODUCTION

Any attempt to imagine a more sustainable fashion industry needs to interrogate the very nature of fashion, and to critically evaluate the colonial and neocolonial devaluation of labour that it is predicated upon. This paper bridges the material and sensory aspects of fashion as a form of culture, on the one hand, and the transnational political economy of labour that underpins global capitalism, on the other. It takes as its starting point an unusual case study in the form of a photographic archive that was partially destroyed by fire in 1980, an action that was not uncommon during the Brazilian military dictatorship (1964-1985) and one which has contributed to, as Brazilian artist Rosângela Rennó articulates, "a certain *historical amnesia* within Brazil" (Rennó 2022 quoted in Turner & Chagas 2022, n.p.). My analysis is concerned with bringing into focus the precarious remains of that archive, which contains New York photographer Dana Bertran Merrill's (1877 -?) glass plate negatives documenting the anonymous global workforce who constructed the 366 kilometer (224 mile) Madeira-Mamoré railroad, built deep in the Brazilian Amazon between 1907 and 1912. Nicknamed the *Devil's Railroad*, due to the vast numbers of unskilled workers who died from a catalogue of disaster and disease, the railroad was an American-Brazilian venture intended to expedite the global exportation of rubber and other tropical commodities from landlocked Bolivia. Such multinational contracts were not uncommon in the early decades of the twentieth century, a period of increased Pan-Americanism as North America actively sought to expand its commercial, social, political, economic and military ties with South America, exploiting the commercial opportunities that existed in Bolivia, whilst recognising Brazilian aspirations to be seen as a regional power.

Although covering a relatively short distance, the Madeira-Mamoré railroad circumvented 19 rapids and cataracts on the Madeira River, which made navigation by boat a timely and dangerous venture. While Merrill was employed as the official photographer of the railroad, and lived on site between 1909 and 1911, he appeared to have a freedom uncommon to commercial photographers employed to document similar engineering projects (Brown 2005). His roving photographic gaze captured in intricate detail, not just tracks, locomotives, bridges and architectural structures, but also the modes of dress sported by US engineers and medical personnel, Brazilian rubber tappers, local indigenous groups such as the Caripuna and Arawak, Caribbean laundry staff, and the anonymous unskilled construction workers of the Global Majority who are the focus of this article. His visualization of a transnational body of labour can be used to interrogate the pervasive culture of speed and efficiency that was implemented in the organization of the railroad, by gesturing towards alternative fashion paradigms centred on individual processes of self-fashioning and self-presentation.

This paper forms one chapter of my forthcoming book, *Fashion and the Devil's Railroad: Dress, Temporality and Modernities in the Brazilian Amazon* (Bloomsbury, 2026), which positions Merrill's archive within the temporal mindset of dominant approaches to timekeeping that were underscored by North American engineer Frederick Winslow Taylor in his contemporary text *The Principles of Scientific Management* (1911). Although fundamental cogs in the broader machinery of North American neo-colonial enterprise in Brazil, these unskilled global labourers were exposed to all the elements whilst also being responsible for the hard manual labour of culling the jungle, laying the tracks, building bridges and maintaining the right of way. They were subject to a strict timekeeping regime implemented by the North American entrepreneur directing the

construction of the Madeira-Mamoré railroad, Percival Farquhar (1864-1953) and the contractors May, Jekyll and Randolph that he placed in charge, who organised and managed their body of labour to be as efficient and healthy as possible. This paper seeks to elicit revised understandings of Merrill's photography that shed light on the changing modes of everyday dress documented by his camera within this remote jungle society which, far from static and fixed, was in a state of constant transformation due to the high death rates of the global workforce that necessitated, as Carolina Sá Carvalho has observed, "an almost constant influx of replacement workers" (Sá Carvalho 2023, p. 199). In doing so, my analysis articulates a tension – posed by these photographs – between what Zygmunt Bauman referred to as solid modernity and its associated logic of production-orientated economies, and liquid modernity, which operates within a process of continually becoming via consumer-orientated economies, such as the informal buying and reselling of fashion items on the construction site when men died or departed (Bauman, 1999)¹.

Whilst it was common practice since the late nineteenth century for the emerging medium of photography – with its purportedly scientific perspective – to be used in the realization and imagination of great civil engineering projects, Merrill's portraits are distinct in that they deviate from usual conventions in their documentation of an anonymous workforce. Rather than social documentary, the photographer followed a carefully prescribed formula more akin to the genre of portraiture: The subjects presented outside, centrally framed, with minimal contextual detail, and photographed either individually, (Fig. 1), in pairs (Fig. 2), or in small groups (Fig. 3). In light of Taylor's inhumane reduction of the body – wherein human becomes machine, quantifiable entirely in terms of actions and how much time they take to accomplish – Merrill's mode of presentation elevates these anonymous subjects to a higher social

stratum through the level of care and attention to detail that he bestows upon them. His subjects are captured in excruciating detail due to the slow technology of his large format camera but also owing to the subjects' apparent agency and attention to detail in terms of how they present themselves before the photographer's gaze. The men appear, on the whole, cleanly shaven and wearing what looks to be freshly laundered work clothes, yet they are somehow also dishevelled, with shirts unbuttoned, sleeves rolled up and the obvious signs of wear and tear marking their dress. By the time the Madeira-Mamoré railroad was inaugurated on August 1, 1912, it was already obsolete, given that the rubber seed had since been illegally transported to Malaysia, rendering the project an almost immediate economic failure (Tully 2011). Whilst the abandoned remains of rusting locomotives and disused machinery that still haunt the contemporary Amazonian landscape today point to the contradictions and ambiguities of the modernizing process (Fig. 4), Merrill's considered approach to documentation highlights the lived experiences worn upon the body surface of these anonymous unskilled labourers. His portraits invite a slow and measured mode of viewing which stands in stark opposition to how these anonymous bodies were organised and managed during the time of the railroad's construction to prioritise their efficiency. It is in this sense that they suspend the viewer by providing a rare opportunity to hear the voices of the subjects of history amplified from the silences of the archive.

2. METHODOLOGY

Not much is known about the white, male, middle-class American photographer Merrill, except that at the turn of the twentieth century he owned a commercial studio in New York and later produced work for *Vogue*, *House and Garden* and *Vanity Fair*, before accepting the job in 1910 to work on

a geographically inaccessible engineering site that was still situated over 500 miles away from the main Amazonian city of Manaus. Whilst an unexpected resource for the fashion historian, his multi-layered photographs of an exceptionally diverse workforce strike a delicate balance between the specific and the universal, the local and the global, the centre and the periphery, which chimes with contemporary concerns as migrants, nationals and internationals continue to meet at intersections, creating a distinctive set of images, textures and experiences. This paper is interested in how dress is experienced and mediated through photographic representation, in line with the writing of Christopher Pinney, who refers to the photograph as a "complexly textured artifact", which conceals many different layers of meaning and invites the viewer to assume numerous possible "standpoints – both spatial and temporal – in respect to it" (Pinney 2008, pp. 4-5). His use of a fabric metaphor is a tangible reminder that the unknown subject mediated through visual representation is not automatically flattened nor made immaterial by the omniscient photographic gaze but rather, engenders new forms of affective engagement with the fashioned body that are capable of moving its storytelling capacity to the fore (Camp, 2014). In bridging the material and sensory aspects of fashion, these photographs offer a temporal experience to the viewer that is the antithesis of speed, progress and efficiency. They facilitate our ability to understand these individuals in a way that humanises them, in the face of the railroad administrators' inhumane devaluation of labour that saw their bodies entirely in terms of profit.² Merrill's portraits resonate in light of the urgent need for scholarship to draw attention to underrepresented spaces of production and consumption, as well as to speeds of dress innovation not previously understood as *fashion*. My analysis contends that most everyday forms of dress, including workwear, incorporate some aspect of *fashion*. Fashion is defined here in its

broadest possible sense to encompass appearance, style and body modifications and/or supplements which, as Joanne Eicher underlines, are subject to change and transformation in all geographies, cultures and temporalities: "Fashion is, after all, about change, and change happens in very culture because human beings are creative and flexible" (Eicher 2001, p. 17).

Archives of the everyday inevitably pose challenges to the researcher centred, firstly, on the lack of images, text and objects preserved in the first place (before even considering archives such as this one, which have been partially destroyed for political purposes and its contents disseminated throughout Brazil and the United States) and secondly, on the lack of information relating to the anonymous individuals photographed or to whom preserved objects belong.³ Given the considerable dearth of everyday and working dress conserved in museum collections in the U.S. and Brazil, this research uses poetry, diary extracts, and memoirs to breathe life into the visual and to try to get closer to these anonymous subjects who have survived the precarious fate of their archive. Personal accounts of life in frontier societies such as the Madeira-Mamoré railroad and Panama Canal facilitate our understanding of the embodied and experiential memories of wearing, working and caring for clothes when exposed to heat, humidity, rain and mud, but also highlight how salient aspects of dress were for social distinction and identity construction in the remote geographical location. Finally, a visit made by the author in 2019 along the remnants of the railroad, which ran from Porto Velho, a shipping point and town on the eastern bank of Madeira River in the Brazilian state of Rondônia, to Guajará-Mirim, situated on the Mamoré river on the Bolivian-Brazilian border, facilitated the imagination and reconstruction of the extreme heat and humidity, inhospitable terrain, and malaria-ridden mosquitos that posed severe challenges to the anonymous individuals that

Merrill documented in his photographs who inhabited these temporary work and living spaces.

3. FINDINGS AND CONCLUSIONS

As studies in portraiture, Merrill's photographs stand out for their meticulous composition and the quiet yet compelling stillness that pervades them. The click of the shutter here marks a literal pause in the working day, allowing time for the diverse subjects to pose, as the photographer's gaze is trained upon those bodies whose manual labour was so crucial to the successful completion of the railroad. These photographs sharpen our focus upon the global workforce who contributed to the construction of the railroad, and who travelled to Brazil from over 52 nations including Britain, Germany, China, Greece, India, the Caribbean, Portugal, Spain, and Japan. As has been well documented, an estimated 10,000 of these migrant workers died during the construction of the railroad, due to malaria, dysentery, yellow fever, wild animal attacks, and fights with one another and the indigenous peoples encountered along the railroad. The portraits thus speak volumes in their silence, presenting us with the intense physical presence of unknown individuals, who have remained largely anonymous in historical accounts, but can be seen here to grapple with their own desire to pose (Fig. 5), or to avoid a pose (Fig. 6), which is arguably another form of pose, as they unwittingly insert themselves into history through gesture, expression, gaze and dress. What emerges from the series is how certain subjects adjust their bodies accordingly (Fig. 7), while others stand awkward and restless – dependent, ultimately, upon how comfortable an individual is with positioning his body before the camera, during the length of time that passes as the photograph is being taken (Fig. 8).

Most obviously, each portrait signals how crucial dress and appearance were to articulate a sense of identity and

belonging within the remote geographical location so far from home; they serve as a reminder that fashionability for their protagonists is not just about clothing, but equally how one stages the self through a range of bodily styles. Less obviously, their clothing is illustrative of the profound material relationship that their anonymous wearers had with their immediate environment, as identity connects to surface in varying degrees of sartorial dilapidation: a scuffed boot; a sweat-stained shirt; a patched-up pair of trousers; a repaired sunhat. These photographs exert a pull upon the viewer, encouraging deliberation over acceleration (Fig. 9). To watch a photograph, according to Ariella Azoulay, is to wonder what it is that addresses the viewer so powerfully with the tangible presence of an individual (Azoulay, 2008). Here, surely, it is the directness of the subject's gaze, his awareness of the camera that is plainly demonstrated as eyes meet lens, and the overriding sense that a moment in time has been temporarily stilled. Our gaze rests upon the isolated body enveloped in worn items of utilitarian dress: A buttoned-up shirt made of a durable cotton, with functional pockets and long-sleeves to protect from the sun; high-waisted linen trousers, fastened with two buttons and held up by a length of string. The subject's straw hat has been crudely patched up in two separate places with a thick abrasive fabric, a visual clue that hints at the necessity for the subject to repair and re-wear his wardrobe. The photographer's monochrome palette renders in clarity the machine stitching that traces the form of the subject's mass-produced shirt but also illuminates the very individual creases and folds of the coarse fabric as it stretches and adapts to the shapes and movements of his body (Sampson, 2020). Such an evocative dramatization of fabric and figure acts as a conduit for the researcher to probe at the identity of the anonymous subject in lieu of biographical information. His worn clothing is a literal embodiment of time having passed, which resonates with the photographer's

considered approach to documentation that seems to demand from the viewer an equally slow and measured mode of viewing.

The materiality of *old* workwear takes on a performative function, as a means of visual resistance to the regimented time regime of global capitalism and its valorization of speed, progress and the *new*. Such a focus on everyday dress provides a means to rethink fashion as culture and to pinpoint slower acts of resilience – of mending, wear and adaptation – that foregrounds the photographic subjects as individuals as opposed to a devalued homogenous body of labour. It is in this respect that we can draw points of comparison with portraits of immigrant workers repairing their clothing – whether trousers or boots – that were produced by Italian photographer Vincenzo Pastore in São Paulo around the same time (Fig. 10). Merrill's portraits slow down the speed of industrial capital – not just through the limitations of the camera technology – but because the bodies on display, with their worn and weathered fashions that have adapted and changed in response to the hot and humid environment and the demanding nature of the job, detail the everyday lived and temporal experience of dress (Felski, 2002). Merrill's intimate documentation of overalls and dungarees, collarless cotton shirts, functional trousers and unstructured jackets, which are punctuated with occasional global accents – whether a Balkan waistcoat or a turban – remind us of how different bodies coalesce at intersections, or projects of *modernity*. Parallels can be drawn between Merrill's work and German photographer August Sander's (1876–1964) lifelong project *People of the Twentieth Century*, which he began in 1911, as well as photographs taken by Augustus F. Sherman, registry clerk with the Immigration Division of Ellis Island, who systematically documented over two hundred individuals arriving in New York in their ethnic and national dress between 1904 and 1924.

Ultimately, however, in reviewing Merrill's glass plate negatives it is necessary to consider the different experiences of time from the perspective of the viewer (who can linger over these seductive images, taking as much time as she likes), the photographer (who was reimbursed for his time and could wander freely, experimenting with different camera angles and the long exposure times of his camera and tripod), and the individual subjects who made up a transnational body of labour (who were not remunerated for their time but were in fact losing time, since these photographs are likely to have been taken on their break or at the end of a shift). Although Merrill's portraits encourage the viewer to linger, there is a privilege in that lingering and an inequality in the very act of how we interpret these images one hundred years on: were the photographed subjects to linger too whilst at work, it is likely that they would have been accused of *malinger*ing.

FIGURES

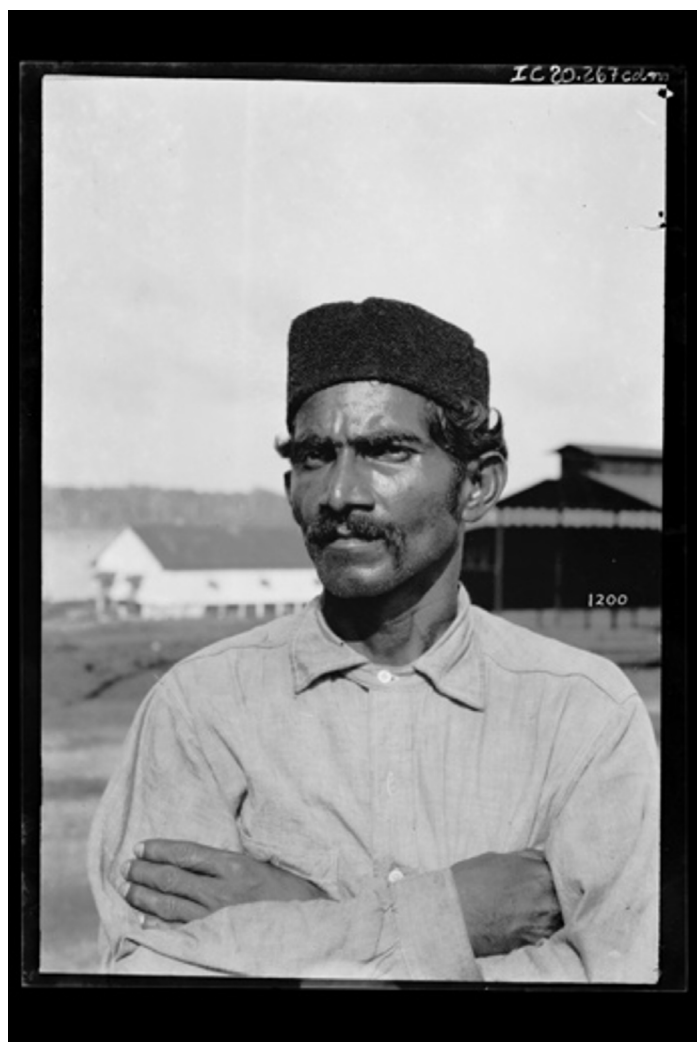


Fig. 1 Dana B. Merrill, *Trabalhador Hindu* – 1200, 1910-11 (Dana Merrill Collection, Museu Paulista).

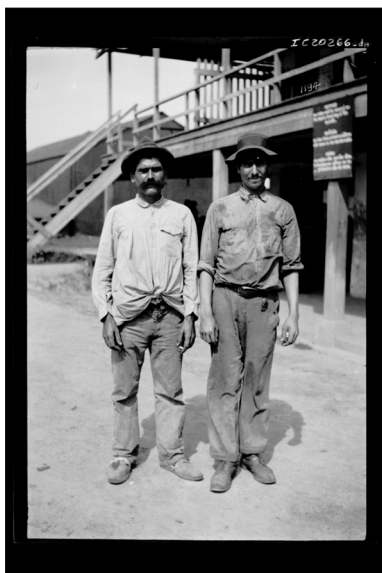


Fig. 2 Dana B. Merrill, *Trabalhadores Estrangeiros* - 1194, 1910-11 (Dana Merrill Collection, Museu Paulista).



Fig. 3 Dana B. Merrill, *Trabalhadores Orientais* - 1197, 1910-11 (Dana Merrill Collection, Museu Paulista).



Fig. 4 Elizabeth Kutesko, Disused locomotive, Abunã, Rondônia, 2019 (Author's Own)



Fig. 5 Dana B. Merrill, *Trabalhadores no Pátio da Oficina Ferroviária em Porto Velho - 261, 1910-11* (Dana Merrill Collection, Museu Paulista).



Fig. 6 Dana B. Merrill, *Trabalhador Junto no Pátio da Oficina Ferroviária em Porto Velho - 1263, 1910-11* (Dana Merrill Collection, Museu Paulista).

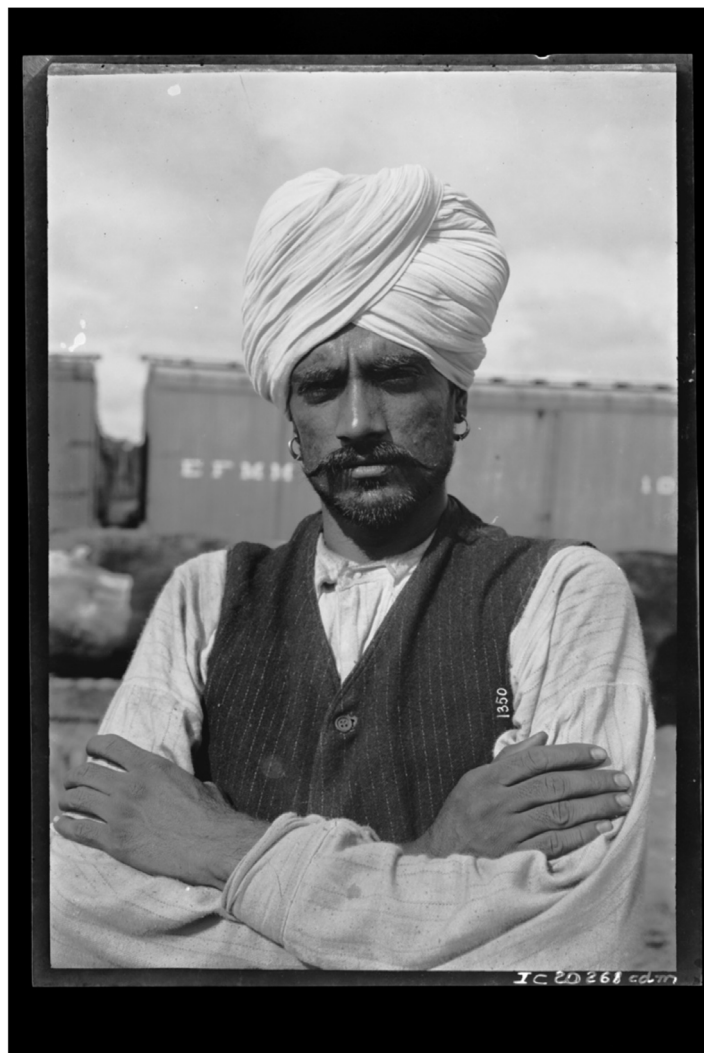


Fig. 7 Dana B. Merrill, *Trabalhador Hindu* – 1350, 1910-11 (Dana Merrill Collection, Museu Paulista).



Fig. 8 Dana B. Merrill, *Trabalhadores da Ferrovia Madeira-Mamoré* - 1195, 1910-11 (Dana Merrill Collection, Museu Paulista).



Fig. 9 Dana B. Merrill, *Trabalhador Estrangeiro* - 1199, 1910-11 (Dana Merrill Collection, Museu Paulista).



Fig. 10 Vincenzo Pastore, *Homem consertando do próprio sapato*, São Paulo, 1910 (Instituto Moreira Salles, São Paulo).

NOTES

① Martin Krueger, an American account on the railroad reported: "As soon as a man died out in camp or in the hospital, his clothing, money, and everything else of value was made into a bundle and sent to me by the doctor in charge, with a memo and a list of articles therein, for disposition. With a stenographer or clerk, as a witness, we carefully checked the bundles as they came in and disposed of the contents in various ways. We usually sold any wearing apparel in good condition to other employees, and made up a sealed package containing his money, jewelry [sic] or other articles of value, or such as we thought would be appealing to his family" (Krueger 1912, n.p.). ☐

② Dr. Carl Lovelace, American physician in charge of organising and sanitising the workforce to maximise their efficiency wrote with concern that: "In April 1908, a careful examination of the records of arrivals and departures disclosed the alarming fact that the average duration of a laborer's stay on the work was a trifle less than three months" (Lovelace 1912, 2). ☒

③ It is estimated that approximately 500 of the 2000 photographs taken by Merrill still exist. I have examined these in the following institutions throughout the US and Brazil: Firestone Library, Princeton University; New York Public Library, J. Marriot Library, University of Utah; Museum Paulista, São Paulo; John Hay Library, Brown University, Biblioteca Nacional, Rio de Janeiro. ☒

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Elizabeth Kutesko is a cultural historian and alumna of the Courtauld Institute of Art, where she obtained her PhD in 2016. She leads the BA in Fashion Histories & Theories and the MA in Fashion Histories & Theories at Central Saint Martins. She is the author of *Fashioning Brazil: Globalization and the Representation of Brazilian Dress in National Geographic* (2018) and further information on her projects can be viewed at www.elizabethkutesko.com.

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4 · 6 FASHION AND
PATRONAGE:
MATERIALIZING THE
POLICIES OF HERITAGE
CONSERVATION
THROUGH WATER

THE CASE OF FENDI FOR FOUNTAINS INITIATIVE

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I. INTRODUCTION

Since the 2000s, the Italian government has adopted a set of norms facilitating cultural patronage initiatives to tie the use of private funds to urban heritage maintenance. The purpose of this article is to illustrate the importance of luxury fashion houses in heritage management policies. The analysis is grounded on the case study of the *Fendi for Fountains* initiative launched by Fendi in Rome in 2013. The article argues that the city's water features enabled the brand to intensify its place-based identity narrative while also developing public-private partnerships. The piece argues that the inclusion of these for-profit actors within the urban governance system has been made possible by a process of materialization. The material turn has shifted the attention from the symbolic to the material aspects of fashion. This in turn has also enabled the fashion industry to intervene directly in environments that were originally distinct from their own and to forge specific place-making discourses. We intend to show the impacts of territorial activities conducted by fashion firms on urban heritage sites by enlightening the dialectic relationship between the fashioned spaces and the matter.

2. STUDY METHODS

The piece is grounded in the case study method. The methodological approach combines participatory observations on the urban territory and a textual analysis. The factors of production of the process of materialization have been studied retrospectively using a selection of national (Italian) and international (mainly French, English, and American) journalistic sources. Less than half of the analyzed texts were published by the brand Fendi and the group LVMH. For the rest, the texts were retrieved from newspapers. The press review was manually conducted by the author on a sample

of 80 texts. The analysis of corporate statements/reporting and media articles ultimately highlights the way in which water was used by Fendi to give coherence to its sponsorship activities, making them more legible in the eyes of customers. The cross-referencing of primary sources with media sources allowed us to produce a reading grid aimed at analyzing Rome's fashion-related transformations.

3. *URBAN MATERIALIZATION: THE INFLUENCE OF FASHION HOUSES IN STAGING THE CITY AS A MARKETIZED SPACE*

3.1 City branding and heritage management: Market-oriented policies, patronage initiatives and customer-tailored narratives

The piece is grounded in the case study method. The methodological approach combines participatory observations on the urban territory and a textual analysis. The factors of production of the process of materialization have been studied retrospectively using a selection of national (Italian) and international (mainly French, English, and American) journalistic sources. Less than half of the analyzed texts were published by the brand Fendi and the group LVMH. For the rest, the texts were retrieved from newspapers. The press review was manually conducted by the author on a sample of 80 texts.

The analysis of corporate statements/reporting and media articles ultimately highlights the way in which water was used by Fendi to give coherence to its sponsorship activities, making them more legible in the eyes of customers. The cross-referencing of primary sources with media sources allowed us to produce a reading grid aimed at analyzing Rome's fashion-related transformations.

The progressive inclusion of fashion houses within the urban governance model also coincides with a major public management change (Pollitt & Bouckaert, 2000). This shift brings management and marketing to the

forefront of public action, thereby making these actions increasingly market-oriented and targeted to consumers-citizens (Kallhoff, 2013). The blurring of the boundaries between public, private, and market dimensions contributes to complexifying the nature of the city in terms of its organizational structures and its functional mechanisms. The urban system is henceforth understood both as a commodified space and as a marketized entity. Fashion brands also contribute to the competitiveness of cities (Crewe & Beaverstock, 1998), to the revitalization of urban areas (Mommaas, 2004), and to the heritagization of places (Jansson & Power, 2010). Moreover, fashion brands use their expertise in corporate communication to generate customer-tailored place-making narratives, and in doing so act as city boosters (Biondo, 2021). City branding policies implemented by fashion houses are mainly based on heritage resources. A paradoxical tension arises from this dynamic: Heritage assets – considered here neither marketable nor exchangeable (Godelier, 1996) – are in this case subject to marketization and commodification processes.

3.2 “Urban materialization”: Enhancing the materiality of urban environments to legitimize public-private partnerships

The study of patronage initiatives incites to suggest the concept of urban materialization according to a post-structuralist approach. This author defines the phenomenon as the aggregate of activities that are carried out by fashion houses with the purpose of legitimizing – through the wise use of matter and the materiality of natural components and places – specific patronage initiatives. Urban materialization is inscribed in the actual debate on the material turn in fashion (Smelik, 2021): It is specifically grounded in the actor-network theories of B. Latour (Latour, 1992; Latour, 2007), which considers both the material and social component as mutually constitutive of the phenomenon itself (Law & Mol, 1995).

We argue that urban policies are to be considered as relational phenomena involving an overlap of human and non-human elements (Anderson & Wylie, 2009). Urban policies are the outcome of the entanglements of narratives and matter and are co-constructed within a network made up of humans, stories, and material components (Duineveld, Van Asscheb, & Beunen, 2017). Consequently, they provide a unique viewpoint for observing and understanding the materiality. Cities are conceived as complex social systems: The policies by which they are governed are determined by power relations between actors, material events, and discourses. We consider that this interpretative paradigm allows an understanding of the dialectical relationship between humans and the city. The synthetic outline below lays out the relationship between materiality and the social. We argue that the relations between these two components can be complex, and can integrate an understanding of how cities are managed by private actors. To do so, we introduce different types of scenarios comparing the relevance of material events in the social system and the level of participation of private actors on the social system (Tab. 1). The study assumes that there is an inversely proportional power relation between materiality and the social system. Three types of scenarios can be identified within this context.

The first scenario engenders *Public Urban Policies* and is characterized by a strong relevance of material events and a weak participation of private actors. The urban environment is characterized here by significant material changes, either caused by human decisions or determined by natural or non-human causes. The second scenario engenders *Hybrid Urban Policies characterized by Urban Materialization*. In this context, the participation of private actors is mainly financial. The material changes made to the urban environment in this scenario are minor; nevertheless, they are mediatized and widely known. The narrative and material dimensions assume equal value in this context. The third

scenario engenders *Private Urban Policies characterized by a Market Policy System*. The level of participation of private actors is high; they define the types of changes made to the urban environment, as well as the business model of the urban project.

4. MATERIALIZING THE POLICIES OF HERITAGE CONSERVATION THROUGH WATER: THE CASE OF FENDI FOR FOUNTAINS INITIATIVE

4.1 Culture and heritage management in Italy and in Rome: A long-standing collaboration between the municipality and fashion brands

Italy is the state with the highest concentration of UNESCO-listed World Heritage sites worldwide. However, it is also severely affected by the economic crisis and has experienced, over the past decades, a serious depletion of resources allocated to the maintenance and conservation of heritage assets. Since the 2000s, the Italian government has adopted a set of norms facilitating cultural patronage initiatives (see law n. 342 art. 38) to tie the use of private funds to urban heritage maintenance. The legislative decree 42/2004 further specifies the modalities of intervention, specifically defining two forms of donation: Patronage and sponsorship. The first modality envisages the settlement of a tax relief system benefiting private stakeholders financially involved in heritage restoration projects. The second has more consistent implications, as it confers on the for-profit funding companies the exclusive right to use the image of the funded cultural asset. The risks associated with a proxy delegation of public competencies to private actors (namely through patronage initiatives) have been thoroughly explored within the literature. Scholars specifically insisted on the phenomena of consumption/commodification of

cultural resources as well as on the loss of authenticity in heritage sites (Adorno, 2001; Sharpley, 1999).

Patronage initiatives also carry risks associated with commercialization (see also *Disneyfication*) (Bryman, 2004) of Italian cultural heritage (Faiola, 2014). Nevertheless, within the major Italian cultural cities, these practices are increasingly emerging as proper urban events (Guala, 2007) embodied by private urban actors (Macdonald, 2011). Among these actors, fashion and luxury actors are highly involved in both patronage and sponsorship activities. The city of Rome constitutes an ideal observatory for the studied phenomena: the municipality has committed to including transnational fashion brands within patronage actions to ensure the preservation of its urban heritage properties. The analysis of the Fendi initiative enables us to study closely the phenomenon of *Hybrid Urban Policy* characterized by urban materialization within the Roman framework.

4.2 Materializing patronage initiatives through the water component: Findings from the Fendi case

Founded in Rome in 1925 from a family-run business venture, the Fendi brand experienced international success beginning in the 1960s, partly due to the appointment of the designer Karl Lagerfeld as Creative Director. The brand rapidly gained a worldwide reputation in the fashion panorama. Incorporated into the LVMH group at the end of 2001, Fendi crossed the 1-billion-euro threshold in annual sales. The brand's Roman identity, systematically reaffirmed by the firm, does not seem to have been impacted by the phenomenon of internationalization. The Romanness of the brand is also reaffirmed through the large-scale urban patronage initiatives financed by Fendi, including the *Fendi for Fountains* patronage campaign launched in Rome in 2013. The €2.2 million initiative, aimed at restoring various Roman fountains, was advertised as a way for the brand

to pay homage to the most characteristic element of the Eternal City: Water.

Fendi's deep-rooted bond with its birthplace, Rome, has long inspired its creativity and craftsmanship, shaping its iconic designs and enduring legacy. Through this action, the brand was able to link its commercial image to the image of the city while enhancing its reputation. Fendi Roma materialized its patronage initiative through the water component. By implementing a process of urban materialization it has given coherence to the multiple corporate efforts intended to preserve the city's heritage. This process occurred primarily through the narrative features (i.e. press coverage). In fact, the water component was exploited by the fashion brand to develop proper storytelling. The text analysis of brand statements and news coverage allowed us to identify the recurrent topics and images employed by the fashion brand to successfully implement the process of urban materialization. Analysis results are presented in Tab. 2.

The *Fendi for Fountains* initiative is extensively mentioned; however, in most cases its content is not specified. Moreover, from a media perspective, the initiative is not directly associated with patronage activities: The latter is explicitly mentioned in only 45% of the analyzed articles. While sources drawn directly from the fashion house or the LVMH group mention the scale of the operation, journalistic sources prefer to insist on the non-invasive nature of the Initiative (in terms of publicity) and on the balance of institutional relations. While the fashion brand intervenes exclusively in a financial manner, public authorities remain the sole managers of the restored fountain. Fendi's hefty donation, was then presented to citizens as a public gift.

The historical and social dimensions of the fountains, qualified as the heritage emblems of the city, are also evoked. However, this trend remains marginal (approximately 10%). In fact, the center of the discussion lies not in fountains, but in water, understood as the core matter for

the brand. The materialization of patronage activity thus passes through a material, tangible, and concrete natural element. The fashion house intervenes on two levels of materialization: A thematic and a symbolic one. In the first case, the brand managers define a thematic and temporal continuity between the brand and the matter. Fendi's interest in water is said to be long-standing and is justified from an artistic point of view. The narrative is rooted in the past, with water allegedly constituting a *leitmotif* of the fashion house since the 1970s. The ties between water and the brand materialized, for example, through the production of a fashion film curated by Karl Lagerfeld in 1977, called "*Historie d'eau*", or the publication of a book on Roman fountains, released in the 1980s and edited by Alda Fendi.

In the second case, Fendi tries to develop, from a symbolic point of view, proper analogies between water and the brand. Indeed, just after the unveiling of the renovated fountain, in 2015, the former CEO of the fashion house invoked the existence of strong similarities between the two components, both characterized by inexhaustible renewal streams. The materialization process takes place at multiple levels and is also corroborated by the artistic dimension. In conjunction with the launch of the initiative, the brand inaugurated an eponymous temporary exhibition on the banks of the Seine in Paris. Water is thus present in the brand's discourse and patronage works, but it is also creatively returned to the public who can freely benefit from it. We are witnessing here an interlocking of several scales, the most macroscopic one being the Seine River itself, hosting the Fendi exhibition dedicated to water.

5. CONCLUSIONS: CORPORATE AND INSTITUTIONAL IMPLICATIONS OF URBAN MATERIALIZATION

The piece highlights the relevance of the notion of urban materialization to assess the capacity of fashion houses to forge place-making narratives and to strengthen urban public-private partnerships. To do so, the article aims to review key corporate processes and emerging trends that can facilitate the performance and materialization of patronage actions. We have seen that patronage activities are part of a wider corporate strategy of staged authenticity that is displayed by the fashion firm to visitors through stories to promote a certain image of their brand identity. In this context, the materialization process is declined according to different performance path(s):

- ♦ *Authenticity*: Fendi has consistently emphasized the notion of donation intended as a gift offered to the city of Rome without the condition of material reciprocity (Mauss, 1923). The financial action is ennobled by the fashion house and is legitimized by values shared between the brand and the city. This allows Fendi to enter a long-term collaboration with the municipality and to prove to other urban actors the genuineness of its actions. The process of authentication requires the quest for the sense, the coherence, and the continuity of the implemented projects. Within this context, matter, and materiality have special meaning. The medium of water enables the brand to emphasize its authenticity and to sustain its integrity.
- ♦ *Thematization*: The brand attempted to produce a unique place-making storytelling by defining the territorial identity through the element of water: The purpose is to reveal the essence of Rome by restoring its fountains. The thematization of the patronage actions is performed directly by the former creative director, who insisted on the vital importance of water and its relevance in

the Roman urban landscape. Also, water stands as a source of inspiration for the creation of artistic content: Brand-founded art exhibitions and material publications propagated since the launch of the *Fendi for Fountains* initiative.

- ♦ *Multi-scale geographical approach:* Patronage initiatives appear to be a part of a strategy of staged performance displayed by Fendi to city users to reinforce the brand identity and to produce a positive association between the brand and the city. The city in which the storytelling is displayed, as seen in the previous section, is not necessarily the one benefiting from the patronage activity. It can be another city (e.g. Paris) as long as it has the same reputational requirements. In fact, the materialization process of the *Fendi for Fountains* initiative is fluid: The geography of urban materialization varies according to the exigencies of the brand.

To be performative, the fashion house must establish a continuum in the staged performances: The matter ensures the latter. Water seems to provide coherence to disparate initiatives (patronage initiatives, fashion shows, etc.). Although exclusive, the presented case study is noteworthy because it enables the identification of recurring issues regarding the heritagization processes that are managed by for-profit private stakeholders. As such, the analysis allowed us to assess the socio-spatial tension between two urban dynamics – namely, market orientation and heritage. Investments are no longer purely financial, limited to punctual initiatives, but participate in long-term narrative and material performance conveyed by the fashion house with the support of local public authorities. From a managerial point of view, Fendi succeeds in strengthening urban-oriented public-private partnerships. Those collaborations are also crucial for local municipalities. They allow for avoiding forms of neglected museification of historical monuments

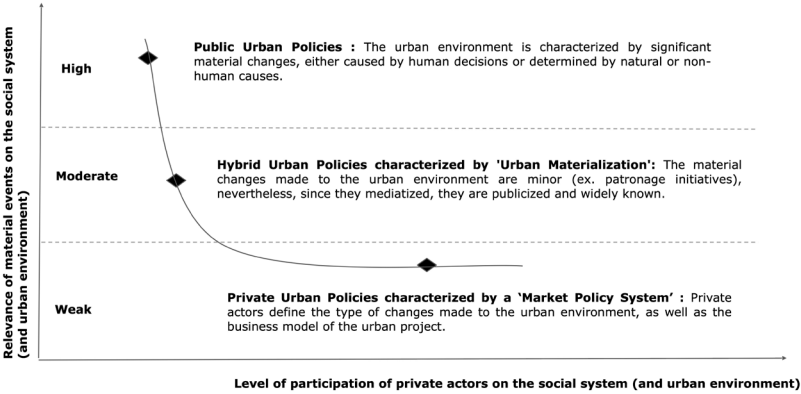
(Santagata, 1998) in a context characterized by spending review policies.

However, the relationship between private and public actors does not seem to be balanced. While the fashion brand clearly benefits from the partnership over a long period of time, this is not the case for the municipality. In fact, Fendi succeeded in associating its image with symbolic universal values of the city of Rome. As we have seen, its patronage actions are part of a broader and more generic range of practices (and discourses) that are implicitly associated with the broad notion of general interest. The involvement of the brand not only in the sponsorship but also in the related storytelling has ultimately produced positive externalities for Fendi itself. This is also testified through the iterative commitment towards Roman heritage, which has been reaffirmed through recent actions, such as the restoration works of the Tempio di Venere e di Roma launched in Rome in 2021. Public authorities, on the other hand, do not benefit from partnerships in the long run. To improve the functioning of these types of collaborations, municipalities should provide an exact calculation of the real value of the heritage properties which are sponsored to properly benefit from the sponsorship.

Theoretical efforts have been made in this context: As an example, one can mention the economic reputation index (ERI) proposed by Simon Anholt (2003), which proposes specific calculations in order to estimate the proper commercial value of cultural heritage sites (as if they were proper brands). This kind of estimation would provide an effective response to the recurring criticism addressed to fashion houses, accused of not respecting the real value of assets (in particular in cases where properties are leased). This article constitutes then a basis for a future substantive evaluation to assess the territorial and socio-spatial impacts of sponsorship and patronage initiatives to re-balance the

relationship between private and public actors within heritage-related public actions.

TABLES



Tab. 1 Spectrum defining the links between materiality and the social within the context of urban policies.

Analysis Criteria	Results specification	Figures
Main source (I.e. Published by)	Fendi Roma brand	12%
	LVMH group	10%
	National media coverage	48%
	International media coverage	30%
Language used	Articles in Italian only	54%
	Articles in French only	7%
	Articles in English only	36%
	Bilingual Articles	3%
Recurring terms/themes	Mention the <i>Fendi for Fountains</i> initiative	70%
	Categorization of the specific initiative as a patronage one	45%
	Mention to the public-private partnership	26%
	Fountain as a <i>heritage emblem of Rome</i>	approx. 10%
	Reference to the water component	100%
	Water as a <i>core matter</i> for Fendi	78%
	Analogies between water and the Fendi brand (materialization process)	54%

Tab. 2 S. Biondo, 2022, Outline of the results of the textual analysis.

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4 · 7 AN ARCHAEOLOGICAL APPROACH TO FASHION WASTE

TRACING FASHION'S FOOTPRINT IN MARINE LANDSCAPES

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I. INTRODUCTION AND RESEARCH ISSUE

It is crucial to be mindful of the environmental impact of consumer choices, particularly in the fashion industry. Shockingly, it is the second largest polluter next to the oil and gas sector. The ease of purchasing clothes due to increased production and lower prices should not overshadow the environmental cost that comes with it. Before making any purchases, it is essential to factor in the cost, especially since people nowadays tend to buy five times more clothes than previous generations. The consequences of this continuous accumulation of garments affect people's health, the planet, and garment workers' lives. As for the decline of garment quality and the quick change of trends, fashion consumers are more likely to buy new clothes than to make proper use of the ones they already have. Wearing a garment more than seven times has become a real challenge. Consumer behaviour is strictly connected to the changes in the industry, producing and buying clothes as they are disposable. According to data gathered by the independent platform Sustain Your Style, over 100 billion garments are made annually, which is a 400% increase over the past twenty years. Unfortunately, at least 50% of people's clothing goes unworn; on average, a garment is only worn seven times before being discarded. Additionally, the average person in Europe generates eleven kilograms of textile waste every year. The continuous growth of consumption and waste is strictly connected to the human behaviour of nature exploitation without considering its specific qualities and other life forms (Charpail, 2022, para. 3). In this regard, the philosopher Timothy Morton wonders if man is still the measure of all things and ends that the current environmental crisis attests to the urgency of moving beyond the anthropocentric reference to start considering man as not the ultimate object of the planet. Morton's research introduces a fresh perspective on *Nature* that is man-made,

hence artificial (Petroni, 2019, para. 4). In modern times, the sea – considered a crucial component of the "Biosphere", as per Morton – has become home to a significant amount of waste. Throughout history, water has served as a means of exchange and development between diverse communities and cultures (Braudel, 2012, p.15). As such, it can potentially serve as a platform for cultural research and analysis in the modern era. To highlight the epochal consequences of capitalist production of goods, and thus of waste, in terms of environmental, economic, social, and anthropological impact, Marco Armiero uses the word Wastocene in contrast to Anthropocene, identifying waste as the main characteristics of the modern era. This includes not only physical waste but also the wasteful relationships that exist on a global scale, leading to the creation of wasted places and people (Chiodo, 2023, p. 260). It is curious what the Italian author Italo Calvino writes in his book *Le città invisibili*, published in 1972, about the disruptive entry of waste into society. One of the imaginary cities he depicts is called Leonia, which seems to illustrate the actual capitalistic society. The city is described as surrounded by mountains of waste, which continue to grow larger every day due to citizens' constant desire to dispose of their old possessions. It is worth highlighting the misconception about aging present in this description. People seem to think everything they owned since the day before is useless. This idea does not consider repairing or making use of existing things. Instead, society is driven solely by the need for something new daily (Calvino, 2012, p. 114). *Le città invisibili* may have been written years ago, but it still holds valuable insights into the current fashion system. As the industry grapples with its damaging environmental and social impact, the amount of fashion waste is increasing while raw materials are reducing. According to some statistics from the Europe Environmental Agency, a European family throws away an average of eleven kilograms of clothing each year,

and only 15% is recycled or donated; all the rest goes directly to the landfill or is incinerated (Charpail, 2022, para. 10). According to its definition, waste is an unwanted or unusable material that is supposed to be inefficient. Nevertheless, today, wastes could be considered scraps of our history, and it is relevant to analyse them with an archaeological approach, as Foucault (1969, p. 72) highlights in *L'Archéologie du Savoir*. Given this background, this paper aims to examine the various forms of fashion waste present in waters and to explore how this investigation can raise awareness among consumers about the proper disposal of their refuse.

2. METHODOLOGY

Thinking about the multiple relationships between fashion and water, this research focuses on fashion waste and seawater. The connection between these two elements is not just about the environmental impact of fashion but also about the capacity of water to carry memories, stories, and all kinds of waste of our time. The sea surrounding Italy and its wastes (fashion ones in particular) are analysed in this paper to improve lifestyles and become more aware of the impact of fashion habits on the world. Water is often seen as a source of life and prosperity, but currently, it is essential to consider what it is giving us back. The relationship between the fashion industry waste and its cultural significance is crucial in this research.

It is essential to underline the meaning of fashion waste, which includes any materials and products discarded during the entire lifecycle of fashion items, ranging from design to post-consumer stages. It can be categorised into pre-consumption and post-consumption waste. The former is associated with the fashion industry, while the latter is related to fashion consumption. Pre-consumption waste can be further divided into primary and secondary waste. The primary waste for textile manufacturing includes

production residues, sewing waste, bobbins' ends, discarded fabrics, cloths, fibres, yarns, damaged fabrics, and chemical waste. The secondary waste includes distaff, cones, pallets, containers, drums, dyes, chemicals, plastic wrap, cardboard, paper, and intangible energy resources (Tartaglione & Corradini, 2013, p. 26). On the other hand, post-consumer waste refers to items that have been used and then discarded, such as clothing and accessories (Rangel-Buitrago et al., 2024, para. 1).

The waste scattered throughout the ocean or coastline is called marine litter, a major global environmental threat. It causes pollution that seriously damages ocean ecosystems, impacting wildlife and humans. Marine litter investigations can be conducted in various ways. These include beach litter surveys, benthic litter surveys, and floating litter surveys. Benthic litter surveys can be done through observations made by divers, submersibles, camera tows, or litter collection using benthic trawls. On the other hand, floating litter surveys involve observations made from ships or aerial-based platforms and litter collection through surface trawls (Cheshire et al., 2009, para. 15). For this study, different methods of marine litter investigations have been considered, and three main research questions have conducted the research:

- ♦ Which types of fashion waste can be collected from the sea?
- ♦ Are there any differences in the findings along the coasts of Italy?
- ♦ What values can waste have, and can they lead to a culture of sustainability?

Legambiente is a non-profit association that promotes change for a better future through volunteering and direct participation. It collects vast data on the ecosystem from the ground up and provides insightful reports on its website. During 2023, Legambiente monitored 38 Italian beaches

from fifteen regions (Liguria, Veneto, Friuli-Venezia Giulia, Emilia-Romagna, Tuscany, Lazio, Marche, Abruzzo, Campania, Puglia, Basilicata, Molise, Calabria, Sicily, and Sardinia). On 232,800 sq.m sampled area, 36,543 litter was counted, 72.5% of which consisted of artificial polymers/plastics and 9.2% of the total glass/ceramic waste, mainly of construction material. This is followed by metal (6.8% of the waste collected), and paper and cardboard (3.9% of the total). The remaining material collected consists of textiles, treated wood, rubber, bioplastics, food waste and chemicals (Legambiente, 2023, section “Indagine Beach Litter 2023”).

Starting from the Legambiente report, some case studies were considered to investigate the phenomenon further in real-life contexts. To understand which types of fashion waste are found and how they can be recovered (either disposed of or exploited as a cultural resource), the study delved into beach clean-up associations, a start-up company, and a circular economy consortium.

The first case study that has been examined was Archeoplastica. This project aims to raise awareness about plastic pollution and promote mindfulness when using this material. Besides the organisations of activities such as beach clean-ups, since 2018, beached wastes have been selected and analysed to collect information such as their origins, use, and production year. Each piece became a part of a vast waste archive, and the most ancient find can be dated to the 1950s. They have compiled these discoveries to create a virtual museum on their website, although periodic temporary exhibits are arranged in various cities throughout Italy. The exposition of old beached garbage is a powerful way to tell the ongoing story of the daily plastics collected from the sea. It is a reminder of human activity's impact on the planet and the importance of protecting the environment.

On December 9th, 2022, a phone interview was conducted with Enzo Suma, the founder. He works as a nature guide

in Ostuni, near Brindisi. Since 2018, he has been actively raising awareness of pollution, organising several collective clean-up days. As an avid collector of beached plastics, he started thinking about taking advantage of the many beached wastes – even older than 50 years – to make the observer think from another perspective about the trash pollution problem in the sea. The museum was created in 2021 after collecting more than 200 pieces to expose and aims to make people aware of what the sea returns nowadays. Archeoplastica also tries to reconstruct and tell the stories behind the objects that, after a long journey, are collected on the beach. The area in which Suma operates is the Apulian coast in southern Italy. Nevertheless, he has created an enormous community through social media to share his work and confront the findings.

The Italian community is actively engaged in archaeological pursuits, donating significant findings to the Archeoplastica Museum. The community also plays a crucial role in investigating each discovery, piecing together the story behind the waste. By utilising old photos, videos, and advertisements, they can identify the original product and determine the decade in which it was used. Sometimes, if the object contains an expiration date or serial number, they can narrow it even further. The interview with Enzo revealed that Italian beaches are plagued with a significant amount of fashion waste. Shoes and slippers are among the most frequently found items due to their ability to float on water and get carried onto the shore during coastal storms. Interestingly, textile waste has never been discovered during Suma's clean-up efforts, likely because it does not have the same buoyancy as footwear. One discovery stands out – a Nike Air Jordan 1 sneaker created in collaboration with Off-White. The colour of this sneaker indicates that it was released in 2018. On the other hand, slippers are more challenging to date as they usually lack branding. Archeoplastica is researching a new form of *fossils* that

result from actual consumer-driven society and highlights the impact of people's daily choices.

Another case study has been analysed to compare the fashion findings in Apulia with those in other Italian coastal regions. Marevivo, a non-profit organisation, has been dedicated to safeguarding the sea and the environment since 1985. Their efforts include combating pollution and illegal fishing, studying biodiversity, promoting and preserving marine protected areas, and educating schools and universities on sustainable development. They also strive to raise awareness on various topics related to the sea. Marevivo operates in thirteen different regions, and Stefano Siracusa, an environmental educator from the Sicilian office, conducted an email interview from March 22 to June 17, 2023. One of the principal activities organised by Marevivo is beach clean-ups, which are held monthly or weekly. School groups are often involved in clean-up efforts as they can serve to promote environmental awareness and education. This is especially important as they represent the future generation facing ecological issues first-hand.

Furthermore, Marevivo volunteers make calls to engage as many people as possible across the territory. After the clean-up process, the waste discovered is sorted, separated into bags, tallied, and weighed to generate a detailed report for the Ocean Conservancy. This international association monitors the health of the world's coastlines through these data. In Sicily, such as on the Apulian coast, fashion items commonly found include sandals and shoes, with swimming costumes being less common. A unique beach called Torre Salsa stands out from the rest due to its natural reserve status. Unfortunately, it is also a common location for undocumented migrants to make ghostly landings and abandon their clothes on the beach. In March 2021, a strange episode occurred on the northern coast of Sicily. Three kilometres of beach in Carini were littered with waste, including hundreds of shoes among bottles, toys,

and bags. Mariella Gattuso, the director of Marevivo Sicily, participated in the shoe collection. Over a couple of hours, she gathered nearly a hundred shoes of various sizes and types. Although the sea damaged some shoes, they could remain in the water for hundreds of years before turning into microplastics. The large assortment of shoes the sea returned to the beach was beyond anyone's imagination.

Since 2017, Marevivo Sicily has been promoting the revaluation of waste through a competition called Marine Litter Art. This contest challenges artists to create trash art using scraps to raise social and environmental degradation awareness. The location of the event is set at the Oasi di Marevivo Environmental Education Centre. This venue is ideally situated between the beaches of Eraclea Minoa and Bovo Marina in Agrigento. It is nestled in the stunning Foce del Fiume Platani location, where the forest meets the beach and the sea. Eclectic artists, sensitive to environmental protection issues, participate in the battle against environmental pollution by creating works with educational values. The materials used to create their artwork are gathered from the waste collected at the mouth of the Platani River during an ecological event that involves all participating artists. The latest edition of Marine Litter Art in 2021 featured the remarkable work of Aurora Bresci. The *Beachwear Collection* piece, a striking bikini made entirely from discarded cigarette butts, highlights the innovative use of materials in an utterly fascinating way.

The third case study explores Sea The Change. This forward-thinking start-up empowers businesses to enhance their environmental sustainability by guiding and preserving marine ecosystems and seas. Their work focuses on the blue economy, which the World Bank defines as the sustainable utilisation of ocean resources to promote economic growth, enhance livelihoods, and generate employment opportunities while preserving the health of the ocean ecosystem. The European Commission, on the other hand,

defines the blue economy as encompassing all economic activities associated with oceans, seas, and coasts. In 2021, Sea The Change was established by a team of four individuals. During an interview at their office in Giudecca, Venice, on June 21, 2023, Alberto Carpanese and Luca Barani, two team members, responded to some inquiries. The start-up offers three valuable services to its partners: *Blue Carbon*, *Fishing for Litter*, and *Poseidon*. *Fishing For Litter* is a program that involves fishing and collecting marine litter in the Adriatic Sea with the help of local fishermen. The accumulated waste is weighed, catalogued, and disposed of in compliance with the law, thanks to the partnership with the Cetacea Foundation. The data gathered from this initiative helps conduct scientific research on the matter. Sea the Change aims to achieve multiple goals through its services. These include minimising waste in the sea, promoting eco-friendly income sources, establishing effective mechanisms to support research, and creating awareness about the issue. One company has joined this service and has organised five boat trips within a year. Most of the waste collected during these trips is fishing-related and plastic, with only a small amount of fashion waste composed of fabric. No footwear, such as shoes or slippers, was discovered in the open sea, which differs from previous case studies.

This article delves into the pressing issue of fashion waste frequently discovered on beaches and the sea. A comprehensive section of the paper scrutinises the appropriate disposal of such waste. In order to gain valuable insights into this crucial matter, an email interview was conducted with Retex.Green Consortium in May 2023. Retex.Green was established in March 2022, and it is a non-profit Consortium of producers in the fashion chain, sponsored by the Sistema Moda Italia and the Italian Textile Foundation. The Consortium aims to improve waste management for textile, clothing, footwear, and leather products. It anticipates regulatory decisions on

recycling and offers an operational tool for all supply chain segments, making all players in the chain part of the circularity process. On the one hand, producers are responsible for funding and coordinating an end-of-life management system to handle products disposed of by consumers. The municipal waste management system involves gathering, storing, categorising, and forwarding waste for reuse, recycling, or disposal. Producers have the option to operate independently or opt for a collective solution. Suppose they choose the latter, Retex.Green takes over their obligations. Producers make an environmental contribution by relying on the consortium to support their activities.

This contribution may be reflected in the final product price and ultimately paid by the consumer. On the other hand, a responsible consumer will embrace virtuous behaviour by participating in the circularity of products. This can be achieved by utilising take-back services for used garments offered by shops and managed by the consortia. Additionally, contributing financially through payment of a small surcharge, known as eco-contribution, applied to the purchased products is another way to support repair, second-hand, and recycling solutions. Retex.Green operates all around Italy through a certified recycling chain that guarantees traceability and transparency of information. Based on previous case studies, it has been discovered that a significant portion of fashion waste consists of shoes. Therefore, during the interview, considerable attention was given to properly disposing of footwear. Retex.Green sorts discarded shoes under EWC code 200110. Reusable ones are sold second-hand, while the rest go for recycling, waste-to-energy, or landfills. Footwear waste is typically broken down into three parts: the leather shoe upper, the multi-textile or expanded fibre insole, and the rubber or leather sole. The upper is further disassembled into its various components during the recycling process. In addition, the consortium is currently engaged in

two experimental projects – one for recycling trainers and another for reclaiming the sole.

Abandoned footwear, particularly beach shoes made from plastic, is an all-too-common sight on our beaches. To tackle this issue head-on, we must take decisive action by introducing innovative disposal methods and educating beachgoers about the importance of taking responsibility for their belongings. Only then can we make meaningful progress towards reducing the plastic waste that blights our shores.

3. RESULTS AND CONCLUSIONS

The spread of fashion waste into the ocean and along the Italian coast is a significant environmental concern that presents multiple challenges. First, as the trash is found chiefly fractured, this implies that the missing pieces are dispersed in the water, in most cases in the form of microplastics. Furthermore, the fashion waste collected cannot be treated as regular municipal waste due to Italian laws that classify all waste from the sea as hazardous. Therefore, the only viable option for recovering these items is through upcycling initiatives like the one implemented by Marevivo. It is crucial to find sustainable solutions for this issue.

Sea the Change's Fishing for Litter project faces obstacles when disposing of the trash they collect. They can only pick up a few dozen kilos at a time, and storing the garbage in Italian ports is impossible. Recently, a law called *Salvamare* (Save the Sea) was passed in Italy on May 17, 2022. This law permits garbage collection in the Italian sea and requires storing the trash in ports. However, a decree outlining the implementation of this law has yet to be issued. Additionally, less than 20% of the garbage in the sea can be recovered. Furthermore, this study has found that discarded fashion footwear is currently being processed through waste-to-energy technology, as methods for better

disposal have yet to be established. There is still significant room for improvement in material recycling and recovery.

It is crucial to spread awareness and increase knowledge among people to encourage more conscious behaviour. The Archeoplastica Museum, the Marine Litter Art Challenge by Marevivo, and the informative report from Sea the Change are all important initiatives that serve as reminders of this fact. Over time, the gathering and storing of seemingly unimportant and low-cost scraps can hold significant value, especially concerning cultural heritage. It is worth noting that the value of works and knowledge related to cultural heritage can evolve over time, and today's litter and debris in the sea could be significant remnants of modern society. The influence of natural elements on human existence is substantial, making nature and the environment crucial aspects of history. The sea, specifically, represents a diverse cultural, temporal, and social landscape (Braudel, 2012, p. 19). Water, as a natural element, serves as a space for exploration and observation that contributes to the development of our modern society by fostering cultural and conscious progress. Examining waste from an archaeological and historical perspective allows for analysing its fragmentation and discontinuity, potentially leading to a new narrative and understanding of the sea.

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4 · 8 FISH LEATHER RENAISSANCE

*SALVATORE FERRAGAMO'S SUSTAINABLE MATERIALS AMIDST
WARTIME IN ITALY*

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I. INTRODUCTION

The tradition of using fish skin① for clothing and accessories traces back to ancestral practices in Arctic coastal societies, where aquatic resources served both as sustenance and attire. While historically prevalent in Arctic and Subarctic regions like Scandinavia, Iceland, Alaska, Hokkaido, Japan, Northeast China and Siberia② the craft of fish skin production faced decline in the twentieth century. However, Salvatore Ferragamo emerged as a pioneering force, introducing fish leather as a renewed material into his footwear designs from the 1920's. Amidst World War II, the global focus shifted towards directing resources into the war effort, leading to rationing of essential commodities like leather for shoemaking. In response, fashion designers, including Ferragamo, turned to innovative solutions, exploring alternative materials to alleviate shortages. Facing interruptions in international trade due to sanctions against fascism, Italy sought self-sufficiency, prompting Ferragamo to experiment with fish leather sourced from local seafood suppliers. Leveraging special tanning techniques, Ferragamo successfully transformed fish skins from salmon, cod, perch, catfish, and snapper into marine leather, offering a sustainable substitute for exotic skins. This adoption of fish leather not only addressed resource scarcity but also aligned with the principles of self-reliance during the autarchy period. Furthermore, it contributed to the promotion of Made in Italy, fostering domestic industries and encapsulating Italy's cultural heritage within the fashion realm.

2. METHODOLOGY

The methodology guiding this study followed four linked strands. The literature review was undertaken primarily in the archives of Fondazione Ferragamo, supported by research at the Library of Congress during the researchers'

AHRC Kluge Fellowship and at the Biblioteca Nazionale in Florence. This work aimed to document the historical, cultural, and environmental contexts of Ferragamo's fish leather artefacts through exhibition catalogues, period fashion magazines, and related materials offering insights into the brand's heritage.

Fieldwork carried out in Florence in March 2023 involved archival investigation, interviews, observation, and document collection. A qualitative approach, drawing on an arts-based inquiry (Denzin & Lincoln, 2008), enabled close engagement with the collection. Primary data consisted of semi-structured interviews with museum archivists Eleonora Geppi and Ludovica Barabino of the Salvatore Ferragamo Foundation, supervised by Stefania Ricci, Director of the Ferragamo Museum. Practice-led examination of the fish leather artefacts was combined with contemporaneous analysis of fashion-magazine and wartime newspaper sources on fish-leather accessories and on Ferragamo's early promotion of industrial production.

Ethnographic methods informed the study of fish-leather shoes and bags, integrating material analysis to trace the histories of individual artefacts. Attention was given to design features, construction processes, fish species, dyeing techniques, and the clientele for whom the bespoke pieces were produced. Photography supported the visual documentation of the artefacts examined at the Fondazione Ferragamo, using official images for which permission was granted. The completed article was reviewed by the Fondazione staff, who verified dates and photographic material, provided comments, and confirmed that the final version will be held in their archive.

3. RESEARCH ISSUE

3.1 Fashion and nature

Fashion, rooted in the natural world, traditionally relies on materials sourced from plants, animals, and minerals (Ehrman, 2018). However, this reliance on natural resources contributes to environmental challenges such as species depletion, deforestation, and pollution (Fashion Values, 2021). The fashion industry's global footprint extends from raw material extraction to production, distribution, and disposal, significantly impacting the environment (Badiali et al., 2019). To address these impacts, the industry must transition towards regenerative practices embracing renewable sources, using agricultural and marine waste, and recycled materials (Goldsworthy, 2021). Shifting from reliance on common materials to nature-centric design is imperative, considering the finite nature of resources, ecosystem over-use, and environmental pollution (Fashion Values, 2021). In this context, innovative materials like fish leather emerge as sustainable alternatives, demanding fewer resources than conventional ones (Global Fashion Agenda, 2019). Thus, the use of fish leather becomes essential as the fashion industry seeks sustainable solutions amidst growing resource demands.

3.2 Fashion and water

Developing environmentally friendly fashion entails not only technological advancements but also a return to traditional, low-impact production methods. The Blue Bioeconomy emphasises the intelligent harnessing of renewable aquatic resources to produce high-value products like fish leather. As a by-product of the seafood industry, fish leather aligns with Sustainable Development Goal 14, "Life Below Water". Fisheries supplying raw materials

and tanneries processing fish leather contribute to the Blue Bioeconomy's objectives (Palomino, 2022a).

3.3 Fish leather material culture

Material culture encompasses the relationship between artefacts, people, and the meanings attributed to them by their producers, users, and collectors (Gerritsen & Riello, 2021; Prown, 1982). Fish skin material culture highlights the nexus between people, nature, and everyday objects, reflecting environmental choices made by Arctic communities. Fish skin artefacts serve as tangible evidence of technological innovation and cultural adaptation across Arctic regions over time, showcasing the sustainability and resilience of Arctic cultures (Palomino, 2022b). Indigenous fish skin practices, spanning millennia, contribute to sustainable development in Arctic coastal regions (Palomino & Pardue, 2021). Ferragamo's adoption of fish leather inadvertently highlights the value of such Indigenous knowledge systems. His exploration of fish leather material culture represents a convergence of history, culture, sustainability, and artistic expression, highlighting the transformative power of fashion in shaping our relationship with the natural world. Fish leather, represents a sustainable option encompassing animal welfare, human rights, labour laws, and environmental regulations (Palomino, 2022a).

3.4 Fish leather and cultural sensitivity

In Western fashion history, innovation has always been key, with designers striving to impress by introducing novel ideas (Kawamura, 2022). Since the fifteenth century, the exchange of material culture through colonial trade routes has shaped various aspects of culture, including fashion. In the late nineteenth and early twentieth centuries, Western designers drew inspiration from *exotic cultures*, a trend that continued despite emerging post-colonial critiques in the latter twentieth century (Socha, 2020).

Cultural appropriation, defined as the unauthorised adoption of elements from another culture (Vézina, 2019), has become a contentious issue in the fashion industry. Designers must now make responsible decisions, considering historical power imbalances that allowed dominant cultures to borrow from marginalised ones. As societal values evolve, there's a need for a critical re-evaluation of past practices, including the use of fish leather by Ferragamo. Fashion's exploration of cultural influences must be approached with sensitivity and respect, striving for authentic and ethical engagement while acknowledging the complexities of cultural exchange.

4. *WORLD WAR II AND THE UTILISATION OF ALTERNATIVE MATERIALS*

In the 1940s, with basic necessities secured but rationed to prevent shortages, the availability of leather for civilian shoes reduced drastically as the military requisitioned much of it for combat gear like boots and flight jackets (Morgan, 2018). This scarcity prompted citizens to adapt, urged by governments and magazines to prioritise essential goods for the war effort and minimise frivolous consumption. Resourcefulness became key, with initiatives encouraging the repurposing of old shoes' leather and the reuse of fabric from worn-out clothing to craft new items (Chrisafis, 2009). Manufacturers responded by introducing shoes crafted from non-rationed materials, such as wooden platforms, newspaper, cork, and old tires, while a variety of unconventional materials like fabric offcuts, fabrics, fish leather, and hemp were utilised for shoe uppers (Morgan, 2018).

To maximise efficiency and minimize waste, innovative manufacturing processes emerged. Techniques such as pattern cutting optimisation, a precursor to modern zero waste design, were used (Palomino, 2022a). Minimal sewing and simplified designs helped conserve materials,

emphasising the durability of leather goods to withstand prolonged use during wartime.

4.1 Utilization of raw materials in Europe during the war

In Denmark and Norway, the German occupation disrupted overseas imports, leading to the exploitation of local resources. Fish leather replaced cowhide for making harnesses and accessories, with vibrant dyes enhancing the material's appeal (Wormald, 2018). Eel skin, prized for its flexibility and strength, providing a good sheath found use in industrial machinery for drive belts due to its anti splitting properties, which minimised failures (Waxman, 2020).

In France, fashion accessories served dual purposes during wartime, functioning not only as adornments but also as clandestine vessels for Resistance materials. Bags with concealed compartments and deceptive linings hide pamphlets, integrating fashion into the everyday life of Parisians amidst the turmoil of war (Battista, 2009; Antelme & Veillon, 2016).

4.2 Utilization of raw materials in Italy during the war

During World War II, Italy's alignment with Nazi Germany subjected it to Allied sanctions, further curtailing access to vital resources. In response, the fascist regime pursued policies promoting self-sufficiency and reducing dependence on imports. The establishment of the Ente Nazionale della Moda (E.N.M.) in 1935 aimed to centralise the fashion sector, aligning production with the regime's goals. Autarchy principles were harnessing, urging resourcefulness and self-reliance, particularly championed through women's domestic roles. In 1938, an article in Cordelia's magazine ③ outlined the autarchy principles:

It must not be limited to a mere term but become a way of life; a physical necessity and a spiritual obedience. The woman must be the guide and the instigator of

this battle. The action must begin at home, where the woman rules. Self-reliance consists in not wasting even that which seems useless. It is the intelligent use of everything we use. Self-reliance is power. We must all strive for it. (Cordelia, 1938, p. 413, in Ruggiero, 2013)

Amidst the Fascist regime in Italy, efforts to achieve self-sufficiency and reduce reliance on foreign goods intensified. Leather shortages spurred exploration into alternative materials for accessories production. Salvatore Ferragamo, facing limited access to traditional leather, turned to unconventional sources like fish leather.

5. SALVATORE FERRAGAMO'S COMMITMENT TO MATERIALS

5.1 Ferragamo's exploration of exotic materials

Salvatore Ferragamo's craftsmanship was distinguished by his appreciation for materials, showcased in his creation of shoes made of satin, embroidery, crystal, feathers, and many exotic skins such as antelope, kangaroo, leopard, lizard, and sea leopard (Vergani, 1985). His journey began when he migrated to the United States in 1915 and established a shoe repair shop in Hollywood (Ricci, 2000). It was in California where Ferragamo found inspiration, developing different diverse styles and sourcing rare materials, including python, ostrich, lizard, and water snake skins, thus expanding the boundaries of shoemaking (Vergani, 1985).

Although Ferragamo attained recognition during the Roaring Twenties in Hollywood, his most significant contributions to fashion unfolded upon his return to Italy (Aschengreen Piacenti, 1985). In 1927, he chose to settle in Florence, drawn by its rich leather tradition. The area boasted two prominent leather production hubs: The Santa Croce district, housing ancient tanneries along the banks of the Arno River, and the leather neighbourhood in Florence

of Santa Croce sull'Arno, nestled between Florence and Pisa, which encompassed the entire leather goods production cycle by the 1920s (Gensini, 1999).

5.2 Ferragamo's innovations in material use during wartime

Amidst the challenges of wartime material shortages, Ferragamo had to find alternatives to traditional materials, but as a luxury brand, possessed a wider array of resources unavailable to the general public. With kid leather scarce in the market, Ferragamo turned to unconventional substitutes. Fish leather emerged as a novel solution, showcasing his resourcefulness and adaptability in sustaining production and meeting demand during times of scarcity.

6. FERRAGAMO'S UTILISATION OF FISH LEATHER

Fish leather lent itself to this resourcefulness because of the abundance of fish in Italy, with a long coastline and a rich fishing industry. The use of fish leather as a by-product of the seafood industry made it compelling, as it tapped into an otherwise wasted resource, in line with the regime's interest in maximising resources and promoting economic self-sufficiency. Sourced from Italian fishing industries, fitted in with the nationalist approach, promoting national local while supporting Italian enterprises.

6.1 Collaboration with S.A.L.P. tannery

Ferragamo forged a pivotal partnership with S.A.L.P. (Società Anonima Lavorazione Pelli), a leading tannery based in Rivarolo Canavese, Piedmont, established in 1919 (Fig. 1). Renowned for its production quality and cutting-edge technological innovations (Ricci & Sissi, 2017), S.A.L.P. specialised in tanning skins from various fish species, including dentex, salmon, cod, perch, wolfish, and snapper. Recognising the potential of fish leather, Ferragamo collaborated closely with S.A.L.P. to enhance the quality of the

material. Through rigorous tanning processes, the previously inferior-quality fish skins were transformed into robust leather surpassing the durability of traditional goat and sheep hides. The courses of chemistry that Ferragamo took at the University of Pennsylvania during his Hollywood years, likely informed advancements in dyeing techniques crucial for his fish leather collections (Ricci, 1985). Ferragamo bought the multicoloured fish leather (Fig.11) from S.A.L.P which, due to their small size, required great skill in manufacturing the uppers (La Calzatura, 1939).

6.2 Partnership with Italian seafood supplier Genepesca

During the 1930s, S.A.L.P. struck a strategic alliance with Genepesca (Figs. 2-3), an Italian seafood supplier, to procure fish skins for tanning. The initial skin processing took place onboard vessels, requiring meticulous cutting along the dorsal fins to preserve the integrity of the prized leather. Following preservation through salting, the skins were transported to the tannery for further processing (Ricci, 1997). Branded under the name *Sirena* (Fig. 1) the refined fish leather gained recognition for its exotic allure in luxury markets. Through collaborative efforts with S.A.L.P. and Genepesca, Ferragamo secured a consistent supply of fish leather, integral to crafting his exclusive accessories. This pioneering collaboration illustrated Ferragamo's commitment to innovative sourcing and sustainable fashion practices during this era.

6.3 Production of catfish leather from Northern European waters

Since 1928, Ferragamo had embraced the use of catfish leather, sourced from the waters of northern Europe. Ingeniously rebranding it as "sea-leopard" due to its distinctive leopard-like pattern (Fig. 6), Ferragamo tapped into Iceland's rich tradition of utilizing catfish or wolfish skin for shoemaking (Fig. 5). Historical accounts dating

back to the eighteenth century depict Icelanders fashioning traditional shoes from wolfish skin (Hald, 1972). Rooted in their ancestral ethos of resourcefulness, Icelanders have long relied on the bounty of their coastlines, including salmon, wolfish, and cod, demonstrating a timeless commitment to harnessing the utility of every available resource (Palomino, 2022a).

6.4 Collaboration with Sipo Trading

In 1939, sea-leopard leather made a resurgence when German tanners developed a method to preserve its distinctive leopard spots. However, with the onset of war, sea-leopard vanished from the market, only to re-emerge in 1954, available in its natural hue or dyed in vibrant colours. Ferragamo reintroduced this unique material through a partnership with Sipo Trading, a Danish distributor. Fish sourced from the Thule coastline were processed at the Royal Greenland Dock and transported by rail to the tanneries in Strib (Politiken, 1954). The sea-leopard shoes and bags, featuring hues of rose, green, pearl grey, and violet, were retailed at Magasin du Nord (Fig. 7), a renowned Danish department store established in 1868. These products garnered significant attention in the local press, enticing Danish consumers with their blend of artistic design and exquisite craftsmanship (Magasin, 1954).

To promote this collaboration, Sipo Trading organized a sales campaign and reception attended by Danish shoe manufacturers and retailers, with Queen Ingrid of Denmark presiding over the event. A Greenlandic woman dressed in traditional attire was showcased at the reception. While the intention may have been to foster cultural exchange and appreciation, it is vital to recognise that representations of Indigenous Inuit culture should transcend superficial stereotypes and reflect its diversity, richness, and significance. Greenland, then a Danish colony, faced significant socio-economic challenges, with Greenlanders enduring

poverty, low quality of life, and high mortality rates. Both Greenland and Iceland share a history of Danish colonisation, with their populations historically regarded as colonised within that framework” (Loftsdóttir, 2018).

Queen Ingrid of Denmark was impressed by Ferragamo's promotion of Greenlandic sea-leopard leather and promptly ordered several pairs of shoes in various shades for herself and her two daughters. Meanwhile, in Rome, Sophia Loren (Fig. 9) took on the role of the main ambassador for this new fashion trend at the Open Gate Club in Rome, showcasing sea-leopard bags (Fig. 10) and shoes. Due to the scarcity of sea-leopard skins, with one and a half fish required to make a single pair of shoes, production remained limited to a select few expensive models (Ricci, 1997). Aware of the potential impact on fish populations, Ferragamo carefully considered strategies for the sustainable use of fish skins, understanding the need to mitigate fishing pressure on species sought after for their leather (Palomino, 2022a).

7. FISH LEATHER AS AN ALTERNATIVE TO EXOTIC LEATHERS

Fish skin has a unique texture with scales that add a unique exotic look to the finished products providing an attractive option to exotic skins. Because of its similar appearance, fish leather became an alternative to leathers from endangered species such as snakes during the War (Palomino, 2022a). As a material that can be transformed into bags, wallets, belts and shoes, fish leather offered much needed variety. It was dyed (Fig. 8), laminated and treated similarly to other leather types, allowing greater application and design creativity of designs, meeting the tastes of the elite consumers of the time.

8. MAKING A VIRTUE OF SCARCITY

Ferragamo's use of fish leather during wartime exemplified Italy's ability to turn scarcity into innovation. The fascist regime's promotion of autarchy extended to the arts, fostering cultural corporatism and international networks to bolster fascist ideology and soft power. Fashion, as a key sector, aligned with the regime's aims, emphasising consumption of Italian products to support domestic industries (Fig. 4). This push aimed to elevate Italian fashion as a symbol of national pride, free from foreign influence, and showcasing Italy's cultural heritage and craftsmanship. Despite trade restrictions impacting luxury goods exports, Ferragamo's ability to access international markets remained relatively intact compared to other brands. His exports to the United States during the war led to accusations of siding with the Allies, while post-war suspicions of collaboration with Nazis and Fascists arose due to the exclusivity of his high-end accessories (Ricci, 2000). Economic reconstruction post-World War II was slow, with material shortages persisting, but Ferragamo resumed exporting shoes in 1946 (Ricci, 2000).

9. FERRAGAMO'S INNOVATIVE APPROACH TODAY

Ferragamo's approach to fish leather highlights how limited resources can be used constructively, presenting scarcity as an encouragement towards alternative material choices. This perspective supports more careful and environmentally responsible use of resources. The brand's development over time shows how innovation can be aligned with sustainability aims, navigating from historical constraints such as autarchy to contemporary environmental pressures through responsible sourcing and production.

Addressing sustainability within fashion requires moving beyond national frameworks. Ferragamo's ability to bridge its historical legacy with present sustainability objectives reflects a shift toward recognising the broader scale at which the industry operates, where cross-border collaboration becomes necessary. Discussions of material sourcing emphasise the benefits of reducing dependence on distant suppliers. Prioritising locally sourced and produced materials can support more stable supply chains and promote responsible practices. Within this context, fish leather serves as an example of how alternative sourcing strategies may contribute to environmentally attentive production. These considerations also involve recognising the connections between materials, ecosystems, wildlife, and communities. Sustainable practice requires attention to how production affects these relationships. Reassessing sourcing methods with this awareness supports responsible practices that prioritise the well-being of all entities in the supply chain, including humans, animals, and the environment, contributing to a more resilient fashion ecosystem.

CONCLUSIONS

The resourcefulness of the historical use of fish skin by indigenous Arctic societies using locally available materials resembles its rediscovery in the rest of Europe in the late 1920s, and specifically by Salvatore Ferragamo. Fashion's resilience during the Second World War led to the emergence of new trends, demonstrating how ingenuity thrives in times of scarcity. Ferragamo, who had to face the challenges of this period, demonstrated his innovation by using fish leather to overcome material shortages, exemplifying the concept of making a virtue out of scarcity.

Despite its association with autarchic principles, promoting Italian craftsmanship during this time enhanced Ferragamo's reputation for exceptional artisanship and

innovative designs. These principles of resourcefulness and waste reduction remain relevant today, offering insights into fashion sustainability, including economic, social, and environmental benefits.

The paper has explored the potential of fish leather as a sustainable alternative in the fashion industry, drawing on Salvatore Ferragamo's pioneering approach. It argues the importance of learning from historical practices and implementing design-based solutions for waste reduction. By highlighting the ecological suitability and economic viability of fish leather, the research contributes to awareness and knowledge exchange in sustainable fashion practices, advocating for a transition towards a more resilient and efficient economy through material innovation and waste reduction.

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FIGURES

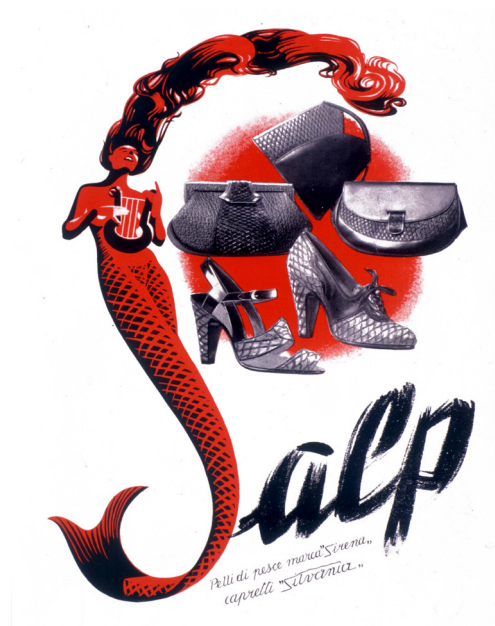


Fig. 1 S.A.L.P: tannery publicity. **Rivista Italiana calzature**, January 1939.
Courtesy Museo Ferragamo, Florence.



Fig. 2 Genepesca (Compagnia Generale Italiana della Grande Pesca), Recipe book.



Fig. 3. Genepesca (Compagnia Generale Italiana della Grande Pesca). "Italians, eat fish, validly resist sanctions!".



Fig. 4. Fascist propaganda during autarky. "Purchase Italian Products!".



Fig. 5 Icelandic traditional spotted wolffish (sea leopard) leather shoes.
Courtesy National Museum of Iceland.

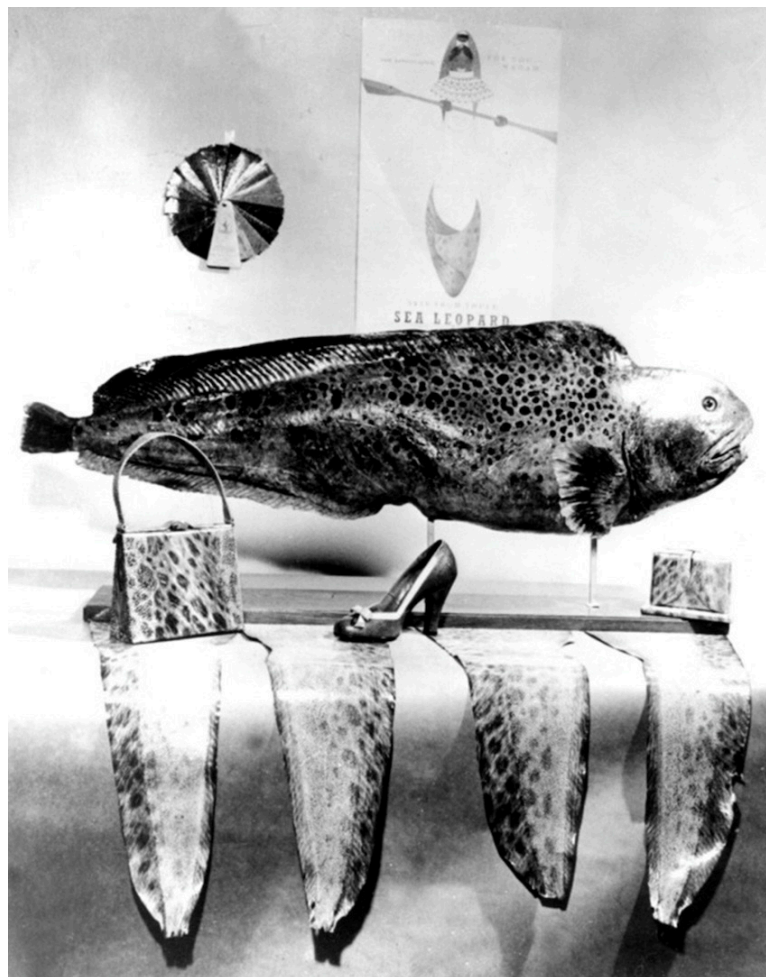


Fig. 6 Presentation of Ferragamo's patented sea leopard leather on Danish TV. Copenhagen 1954. Copyright: Sipo Trading Company, Copenhagen.



Fig. 7 1955 Ferragamo's sea-leopard advertising campaign at Magasin du Nord department store in Denmark. "Politiken und Berlingske Tidende", 29 March 1955. Courtesy Museo Ferragamo, Florence.



Fig. 8 Salvatore Ferragamo, Pump, 1930-1935, turquoise-dyed snapper leather upper. High wooden heel covered in snapper leather. Courtesy Museo Ferragamo, Florence. Photograph: Christopher Broadbent.



Fig. 9 1955 Salvatore Ferragamo and Sophia Loren in Rome presenting bags and shoes made of sea leopard leather. Photograph: Del Vecchio & Scala.



Fig. 10 Salvatore Ferragamo, Bag, 1955, sea-leopard leather. Courtesy Museo Ferragamo, Florence. Photograph: Christopher Broadbent.



Fig. 11 Salvatore Ferragamo, Diva, 1941, sandal with upper made of sea-leopard in orange, blue, green and yellow. Courtesy Museo Ferragamo, Florence. Photograph: Christopher Broadbent.



Fig. 12. Salvatore Ferragamo, Laced shoe, 1930, upper in dentex leather. Courtesy Museo Ferragamo, Florence. Photograph: Christopher Broadbent.

NOTES

①: Within this paper, the terms fish skin and fish leather are used to indicate different processes of the same material. Fish skin indicates the superficial dermis of an animal. In the paper fish skin is referred as the historical raw material tanned following traditional methods: mechanical, oiling, smoking, etc. Fish Leather is used to indicate that the fish skin has passed one or more stages of industrial vegetable or chrome tanning production and is ready to be used to produce leather goods.

②: For the historical background of the use of fish skin see Palomino, Indigenous Arctic Fish Skin Heritage.

③: Cordelia's 1938 issue number 11-12 from the November-December edition, p. 413. See Ruggiero, "L'immagine della donna italiana nelle riviste femminili durante gli anni del Fascismo".

AUTHOR BIOGRAPHY

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5 AIR

5 · 1 MEASURABLE INDUSTRY

ALIGNING THE PRODUCTION OF TEXTILES WITH EARTH'S DYNAMIC NEEDS

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*I. INTRODUCTION AND RESEARCH ISSUE***1.1 Climate crisis**

Carbon dioxide (CO₂) is responsible for maintaining the earth's temperature. However, over the past 150 years, the intense use of fossil fuels has caused atmospheric CO₂ to increase from 250 to 418 ppm, resulting in a climatic imbalance that is affecting all four elements of nature – including ocean acidification, catastrophic weather patterns, and even the extinction of some species (Gayathri et al., 2020). Textiles are believed to be the materials that generate the highest greenhouse gas emissions per tonne produced (Kissinger, 2013), and clothes have never been so underutilised and produced in such large quantities as ever before (Ellen MacArthur Foundation, 2017). If current globalisation trends maintain traditional practices, the world's material consumption is estimated to double in the next 30 years (Ellen MacArthur Foundation, 2021), and the production of materials – which the consumer product and fashion industry depend on – is responsible for around a quarter of the global CO₂ emissions (Hertwich, 2021).

In order to extenuate these adverse effects, global treaties, such as the Paris Agreement, are being implemented and encouraged, aiming for more ethical products and practices (López-Pacheco et al., 2021). There are different ways to achieve that. The circular economy model, for example, covers the use of renewable sources as well as product design and use (Ellen MacArthur Foundation, 2021), while other strategies include understanding the carbon footprint of products (Sadowski et al., 2021). The problem is that since there is still a considerable margin of error for greenhouse gas emissions data available for textiles (Degot, 2021), the risk of aiming for ineffective strategies to encourage more sustainable practices should be considered.

1.2 Fashion industry's efforts to control carbon emissions

To comprehend the white spaces in the industry, it is important to look at what is being done first; and, of course, the fashion industry has responded in many ways to such a serious crisis, even though none of those responses seems to be the right – or only – answer to the problem. Common agendas were created, partnerships were formed, and individual strategies were set to make climate targets become a more feasible reality. However, many of those strategies are still being perceived as controversial or are not widely accepted yet (Shendruk, 2022). That is because, even though genuine efforts are important and common agendas can generate positive change, the difference between where companies currently stand financially and in terms of sustainable practices creates a progress gap that cannot be ignored. *The Fashion Pact*, for example, is a common agenda signed by over 60 companies that aims to align brands' strategies and goals of more sustainable practices to meet specific shared targets (The Fashion Pact, n.d.). However, participating companies are at different stages, and progress is questionable. As a consequence, high-profile signatories, such as Hermès and Stella McCartney, have recently left the organisation (Kent, 2023).

Another very controversial example is the Higg Materials Sustainability Index (MSI). Supported by the Sustainable Apparel Coalition (SAC), the system aims to create a common language to help brands, designers, and consumers have more agency concerning the footprint of their material selections (H&M Group, 2021). H&M even used it on its website as a guide to customers. However, the tool is mainly based on case-specific studies – which sometimes explicitly discourage comparison –, so most companies cannot measure their impacts correctly and are more likely to focus on ineffective strategies as well. Also, the incorrect use of such information can mislead consumers, so, as a consequence,

in 2022, using the system in consumer marketing was banned in Norway (Kent, 2022).

The point is that, as stated previously, such initiatives are of great importance, but we believe that the industry needs more than that. That is because, due to the complexity of the chain, brands' engagement with more sustainable initiatives should not be limited to alliances, transparency, offsets or new tools but all of that – and more – combined. In addition, having the support of governments and the creation of stricter laws that thoroughly cover material production can be of extreme value (Leal Filho et al., 2022) – including *The New York State Fashion Sustainability and Social Accountability Act* (S7428/A8352) (New York's Fashion Act) (The National Law Review, 2023) and, of course, the EU's Sustainable Textile Strategy (European Commission, 2022) – to address the evident lack of industry standards (Business of Fashion, 2021) and to guarantee that more sustainable practices are prioritised regardless of where companies currently stand.

The aim of this research is then to investigate if it is possible to measure the carbon footprint of a traditional textile and the impact that such information could have in the strategies used – now and in the future – to address the planet's dynamic needs. That is because we believe that if a material's impact cannot be measured, it should not be used, especially in large quantities. Thus, quantifying the CO₂ content of materials is imperative to enable more sustainable material practices that benefit the present while guaranteeing that future generations can also sustain their own needs (Brundtland, 1987).

2. METHODOLOGY

2.1 Research question

To what extent is it currently possible to accurately measure the carbon footprint of a textile?

2.2 Research methodology

The study was conducted through traditional secondary research to build an understanding of the current state of the textile industry and where the most significant white spaces are in relation to the climatic imbalance that is affecting the planet. This was done by reviewing both relevant academic papers and grey literature – such as industry reports and conference proceedings. Supported by an iterative process, through a literature review, findings are then synthesised and compared to understand the current state of the industry.

2.3 Research findings

2.3.1 Carbon footprint

Carbon footprint (CFP) refers to the greenhouse gas emissions produced during all stages of the life cycle of a product or activity (or during a defined period of time); and it is an essential instrument to assess and handle greenhouse gas emissions (Wang et al., 2015). To accurately measure the carbon footprint of textiles, it is fundamental to understand and assess the embodied energy contained in each step of the material's production because different inputs cause variations in results (Arya, 2021). So, to accurately measure greenhouse gas emissions, all activities performed across the entire chain should be assessed first, including the brands', material producers', and even farmers' emissions (Sadowski et al., 2021). The problem is that, due to the complexity of the chain, estimates are frequently used, which discourages a fair comparison between materials. Still, it is important to understand that carbon footprint is just one factor and will not guarantee that one material has a less significant environmental impact than another, but we believe that it should be an important piece of information to consider when designing strategies to address climate change.

Sadowski et al. (2021), who discuss Science-Based Targets (SBTs), explain that the necessary data to calculate the fashion industry's emissions is either incomplete, outdated, or inexistent, so gathering it could take years. Meanwhile, unrefined estimates work as a direction for the sector so that priorities can be set. Nevertheless, a big problem with using secondary data based on estimates to track performance is that it does not cover actual activities and is not automatically revised, and there is also a considerable difference in how companies measure their emissions and what they account for (Sadowski et al., 2021). An example is that even though China is the world's largest polyester producer, frequently used data provide estimates from the material produced in Europe, which is a difference that should not be ignored (Sadowski et al., 2021). In regard to regulations and guidelines concerning the carbon footprint of products, the most common include PAS 2050, the Greenhouse Gas Protocol Standard, ISO 14067, PAS 2395, and the IPCC Guidelines for National GHG Inventories. However, even though such guidelines share the same objective, which is to standardise the assessment of products' carbon footprints, their different methodologies discourage comparisons, and results present significant variations (Garcia & Freire, 2014). Consequently, as most of the available standardised material footprint information is still inaccurate, most companies are not able to measure their emissions correctly (Degot, 2021).

To build an understanding of the possibility of accurately measuring the Carbon footprint of a textile, we first researched the keywords *carbon footprint* and *textiles* in major science literature databases, including Science Direct, Scopus and Web of Science, looking for publications that potentially measured or compared the carbon footprint of textiles; as well as evidence of whether estimates were used at any point of the assessments. The idea was to review enough relevant studies to understand if it is generally

accepted to use estimations when assessing the carbon footprint of textiles and what is being done in regard to that.

During this investigation, it was clear that carbon footprint assessments are often location-based, which can be beneficial in terms of enabling more precise results but usually discourage quick and easy comparisons with other investigations. Some examples include an analysis of the carbon footprint of Chinese cotton shirts (Wang et al., 2015), which was calculated based on estimates of Chinese carbon footprint conversion factors. Also, while researching Chinese textiles, Yan et al. (2016) analyse the carbon footprint of a variety of typical fabrics and explain that estimates had to be used in the research. In turn, Payet (2021) analyse the carbon footprint of the entire French textile sector and also explicitly use estimates to reach results. Likewise, Chen et al. (2021) investigate the water and carbon footprints of cashmere textiles and use data from national standards to establish the results, which means that the process was also not properly measured but estimated. Moreover, to address the carbon footprint of denim, Karthik and Murugan (2017) explain every step of the material's production and state that the chain is complex, so carbon footprints depend on estimations. In terms of the carbon footprint related to textile processing, Athalye (2012) also mentions estimations and points out the steps of a carbon footprint assessment that usually rely on them. Finally, different assessments of the carbon footprints associated with the textile industry are explained by Peters et al. (2015), who even highlight that using estimates might lead to ineffective strategies. So, in sum, the above-mentioned publications share the same objective of attempting to measure the carbon footprint of certain materials and or in specific locations. However, due to the specificity of the research focus or the complexity of the chain, results are based on estimations that usually discourage comparison and might lead to wrong conclusions or inadequate strategies. These include

attitudes towards parts of the production chain that do not lead to significant changes or even targets solely based on production volume; so, if production grows, emissions also grow.

2.3.2 *Next-gen materials*

Considering that the majority of a brand's environmental impact can usually be linked to its raw material preferences, it is important to find appropriate material replacements that can be used in favour of reducing greenhouse gas emissions (Material Innovation Initiative & The Mills Fabrica, 2021). Therefore, the origin of the material should be a relevant consideration, especially if it is sourced from waste or if the raw material has already absorbed carbon dioxide during its growth (e.g. cotton). Next-gen materials are animal-free replacements for traditional materials, such as leather, fur, and exotic skins (Material Innovation Initiative & The Mills Fabrica, 2021). However, it is not quick and easy to develop next-gen materials as adaptable – and preferably, as durable, recyclable and biodegradable (Material Innovation Initiative & The Mills Fabrica, 2021) – as traditional ones not only due to the embedded properties of the raw materials but also because of the time and money already invested in the latter (Lee et al., 2021). So, when designing next-gen materials, it is extremely important to establish final objectives regarding material properties and possible product applications to reach the desired performance and produce materials that make sense to the industry (Material Innovation Initiative & The Mills Fabrica, 2021).

At present, biotechnology presents the potential to be a great force for the future of materials due to its customisable properties. However, such replacement materials, which usually have the same function as traditional ones while theoretically causing less environmental damage, should be further investigated to avoid creating a new generation of

products that cause negative environmental impact (Lee et al., 2021). An example can be the use of bacteria and mycelium as substitutes because even though they might initially present great potential as substitutes, there is still a risk of creating monocultures that damage biodiversity in the future (Fairs, 2021). In addition, concerning carbon emissions, even promising next-gen materials, such as Mylo, a mycelium-based material designed by Bolt Threads that aims to be a more sustainable alternative to leather, does not have its carbon footprint disclosed as the company explicitly states on their website that they do not have the necessary data to accurately measure it (Mylo, n.d.). The problem is that, from our perspective, such information should be of extreme importance to guarantee that the impact of one material is less detrimental than the other. Especially because even if emissions are maintained throughout the production process and use, if the material itself has a lower carbon footprint, it would already make a difference in the end result. In that sense, materials made from waste stream feedstock or plant-based materials would, theoretically, already present an advantage in comparison to animal-based ones. However, more precise assessments covering material production are essential to confirm that.

CONCLUSIONS

The climate crisis causing catastrophic weather imbalance is a result of the aggravated level of atmospheric CO₂ (Gayathri et al., 2020). That situation, which is a consequence of the overproduction and overconsumption of materials, is already heavily impacting biodiversity and is becoming responsible for a series of environmental changes (Thiele, 2019). However, as planet Earth's needs have changed throughout history and will continue to – especially with human interference, we understand that a solution to the climatic imbalance that is affecting the Earth now,

cannot be one that is just based on our current scenario. Thus, we must find a solution that can be used as a tool to quickly adapt strategies if the planet's needs change as well.

We understand that to be able to adapt textile production indefinitely according to our planet's ever-changing needs, we must shift to a measurable industry. That means the inputs are measurable, and a material can clearly differ from another to allow comparison and adapt the production if needed. That is because if we guarantee that new materials have their carbon content precisely measured now, we can make more precise adaptations and start transitioning to more sustainable development. That can mean changes in the additives used, production sites, or even the materials' applicability.

It is clear that the fashion supply chain is too complex to allow such quantitative research with the tools and materials available today, but it is not too late to investigate new ways of designing textiles taking that into consideration. So, following the findings demonstrated in this research, we are attempting to design a next-gen material that could work as a replacement for fur that also enables a precise carbon footprint assessment. That is because, as this research demonstrates, even though efforts are made to find effective tools to measure the carbon footprint of already available textiles, that has not been showing precise results yet. So, as we believe in the importance of being able to precisely compare the environmental impact of next-gen materials as opposed to traditional ones, we suggest shifting the focus to redesigning textiles while considering a precise assessment of their carbon footprints from the start of the design process.

Our research is driven by the thought that if what leads us to the current state of not knowing what the most effective actions are to reverse climate change, we must first address that and build an understanding of what has to be done now to guarantee that future generations have more

agency in that regard. If it is not possible to accurately calculate the carbon content of currently available textiles – as there are still not enough resources to allow such quantitative research – one answer is then to ensure that the carbon content of new materials is precisely measured. As we believe that someday it will be necessary to precisely measure the impact of materials, and future generations will need to figure out how to do it, we are proposing the start of such a transition.

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5 · 2 DECAYING MATERIALITY

UPCYCLING WITH HISTORIC MATERIALS ①

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I. INTRODUCTION: UNDERSTANDING THE PRACTICE OF UPCYCLING

Upcycling with objects from the past is not a new activity; it has been practiced for centuries. As dress curator Madeline Ginsburg (1980) states, by 1840, refashioned, reassembled garments designed and made by a professional were not unusual. This circular ethos was reinforced during wartime. In 1943 a mass-observation study revealed that people were spending more time on repairs and alterations to clothing, making do with what they already had (Cassidy & Bennett, 2012). When understood in this historical context, upcycling highlights how a process such as deconstruction in fashion (which emerged in the late 1980s) (Gill, 1998) has been a responsive design process revisited throughout history. There is a long tradition of experimentation with existing material culture: Deconstructing, remaking and refashioning. This is a technique that is still evolving today. Yet despite this formative process, literature covering upcycling practice is still relatively narrow, fragmented and scantily covered (Karell & Niinimäki, 2020; Paras & Curteza, 2018; Sung & Sung, 2015).

Upcycling infers that the materials before being reformed are inert with no meaning or agency. It suggests that the existing material lacks value, and that worth is only bestowed on the material by designers. The very word *upcycling* connects closely to the word *recycling*, which is understood within a linear systems framework, treating materials as merely passive objects, or resources. Much leading knowledge and research published in the upcycling field describes a passive, linear system for the reformation and transformation of pre-used material. Such an approach neglects the complex and variable intricacies of design which contends with worn and historic materialities, which lose their biographical specificity when submitted to standardised practices.

The process of upcycling is usually regarded as introducing renewed or increased value to an object that currently has none by creating "something new and better from old or used or disposed items" (Vadicherla et al., 2017, p. 256). Textiles with "less value" may be "innovatively designed for creative and fashionable products" (Chao, 2019, p. 2). These "post-consumer garments", or "discarded clothes", are thus treated as "flat cloth" from which new pattern pieces can be cut (Han et al., 2017, pp. 69-94). Through upcycling, the lifeless garment expended in consumer value – "at the end of its useful life" – becomes aesthetically transformed into something "novel" and "appealing" (Janigo et al., 2017, p. 256).

These definitions of upcycling reflect the commercial imperatives of fashion design. As design scholar Laurene Vaughan notes, "There is very little design that is not commodified through standard business practices of manufacturing and distribution within government guidelines and policies" (2017, p. 26). The characterisation of worn material as inert matter reduces upcycling to a simple and straightforward production process directed towards re-manufacturing, which uses categorisations such as *condition* and *fibre content* to determine reusability. This construction of upcycling cannot account for the multiplicity of creative approaches within the artistic process or the variable encounters with worn materialities in slow-making practices.

This research and practice frames reuse as a form of slow care work, extending the definition of care to the attention to a thing's material qualities, as well as a concern for its past, present, and future. This expanded definition builds upon the importance of engaging with the tangible and intangible realms of materials, understanding them as narratives with embedded meanings that push for a consideration of the ethics of inclusion and preservation of care when reforming with worn materials. De-commodifying processes and habits in practicing upcycling conflict with

economic and political forces that provide infrastructure and context for the work that designers do. Yet fashion's unsustainable system cannot change if this conventional infrastructure remains unchallenged (Vaughan, 2017).

For this reason, it is integral to capture the intuitive upcycling process of designing with worn materialities, which produces practice led and practice based knowledge. In considering design activity as a data source, reflective ethnography within this study enables the documentation of the intuitive, responsive and entangled engagement during the design process (Pedgley, 2007). Photography, video and reflective writing has recorded moments during the reforming stage where the worn materiality and the phenomenological experience with the artefact directs the creative process. This has been identified as a gap in scholarship where the materiality of the lived object is of limited discussion in relation to upcycling. Prioritising the object's used patina and subsequent meaning prompts us to ponder methodologies in fashion studies that preference human agents of artistic practice and scholarship. A material-culture framework offers this research a connection between the material and the social, pushing beyond the constructs of past methods and modes for understanding fashion and artefacts, which have conventionally placed the artefact as an inanimate object, defined as lifeless and purely in the service of the human (Oestigaard, 2004).

The *entanglement* of objects and culture starts with materiality (Miller, 1996). Miller discusses that material culture may be broadly defined as the "investigation of the relationship between people and things" (1996, p. 5). The investigation may be global or local, concerned with the past or the present. The *material turn* in scholarship – introduced by what is known as *new materialism* – marks a re-evaluation of knowledge and how it is produced, shifting the critique to matter and materiality (Rocamora & Smelik, 2016). The data discussed in this paper produced from upcycling a historic

material not only captures the phenomenological experience of fashion upcycling-design practice but also reorients the value that can be produced when engaging with de-valued materiality. Such an engagement de-commodifies the upcycling process and focuses on the artistry of upcycling as a material experience. This can guide and produce unexpected material outcomes, sustainable relationships and knowledge.

2. PRACTICE-BASED METHODOLOGY

Through a practice-based research approach, I record and reflect on my creative process, engagement with, and method of upcycling a worn historical artefact. When an upcycler deconstructs and reforms clothing, there are a diverse set of material attributes that can shape a designer's attentions and focus. These materialities can evolve, shift and develop during process. Some of these attributes can be textural and surface based, others can be imbedded deep within a garment's layers and can reveal themselves through the process of deconstructing a form. One attribute does not exist on its own, rather is part of a network of relational signs that can educate practitioner toward the material biography of the artefact, impacting the design process and material outcomes. This paper contributes to upcycling knowledge by documenting a facet of reworking a degraded fashion garment made from plastic sequins, glass beads, and decaying knit mesh, belonging to an Australian deceased estate (1852–1938).

3. HISTORIC PATINA

How does an upcycler contend with the lively degradation and physical decay of material forms? How does one interpret, include, work with and collaborate with matter that is fragmented, impermanent and fragile? Patina is part of an

object's transformation and is a textural process of change that occurs through use, age and environment. Patina and degradation within a historic fashion context is usually understood in a negative vein: The erosion of physical surface or forms can be associated with the loss of cultural and aesthetical information within artefacts (Scaturro & Fung, 2017). Conventional strategies for salvage, reuse, conservation, preservation and heritage, deactivate patina and ambiguous decaying materials through a set of standardised values and perceptions that render materials into clear categories of *artefact* and *waste*. For example, when conservators face condition problems related to use, they must seek a way to ethically treat the material in a manner that respects an object's fashionable and aestheticised ideal (Scaturro & Fung, 2017). Such an historical ideal prevents the object from further change and transformations brought on by the effects of time. In this way, this restricts understanding of materials, limiting the potential for new historic interpretations and knowledge.

4. IMPERMANENT MATERIALITIES: A MATERIAL CASE STUDY

In 2016, my upcycling practice received a historic fashion archive. Within the archive was a decaying sequined dress (Fig. 1). The once flapper dress had been rotting and transforming in a box for decades and did not conform to a fashionable or aestheticized historic ideal of an in-tact flapper dress. The rotting flapper dress is what dominant preservation systems would classify as compromised, threatened, tainted, tarnished, eroded, and corroded material. The garment's original form had degraded due to age and exposure to environmental elements such as sunlight and moisture and being stored in a plastic bag. It had no front, back, top or bottom, no shape or structure. Natural elements, packaging and bodily contact together had disintegrated the garment structure. The once flapper dress required

a particular kind of care, awareness and attention, to reuse and understand its creative and historical value, one that attempted not to defuse sensations of ambiguity and distaste, but to collaborate with its new rotten textural state and learn from the procreative power of natural decay and time.

Historian David Lowenthal (1998) discusses how vintage items are typically selected and curated to conform to historical style stereotypes. He writes "antiquities must to some extent conform with modern stereotypes". Or, in other words "something authentic is simply something that looks as you imagine it might, based on a lifetime of movies and television and glossy advertisements in magazines" (Holtorf, 2013, p. 433). Museum fashion representations of the past are very similar to cinematic representations. Although grounded in official sources, certain historic versions and visions dominate our understanding of the past and are on display to match historic visual expectations. However, the findings of this research suggests that beyond a curated version and understanding of fashion historicity, lies a wealth of undervalued historic materialities that are not ideal visions of the past, yet offer further insight and alternative engagement with time, past and present.

The following diarised reflections outline my introduction to the degraded flapper and conveys the phenomenological impact of materiality.

An electric pink sequined dress was peacefully laying in a black box. So vibrant that its colour was initially confronting and quite confusing within my limited knowledge of the era's colour palette.

I placed my hand ever so gently under the top layer. I could feel the fragility of its skin, the thinning of ma-

terial, the rough crunchiness of the pink pearlescent sequins.

The smell was strange — chemical yet natural, dust, paint, soap and age mixed in all together. I stood over the box, excited and slightly terrified, almost envisaging the horror I could potentially uncover, a grotesque matter hiding beneath the layers in the dark.

On closer inspection, before further handling, I could see that the dress was patchy in condition and in colour, some worn away split fibres powdering through the faded sequined lines. I had no idea what to expect when lifting the piece up. I thought I was lifting a form but to my surprise the form was quickly disappearing.

Once lifted, the fabric started to rewind and deconstruct itself in sections. At first, I got a sinking feeling of regret, puffs of dust — earth like particles wafted with every move I made of the piece. The smell of time was inhaled; dust and decay. The unravelling and powdering of memories was happening right before my eyes and I was complicit in its process.

The backing mesh seemed to be disintegrating with any movement, leaving strands of sequins dislodged from its material base. I soon found myself getting carried away in its seductive process of reversal and change, that I could not stop myself from lifting it out further... Soon all that remained is what looked like a slaughtered, tortured gown, it had a complete tantalizing new language of its own.

The flapper dress, unlike in-tact garments, did not have a balance of smooth or together textures, intact and recognisable surfaces, consistent and even colour, tight weaves or silent sounds that we typically expect from a historic fashion ideal. Instead, the garment's skin was loud, rough, and crunchy with a broken, stringy surface and texture, an uneven heaviness of weight due to the tangled distributed yarns and corroding structural elements, which produced an ambiguous rotting form. The rotten, broken fibres, the loud sound of the crunchy separated web like material, in their unfamiliarity, invited touch, play, speculation and experimentation. This vastly differed from other well-preserved and in-tact pieces that I had upcycled belonging to the same archive, which offered little room for uninhibited play, and more so encouraged distance and careful, methodical steps in analysing and reading the materiality.

In western culture, condition usually drives disposable practices, encouraging the unsensual erasure of the multiple tactilities, smells, sounds and sights. My auto ethnographic reflection captured the initial tentativeness when encountering the degraded state of the material. For example, the flapper's sound and foreign smell, caused me to be tentative with it as I was unfamiliar with the state and smell of the material. However, once I touched the materiality (without gloves), I was able to engage with the sensual power of its texture, which opened a world of creative thresholds which celebrated the materials fragmented qualities and led to the documentation of an alternative historical fashion artefact.

Research and literature documenting historic garments such as flapper dresses often focus on representations of historical fashion styles and periods to sustain heritage (Devoucoux, 2019; Kaplan, 2002; Watson & Waterton, 2010). More specifically, within fashion research, Laver (1951) developed historical fashion framework to provide a guide which presents the evolution of styles, and a comprehensive idea of fashionable dress for historical periods.

Laver's framework and ones like it, isolate certain fashion garments and styles as emblematic of the historical periods. This means any stylistic variations, idiosyncratic design, novel details and unfamiliar materials in the present can be passed over. When historical artefacts are recorded and organised in this manner, it effects our process of valuing, understanding and visually processing the more ambiguous, non-conforming materials belonging to the same periods.

5. AGE VALUE: AN ENGAGEMENT BEYOND REPRESENTATION

Age value theory (Riegl, 1982) illuminates the creative sensation noted with the flapper material. Age value manifests through our visible perceptions of time and appeals strongly to our senses. It is experienced through the corrosion of surfaces, in patina, in the wear and tear of buildings and objects. For example, the degraded flapper's materiality could not be woven into a clearly understood narrative, it was defying orderly schemes due to its corroded state, which encouraged me to connect to the object more so through my senses. The materiality abounding historical mystery and fantasy. It beared traces and memories that collapsed any fixed fashion meanings, notions, constructs or ideas and rather relied on my imagination and senses, deconstructing and disassembling the idealised vintage image of the flapper artefact in the present. The decaying materiality evoked me to focus on the present meanings with eager forensic focus, sensitive care and understanding, giving me an ambiguous, unveiling narrative to discover and work with. This enchanted and outlined my creative process of upcycling the piece.

Edensor (2005) discusses that the process of decay and the agencies of intrusive humans and non-humans (patina) transform the familiar material world, changing the form and texture of objects, eroding their assigned functions and meanings, blurring the boundaries between things. At

first the degraded, tainted materiality could be interpreted as somewhat disturbing due to its fragmented, mixed, discoloured and rotting state (Fig. 2), however moving past this questionable aversion, the material offers opportunities to interact with the material world in a more playful, sensual, connected and sustainable fashion as there is room for new meanings and interpretations.

Contrary to the preservation manifesto, when I connected to the new sensuality of the broken-down materiality, interestingly, it encouraged a strong recording and understanding of the object's past. I could piece together the deco aesthetic, the memory, maker and wearer. I could see the actions of construction, wear and the processes of laundering. The art deco aesthetic was still very much alive and embedded within its sequined decaying form, in the textures and colours, and in the ordered patterns. I could follow clues of the flapper's original narrative through the broken-down attributes. For example, the type of sequin used, the colour, the beads and fringes, the tapes and threads, the singed, the stitched, the melted and the broken. In other words, sitting with the aged material allowed me to access and reflect on its past and present state, eliciting acknowledgement and recognition of its current material value and fashion heritage.

Caring for the broken-down materiality furthermore allowed me to identify the human behind the object. I identified wearing practices by analysing the fragmented materiality. For example, I found silk patches with basting stitches, and sweat stains. Evident were lace support swatches possibly stitched behind points of tension. A maker's trace was present through the skilled crochet darning techniques and the different types of threads used within the garment's construction with mending over time. These details were noticeable within the decayed mass and connected me back to the object's past.

The dress pattern could be mapped through discolouration of surfaces and the warping of sequins, connecting such attributes to perspiration and chemical perfume points on the body. In this way, the materiality was feeding me historical biographical clues. This engagement builds upon Ellen Sampson's (2018) argument for a rethinking of material value, examining the ways that the maker is also present within experiences of garments, which affects the reuse and material outcomes. Thus, material practices like *upcycling* which are organised around physical making, materials and their pasts offer new insights and opportunities that are not readily apparent in the broader design planning and retrospective thinking that guides re-manufacturing in industry, therefore it is important to note the integral connection and historic knowledge that can emerge when engaging with materiality when upcycling. The flapper materiality was wonderfully alive and communicating a memory of the object's past, which can be understood as the object biography (Kopytoff, 1986). An object's biography can significantly impact and direct the reuse of material in a positive, and creatively respectful way.

6. DESIGNING AND DRAPING WITH PATINA OF DECAY

The following account is a synthesised version of my creative response to the garment's biography.

I started to drape with the remains, placing the ruin on the body and moving bits around. Tangling sections further, unravelling others, speaking further into the natural decayed movements by activating the material. Hanging, pulling and suspending its web like strings.

As I played with the remains, I started imagining meat and carcasses, skin and organs. The white heavily

beaded sections likened to the marbling of fat in meat, clumped throughout the hot pink blood-stained texture. Everything about the garment felt more alive and creatively tantalizing.

The degraded material attributes noted inspired movements, actions and techniques when draping. The singularity of the sequined and beaded lines made me pull, gather and knot sections together. By creatively problem solving and responding to the material decay a garment shape emerged. The knotting and gathering added stability and created anchored draping points on the body.

The pastness and age-value of the flapper dress was a driving force within my approach to its re-design. For example, by responding to the decaying movements of the material, I worked with the decaying qualities, where the materiality informed the way, I manipulated and constructed the form. Usual construction techniques with fabric require pinning and stitching, however in this case techniques were simplified to grouping and knotting strands. I did not untangle or make sense of the knotted textures, rather I aestheticized the decaying materiality by encouraging and enhancing its degraded attributes through pattern of ruination. A process which allowed the natural patina of the flapper's materiality (fragmented, frayed, broken and tangled) to dictate fabric manipulations and making techniques. For example, in Fig. 5, I frayed, stretched and deconstructed a new material to take on similar attributes as the flapper material before adding it to the draped form.

My experience with the flapper's decaying materiality captures a phenomenological process. The decaying, textural qualities playfully triggered imaginaries of a rotting carcass or the marbling of fat in raw meat. This vision continued to stay with me as I attempted to sculp and work with the material contributing to the fleshy textures I added with white material (Fig. 4).

7. FINDINGS: AESTHETICALLY REGULATED REGIMES OF ORDERING

The findings from this study suggest that the degraded flapper would be lost to history if it was understood through a conventionally situated position, according to regimes of ordering. Aesthetic regimes of ordering usually censor and regulate the more complex and ambiguous materialities from the past. For example, "in ruins, the appearance of broken down, ambiguous, disturbed or chaotic mixes can affront sensibilities that are used to things that are conventionally aesthetically regulated" (Edensor, 2005, p. 317) The flapper dress had unknown textures, smells and patina all of which can lead one to not want to touch or disturb. These attributes in the degraded material are aesthetic and sensorial signs of *pastness* (Riegl, 1982), that traditionally in the west we are conditioned to deem the end of an object's life. A process of decay that you could say we are generally intolerant to.

The reflective notes and photography convey the reciprocal relationship established between designer and material. The decaying material, its pastness and age-value became a driving force within the creative approach to the final design (Fig. 4). This was displayed by responding to the decaying movements, allowing the spirit of decay to continue through the way I manipulated new materials to take on decaying sensations and constructed a form from recontextualising the stringy, broken texture, creating a new material to design with, which aestheticized decayed attributes.

8. SIGNS OF USE IN FASHION

In fashion we have a tradition of disguising – ironing, mending, steaming, laundering, removing or even discarding when there are signs of use, friction or natural degradation visible. The findings from this research have critiqued how affectively and sensually alienated we can be from

the material world, and from material elements through the regulation of the sensory impact of things (Edensor, 2005). This research suggests that this alienation impacts our capacity for sustainability, as it censors the emotional, reciprocal relationship one can have with unexpected materiality, which lays a sensitive foundation to creatively problem solve and extend a material's life and history.

Extending the life of the material and its subsequent age value (Riegl, 1982) corresponds with Riegl's proposition that the quality of value emerges when humans contemplate the traces of time contained in objects. In this way, Riegl shifted value from historical representation to the value brought through emotions. When we engage with an object with our senses, an objects importance can no longer be restricted to its historical representation (which could arguably be its imprisonment). Without historical restrictions, an alternate value emerges, an antiquity that is inclusive and powerful when objects can be appreciated through the senses and emotions rather than intellectual interpretation. Age value concept is most relevant when upcycling garments that have lost their value within the fashion system as it can lead specific approaches that experiment with heritage, just like preservation or restoration would, reinstating value.

Upcycling literature under a consumerist lens has restricted the dialogue between how upcyclers use our senses to unpack, study and use fashion as material culture for its aged, affected and used materiality. The findings from this study suggest that a focus toward a materials past and present transformation can assist in developing a future approach to fashion (Ingold, 2011). Thus, this research recognises that upcycling as a design methodology can elicit a critical interpretation of historic artefacts that is fluid, evolving and changeable, which can produce a range of possible outcomes in interpreting, and understanding fashion historicity and reusing materials.

In conclusion, this practice-based research works against the pacification of materiality for simple economisation. Documenting a process of upcycling with worn materiality of the past is a way toward reforming and expanding concepts around circular economy, with the insistent presence of materiality within process. This is a counter-process to commercial circularity, which continues to erase and delimit material pasts and future possibilities. The linear process of re-manufacturing in normative modes of upcycling does not permit the shifting orientation between past and present that is very much integral to the upcycling practice documented within this study. To attend to materiality is to alter one's way of approaching the reuse of material to create specific sustainable relationship with cloth which adds re-valorisation for serious reflection.

In this way, age value can encourage humans to become obligated to objects through their emotions. If we connect to objects through our senses, then our historical understanding of objects is diversified, and an object's value can no longer be restricted to its historical representation. The fertile dynamic established between myself and the flapper suggests that degraded material, though inappropriate for fashion museum display and traditional upcycling garment recoveries or conservation strategies, may be understood and extended through the application of a collaborative and interpretive non-normative design ethic, allowing patina to participate in the sensorial telling of stories about the past, which traditionally can be purified to single meanings and purposes, to an arrangement which eclipses mystery and "stabilises the identity of a thing" (Edensor, 2005, p. 312). Unlike the historic artefacts in a museum, the imperfect, degraded and overlooked historic materials are available to pick up, to play, to touch and to alter, to further degrade or pull apart. The characteristics of the degraded flapper was creatively pleasurable to explore which playfully invited me to interact with its historical narrative, extending its value

through the upcycling process. Upcycling definitions and understandings can adapt and evolve from such an engagement with the material world, which presents opportunities for broadening our reuse capacities and capabilities, re-defining frameworks which dictate reuse of materials by condition.

FIGURES



Fig. 1 Pink Flapper dress first removed from box in studio. Documentation shot: Rachel Cassar 2019.



Fig. 2 Pink Flapper corroded patina. Documentation shot: Rachel Cassar 2019.

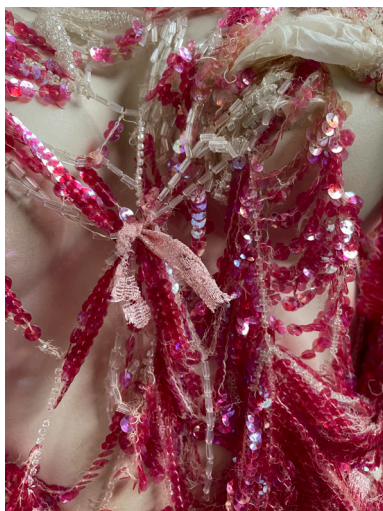


Fig. 3 Degraded flapper dress-during creative investigation on mannequin. Knotting as a sewing technique. Documentation shot: Rachel Cassar 2022.



Fig. 4 Degraded flapper dress-reworked. Draping and adding white foundation and texture to the patina. Documentation shot: Rachel Cassar 2019.



Fig. 5 Ruination, deconstructing and distressing the new material. Documentation shot: Rachel Cassar 2022.

NOTES

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5 · 3 THE SCENT OF DRESS

*COMBATING FOUL AIR WITH FASHION IN SIXTEENTH TO
EIGHTEENTH CENTURY FRANCE AND ENGLAND*

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I. INTRODUCTION

In this article, we will delve into the intriguing connection between scent and dress during the early modern period in France and England. During the Sixteenth to Eighteenth centuries, scents played an integral role in the lives of people of all social classes. New research has shed light on the various reasons behind the abundant use of scents during this era. While some of these motivations may be intuitive, such as masking the foul odors emanating from cities with inadequate sewage systems or concealing natural body scents such as sweat, there is a less explored and yet highly significant aspect to consider— the medicinal function of scents and its relationship to dress.

The prevailing miasma theory during the early modern period posited that the spread of diseases was closely tied to the odors emitted by the sick and dying. According to this belief, inhaling the scent of disease was equal to contracting the illness itself (Vigarello, 1988; Marx, 2021). Consequently, an ever-present fear of contamination pervaded society, leading individuals to engage in constant practices of scenting, which affected both their bodies and garments. To protect themselves from the perceived dangers, people turned to fashionable scent spreaders, among other things. These intricately designed objects served utilitarian and aesthetic purposes, dispersing pleasant fragrances that would overpower or neutralize potentially harmful odors associated with sickness. By incorporating these scent spreaders into their attire and surroundings, individuals hoped to ward off disease and ensure their well-being.

This study extensively used primary sources, particularly published household manuals which contained valuable information on scenting methods to protect against diseases and infections. The manuals included various recipes, such as fillings for pomanders, sweet-waters to prevent the plague, and powders to fill sweete-bags. This paper

will explore a brief overview of fashionable scent spreaders connected to dress in France and England from the sixteenth to seventeenth centuries. Next, we will explore published household manuals and their recipes, which provided instructions for applying medical cures to the body, textiles, or filling scent spreaders.

2. TERMINOLOGY

Before we embark on this exploration, it is crucial to establish a clear distinction between the terms *scent* and *perfume*. Throughout this discourse, *perfume* will refer to the contemporary concept of a consciously applied fragrance that transforms the body into a personalized olfactory experience. On the other hand, *scent* and *scenting* encompass a broader set of functional practices. I introduce an original concept rooted in my analysis of terminology usage within the primary source materials, specifically examining how the terms *scent* and *perfume* were applied to recipes. This exploration distinguishes between their pragmatic use and their application in recipes driven by aesthetic considerations.

Building upon this theory, the use of perfume is classified as *primary scenting*. This is a conscious aesthetic action which entails applying the product directly to the skin, with its application being socioculturally determined and intertwined with fashionable trends. Perfume has always served as an adornment, allowing individuals to harmoniously combine it with their fashion choices and attire according to personal preference. In contrast, *scenting* is the involuntary outcome of practical motivations, such as maintaining hygiene, seeking medicinal benefits, or combating the smells of urban environments (Buning, 2020; Abrahamse, 2021). This type of *scenting*, defined as *secondary scenting*, did not prioritize the application of a fragrance as the main objective but rather viewed it as a (un)fortunate byproduct.

Scenting, being an indispensable part of daily life, was intimately connected to dress and thus affected garments through secondary scenting practices.

The distinction between primary and secondary scenting sheds light on the multifaceted interplay of scent and perfume within the realms of functionality in dress and personal adornment in fashion. This understanding emphasizes the integral role of scenting practices and their impact on the materiality and sensory experiences associated with textiles and garments.

3. FASHIONABLE SCENT SPREADERS

The exhibition on early modern smells in the Low Countries, *Fleeting: Scents in colour* (2020-2021), at the Mauritshuis museum (Netherlands) showcased a historically significant garment, providing insights into the intricate relationship between fashion, scent, and health. Among the exhibited items was a splendidly quilted green petticoat, accompanied by a belt holding two chatelaines (Van Suchtelen & Marx, 2021). On this chain dangled a leather perfume case and a small golden pomander, respectively, illustrating the use of fashionable scent spreaders on daily-worn garments. The display label in the exhibition provided a general description of the pomander and its origins. Insights from correspondence with Hedwig Wösten and Ariane Van Suchtelen from the Mauritshuis revealed that the petticoat served as a means to showcase the pomander. Nevertheless, the exhibit showed a rare occurrence where a historical garment, even a single piece of full dress, was presented in a recreated historical context. To further enhance this, the surrounding information in the exhibition focused on medicinal scents (Guided tour: *Fleeting: Scents in colour*, 2022).

During times when the smell of airborne pestilence served as the greatest indicator of danger, people turned

to fashionable scent spreaders as a means of protection. Scent spreaders took various forms but were commonly worn close to the body and garments to disperse pleasant fragrances. Examples of these fashionable accessories included pomanders, fichus and handkerchiefs, and sweetebags. Although they were not directly applied to the skin, the scents were believed to provide a shield against contamination (Marx, 2021).

Pomanders, also known as amber apples, held a special place in the protective arsenal of individuals during times of plague and before the advent of modern sewage systems. Crafted from valuable materials such as silver or gold, these spherical objects were suspended from chains around the neck or attached to chatelaines worn around the waist. Typically, pomanders were designed with multiple compartments, each intended to contain a different scent, resulting in a blend of aromas when inhaled. Certain pomanders were even adorned with engraved suggestions indicating the appropriate scents to be placed in each compartment. (Marx, 2021). Scents were crafted using recipes from household manuals, each recipe and material serving a distinct purpose.

The raw materials were either used in their original form or transformed into powders and mixed with gum or Myhre to create a thick paste (Diderot, 1751). Animalistic ingredients, including ambergris, civet, and musk, played a vital role in the creation of these scents, serving as binding and preserving agents for the organic components (Marx, 2021). Nowadays, synthetic substitutes for these ingredients are more commonly used. Interestingly, certain recipes indicate that pomanders used in wintertime contained double the amount of animalistic ingredients. This adjustment was likely due to the differential reactions of these heavy and involatile molecules to cold weather, ensuring their sustained potency when opened for sniffing (Marx, 2021).

Handkerchiefs, shawls, and fichus emerged as the most practical and affordable means of carrying scents (Drummond, 2015). These items could be sprinkled with or washed in sweet-waters, pressed between fragrant raw materials, or stored alongside sweetie-bags. Worn intimately around the neck, they were primarily intended for the wearer's personal enjoyment and protection, or to be shared with close relations. The movement of the fabric allowed scents to be dispersed further, amplifying their aromatic impact.

Sweetie-bags and sachets served a dual purpose in early modern society. These small bags, usually made of linen or silk, were filled with dried herbs, plant materials, or sweet powders. Sweetie-bags could be worn as purses, while sachets were smaller versions placed between fabrics or worn around the neck. Men even tucked them underneath their doublets (Vigarello, 1988). Like pomanders, their scent was believed to prevent the contraction of diseases and combat foul air. Household manuals of the time were replete with recipes for filling these fragrant bags.

In situations where individuals sought protection from unpleasant smells encountered outside, talismans such as pomanders, handkerchiefs, and sweetie-bags were swiftly grasped and utilized. Whether worn as fashionable adornments, tucked in between linen, or draped around the neck, these scent carriers served a practical purpose, offering protection from foul smells and fostering a fragrant atmosphere. These portable scent carriers provided a means of warding off noxious odors and creating a safer olfactory environment.

4. HOUSEHOLD MANUALS AS PRIMARY SOURCE MATERIAL

The research conducted for this study relied heavily on primary sources, specifically household manuals. These manuals were largely targeted at the heads of households, servants, and maids, and provided comprehensive

instructions on a wide range of topics, including the use of smells for medicinal purposes, potion-making, beauty treatments, and hygienic remedies. They were a consistent presence throughout history, serving as valuable resources for understanding the practices and beliefs surrounding scents during the early modern period. A thorough examination of six household manuals ranging from 1565 to 1801 was conducted to represent the historical documentation of the interwoven history between scent and dress. These manuals were notably well-preserved, indicating their popularity and significance during the time they were published. However, it remains unclear to what extent the recipes and recommendations contained within these manuals were followed or appreciated by their readers. Future research may shed more light on this aspect.

Six household manuals were chosen, two for each century discussed. Seen as the history of scent and dress has largely been forgotten in modern times, secondary sources were scarce. A large timeframe was chosen to have substantial source material and to illustrate the persistent presence of the habit of scenting dress. This habit overlapped and evolved through time so that two manuals from each century were chosen to give the full scope of the history. Due to the use of the printing press and subsequent wide distribution of manuals, the sixteenth century was chosen as the opening date (Marx, 2021). For the sixteenth century Italian Girolamo Ruscilli (1518-1566, also known as Alessio Piemontese) who wrote *The secrets of the reverend Maister Alexis of Piemont (...)*, first published in 1555, and John Partridge with his manual *The Treasurie of Commodious Conceits (...)* published in 1573. For the seventeenth century, German Johan Jacob Wecker's (1528-1586) *Arts-Masterpiece, or the Beautifying Part of the Physick (...)* was chosen due to its high content of textile-affecting recipes, together with Frenchman Simon Barbe (fl. 1697), court perfumer to Louis XIV (Marx, 2021). His manual *The French Perfumer (...)* (1679)

included a variety of recipes to scent fabric. Frenchmen Pierre-Joseph Buc'hoz (1731-1807), a physician and naturalist who published *The Toilet of Flora* (...) in 1772, and Jean-Louis Fargeon (1748-1808) were selected to illustrate eighteenth century household manuals. Perfumer to Marie-Antoinette, Jean-Louis Fargeon wrote a treatise, *The Art of The Perfumer* (...) (1801), on the science of perfume-making. Fargeon's manual illustrates the end of the medicinal uses of perfume. This shift was noticeable when studying the six household manuals, with the focus shifting from medical and skin-care in Ruscelli, Partridge, Wecker, and Barbe's household manuals to mainly cosmetic enhancements in Buc'hoz and Fargeon's manuals.

The household manuals were thematically analyzed via Kawamura's method on archival research on the number of recipes for scenting garments and how these were produced and applied (Kawamura, 2020). This was done via the keywords *perfume, scent, scenting, odiferous, linen, cloths, wool, silk, napery, garments, sheets, gloves, and pockets*. After reading the manuals the keywords were broadened with *pomander, sweet-water, sweete-bags, sweet powders, odiferous powders, perfumed bath water, perfumes to wear about you, cosmetic, sweet soap, and sweet balls*. It became clear that, according to the recipes of the studied household manuals, textiles and garments were either primarily scented with perfumes, secondarily scented by the body and any applied cosmetics, or through medicinal practices.

A substantial portion of these household manuals was devoted to strategies for safeguarding against diseases and infections. For instance, in *The secrets of the reverend Maister Alexis of Piemont* by Ruscelli, out of the 330 recipes included, 220 were medicinal in nature. These recipes encompassed various preparations, such as pomander ointments for treating skin conditions, sweet-waters for warding off the plague, and for powder to put in little bagges. Partridge's work featured a perfume for chamber decontamination and

protection against exterior smells penetrating the domestic space. Additionally, Wecker, provided recipes for filling pomanders during times of pestilence, offering four different formulas to *purge* individuals of the plague and four recipes for scenting sweete-bags. He also detailed the creation of fragrant soaps and candles for home purification in case of a pandemic. Barbe presented eight recipes for sweete-bag fillings, differentiating between five recipes for scenting linen and three for personal use. Buc'hoz, in his work *Toilet of Flora*, included a recipe for a preventative balsam against the plague, and four sweete-bags including one specifically for sachets to be carried in pockets, one for scenting linen, and two for general purposes. His recommendation involved filling a tightly wrapped muslin bag with the excess camphor from the balsam and holding it to the nose. This aromatic combination was believed to provide a safeguard against contagious smells and potential infection. Fargeon's 1801 work provided eight recipes for sachets.

Marx's (2021) research has highlighted the prominent role of vinegar in combating diseases. According to her findings, vinegar was considered a core ingredient for fighting off contagion. To overpower the foul odors associated with disease, vinegar was often mixed with fragrant substances like rosewater or other sweet ingredients. This aromatic blend served the dual purpose of neutralizing unpleasant smells while potentially offering therapeutic benefits.

One intriguing aspect to note is that the recipes found in these household manuals often lacked specific instructions on how to use or apply the prepared mixtures. While the manuals provided detailed guidance on ingredient selection and preparation methods, they seldom clarified the exact manner in which the final products were to be utilized. The precise techniques and rituals surrounding the use of these scented items may have varied among individuals and households. Cultural practices, personal preferences, and regional customs likely played a role in shaping the specific

application methods. Nevertheless, the inclusion of these recipes in household manuals highlights the prevalent belief in the power of aromatics and scents in providing protection and combating the dangers of foul air and disease.

It is through a comprehensive examination of these household manuals that we can gain insight into the varied uses and applications of scented items such as sweete-bags, pomanders, and fragrant substances. While the exact practices may have evolved over time, the fundamental understanding of scents as a means of defense against contagion remains an intriguing aspect of early modern society.

CONCLUSIONS

This research into the medicinal use of scents and fashionable scent spreaders shed light on a practice which has long since disappeared in Western Europe. Household manuals used scents as medicinal remedies and warned against foul air. Houses were fumed to protect the inhabitants both from bad air due to the open sewage systems and from diseases which were thought to spread via foul smells. The constant fear of contamination resulted in constant scenting, influencing garments. By studying the recipes in printed household manuals, the common types of scent holders and spreaders were established. Pomanders, sweete-bags, handkerchiefs, and fichus were either scented diligently or filled with materials. They were worn as garments or worn on the garment. Recipes for fashionable scenting objects were well represented in household manuals, which underscored their practical use and place in everyday life. It is important to note that the ingredients mentioned in many of the studied recipes had their origins in foreign nations and were acquired due to colonialist expansion.

The use of scents and perfumes during the early modern period was far more than a means to mask unpleasant odors or enhance personal allure. Beyond the realm of cosmetics,

scents held significant medicinal value, as dictated by the prevailing miasma theory. When utilizing medicinal scents in the form of fashionable scent spreaders which functioned as talismans, the wearer did not view them as mere accessories, seductive elements, or bodily adornments. The primary purpose of these scents was their odor itself, and whether it happened to be pleasing or unpleasant was incidental. The smell of the medicine served as its main function, with its effect on the vanity of the person applying it being of secondary importance. The perception of a *good* smell is a subjective given and varied among individuals.

AUTHOR BIOGRAPHY

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5 · 4 AIR AND ANGELS

*THE CASE FOR MUSIC VIDEO AS A NON-MATERIAL
FASHION OBJECT*

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I. INTRODUCTION

In John Donne's 16th century metaphysical poem *Air and Angels*, a meaningful human form manifests an intangible preceding spirit, or air, this being one of the four essential elements that, in the classical tradition, constitute the universe (Swinden, 1979). In a similar allusive consideration of *air* and *spirit*, this paper imagines innovative fashion futures through an increased understanding of how fashion's own intangible spirit can transcend the boundaries of the garment in non-material forms, such as music video. It does so by using theories of fashion to investigate two influential music videos by 1980s pioneers Eurythmics, featuring Annie Lennox: *Sweet Dreams (Are Made of This)* (1983) and *There Must Be an Angel (Playing with My Heart)* (1985).

Music video is "a hybrid production culture" (Caston & Smith, 2017, p. 2) that represents a *zeitgeist*, the spirit of its time. In a foretelling of our current era's existential challenges, the early 1980s saw a global society operating under the socio-economic conditions of late-capitalism and the threat of environmental catastrophe, characterised by a reconfigured relationship between gender, sex and sexuality, and transformed by the arrival of new media technologies. Fashion conscious performers such as Eurythmics used music video to challenge presentations of identity and dominant patriarchal paradigms through fashion as a feminist and queer critique. Speaking on the survey of her performance costumes *The House of Annie Lennox* at London's Victoria and Albert Museum (V&A) in 2011, Lennox explains that: "for me, what you wear should be a communicative tool. It has subliminal messaging in it and can reference history, culture and social commentary" (in Iannacci, 2011). Here, and as this paper will demonstrate, Lennox fuses the language of fashion with the language of music video.

2. RESEARCH ISSUE AND METHODOLOGY

In the era of the Anthropocene, critical theories of fashion must continue to describe and defend an expanding definition of the practice and products of fashion. Just as advancing technologies, an altered socioeconomic system, a highly developed stage of capitalism resulting in global homogenisation, and fragmented or transformed experiences of time and space precipitated a transition from modern to post-modern times, a “gamut of global crises” in the current era signal a new cultural climate (Morgado, 2013, p. 315). It is essential to a sustainable future for the fashion system in the twenty-first century that there be a de-emphasis of uncritical, mass produced material outcomes as the basis of the substance of fashion. This can be supported through an increased understanding of fashion’s multi-temporal spirit, and how it manifests in non-material forms like music video; for as Kawamura proposes, “fashion is a concept that separates itself from other words which are often used as synonyms of fashion, such as clothing, garments and apparel. Those words refer to tangible objects while fashion is an intangible object.” (2005, n.p.)

This paper observes a correlation between Evans and Vaccari’s (2020) interpretation of Barthes’s concept of *uchronia*, or *no time*, and the multi-temporal character of music video. Barthes’s claim is that fashion is always *uchronic*, because it consists of a permanent present; in other words, *fashion* is a time that does not exist. In music videos such as those by Eurythmics, constituting imagery is “almost devoid of temporal markers [but suggests] a particular instant, a recurring moment, or a passing thought” (Vernallis, 2004, p.14). Evans and Vaccari link *uchronia* with “utopian heritages, trend-forecasting and other commercially motivated predictions; forward-looking fantasies set in an imagined future; and activism motivated by a real sense of urgency and political engagement” (2020, p. 30). This variety of

phenomena is as an uncanny a list of the dominating issues presented in select music videos of the early 1980s as it is of the concerns of postfashion.

Fashion increasingly exists as postfashion, in the virtual realm and in curated spaces, intersecting with art, media and other forms of cultural production (Steele, 2019), with fashion films being widely accepted as sustainable non-material alternatives to runway spectacle. As Uhlirova (2013, p. 120) suggests, if Barthes were writing 1967's *The Fashion System* today, he could "hardly afford to ignore" the fashion film, which Uhlirova identifies as being reliant on conventions borrowed from music video. The prominent inclusion of these time-based works in institutional exhibitions of fashion (Uhlirova, 2013) is plausible because, as Vinken (2005) explains:

Things are different in postfashion: It seeks to draw time, and makes itself into a new "art of memory." The signs and traces of time are the stuff from which this fashion is made, replacing the traditional material of fashion, 'the stuff of which dreams are made.' (n.p.)

This paper observes a correlation between Evans and Vaccari's 2020 interpretation of Barthes's concept of *uchronia*, or *no time*, and the multi-temporal character of music video. Barthes's claim is that fashion is always *uchronic*, because it consists of a permanent present; in other words, *fashion* is a time that does not exist. In music videos such as those by Eurythmics, constituting imagery is "almost devoid of temporal markers [but suggests] a particular instant, a recurring moment, or a passing thought" (Vernallis, 2004, p.14). Evans and Vaccari link *uchronia* with "utopian heritages, trend-forecasting and other commercially motivated predictions; forward-looking fantasies set in an imagined future; and activism motivated by a real sense of urgency and political engagement" (2020, p. 30). This variety of

phenomena is as an uncanny a list of the dominating issues presented in select music videos of the early 1980s as it is of the concerns of postfashion.

When considering music video as informative to post-fashion, the research from which this paper arises also takes into account a post-postmodern *structure of feeling* termed metamodernism (Vermuelen & van den Akker, 2017), identified as a multi-temporal oscillation between modernist sincerity and postmodern irony. These positions can be understood as relating fashion's cultural constructs, and the latter to its ability for cultural critique. Postfashion's denial of traditional gender categories and the deconstruction of social principles of class arose from a new dominance of popular street fashion commencing in the 1970s (Vinken, 2005). The influence of street styles and subcultures in setting fashion trends has been understood as congruent with such postmodernist concerns as the "death of art" and "rejection of authority" (Morgado, 2014, p. 314). This is the socio-cultural milieu from which music video emerges in the early 1980s.

To consider how recurring themes of fashion theory are visualised through Lennox's performer/character in Eurythmics, the paper considers ideas arising, and departing, from Butler's germinal theory of gender performativity (1990), and Camp theory, most specifically the Camp trace, as identified by Meyer (1994). The paper also builds on Lennox's own explanations of and reflections on her practice, drawn from interviews given to the music and queer press this century and quoted here directly.

3. VIDEO 1: SWEET DREAMS (ARE MADE OF THIS) (1983)

The video opens with an interior shot of a darkened corporate boardroom, decorated with framed gold records. The room is dominated by a large table surrounded by empty chairs. Silhouetted against a blank display screen is a slight

figure with short hair. They strike the table with a cane or staff. The next shot illuminates the figure, who as they slowly raise their head is revealed to be a white woman with cropped hair dyed bright orange. Her facial features are heavily emphasised with make up, including kohl-rimmed eyes and glossy lips. She wears a masculine-style double-breasted suit which is slimly-cut to her body; a white collared shirt; a silver or grey tie with a subtle tessellated self-pattern; and black gloves. This is Annie Lennox. Her strong, slyly-confident expression is one of semi-sinister amusement. On the table, there is a world globe and on the screen behind her, footage of the Earth taken from space (Fig. 1). She mimes the lyrics of the song that forms the soundtrack to the video:

Sweet dreams are made of this

Who am I to disagree?

I travelled the world and the seven seas

As she sings, she spins the globe and gazes at it with casual propriety, an omnipotent figure who controls the Earth's rotation. We cut to a wider shot, in which we see that the screen now displays surveillance-style footage of a large, orderly crowd of white people dressed in conservative middle class clothing of the post-World War II period, walking or marching. Another character is in the boardroom. Seen from behind, it is a masculine figure with a longer short-back-and-sides haircut; moustache; dark glasses; wearing a form of suit/collar/tie attire. This is Dave Stewart. He is typing on the keyboard of a computerised device. On its small display screen, we see another image of the two characters: they are in the same room, identifiable

by the gold records, but sit cross legged on the table and are holding hands, as if joined in group prayer or meditation. Together, the characters are the band: Eurythmics. In the main shot, Lennox continues to mime:

*Some of them want to use you
Some of them want to get used by you
Some of them want to abuse you
Some of them want to be abused*

As she sings, she points the cane first at Stewart, instructing him as though from a lectern or pulpit (Fig. 2). In further shots, she swings the cane in a controlled repeated tapping motion into her own gloved hand, suggesting its potential as a weapon, as she gazes directly at the camera (Fig. 3). Stewart continues typing, as if transcribing Lennox's pronouncements.

Formerly romantic partners in addition to their creative collaboration, both Lennox and Stewart have explained that their suit-attired Sweet Dreams partnership image was inspired by gay, conservative, working class, anti-authoritarian dandy performance art duo and life partners Gilbert and George (Lennox in Iannacci, 2011; Stewart in Gilbert & George, 1997). Somewhat appropriately therefore, Lennox's costume from the video was also displayed in the 2011-2012 V&A exhibition *Postmodernism: Style and Subversion*. With performance strategies understood contemporaneously as transvestism, drag, and cross-dressing, Lennox was identified along with Boy George as a key 1980s androgynous pop performer/character, popularly labelled with the buzz-term *gender bender* (Jones, 2020). However as part of her broader body of work, for Lennox the suit-as-costume here is essentially fashion signified by her feminist politics: "I can be a canvas. Feminism and style rarely go hand in hand, but I still feel that needs to change. What we wear — it's all a dialogue" (in Iannacci, 2011, n.p.). Butler asks,

“is drag the imitation of gender, or does it dramatize the signifying gestures through which gender itself is established?” (1990, p. viii). The aim of Lennox’s *drag* in *Sweet Dreams* aligns more clearly with the latter: Her appearance was not intended to be read as male, but rather to critique dominant masculinity, with the sado-masochistic overtones of Lennox’s image applying to it a layer of authoritarian menace. About public reaction to her iconic performance in the video, Lennox had this to say:

What I was doing was radical for mainstream television. They were so worried I would be subversive or that I was a man ... My Sweet Dreams-era suit was like armour for people who tried to label me as a sex symbol ... it made people think twice about what a female performer’s persona could be (in Iannacci, 2011).

Thus, Lennox’s drag in the video is not so much the drag of gender identity as the drag of gender politics. Indeed, to again use the singer’s own words:

When I was given this label of ‘gender bender,’ I really felt it was diminishing in a way. It was very simplistic. I wasn’t bending gender; I was making a statement in a kind of subtle way. I thought it was subtle, but to some people it might have seemed overt. I was saying, ‘Look, as a woman I can be equal to a man,’ and in this partnership with the Eurythmics, where I was in a partnership with a man (Dave Stewart), the two of us felt so connected that my gender didn’t matter (in Azzopardi, 2014).

Hollander may well in fact be describing Lennox instead of George Sand in stating that:

By taking up men's clothes, and having them well fitted to her feminine body, she showed herself to be interested not in female concerns like childbearing and domesticity, nor in the standard feminine uses of alluring submissiveness, but in a female erotic life that depends on an active imagination, on adventurous and multiform fantasy, the modern sort of sexuality customarily reserved for men (1994, p. 26).

4. VIDEO 2: *THERE MUST BE AN ANGEL (PLAYING WITH MY HEART)*
(1985)

The establishing sequence of the video reveals its overall narrative conceit: That we are observing a play within-a-play. This takes place in a not-entirely-historically accurate Baroque eighteenth-century fairytale past, in a theatre in which a richly-robed, bacchanalian King (Stewart) and his powdered and bewigged courtiers (Fig. 4) will be entertained in a performance staged in an ornate representation of Paradise set in a gilded classical ruin, by a soprano (Lennox) and her supporting troupe of players who include lithe maidens, puckish cherubs, and a corpulent castrati. She sings:

*No-one on earth could feel like this
I'm thrown and overblown with bliss
There must be an angel
Playing with my hear
I walk into an empty room
And suddenly my heart goes "boom"!
It's an orchestra of angels
And they're playing with my heart
The song's chorus repeats a simple refrain:
Must be talking to an Angel*

Wearing a white gown typically symbolic of purity (Fig. 5), Lennox's soprano character wears her long, curled golden hair loose and uncovered but for a whimsical tiara-type headpiece, indicating that the performer/character is unmarried. Lennox's character's makeup, evocative of late-twentieth century advertising photography for cosmetics and perfumes, is hyper-feminine and jarringly anachronistic to her otherwise Renaissance-classical presentation, with mauve eyeshadow, frosted pink lips and cheeks and strong, black winged eyeliner (Fig. 6).

To return to this paper's opening premise, *air* in the title of Donne's metaphysical poem represents the masculine, and *Angels*, the feminine (Swinden, 1976). Convenient to this paper's analogy, it is in this video set in a theatrical heaven and communing with Angels that Lennox is costumed most emphatically as *feminine*. Owing to its exaggeration of gender coding, in Sontagian terms (2009/1966) the video certainly *appears* Camp. However, Meyer's identification instead of the *Camp trace* (1994) is illuminative here. Meyer's observation is that Camp aesthetics, when appropriated by mainstream culture, may superficially resemble queer practices — such as drag that is entertaining to mainstream audiences who would otherwise strongly reject gender non-conformity. In contrast to media controversy surrounding Lennox's earlier *masculine* fashion presentations, this video was popular reassurance of her off-screen heterosexual, cis-female identity. Therefore, *There Must Be an Angel* belongs to a history of gender play and Camp aesthetics being appropriated and accepted in popular culture by making comfortable use of these in contexts that are not explicitly queer. In a significant deviation from Sontag's position that the Camp sensibility is apolitical, Meyer's assertion is that true Camp's very relationship with queerness renders it *inherently* political. Lennox's high-femme flamboyance in the video is therefore a paradox. In its contradictory lack of self-identification with queerness,

but rather an exaggerated representation of hetero-normativity, the video's portrayal of the feminine, or *Angel*, can conveniently be read as an apolitical gesture from a political feminist artist. However, as one of Lennox's most extreme drag performances, with its knowingly, simplistically-positive lyric, this paper suggests it could in fact be one of her *most* political.

CONCLUSIONS

To say that a music video can be a fashion object is precisely to say that not all are. Correspondingly however, in the context of postfashion, the great majority of garments produced within the global fashion system are not, in a theoretical sense, fashion objects. As Steele writes on the future beyond the "end of fashion", "it is important to remember that fashion is not just about clothes, but about new ways of seeing and thinking" (2019, p. 18). Certain emblematic and ongoingly-influential music video performers of the early 1980s, such as Annie Lennox of Eurythmics, used visual techniques now understood through fashion scholarship as forms of creative practice that critique patriarchal capitalist norms, this being an imperative of the era of the Anthropocene. Therefore, by re-evaluating the language of music video through theories of fashion, we can better understand how fashion's questioning spirit exists in non-material fashion forms.

FIGURES



Fig. 1 Eurythmics (Artist), Ashbrook, C. (Director) (1983). *Sweet Dreams (Are Made of This)* [Music Video] [still].

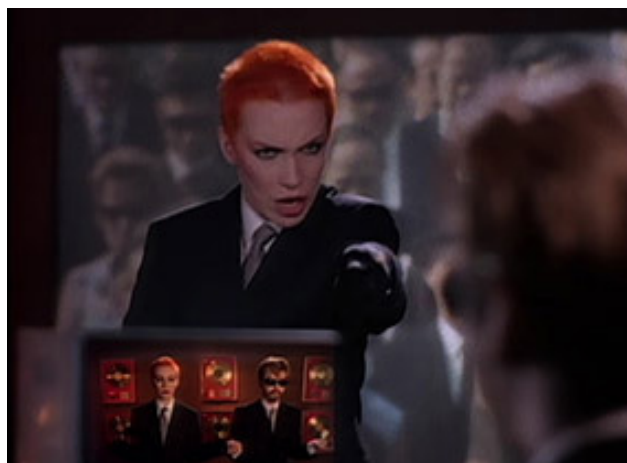


Fig. 2 Eurythmics (Artist), Ashbrook, C. (Director) (1983). *Sweet Dreams (Are Made of This)* [Music Video] [still].



Fig. 3 Eurythmics (Artist), Ashbrook, C. (Director) (1983). *Sweet Dreams (Are Made of This)*. [Music Video] [still].



Fig. 4 Eurythmics (Artist), Arno, E & Innocenti, M. (Directors) (1985). *There Must Be an Angel (Playing With My Heart)* [Music Video] [still].



Fig. 5 Eurythmics (Artist), Arno, E & Innocenti, M. (Directors) (1985). *There Must Be an Angel (Playing With My Heart)*. [Music Video] [still].



Fig. 6 Eurythmics (Artist), Arno, E & Innocenti, M. (Directors) (1985). *There Must Be an Angel (Playing With My Heart)* [Music Video] [still].

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Ailsa Weaver has a long standing interdisciplinary practice incorporating visual communication, moving image, art and design education and curating. Her postdoctoral research investigates music video as a non-material fashion form, ageing and the biographical wardrobe, and new curatorial authorship of the fashion archive..

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6 FIRE

6 · 1 WHAT IF FASHION COMES BACK DOWN TO EARTH?

DESIGNING THE REDISCOVERY OF MATTER

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I. FASHION AS POSITIVE AGENT OF CHANGE

In 2022, the design theorist Ezio Manzini published an essay in which he questions the possibility that fashion and its objects can become agents for positive change. He writes: “We should first ask ourselves not only how fashion could reduce its environmental load but also how it could become an agent for positive regeneration”. And even more directly: “Could fashion objects become agents for positive change, to reweave the web of life which, in recent years, we have torn apart?” (Manzini, 2022, p. 464). These questions are part of the theoretical perspective that has been spreading in fashion studies for some years now, highlighting the limits of an anthropocentric view that has long characterised the fashion system and related research. One of the first signs of this change was the question posed in 2008 in *Fashion Theory* by Regina A. Root (2008, p. 419): “What should we wear to save the Earth from ourselves?”, indicating on the one hand the responsibility of humankind in the environmental and social crisis of the twenty-first century, but on the other hand the possibility of fashion becoming a promoter of change and repairing the current situation. This generates the idea that it is necessary to “look beyond the human” and “turn our attention towards flora, fauna, technology, material culture and energy resources” (Vänskä, 2018, p. 17). This perspective introduces the concept of care as an element to be placed at the centre of reflections on contemporary fashion and its necessary reorientation (The Care Collective, 2020). The idea of care is understood here, according to Joan Tronto (2013), as an action to maintain, continue and repair our world.

Manzini’s focus on fashion objects as positive agents of change is an evolution, on the one hand, of the critique developed by Mol et al. (2010, p. 14) on the fact that care is often mistakenly distinguished from artefacts, which are considered apersonal and *cold* in comparison to the

intimacy assumed in care; on the other hand, of the theories on the new materialism elaborated by Anneke Smelik (2018), which are contributing to bringing matter and bodily experience in its weaving interconnections with the world back to the centre of the debate. The new materialism relates to posthumanist theories developed by Donna Haraway (2016) and Rosi Braidotti (2019), characterised by a non-anthropocentric and inclusive vision, which pushes the boundary between human and non-human.

This contribution aims to analyse the relationship between fashion and earth, investigating how this natural element is, not only symbolically but also materially, part of fashion. Two moments are considered significant and symbolic here for understanding this relationship. The first one is the action performed at the beginning of the sixteenth century by Venetian women to detach themselves from the earth by wearing the chopines (Fig. 1). Probably created with the aim of protecting the foot from irregularly paved and muddy streets thanks to the high sole, and initially worn by prostitutes, then they were adopted by fashionable Venetian aristocrats for the pose and attitude resulting from wearing (Koda, 2002). The material need, therefore, to distance oneself from the ground generated an immaterial meaning, conditioned the wearer's stature and pose, transformed that object into a sign of femininity, sexuality, and power. It can be considered a process of fashion's elevation from a earthly object into an immaterial phenomenon characterised by the dimension of dreams (Wilson, 1985). The second moment, which can be considered the symbolic return of fashion to earth, is the Balenciaga's Spring Summer 2023 muddy runway (Fig. 2). Spanish artist Santiago Sierra filled the Parc des Expositions de Villepinte convention centre on the outskirts of Paris with 275 cubic metres of mud for the show (Friedman, 2022). Mud splashed and covered the skin of models and luxury clothing and accessories, suddenly erasing the illusion of perfect, dreamlike

fashion. As the creative director Demna Gvasalia declared in his show notes, the “set of this show is a metaphor for digging for truth and being down to earth” (Balenciaga, 2022), which can be interpreted as a rediscovery of a sustainable relationship between human and non-human.

The investigation is developed through a desk analysis of a series of case studies, identified at a global level, that allow us to outline the complexity of the relationship between fashion and earth, observed through two perspectives: soil used as imagery to bring fashion back to an earthy dimension; soil as a material element of fashion, through which to generate new fabrics, alter textures or accommodate the end-of-life of clothes.

2. THE IMAGINARY OF EARTH

Fashion and earth are linked by an imaginary that, in the 21st century, has increasingly taken on the negative traits of a critical and unsustainable relationship. Intensive cultivation, the use of pesticides and the waste of water for the production of raw materials destined for the textile industry; the use of chemicals for dyeing and finishing that pollute the soil and groundwater; the huge dumps of used fast fashion clothes that invade the global south: These are some of the elements that have contributed to creating an almost irreversible fracture.

Analysing the fashion shows of the last few seasons, it has emerged how some global brands have used the imagery of the earth to highlight this critical moment and incentivise responsible actions within the system. One of the most significant example of this is Marine Serre’s Spring Summer 2020 *Marée Noir* collection catwalk show (Fig. 3). The catwalk, on the grounds of a racetrack, was in black PVC and it passed through a wild plant garden. This choice emphasises the impact of fashion on the environment, underlining how human action tramples the ground and

insinuates itself into nature. The collection was accompanied by a dystopian video campaign, in which AI models populated an apocalyptic scenario, evoking the fate we might be facing. Serre once said of her obsession regarding the state of the world and the uncertain future we are facing: “The apocalypse is now, we are in the middle of it. We have no choice but to adapt to violent climate change and political uncertainty, to look at what is already there and what we have created, and work out new ways to live” (Davidson, 2019). In this case, fashion becomes a tool to denounce an apocalyptic vision and the urgency of change.

Other cases, however, sought to promote a positive imagery, a possible balance between fashion and nature. Artist Doug Aitken created the work *Green Lens* for Saint Laurent Spring Summer 2022 fashion show: An installation of earth, potted plants and mirrors on the island of Certosa in Venice (Vaccari & Franzo, 2021). As described by Aitken: A total artwork space to walk in and observe real vegetation that makes us realise where we are right now, to get back in balance with our lives, with an environment that human beings have destroyed. It is a tangible sign that the mending of relations between humankind and nature often comes more from industrial, artificial and material worlds.

Another example is the way French fashion designer Simon Port Jacquemus involves the earth in the fashion shows of his eponymous brand, notably in *Le Coup De Soleil*, organised in a lavender field to present the Spring Summer 2020 collection, and in *L'Amour*, organised in a wheat field an hour outside of Paris. In both cases, the catwalk, resting on the ground, ran through the vegetation in a natural way, with no other artificial elements to condition the landscape. The aim was to reinforce the rural imagery of southern France and a life in contact with nature, elements that characterise the brand identity.

In the examples analysed, however, the land turns out to be a frame in which fashion shows itself, appearing as an

attempt to reconcile fashion with the natural dimension, but without reaching a posthuman collaboration. More significant, in the theoretical perspective defined at the beginning of this contribution, are other cases in which fashion searched a material contact with the earth.

3. EARTH AS FASHION MATERIAL

The encounter between technology, biology and chemistry is significantly characterising current experimentation on fabrics and materials for fashion (Vanni et al., 2022).

The first case study in which earth is used in fashion as an element that generates, alters or transforms is Hussein Chalayan's graduation project *The Tangent Flows*, a series of buried garments that were unearthed just before the show in 1993 (Quinn, 2002). The silk, used to make the collection, had been buried in a garden for six weeks along with iron fillings, thus taking on a decomposed appearance and showing earthy stains in a rusty red shade (Fig. 4). The significance of this project was to emphasise the process of creation and destruction of fashion, demonstrating – in advance of current discourse – how beautiful the process of decaying and recycling can be.

A second example is the *Plant and Algae T-Shirt* by the technical clothing brand Vollebak, which has created a compostable T-shirt to be buried in the garden at the end of its life, where it biodegrades in eight-twelve weeks depending on temperature and humidity (Fig. 5). It is made of pulp fibres from eucalyptus and beech trees and algae grown in laboratories inside bioreactors, in line with their approach of artificialising nature in a posthumanist framework. The T-shirt is printed with green ink based on spirulina algae, a natural pigment that oxidises and fades with air, inviting one to care for it as if it were a living being (Franzo & Moradei, 2022).

These two examples are significant because they present a material relationship between the garment and the earth: Pre-consumption, in the first case, or post-consumption, in the second, triggering a reflection on the life cycle of garments and their durability, on care practices, on the idea of planned obsolescence and novelty in fashion mixing the past with the present and future in unexpected ways. The *soil to soil* model, increasingly pursued in the fibres and textiles supply chain (Burgess, 2019), finds a clear representation in these cases.

Even more significant for the purposes of this investigation are the last cases analysed here, examples of how earth is used by fashion as a material: It is deposited on the fabric, combined with it or even it creates a material.

The first case is that of Chinese mud silk, a fabric produced since the fifth century in south-east Asia, characterised by a glossy black face and a dull orange-brown back, obtained by coating iron-rich river mud on silk dyed with a tannin-rich dye (Fig. 6). The production process of mud-coated silks is very laborious and season-specific. To obtain this two-tone colour, the juice of a local root is used to dye the fabric and then one side of the silk is covered with mud (Lin & Mammel, 2012). This juice contains tannin, a complex phenolic substance that is widely used to strengthen fibres, especially those exposed to sea water. Treating silk with the juice increases the durability of the fabric and thus prevents the fibres from disintegrating when covered with mud. The first step in the dyeing process starts by treating the greige silk fabrics twenty to thirty times with the root juice. After soaking the fabric in the root juice, workers apply a layer of iron-rich mud to one side of the fabric. Once the mud is applied, then they lay the silk in the sun for five to seven days.

The next case study analysed is the Spanish designer Paula Ulargui Escalona. In her graduation thesis, later developed in collaboration with Loewe, she transformed

fabrics and materials for fashion into ground that allows plant elements to grow. Clothing is transformed into a new skin that links the human being to nature. They are objects that take time to achieve the desired growth, they have an ephemeral duration in their ideal conformation but, precisely for this reason, they lead to reflection on the relationship between fashion and time (Evans & Vaccari, 2020). By integrating sprouts and biomaterials of different origins into garments and accessories, the designer thus intends to establish an idea of spontaneous coexistence in the relationship between human and nature, weaving a relationship of reciprocity that blurs the boundaries, just as highlighted in the theories on the posthuman and the new materialism. Everything happens around the body, but the human is only one element in this expanded relationship, this symbiosis. Unlike traditional materials, these are perceived as alive, in need of care and attention, totally overturning that relationship of rapid and detached fruition between consumer and garment that fast fashion has nurtured in recent decades.

The last case analysed is the biomaterial obtained by Thai designer Khajornsak Nakpan from soil bacteria. The earth is here the natural environment in which non-human beings, capable of building matter, live. His research investigated the use of soil to create a substitute textile material (Fig. 7). A bio-fibre was synthesised from soil bacteria, ensuring that the whole production cycle generated no waste (Nakpan & Sirinkraporn, 2023). For over 20 days, the bacteria were cultivated in a thick sheet of cellulose and, once the ideal conformation was achieved, were used for a further 20 days in the construction of this innovative material. The final material contained pigments from melanin synthesised from the soil, similar to human skin tones, highlighting the relationship between human and non-human, between fashion and earth.

4. CONCLUSIONS

These case studies made it possible to analyse the relationship between fashion and earth. The idea of fashion coming back down to earth, in the perspective of a new materialism and a close combination with nature and its elements, can be interpreted as a process of bringing fashion closer to vibrant matter and living materials. Earth is not only the object of a relationship, a source of inspiration in materials science, but it is increasingly becoming an active subject that produces ideas and builds matter.

FIGURES

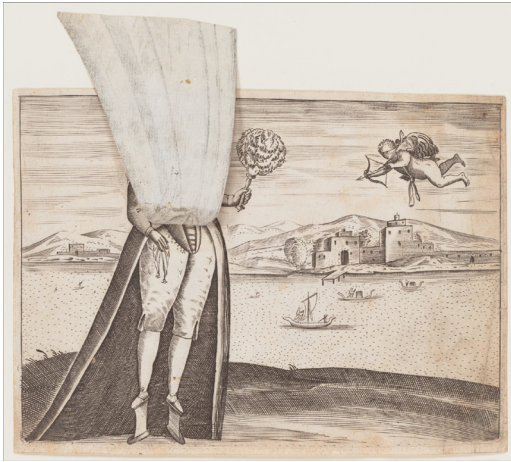


Fig. 1 Pietro Bertelli, **Courtesan and the blind cupid**, ca. 1588, Metropolitan Museum of Art, New York

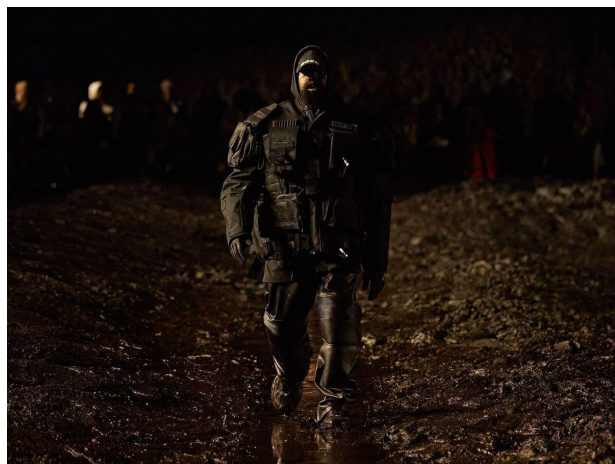


Fig. 2 Balenciaga, **The Mud Show**, Spring-Summer 2023 collection



Fig. 3 Marine Serre, **Marée Noir**, Spring-Summer 2020 collection



Fig. 4 Hussein Chalayan, **The Tangent Flows**, 1993 graduate collection



Fig. 5 Vollebak, **Plant and algae T-shirt**, 2019



Fig. 6 Chinese mud silk



Fig. 7 Khajornsak Nakpan, Bio-melanin cellulose, 2021

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6 · 2 PERFORMATIVE PROVOCATEUR

*BJÖRK'S ECO-FEMINIST FANTASTICAL WORLDS AS SPECULATIVE
SPACES OF FASHION*

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I. INTRODUCTION

Björk's live performance *Cornucopia* (2019-) presents a utopian sci-fi world, creating a performative conversation between human and machine, science and technology, body and space within a speculative eco-feminist world. This paper offers a visual analysis examining the 2019 version as a slice of the ongoing world tour and questions the boundaries of body, space, and technology within the fantastic world of *Cornucopia*. This analysis is through the lens of interior design practice, therefore, the interpretations and connections support a particular spatio-visual perspective on Björk's performance. The research also probes how traditional paradigms between humans and nature represent gender, post-human and multi-species propositions.

During her artistic career, Björk has sought to refute traditional and misogynistic parading of the female body through dress, gaze, and performance. When she broke into mainstream popular culture in the early 1990s with *Big Time Sensuality* (Fig. 1), her body is centred in the narrative, a solo character dancing on a lorry moving through a New York streetscape. By 2017, in the video for *Utopia* (Fig. 2), Björk has de-centred herself in the narrative of and she is unrecognisable as Björk. Here, the performative body becomes one with the landscape, like an alternative universe version of the painting *Ophelia* (Everett-Millais, 1851-1952). *Cornucopia* embodies the four elements of sun, air, water and soil, which Björk creatively composes within her storytelling through music, speculative fashion, and performative space to provide a compelling and thought-provoking audience experience.

2. METHODOLOGY AND PROPOSITION

Björk is a performative *provocateur* of our time who embeds nature and technology within a new visual language.

Cornucopia conceives a vision of a utopia that inserts into our present reality. This analysis explores how design and storytelling are employed as future-making through propositional and prospective ideas (Blauvelt, 2019). The speculative worlding is configured through the lens of eco-feminism (D'Eaubonne, 1974) and the proximity of virtual-digital to the physical body-space (Braidotti, 2013; Haraway, 2016).

In *Cornucopia*, this is expressed through spatio-visual storytelling (Bruno, 2002). The spatial mapping of a conceptual framework and methodology draws parallels between a practice of organising and interrogating using body, space, and technology interweaves with narrative and disruption to underpin a theoretical approach (Tab. 1).

The sci-fi pop proposition of *Cornucopia* is the result of multi-modal endeavours of music, fashion, scenography, and digital art. Björk is referred to as a polymath (Björk Unravelling, 2022) in her adventures of creative practice which embrace collaboration and interdisciplinarity. In *Cornucopia*, Björk's performative body inhabits a spatial narrative incorporating multiple technologies, from the intimate body to the spatio-visual immersive audience experience. As a performer, she inhabits a series of sculptural costumes, which express ornamentation, technology, and form to serve as disruptors of established Western and gender norms. The scenography presents an immersive experience that interweaves physical and digital space to offer technological speculation of future hybrid species.

Björk describes *Cornucopia* as digital theatre (Sonic Symbolism, 2022). The performance is like a play with Acts represented with evolving backdrops, costumes, and ensembles. *Cornucopia* does not adhere to a formulaic narrative. It is dreamlike and unstructured, offering a narrative that

orchestrates an affecting space, physically and emotionally, which is unsettling, soothing, magical, and truthful. The design of the staged interior emphasises the hybrid performance as music meets theatre meets art installation. This uniquely designed environment creates a transitory journey within a specific space and time that moves us beyond the present (Bruno, 2002). The spatio-visual narrative confounds the limitations of the traditional stage perspective, creating both a detached and immersive frame and gaze (Friedberg, 2002); thus, the audience moves between passive voyeurs and active occupants. Historically, we understand theatre as public art, a place to express social and topical problems. The importance of storytelling as a means by which we understand the complexity of our lives is defined in Susan Sontag's (1964, p. 41) essay *Going to the Theatre*: "Self-exposure is commendable in art only when it is of a quality and complexity that allows other people to learn about themselves from it".

Björk's work does not lapse into a self-indulgent music performance. As a *performative provocateur*, the body on stage is one of collaborative construction that creates a beguiling presence beyond the human. The performance considers re-imagined relations between human and non-human, care and kinship (Haraway, 2016). We could interpret *Cornucopia* as a feminist strategy of de-centring and the (wo)manifestation of a future where traditional patriarchal and Western infrastructures are de-commissioned, as argued in *The Xenofeminist Manifesto* (2018): "[we] urge feminists to equip themselves with the skills to redeploy existing technologies and invent novel cognitive and material tools in the service of common ends" (Laboria Cuboniks, 2018, p. 33).

3. SPATIAL GEOGRAPHIES

Cornucopia is a spatio-visual experience where the physical and conceptual merge in what Björk describes in the podcast Björk Unravelled (2022) as a place where digital and analogue will shake hands. The spectacle begins awakening our senses through birdsong and melodic soundscapes, acting as the first invitation to cross the threshold into her sci-fi universe. A fringed curtain acts as a veil, concealing and teasing with surface projections which dance across the digital proscenium arch. The face of an ethereal Mother Earth entices us forward into this new world. Her face morphing into a human-butterfly hybrid, echoing a world transformed beyond the human. The unveiling indicates the revealing of Björk as she emerges from the digital backdrop like an apparition, resplendent in white. Her costume is an amalgamation of human-nature-insect introducing the audience to a metamorphosis where humankind has evolved within a multi-species utopian future.

Throughout Björk's artistic practice, she has explored themes of matriarchal social structures, environmentalism, and post-Humanism. In correspondence with artist and philosopher Maggie Nelson, who commented on the connection to nature, eco-feminism, and the ongoing destruction of Mother Earth in her letter to Björk: "... not to get all 1970s eco-feminist, but part of what we are grieving, it seems to me, is the large-scale effects of killing 'mother earth'... all that individuation and dominance reaching its apotheosis in a suicidal/geocidal madness" (Another, Björk Guest Edit, 2019, para 14).

Björk's twentyfirst-century imaginings sit adjacent to twentieth-century visions of the future by designers such as Superstudio, Ettore Sottsass, and Bernard Tschumi, who similarly created political and societal provocations to instigate radical concepts as interpretations of a near-future world. In a similar speculative approach, *Cornucopia* utilises

conceptual storytelling to convey a spatial depiction of a utopian island, a terrain distinct in time and space. Björk orchestrates an atmosphere that is surreal and poetic, yet quietly unnerving. There is a sense the aim of *Cornucopia* is to take us on a journey, "a psychic voyage in and through space" (Bruno, 2002, p. 117), rather than to any earthly destination. This theatrical spectacle is underpinned with a message of hope despite the current collective dystopian fear of the threat to the world as we know it: "[it] has a proper stage and a catwalk, so it is aiming to entertain; to serve perhaps a disillusioned post-climate-changer" (Dazed, 2019).

Scenographer Ciara Stephenson describes the spatio-visual performance as an *exploration of perspective* (Architectural Digest, 2019) captured in the choreography of projections that enshroud the stage landscape and performers. The relationship between performer and audience negates conventional boundaries as the audience is transformed from passive to active. There is a delicacy and sculptural quality of the organic digital compositions. The framing and relationship of body and scenography create a visceral arrangement which enhances the narrative and performative body. The audience becomes immersed within the telling of the tale, the tension of the immaterial and material, mobile and latent (Friedberg, 2006). Architect Nigel Coates implies spatial experiences are enhanced through storytelling, whether these are speculative, queer, supernatural, or otherworldly, stating, "Narrative fictionalises our surroundings in an accentuation of explicit reality" (Coates, 2012, p. 15).

This accentuation can be interpreted as a deliberate strategy of transformation and imaginative materialisation of a future. Storytelling allows Björk to narrate an accentuation through the combination of body, space, and technologies to situate the audience within an imagined geography. In place of the traditional theatrical intermission, the tale is interrupted with the projection of Greta Thunberg's *Call to*

Action, recalling the Mother Earth projection in the opening sequence. The monologue drags the audience back to the present-day perils of the disquieting reality unfolding out with a fantastical world beyond the venue's walls.

The physical geography of Björk's imagined world is defined through a series of tiered islands, which appear like a hybrid of lotus leaf and magical mushroom. These islands float side by side, hosting the performers, framed by a series of digital landscapes with spectacular evolving patterns evocative of the *Aurora Borealis* often seen in Iceland (Fig. 5). The scenography acts as a spatial geometry through the arrangement of performers, sculptural geography, imagery, and soundscape. It embraces the choreography of performers who inhabit the fantastical islands, like a twenty-first-century phantasmagoria as we are mesmerised and transported beyond our body and present world through this curious interior-exterior spectacle. The digital-analogue boundaries become increasingly nebulous through the interchanging digital *mise-en-scenes* of Björk's fantastical world. We move seamlessly on this journey through a sequence of dioramas, where exterior landscapes are reshaped as metaphorical interiors (Bruno, 2002). As designed spaces, the floating islands are interpreted as a metaphor for disconnect, fragmentation, isolation, or optimism of a future world(s). Drawing on her personal experience, Björk often refers to Iceland's holistic cultural adjacency of landscape, weather and isolation as a palpable connection. This Arctic affinity evokes a deeper embodiment, which she describes as a submarine passion (Walker, 2003). The island's form is emphasised, with the ribbed edges like an oyster mushroom, whose organic lines are defiant of the Cartesian. When illuminated red, the islands evoke the molten lava of Iceland's volcanic land – an energy pulsating and breathing life beneath the surface demonstrating the enduring power of nature, which outstrips that of human power. By extension, the landscape, like

performative provocateur, seeks to disrupt the world as we understand it.

Cornucopia conveys a visual concept of *worlding* – transforming the world we know it – that seeks to interrogate or provoke through disruption of all that is, and that has passed in a future built upon kinship with nature and non-human (Braidotti, 2013; Haraway, 2016). This non-hierarchical utopian vision represents the balance of power between genders, humans and nature, and planet Earth and the Universe. As Björk prophesied,

"In order to survive as a species, we need to define our utopia." (Flood, 2022, para 9).

4. BODY AND SPACE: PERFORMATIVE PROVOCATEUR

Cornucopia manifests an immersive experience, and the performance shifts in scale between the dreamlike to orchestrate the macro and micro-narrative via the scenography. The Chamber sits at the side of the stage, morphing into different guises; is it a sci-fi object which has landed on the Island, a shell-like abode for a creature, or a subterranean womb? The Chamber as an interior extends from visual to acoustic and the physiological reverberation of sound to the body.

The cave-like form allows the purity of Björk's vocals to transcend the womb-like enclosure, projecting her voice as if she were singing at home unguarded and intimate. The Chamber is delicate yet powerful, a place of introversion and extroversion, a whisper and an echo. This closeness of body, space, and technology allows the Chamber to become an additional costume. A de-localisation of fashion beyond an enveloping boundary between body and space shifts our understanding of how fashion is inhabited as an object (Gerrie, 2023). Such ambiguous boundaries question where the body, interiority and spatial form collide and merge. It is a wearable Chamber where Björk is both within and is the

space and one in which body-fashion-interior intersect to become avant-garde-techno wearables.

This interpretation seeks to reconceive femininity and to reassess the self concerning the body and others (Granata, 2017). The interstice of the wearable as a membrane which both permeates and shrouds the body as deliberated by designer-academic Neri Oxman: "Structural, corporeal, environmental, and spatial performance of such artefacts, and complex because of self-similar in the sense that both wearables and buildings act – at once – as barriers and as filters" (Dermi-Domus, 2017, p. 19).

The Chamber becomes a symbolic reminder of the body. It is our cocoon, lungs, and voice as we orchestrate the micro and macro worlds we inhabit through the ecosystem and space of kinship. In this, Björk demonstrates fashion beyond the body to the performative body. The sense of cocooning and intimacy of body and space is evident in the collaboration with Olivier Rousteing of Balmain with a series of amorphous sculptural garments which are part-armour-part-interior. The garments by Rousteing are reminiscent of the works of Rei Kawakubo (1948-), Georgina Godley (1955-), Leigh Bowery (1961-1994) and Bernard Rudofsky (1905-88), whose experimental forms sought to distort the idealised Western feminine form. For example, Kawakubo's *Body Meets Dress* (1997) and Godley's *Lumps and Bumps* (1986) delineate material spaces mediating the body and environment, which, as body interiors, re-emphasise the idea of metamorphosis. These disrupt the anticipated female outline, serving as a refusal or confounding of the male gaze and its expectations through these *grotesque* proportions of the silhouette (Granata, 2017; Stewart, 1993). Similarly, with the use of asymmetry, strangeness, or otherworldliness, Björk and Rousteing challenge the gaze by denouncing traditional proportions of femininity and altering the relationship between body and space. As Berger (1972, p. 40) observes in *Ways of Seeing*, the

female form shaped by social and cultural constructs: "... to be born a woman has been to be born, within an allotted and confined space, into the keeping of men". Björk's performative body refutes the misogynistic parading of the female as femininity, as defying the contained and disciplined form. She is not a subject of Western patriarchy; she does not perform to be desired. She takes up space. The body that performed is now the performative body of the provocateur.

The traditional boundary between nature and humans dissolves in these speculative sci-fi fashions. The garments evoke non-human bodily forms, suggesting sea urchins, molluscs, or similar forms of the land, sea, or universe. Moreover, like a mollusc, Björk's garments allow a measured, autonomous reveal of the body defined by the wearer to disrupt the female silhouette. Historically, the wearing of animal skin affirmed man's dominance in nature, but what we observe in Björk's costumes is a re-ordering of the human versus nature superiority, and what one might infer as a metaphor for the dismantling of dominant patriarchal and violent systems of order. These fantastical forms demonstrate an animate affinity with nature and non-humans to transform our relationship with nature through simulation or symbiosis (Bari, 2019).

The *performative provocateur* furthers the disruption and transformation of the dressing of the body. In one Act, the body is concealed within an amoeba-coral structure that floats around her being. In reference to Vespertine (2001), Björk described her work as an interior world, as a locked universe in which she says: "What happens inside of me, inside of my skin, my interior, travels outside of my body" (quoted in Walker, 2003), indicating that her performing body disrupts the boundaries of the physical, and through these speculative fashions, she manifests the *Performative Provocateur*.

The disruptive occupation of the fashion interior is articulated in Iris van Herpen's headpiece. The spikey mane enshrouds her head and shoulders like a fibre-optic aura or sea anemone. It resembles an amalgamation of a blowfish, a bird of paradise and a porcupine – a techno-wearable materialisation of defence and attraction. It locates the body of the *performative provocateur* at the transformed intersection of body-nature-interior-exterior, organism and environment. In *Cornucopia*, the human is no longer fashioning itself the image of God, but of the Earth (Bari, 2019, p. 212), and it is in this strangeness of the familiar and unfamiliar these are fantastical alluring costumes interweave the narrative on stage.

The creative synergy between Björk and van Herpen manifests in the Sphaera dress which oscillates the skin's boundary as an interstitial or liminal space of the body, and not of the body. This curious garment morphs between part bird, part flower, and part human without clearly defining where one contour begins and another ends: "a post-human style of in-between-ness" (Smelik, 2022, p. 14). It has an otherworldly quality, transforming the wearer into a bioluminescent sculpture synthesising body, space, and technology. Sphaera is a delicate metal skeleton; the intricate structure provides stability yet is malleable. A barely visible interior layer compliments the shimmering organza leaves, which delicately encircle the body and extend to form a floating protective chamber. The Sphaera dress provides another performative space for the body to sing, masquerade and take up space with authority. Van Herpen exemplifies a borderless fashion practice (Gerrie, 2023, p.115). Moreover, like Björk, she works with experimental concepts that seek to innovate beyond the pre-conceived boundaries of their associated disciplines. They utilise technology, science, and conceptual narratives to frame their creative concepts, which initially appear alien yet are tangible sculptures of the body. Both Van Herpen and Björk counter the

notion of their practice and are in a continual state of innovation that challenges how fashion performs an alternate female form and body interior.

CONCLUSIONS

Cornucopia offers a myriad of meanings to decipher. This analysis supports the relationship between body, space and technology as crucial in providing a spatio-visual understanding of the fashioning of the performative body. The findings demonstrate that the roles of fashion costumes and scenography are interconnected and serve to embellish the narrative which unfolds through the performance.

The narrative reinforced in *Cornucopia*'s costuming alludes to provocations and possibilities where humans and non-humans transmute to become inhabitants of the sci-fi landscapes. Braidotti (2013) argues that we must deconstruct what we are familiar with to define alternative representations. Throughout *Cornucopia*, the audience are enchanted by the performative provocateur's portrayal of the inhabitants of this new world, it is uncertain where the boundaries of human and non-human forms begin to merge. Similarly, the scenography is also a landscape of the known and unknown. Therefore, *Cornucopia* encapsulates a world where spatial geometries, technology and the performative body are made material. Haraway (2016) posits that to move forward, we need to acknowledge the negative dominance of humans and reconsider our relationship with all living organisms on Earth. This assertion is evident in *Cornucopia* as an affirmation that performs an eco-feminist perspective of worlding.

Björk's *Cornucopia* occupies a space of tension and provocation. The vision of post-apocalyptic optimism is grounded in eco-feminism and a collective proposition that rejects Western patriarchal structures and systems. It uses fashion and scenography as storytelling to represent a speculative

future. The conception of this fantastical world draws from many creative explorations and seeks to re-imagine how humans might co-exist and destroys expectations of past and present to provoke and a speculative future that resides in hope, care, and kinship. This spectacle generates a poetic space and asks the question, is Björk, the *Performative Provocateur*, adorning her body in glorious imitation of the multi-species, or do the sci-fi fashions indicate a bio-evolution of a new species within this fantastical world of *Cornucopia*? Regardless, the fantastical world of *Cornucopia* is a beautiful example of speculative spaces for fashion.

FIGURES

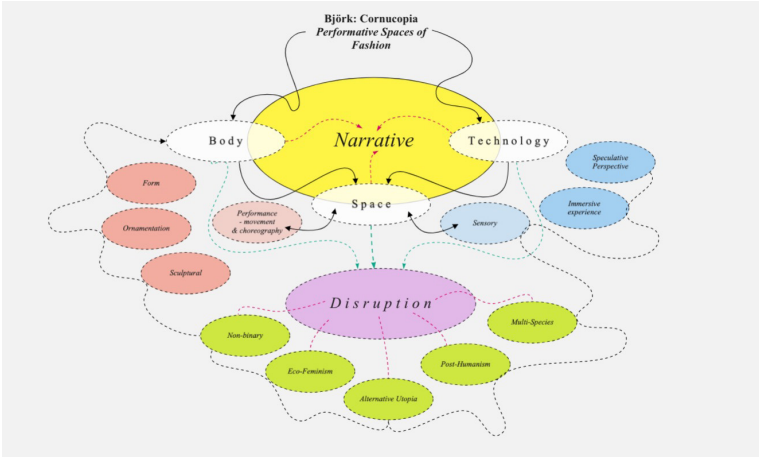


Fig. 1 Screenshot by author from *Big Time Sensuality*, Sednaoui (1993).



Fig. 2 Screenshot by author from *Utopia*, Kanda (2017).

TABLES



Tab. 1. Methodology Diagram by P. Flanagan (2022).

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6 · 3 MUSEUMS AND EXHIBITIONS TO REDEFINE THE MATTER OF FASHION

CURATING THE FUTURE

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I. "TO BE OR NOT TO BE SUSTAINABLE": AN INTRODUCTION

"To be or not to be sustainable" was one of the burning questions discussed in a lecture by Lidewij Edelkoort (The Business of Fashion, 2017, 21:30), commenting on the *Anti-Fashion Manifesto* published in 2014 (Edelkoort, 2014). Despite its provocative title, the famous trend forecaster expressed genuine concern for the future of fashion. Addressing designers, consumers, manufactures, scholars, and journalists, Edelkoort emphasized the need for a new course for fashion rooted in Humanism and sustainable development principles. Edelkoort warned of a crisis in the traditional growth-driven industrial system, and, above all, a paradoxical obsolescence of the fashion world "still working in a 20th century mode" (The Business of Fashion, 2017, 2:07) and "no longer part of the avant-garde" (The Business of Fashion, 2017, 2:46). The problems of materialization, the lack of raw materials, and the devilish pace of fast fashion are just some examples of the issues that emerged during the speech, highlighting the need to rethink the future of fashion. In order to do so, Edelkoort questioned the sustainability of fashion, namely its ability to last or continue for a long time. This led to the need to review the very notion of fashion if intended as the launch of new products every three-six months.

This moment – a point of no return in the history of fashion – impacted both the scientific community, which proposed theoretical models, and the industry, which implemented them. Referring to the existing literature, this ongoing process of revision and reshaping the system is described as *Fashion Futuring* (Payne, 2017; Steele, 2019; Vaccari & Vanni, 2021) and starts with the assumption of the death of fashion as we know it. This concept, subsumed by Edelkoort's choice to use the *Anti* preposition (Edelkoort, 2014), can be interpreted as the end of fashion in a traditional sense (Geczy & Karaminas, 2019).

Although there is no unanimous response about the definition of fashion – as an anticipation (Ceriani, 2020), as a change (Payne, 2021), and so on – many scholars are shifting on the ontological dimension of fashion to find it. This new paradigm mirrors the current debate of the *new materialism* and the *material turn* (Rocamora & Smelik, 2016), a perspective adopted in various disciplines that focus on the materiality and the roles of material objects in shaping culture, society, and human experiences. This shift on the substance of fashion in its constituent elements goes along with the industry perspective, focused on upcycling, hand-made products, textile design, but also on the responsible use of innovative technologies (Payne, 2017).

Since in the last years there has been an increasing of fashion exhibitions that led to the affirmation of fashion curation as a named discipline, following a trend that some authors have called “curatorial turn” (Clark, 2019, p. 158), this essay aims to explore the role of museums in this discourse, particularly as an entry point for discussing fashion's future.

2. A CRITICAL REFLECTION ON CURATORIAL PRACTICES

A forerunner exhibition anticipating the concept of the end of fashion, the material turn and sustainability was Maison Martin Margiela's exhibition (*9/4/1615*) that took place at the Museum Boijmans Van Beuningen in Rotterdam in 1997 (te Duits & van Egeraat, 1997; see also Evans, 1998; Geaney, 2018). Originally invited to present a project inspired by architecture and design by art historian and curator Thimo Te Duits, Margiela deviated from a didactic approach tied to the refurbishment of the museum's pavilion. Instead, Margiela collaborated with microbiologist A.W.S.M. Van Egeraat, a professor at the University of Wageningen, to create an outdoor exhibition. 18 outfits, specifically made for the event and funded by the museum, were immersed in

a nutrient solution for bacteria, cultivated in special greenhouses for four days and subsequently displayed outdoors for thousands of hours outside the modernist glass and steel pavilion of 1991 by Hubert-Jan Henket, surrounded by greenery. Hence the numbers in the title: 18 as the collections designed by Margiela over nine years to that date, 4 and 1615 as the amount of days and hours to realize that cross-disciplinary experience, halfway between a scientific experiment and an artistic performance. The exhibition symbolized the cycle of life in fashion, from creation to eventual decay, as everything was destroyed after the exhibition, including the Stockman dummies. Margiela's typical Surrealistic touch might be recognized in the reversal of the museum's paradigm: While museums *collect*, *conserve* and *display* their heritage (cfr. International Council of Museums, 2022), clothes were exhibited outdoor and exposed to weather agents. The museographical path was subverted, too, as the visitors were those sheltered by the "pavilion-case", rather than the artworks. Thus, the exhibition prompted reflection on change and transformation.

Since then, the theme of sustainability has gained increasing prominence in the context of museums over time. The International Council of Museums (hereinafter ICOM), the global organization of museums and museum professionals based at the UNESCO's Headquarters in Paris, accepted the definition of "sustainable development" as provided in the Brundtland Report established by the World Commission on Environment and Development back to 1987: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987 quoted in Davis, 2023b, p. 521). As a consequence, the ICOM's Dictionary of Museology recognized sustainability as "the ability to continue to exist" (Davis, 2023a, p. 521). That said, a significant milestone was reached in 2015 – one year after the launch of the

Anti-Fashion Manifesto (Edelkoort, 2014) – with the introduction of the United Nations 2030 Agenda for Sustainable Development (United Nations, 2015). This agenda, designed as a comprehensive plan to change the world over a span of fifteen years (2015–30), aimed to achieve sustainable development across its 3 so-called “pillars” or “the 3Es”: Economics, equity and environment (Davis, 2023b, p. 522). It outlined 17 Sustainable Development Goals (SDGs) addressed to five areas of critical importance for humanity: People, planet, prosperity, peace and partnership (“the 5Ps”) (United Nations, 2015). In response to this global call, museums were also urged to play a role in advancing the SDGs. Thus, UNESCO formulated a Recommendation concerning the protection and promotion of museums and collections, their diversity and their role in society (UNESCO, 2015). The results of this commitment culminated in two Resolutions adopted by the ICOM in 2018 (*On sustainability and the implementation of Agenda 2030, Transforming our World and Museums, Communities and Sustainability*, International Council of Museums, n.d.) and the new definition of museums that foster diversity and sustainability (International Council of Museums, 2022). In addition to that, museum professionals are studying methods to achieve a sustainable transition: for example, Studio KLV, a company specialized in planning and design of museums and exhibition venues, has suggested a method which consists of regarding *Sustainability Management in Museums* (SMM) as a cross-functional task between four areas of impact (people, planet, profit, program), all relevant to each museum’s department (Garthe, 2020; see also McGhie, 2019). Thus, exhibitions can play a pivotal role as tools to identify trajectories of reflections on this theme.

Exhibiting Fashion – the archive of international exhibitions developed by the Centre for Fashion Curation of the University Arts London – has listed 45 exhibitions under the tag *sustainability* from 1997 to date (UAL Centre for

Fashion Curation, n.d.). Among them: *Spin Cycle: Recycling and Reclaiming Textile Traditions* (Textile Museum of Canada, Toronto 1997-98), *Eco-Fashion: Going Green* (Museum at FIT, New York 2010), *Sustainable Fashion. Exploring the Paradox* (Kent State University Museum, Kent 2011), *The Future of Fashion is Now* (Museum Boijmans Van Beuningen, Rotterdam 2014-15), *Fast Fashion. The Dark Side of Fashion* (touring exhibition, first venue: The Museum Für Kunst und Gewerbe, Berlin 2015), *Scraps: Fashion, Textiles and Creative Reuse* (The Textile Museum at the George Washington Museum, Washington D.C. 2017-18), *Fashioned from Nature* (touring exhibition, first venue: Natural History Museum, Copenhagen 2019), *About Time: Fashion and Duration* (THE MET, New York 2020-21). Although Exhibiting Fashion's database is constantly being updated and therefore makes no claim to exhaustiveness, it certainly provides evidence of the commitment of fashion and museum practitioners to embracing this discourse in the museum context. Among the exhibitions recorded in the platform, the only one held in Italy was the widespread exhibition *Sustainable Thinking* that took place at various Florentine cultural venues, including Museo Salvatore Ferragamo, Museo Novecento, and Museo di Palazzo Vecchio back to 2019 (Ricci, 2019). The exhibition path was structured into ten sections that proposed different interdisciplinary perspectives on the central theme, with a special focus on matter and its Four Elements. Showcasing garments created by the Fashion House alongside works of emerging designers, artworks, and architectural projects, the exhibition fostered a rich dialogue between creative disciplines. Of particular interest was also the connection of the Earth Works of Land artists like Joseph Beuys or the *Life Guards* by Lucy + Jorge Orta representing the Four Elements, with the exhibition space of Palazzo Vecchio, where the Elements found embodiment in the rooms such as the Quarters of Elements, the decorations, and furniture. The modern individuals of the past

and present grappled with new challenges resulting from the discovery of the New World, while also contemplating natural themes. Hence, Palazzo Vecchio became a narrative tool that facilitated a dialogue between past and present's planetary visions. First, this case is significant because the Museo Salvatore Ferragamo became the first green corporate museum in Italy back to 2015, demonstrating its awareness for upmost one of the three pillars of the sustainable development—the environment. In 2016, it also joined the ICOM network and with that, by applying its ethical code, confirmed its commitment to be sustainable in a wider sense (Ferragamo Museum, n.d.). Furthermore, Ferragamo was a pioneer in the textile research and the innovative recycle of natural fibres since he patented the wedge heel because the Fascist protectionist program and Autarky did not allow to use steel for footwear (Ricci, 2019). This proves that both the corporation (*fashion-as-industry*) and the corporate museum (*fashion-as-culture*, see Payne, 2017) coherently pursue the same mission.

Other exhibitions celebrating the Four Elements of fashion have been staged in Italy: For instance, *In Water: H₂O Molecules of Creativity* that coincided with the World Water Day 2016 and was delved into the theme of the *Aqua Mater* (Dominella & Giordani Aragno, 2016) and *L'eleganza del cibo. Tales about Food and Fashion* that coincided with the Expo 2015's *Feeding the Planet, Energy for Life* (Dominella & Giordani Aragno, 2015). Both curated by Stefano Dominella and Bonizza Giordani Aragno, they were hosted in archaeological venues such as the Aula Ottagona (ex Planetarium) within the monumental complex of the Baths of Diocletian and the Trajan's Markets in Rome. Although they were conceived as themed exhibitions focused on the celebration of pure creativity, what they had in common with *Sustainable Thinking* relied in the strategic use of the historical architectures to vehicle the message of fashion as art—a different

perspective from that presented in Margiela but another answer to the vexed question of what fashion is.

3. CONCLUSIONS: MUSEUMS AS A CATALYSTS FOR FASHION'S SUSTAINABLE FUTURE

Existing literature has outlined an increasing number of fashion exhibitions since the 2000s (Steele, 2008; Menkes, 2011; Mida, 2015; Petrov, 2019; Clark, 2019). This fashion of fashion exhibitions is due to the popularity of these subjects that are commonly described in the terms of “blockbuster” shows (Steele, 2008, p. 20, p. 25). This confirms that the museum is the right place to educate visitors to deal with issues such as sustainable fashion or fashion itself. In addition to temporary exhibitions that obviously have the limit of being staged for a span of time, even museums dedicated to sustainability are now springing up, such as the Fashion for Good Museum based in Amsterdam, where the research continues year-round. Although there is not a univocal answer about the future of fashion and exhibitions like Margiela’s seem to raise more questions than answers, certainly museums are an ideal place of investigation and iteration for a more sustainable fashion understanding. Despite the announcements of the many ends of fashion *as we know it*, and the corollary of the end of its *traditional* practises – fashion curatorship included (see Clark, 2019 commenting Edelkoort, 2014) – there is reason to believe that museums offer a valuable space for reimagining the future of fashion. Museums are democratic places that make luxury accessible, providing a promising venue for exploring new possibilities and fostering dialogue around the evolving nature of fashion.

AUTHOR BIOGRAPHY

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6 · 4 COMING-OF-AGE THROUGH CLOTHES

*THE FOUR ELEMENTS IN THE SARTORIAL UNIVERSES OF EUPHORIA
AND SEX EDUCATION TV SERIES*

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I. INTRODUCTION AND RESEARCH ISSUE. THE FOUR ELEMENTS AS FASHION CONSUMER PROFILES

Is it possible to analyse the fashion attitudes of both real individuals and fictional characters using the framework of the four elements? In our present-day world, fashion and its role have been redefined by a generation that has grown up in the midst of a climate crisis. The fashion attitudes of this generation have become inherently ambiguous, encompassing both sustainability and overconsumption. Over the past five years, two highly influential TV series, *Euphoria* and *Sex Education*, have emerged as reflections of contemporary youth's clothing culture. Both series premiered in 2019 and are still in production. Despite their divergent visual styles, genres, and ideological approaches to portraying teenagers, they share a common perspective on the significance of clothing. Both shows depict the clothing culture of high school students within late neoliberal capitalist societies, where an abundance of choices turns clothing into a means of self-expression.

In my research, I interpret the four elements (fire, water, air, and earth) as four distinct fashion ideologies that are interconnected with the sartorial choices made by the costume designers of the two TV shows (Heidi Bivens for *Euphoria* and Rosa Dias for *Sex Education*). These fashion ideologies are evident in the clothing styles of the main characters and serve as a framework for analyzing their fashion attitudes.

The emergence of the new materialist/material turn in fashion studies (Bennett, 2010; Smelik, 2018; Lehmann, 2018) has coincided with a significant mediatization of fashion phenomena. This mediatization encompasses the (over-) representation of fashion in social media, the creation of clothing specifically designed for use on social media platforms, the development of virtual clothing or avatar skins for the metaverse, and the fashionization of audiovisual

content ranging from movies to TV series. In this article, I will focus on this multifaceted phenomenon, exploring two highly popular television series that have allowed the contemporary young generation to identify with the sartorial choices of the characters, thereby influencing the actual clothing culture of Generation Z (a concept not without its flaws, often exploited by marketing communication).

Both series have given rise to unexpectedly large fashion fandoms, with numerous clothing challenges inspired by the shows and the emergence of a euphoria-esque visual trend on various social media platforms. While contemporary clothing patterns are heavily influenced by media, especially among the younger generation, they also reflect a post-anthropocentric way of thinking. In this context, the framework of the four elements can help explain the conflicting nature of contemporary clothing consumption. As highlighted by cultural analysts, we currently exist in a time of divergences, where mutually exclusive opposites abound, and it is crucial to find ways to connect these opposing forces. For instance, one relevant topic to address is the paradoxical fashion attitudes of a generation deeply concerned about sustainable fashion yet simultaneously engaging in excessive consumption on hyper-fast fashion online marketplaces—an anomaly that demands attention on our agenda.

2. POPULAR CULTURE AND YOUTH CULTURE

In the following, I will briefly explore the contemporary fascination of popular culture with youth and youth culture as a dysphoric element of late modernity and capitalist realism (Fisher, 2009). Subsequently, I will introduce the TV series mentioned earlier as two contrasting narratives of late capitalism or surveillance capitalism. Following this introduction, I will delve into the conceptualization of the four elements as patterns of fashion consumption. Lastly, I will provide four examples illustrating how characters from

the two TV series, each with distinct approaches to clothing, can be associated with one of the four elements.

Youth culture, young people, and the essence of youth have always been significant topics within popular culture. Jon Savage's work (2007) demonstrated that the development of popular culture was closely intertwined with the construction of the teenager as a cultural concept, from the latter half of the nineteenth century to the British youthquake and the events of May 1968. However, David C. Miller (2018) argues that the theme of coming-of-age is more prevalent in popular culture than ever before, driven by the neoliberal market's interest in self-exploratory identities.

Jan Jagodzinski (2008, pp. 1-7), drawing on the perspectives of Deleuze, Guattari, and Lacan, conceptualizes this obsession with the teenage experience, particularly in TV culture, and suggests a sense of paranoia underlying society's constant preoccupation with young individuals. According to Jagodzinski, the definition of teenagers as individuals undergoing an identity shift or a gradual solidification of identity structures is paranoid because all stages of human life entail an element of fluidity. Furthermore, the relentless need for self-affirmation and self-expression present in contemporary society makes it challenging for individuals to recognize the ever-changing nature of their identities. Fashion and clothing once again found themselves in an ambiguous position, intertwined with the act of self-articulation. They served as both commodities, driven by the exploitation of instability, and tools for expressing self-awareness.

Contemporary clothing patterns reflect an awareness of this inherent ambiguity. The emergence of modular innovation, such as capsule wardrobes, the utilization of boundary-pushing fashion items across various social contexts, the embrace of uniform dressing, and the appropriation and appreciation of ethnic clothing, among other examples, all highlight this ongoing process. However, it is important to

question whether these consumption patterns truly solve the problem at hand or if they merely rephrase it on a different level.

Sex education and *Euphoria* are two series representing two radically different examples of the same issue: How the first coming-of-age is possible while the demand on self-articulation became a permanent and tangible necessity on social media. I connected each series to an important and influential piece of cultural criticism in order to highlight their particularities.

Euphoria is a TV show made by Sam Levinson based on an Israeli franchise currently with two seasons focused on the daily problems related to drugs, violence and sexuality of a group of high school students from California. The series premiered in 2019 and the second season was screened in early 2022 when the Russian war in Ukraine started, and it became a symbol of generation Z's social media protest against war and violence (Klee 2022). The show's second season was watched by 16.8 million viewers, and was the second most watched TV series of the streaming era being preceded only by *Game of Thrones*. Each of the show's characters had a strong psychological profiling which can be connected very easily to Jagodzinski's diagnosis on TV culture's teenage paranoia. Its visual style predicted and influenced the recent Y2K nostalgia trend; the artists responsible for the creation of its visual world, from the costume designer to the make-up artist and the cinematographer, became celebrated on social media in their own right.

The reception of the show itself is inherently ambiguous. On one hand, it faces criticism for its dark and pessimistic portrayal of Generation Z's culture, often being labeled as a show made about the contemporary high schooler generation by young adults. On the other hand, it is celebrated as the first show to address the struggles of the generation born during or shortly after 9/11, amidst an identity

crisis described by Judith Butler as *gender trouble* (2007)—a constant subversion of identity. The clothing style of the characters has been widely adopted by many.

In my interpretation, *Euphoria* aligns with Byung-chul Han's diagnosis of contemporary capitalism driven by the death drive, as outlined in his book *Capitalism and the Death Drive* (2021). This suggests that our desire to accumulate and achieve as much as possible is more about a drive towards death than a quest for self-sufficient ontology. The show vividly illustrates this concept through the spectrum of addictions experienced by its characters. The constant need for self-expression coupled with self-exploitation, a bleak perspective on life's purpose, and addiction as the primary means of attaining euphoric moments define a generation for whom 'reality is such a letdown'. This quote comes from Jules Vaughn, the visually captivating character in the show, during the special episode *Fuck Anyone Who's Not a Sea Blob* (January 25, 2021).

While *Euphoria* presents an overtly pessimistic tone, *Sex Education* provides a space for deliberate and explicit optimism. Created by Laurie Nunn, this show portrays an imaginary high school — a vibrant society where paranoia, sexual exploration, and substance abuse coexist, yet people manage to maintain connections. The protagonist, Otis Milburn, is the introverted son of a sexual therapist, brilliantly portrayed by Gillian Anderson. Despite his limited personal sexual experience, Otis starts offering advice on sex to his classmates. While *Sex Education* may not have the same social media presence as *Euphoria*, it can be seen as a recent diagnosis of late capitalism, reminiscent of the *Dysphoria mundi* — concept introduced by Paul B. Preciado (2022, p. 19). Preciado describes this cultural state as a "petro-sexo-racial world order," where the overemphasis on (white and hetero) sexuality and the labeling force of race are pervasive, alongside the influence of long-lasting chemicals referred to as "forever chemicals." Preciado believes

that this world order is in a state of decomposition, with the revolution to end it just around the corner. In this context, dysphoria permeates every aspect of life, and according to my interpretation, *Sex Education* is a TV series that explores the power of dysphoria. To quote Preciado, “Optimism is an ethical necessity. I've learned this from the black women's movements. In the face of seemingly diminished hope, optimism becomes a political methodology. When we are on the verge of subjectivity's destruction, pessimism is a luxury we cannot afford. Thus, hope always prevails” (Preciado, 2022, p. 336). This quote aptly reflects Laurie Nunn's perspective on the coming-of-age theme portrayed in the series.

Both series have constructed comprehensive high school societies, complete with hierarchies and conflicting personalities. To comprehend contemporary patterns of clothing consumption, I analyzed the characters and their sartorial choices. I employed two sets of opposing values to establish two axes of clothing consumption, leading to the creation of a model inspired by the methodology utilized by trend analysts.

3. METHODOLOGY

Much research has been conducted to understand the consumer choices of contemporary youth. However, studies addressing the complexity of TV series that create and are inspired by real fashion fandoms are still lacking. The objective of this study is to qualitatively analyze the ideologies (Benshoff, 2016, pp.19-43) present in the fashion choices of the main characters in these two series. Taking into account the previously mentioned ambiguity of contemporary fashion consumption, we linked the four elements to the attributes of over/underconsumption and conformity/non-conformity (see Tab. 1). Earth represents clothing consumption concerned with the impact of clothes on our surroundings and is driven by conformity and underconsumption. Water

symbolizes the consumer attitude interested in underconsumption combined with the need for non-conformity, addressing the contaminated reality and seeking new ways to live with it. Air reflects clothing consumption characterized by overconsumption and non-conformity, allowing room for creativity and considering the entire fashion spectrum. Fire represents clothing consumption characterized by conformity and overconsumption, signifying a strong sense of status dressing. With this typology in mind, we profiled the main characters of the two shows.

Additionally, we included other elements in the infographics, such as keywords and phrases from the conference's call for papers to define the four components. We also considered the zodiac signs grouped according to the four elements. While Anneke Smelik briefly mentioned the interconnectedness of the four elements with the signs of the zodiac in her keynote, in this study, we treated them in the context of the personalized astrology apps, which have become influential for the age group represented in the series (Bruner, 2021). The assignment of zodiac signs to the characters was determined through research conducted on internet forums, where users speculated on the potential birth charts of the protagonists.

4. RESULTS: PROFILES OF CLOTHING CONSUMPTION AND FASHION ATTITUDES OF THE CHARACTERS

As for the characters, in the case of the two series, I considered the eight central figures, automatically excluding the adult characters like Jean Milburn, who would have been an excellent example but was not considered due to her age. For each protagonist, I created a moodboard featuring their most important/iconic outfits. I conducted their profiling based on the sartorial semantics described by Lehmann (2018, pp. 69-103) in those outfits. Additionally, I took a rather obvious approach these days and asked chatGPT to

provide keywords characterizing each character's clothing style. I incorporated those semantic labels into my analysis as well. In Tabs. 1-2, I have given examples of four characters, two from *Sex Education* and two from *Euphoria*, showcasing distinct elements with accompanying image and text samples.

While the difference between conformity and non-conformity was clear in most cases and reflected by a need to fit in the same age groups, the difference between over- and underconsumption was less apparent. When issues of recycled pieces of clothing or clothes worn according to a psychological attachment to them were addressed by the characters, underconsumption was considered. The result produced the following list: Air: Eric Effiong, Lily Iglehart, Kat Hernandez, Jules Vaughn; Earth: Otis Milburn, Adam Groff, Lexi Howard; Fire: Ruby Matthews, Nate Jacobs, Maddy Perez, Cassie Howard; Water: Maeve Wiley, Ola Nyman, Aimee Gibbs, Rue Bennett, Fezco.

The Air clothing consumption profile pertains to characters who possess a strong sense of personal style, often fashion professionals or individuals whose aspirations are intertwined with fashion and visual culture. While these characters are acutely aware of the detrimental impact of the fashion industry, they possess confidence in the transformative and creative potential of fashion when used in a non-conformist manner. They embody individuals whose personal style is recognized as individualistic and imaginative, and despite facing frequent criticism for their daring choices, they draw upon powerful psychological resources through the act of creating outfits or garments. Their clothing choices have played a significant role in their transition into adulthood. The stylists responsible for their looks frequently demonstrate an inclination towards exploring new, niche, and avant-garde brands that seek to redefine the fashion system. The resulting ensembles often incorporate

elements of spectacle and exhibit a keen awareness of fashion.

Fashion awareness is a prominent characteristic of the *Fire* profile as well. In their case, the pursuit of conformity accompanies excessive consumption, defining these characters as consumers driven by status. While fashion remains a means of self-expression for them as well, their interest lies in garments that enhance their financial or social standing. Two highly representative characters exemplifying this profile are Ruby Matthews from *Sex Education* and Maddy Perez from *Euphoria*, both hailing from immigrant families for whom clothing serves as a tool for integration into their destination society. According to Heidi Bivens, particularly in the second season, these characters wore high-quality fashion pieces from prestigious brands (Solá-Santiago 2022; Bivens 2023). These protagonists often assume the roles of trendsetting *It girls* or influential *alpha males* within their communities, with their sartorial choices often emulated by their peers. While the air consumption pattern is more closely associated with an inherent sense of style, in this case, a learned fashion sense can be observed.

The *Water* fashion consumer profile is characterized by a strong awareness of humanitarian and ecological crises, driving an active pursuit of lifestyle and clothing choices that respond to these issues. These characters reject socially acclaimed clothing norms and instead create individual styles with an alternative fashion consciousness. They represent the antifashion movement, driven by the desire to establish radically new sartorial languages. While they are committed to reducing our ecological footprint, they still perceive clothing as a means of self-expression, albeit positioned outside the conventional fashion spectrum. In an episode of *Euphoria* (Season 2, Episode 7), Rue reflects on her father's influence and how he helped her recognize the appeal of being uncool, embracing its subversive and empowering nature by rejecting social constructs. For these

characters, the process of coming-of-age begins at an early stage and shapes an unconventional life path, intertwined with a distinct sense of individual morality reflected in their clothing.

The *Earth* fashion profile represents the most radical stance on the spectrum. Characters originating from this profile exhibit no interest in fashion as a means of self-expression; they view clothing as a perpetual source of problems and consider garments unsuitable for their needs. Their hyper-objectivity allows no space for experimentation with new fashion rituals, as they completely reject the fashion system as a whole. Otis, among these characters, embodies the most extreme viewpoint. He maintains a signature outfit that frees him to focus on more significant matters. While they may accept socially acclaimed clothing to blend in and achieve their social goals, their preference lies in modest, functional, and uniform attire. The coming-of-age journey of these protagonists is marked by a desire to understand the world through logic and rationality (exemplified by Lexi and Otis), or at the other end of the spectrum, by maintaining an infantile connection to the world, leading to a delayed maturation process.

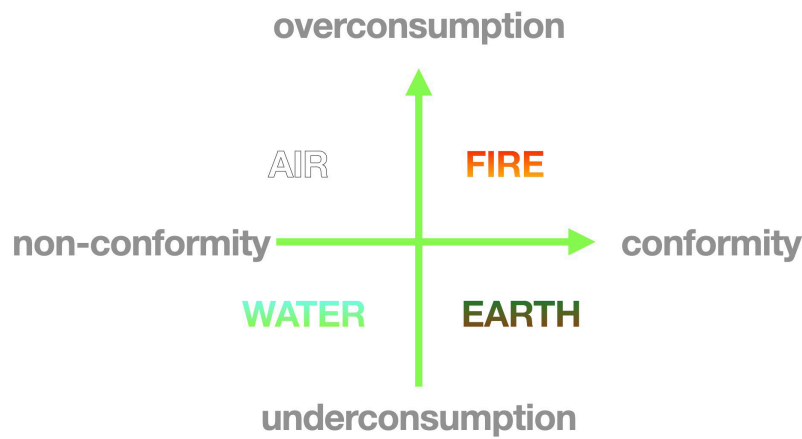
5. CONCLUSIONS: THE SUBTLE FORCE OF THE EARTH PROFILE

The four elements, considered as fashion consumption attitudes, yielded a transversal interpretation of the theme of the four elements in fashion and a transversal interpretation of the two television series. The most intriguing aspect of the research was the problem identified using AI. When ChatGPT was asked to analyze the Earth profile, the labels used in the description were *unique* and *offbeat*, *distinct* and *quirky*. The overarching descriptor employed to characterize the character was *eccentric*. However, the specific characteristic of these characters is their indifference towards fashion—an attitude that neither embraces it as a form of

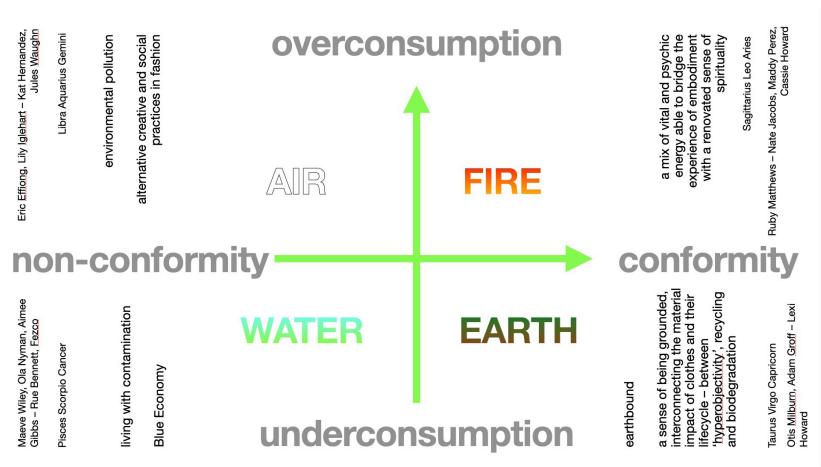
self-expression nor negates it. As generative artificial intelligence typically utilizes words in their broadest sense, characterizing a fashion attitude becomes challenging when it involves negating the fashion system. While ChatGPT proves reliable in summarizing the style of characters who define themselves through sartorial semantics, it struggles to provide a semantic framework to describe the novelty of human gestures when fashion is disregarded.

In conclusion, the four elements delineate distinct consumption and clothing style patterns. The Earth fashion profile embodies a radical critique of the entire fashion system. Individuals within this category tend to adopt a minimalist approach, seeking effortless and uncomplicated sartorial choices. Their core values center around underconsumption and conformity. On the opposite end of the spectrum, Air characters are characterized by a penchant for overconsumption and non-conformity. Their primary objective is to reinvent fashion garments and showcase originality through unexpected fashion choices. Often, they possess a professional interest in the world of fashion. Water characters lean towards non-conformity while actively avoiding overconsumption, striving to discover their original and unique style. They place importance on style and fashion but harbor skepticism towards the broader fashion system. The Fire element represents characters with a keen interest in conformity and overconsumption. Devoted to the fashion system, they avidly follow trends and frequently assume leadership roles within their communities.

TABLES



Tab. 1. The four elements as profiles in clothing consumption.



Tab. 2. The four elements with keywords, character names and zodiac signs.

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6 · 5 BURNING SHOES AND LIQUID DRESSES

THE MATERIALITY OF VIRTUAL DRESS AND HYBRID BODIES

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In the virtual sphere, we wear burning shoes and liquid dresses. Earth, water, air, and fire, the four elements, are all potential materials for virtual dress, as it is not limited by physical constraints. On the one hand, this refers to the finiteness of material resources, which are utilized much less, as a study on the production of digital t-shirts suggests (Xiong, 2020). On the other hand, it hints at the phantasmal virtual materials, shaped by data, that are only conceivable in the digital sphere. Although virtual garments have existed in video games for years, it was only in the past few years that digital fashion has become a phenomenon for gamers and fashion enthusiasts alike. In 2019, for instance, The Fabricant sold a digital dress for \$9500 and caused a sensation, Scandinavian retailer Carlings launched digital twins of their garments in the same year, and more and more digital labels found themselves on Instagram. As virtual fashion is a comparatively young field of research, this paper seeks to formulate a better understanding of virtual dress and its material relations to human, as well as virtual bodies. Though virtual dress is oftentimes described as immaterial, I want to argue for a material view on it with Giuliana Bruno's definition of the screen as a "condition of viewing" (2014, p. 6). The clothes materialize themselves on the surface of the screen, while the screen starts to fade. Following this thought, Sibylle Krämer speaks of a "self-neutralization" (2008, p. 83) of the medium, which itself recedes into the background in order to allow what it shows to be materialized. Lehnert is equally referring to the affective character of the *images* of fashion, which could come close to grasping the three-dimensional fashion *objects* (2013). In this sense, the virtual fabrics share qualities with their physical counterparts. They can evoke memorized sensory experiences, they are agentic and they intra-act, in a Baradian sense, in a reciprocal manner with the body. In this regard, *intra-action* describes mutual acting, which, unlike inter-action, is not preceded by fixed entities, but

assumes that the agents are in a continuous state of change and intra-act together in their becoming (Barad, 2007).

Many virtual fashion designers make use of the four elements in their design, evoking a virtualized nature. Although fire seems more of a destructive force than a creating one, it is the virtual material from which the shoe *BurningFor* was created in cooperation between The Fabricant and Buffalo (Fig. 1). Whereas the dress *It'll collapse in this world* by Berlin-based artist Tabitha Swanson (Fig. 2) alludes to the fact that the garment is possible only because of its appearance in the virtual sphere. A dress formed from pixels materializes as the avatar's second liquid skin, which does not conceal it, but flows down it transparently. Both *fabrics* – fire and water – can only intra-act in their virtual appearance, with a dressed body, as their physical material counterparts would either destroy the garment, break down or hurt the wearer. It is not only burning shoes and liquid dresses, but, as we will see, also textiles that glow and grow, that make use of organic life, dresses that move on their own, and bodies that become textiles themselves that are found in the virtual sphere. And in their manifold articulations, virtual garments intra-act not only with virtual but also with fleshly bodies.

When Gertrud Lehnert coined the term *Modekörper* (2013, p. 55), which I refer to as the *vestmentary body*, she described it as the amalgamation of living body and lifeless dress (2013). Though her descriptions of the vestimentary body are part of the foundation of my research, I want to stress the agency inherent in the dress, which the term *lifeless* does not do justice to. From a new materialist perspective, the dress-body-hybrid is not passively dressed by inanimate clothes which are given meaning only by their wearer (Smelik, 2018). On the contrary, body and dress are equal components of the assemblage that is the vestimentary body, which is always in the process of *becoming*. This process of *becoming*, as compared to *being*, is the concept of the philosophers

and psychoanalysts Gilles Deleuze and Felix Guattari, from the point of view of which they consider identity. For them, identity is not rigid, but is in a continuous state of becoming, of changing, and materializing itself (1987).

Interestingly, it is precisely in the virtual dress that the dynamic process of *becoming* appears to be tangible, when fabrics created from pixels do not have to adhere to supposedly static occurrences of the analogue world. Thus, clothes made of water flow down the virtual or hybrid body, holographic clothes can change their colour as if by themselves, or organic plant headdresses can grow and blossom on the wearer. Inherent to all garments, both virtual and physical, however, the agency becomes all the more tangible when the virtual garments move as if by themselves or form a body that is not visible.

As Anneke Smelik states: “Fabrics and clothes take on a life of their own, acquiring non-human agency, entangled with the human body” (2018, p. 36). This entanglement, as I suppose, occurs thereby in the virtual with three different kinds of vestimentary bodies: Sometimes through the omission of the body itself, establishing the latent vestimentary body; sometimes through images of bodies, forming hybrid vestimentary bodies; or in the form of avatars, creating omni-virtual vestimentary bodies. I first introduced this tripartite division, with less of a new materialist perspective, in an article which focused on the fashion label The Fabricant (Behrmann et al., 2023).

Joanne Entwistle argues that dress, the body and the self are so closely connected, that they are “not perceived separately but simultaneously, as a totality” (2015, p. 10). The dissolution of the boundary between subject and object is also emphasized by Karen Barad with reference to a cane, which can either be a viewed object or perceived as part of a subject when used as a walking aid (2007). Bodies and dress intra-act in their constant state of becoming, in forming an assemblage, the vestimentary body.

The research will show that in digital fashion, material appears to be particularly agentic. With the latent vestimentary body, the clothes seem to move vividly on their own, even though a body may not be present. The hybrid vestimentary body, where a physical body and a virtual dress merge, poses questions about sensory experiences evoked by virtual materials. Lastly, the omni-virtual vestimentary body, which is an avatar adorned virtually, challenges the notion of separability of body and dress, as when a headdress fuses with the avatar's hair or the avatar's skin itself seems to be made from textile.

In the latent vestimentary body, the so-called second skin seems to become the first skin. One example is the design *Serendipity* by Stephy Fung (Fig. 3), which was inspired by her Chinese roots. In the video that she used to present her design, the dress seems to move towards the spectator and yet stays in place. The movements are reminiscent of a walking body, even if it is not visible and the steps are only performed by the dress.

Unlike common images of flat or collapsing garments that lack a wearer, digital clothes oftentimes form what appear to be kinetic bonds with a body that does not seem to exist or become visible. On the one hand, this latent body can function as a blank space for the viewer to imaginatively fill with his or her own fleshly body. On the other hand, however, the latent body also emphasizes the agentic movements of the dress, which it itself seems to perform, thus dissolving the disparity in significance between body and dress.

Digital fashion labels like The Fabricant show their creations as latent vestimentary bodies, as “[c]lothes [sic] come alive in (e)motion”, as Giuliana Bruno (2014, p. 28) states. Moreover, the affective nature of this proposition points to the performative, and thus ephemeral, aspect of the becoming of vestimentary bodies. The garments seem to

be moving on their own. Instead of being an envelope, they now become a *subject* themselves.

In her *Cyborg Manifesto*, Donna Haraway asks “Why should our bodies end at the skin?” (1991, p. 75). The latent vestimentary body shows that the production of a fashion body in the virtual no longer even requires skin. Instead, it is the garment that becomes a body itself. In the assemblage of fleshly human body and virtual dress, the hybrid vestimentary body emerges. Interestingly, in addition to new bodies, this also introduces new ways of dressing. While the act of putting on and wearing physical clothes is so habitualized that most of us do not consciously think about it, putting on virtual clothes requires steps that at first seem uncommon, such as taking a picture of your own body.

Together with Lucas Stübbe, I have developed a threefold classification of the wearing of virtual clothing to distinguish the different forms (2021). *Assembled* describes the addition of virtual clothing to already taken photos or videos, *simultaneous* points to the simultaneous wearing of virtual clothing on physical bodies, viewed through augmented reality glasses or seen through a screen displaying a camera with an integrated filter. *Omni-virtual* describes the wearing of virtual clothing by virtual bodies, for example avatars. The first two ways of wearing create a fashion body of mixed media or materialities, a hybrid vestimentary body. Here, a physical body meets virtual, supposedly immaterial clothing, which can, however, have an influence on the body through its appearing materiality (Brachem & Stübbe, 2021).

One digital fashion influencer who consistently presents herself to her followers in assembled outfits is Daniella Loftus. The person behind the Instagram account *This Outfit does not Exist* and founder of digital fashion platform DRAUP, is wearing a glowing green dress by Tribute Brand, which was digitally added to a picture that was pre-taken (Fig. 4). But although she did not wear the dress at the moment the picture was taken, the body already anticipates

the form and the material of the garments that are to be added, hence the virtual dress influences the poses and movements of the human body.

Drawing on Hartmut Böhme's interpretation of seeing as derived touching (1996), Gertrud Lehnert states that looking at textiles can also evoke imagined tactile and haptic impressions (2013). In their appearance as material textiles, virtual garments are thus also able to evoke an idea of their haptics in us. This phenomenon of imagined haptics becomes all the more intriguing when one considers that virtual clothing does not have to be based on sewable fabrics, but can be metallic, liquid, burning, or even self-moving.

The virtual couture by Auroboros for instance is inspired by nature. However, their dresses and headpieces do not merely imitate the look of plants, they themselves are virtual-organic creations that grow and blossom on the wearer's body. Worn simultaneously, as an Augmented Reality Filter, the *Metamorph* Headpiece (Fig. 5) starts as branches that embrace the wearer's head, slowly starting to blossom, as the wearer looks at themselves wearing it. I would like to modify Bruno's argument for a haptic relation to the surface rather than a visual relation to the image (2014), thereby supporting Lehnert's argument for haptic vision. The memory of touching real plants blends with the visual perception of one's own body dressed in virtual floral head-dresses, giving rise to an actual tactility that makes the immateriality of the virtual dress seem questionable.

The omni-virtual vestimentary body oftentimes is an avatar as or with which we move through digital worlds or video games. Christine Liao suggests that avatars, or virtual bodies, should be viewed not as objects or representations, but as extensions of our physical bodies (2011). The extension of the body into the digital facilitates a *becoming-other* in a Deleuzian sense (1987). While still mostly resembling humanoid forms, the hypertrophy of bodies is accompanied

by phantasmal textile creations. Thus, not only physically impossible clothes, but also impossible bodies are conceivable in the digital.

The collaboration called *Water* between Harriet Blend and Studio.FBX shows a mermaid-like avatar in a digital dress embedded in an ocean environment (Fig. 6). In this case, it is the skirt, which is made of flowing water, that transforms the almost human-like body into the body of a mermaid. Although the water is not a solid material, it seems to be binding the legs of the avatar into one unit. Much more than connections between fashion and the body, virtual vestimentary bodies are new emergencies. Worth mentioning in this context is the further development of the term *second skin* for clothing, to *skin* in virtual worlds. The video game term encompasses the entire external appearance of the avatar, from clothing and body surfaces to hairstyles, accessories, and all external attributes. With omni-virtual vestimentary bodies, it is hard to make out boundaries between the avatar and their clothes, between body and dress. This is also supported by Barad's argument that boundaries between entities are entirely arbitrary and can be re-formed and consequently shifted in a process of constant becoming (2007).

The design *Tapestry* by Tony Murray (Fig. 7) even more insistently challenges the boundaries between body and dress. While the accessories move on their own, the rather still body and dress both seem to be made of textile material. Although it would be conceivable that the textile here functions as a cover of an underlying avatar, we can only perceive the material as shown on the surface, manifesting itself as fully textile. The dress-body-assemblage becomes a literal vestimentary body, questioning the notion of separability, and becoming, what Smelik describes as "an assemblage of wearer, fashion and technology" (2018, p. 36).

So even if virtual dress may not come to matter the same way physical dress does, it comes into being as part of the

dress-body-assemblage that is the vestimentary body. If we consider materiality not as a substance that appears on the surface, but rather, following Giuliana Bruno (2014), as the impression that the surface gives us visually, virtual garments appear to us similar to physical fashion in virtue of their materiality – solely the fabrics used do not need to be textiles.

Virtual fashion in particular contains fantastic materials that dress the omni-virtual vestimentary body, convey a haptic quality to the hybrid vestimentary body or even appear subjectively in the latent vestimentary body. Petra Lange-Berndt also refers to the materiality effect, describing it as the "end result of the process whereby one is convinced of the materiality of something" (2015, p. 17). Virtual fashion, made of digital fabric or even the virtualized elements, can therefore be seen as material, as it affects the viewer and wearer *materially*, while appearing on the screen which in turn starts to fade. If you look behind the screen, clothes made of fire appear, water flows down avatars as skirts and virtual plants blossom on fleshly bodies.

FIGURES

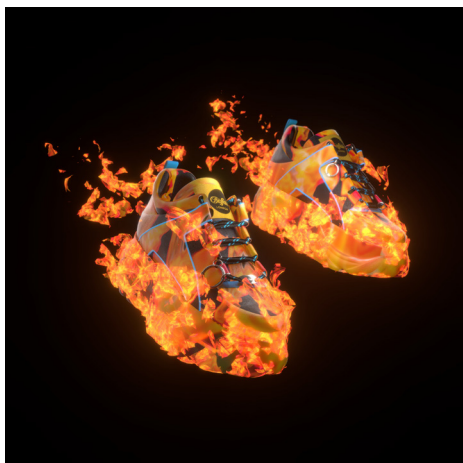


Fig. 1 The Fabricant x Buffalo, *Classic BurningFor*

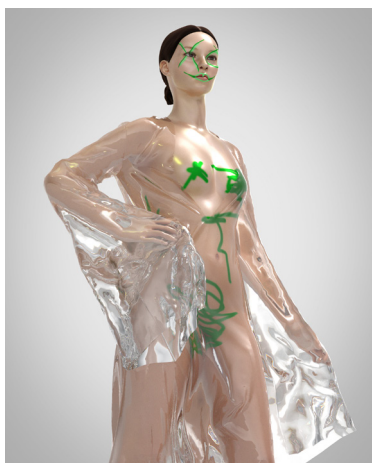


Fig. 2 Tabitha Swanson, *It'll collapse in this world*



Fig. 3 Stephy Fung, *Serendipity*



Fig. 4 Daniella Loftus, *This Outfit Does Not Exist*. Dress by Tribute Brand

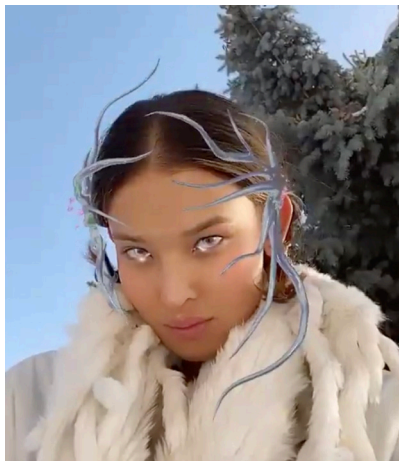


Fig. 5 Auroboros, *Metamorph headpiece*

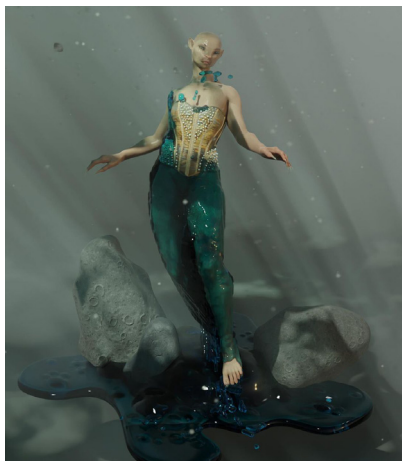


Fig. 6 Studio.FBX x Harriet Blend, *Water*



Fig. 7 Tony Murray, *Tapestry*

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Judith Brachem's research focus lies on the intersection of art and dress. After writing her master's thesis at the University of Hamburg (Germany) on the virtually fashioned body, she is now research assistant at the Carl von Ossietzky University Oldenburg (Germany) and is writing her dissertation on vestimentary assemblages. Besides, she develops digital projects, such as Augmented Reality apps and virtual worlds for museums, cultural institutions, and fashion brands.

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