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## **Introduction: Surface, Haecceities, the Topology of Ice Deserts**

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Reflecting on the conditions of art's emergence, Elizabeth Grosz (2008: 4) suggests its fundamentally relational character:

Art is the regulation and organization of its materials – paint, canvas, concrete, steel, marble, words, sounds, bodily movements, indeed *any* materials – according to self-imposed constraints, the creation of forms through which these materials come to generate and intensify sensation and thus directly impact living bodies, organs, nervous systems.

Quite unlike human-centred approaches to art that function under the regime of signs or representations, art here is understood as a self-organizing process through which various materials, each already conveying haecceities,<sup>1</sup> selectively surface in a way that produces affects or intensities. Art, understood as such, may then encompass any type of production, insofar as it generates impacting forces and changes (ibid.: 3). Grosz is guided by Giles Deleuze and Félix Guattari (1987), who interrogate the emergence of forms in general, beyond the arts. Their ideas of the machine – the machinic phylum, the machinic assemblage, the war machine, abstract machine, and so on – conceives the continuous surfacing of biological, technological and cultural forms in terms of ‘matter-flow’ and its immanent ability to assemble and reproduce itself. As humans are simply a part of such machinic processes, this matter-flow can only be followed. (ibid.: 409) It is this attention to movement, change and the line of differentiation that is also the focus of this volume. If emergence and becoming occur in the process of relating, we shall discuss surfaces rather than forms, as it is in surfaces that haecceities meet and draw a creative line of flight (ibid.: 422).<sup>2</sup> By following

the im/material surfaces of everyday and artistic environments, this interdisciplinary volume explores how artistic or technological innovation surfaces from such matter-flow.

If the Cartesian–Newtonian understanding of matter as predictable substances supports human’s conceptual and practical domination of the material world, new scientific understanding of matter as elusive and complex calls for critiques of ontological dualism (Coole and Frost 2010: 8–9): this involves rethinking human as only a part of the immanent vitality of matter and its continuous individuations and becomings. Therefore, in approaching the surface with a non-hylomorphic attitude, our subject matter is not the human intentions that surfaces may contain, or meanings that may be inscribed on the surface. Instead, it is the elective coming together of materials, implements, humans, desires and affects in the here and now, and how new ways of this ‘coming together’ occur; the process of surfacing and the resulting surfaces. By mapping and following the process of surfacing – ‘the selective action of the assemblages upon the phylum’ (Deleuze and Guattari 1987: 407) – this volume reveals the type of knowledge that can only be produced in the *intermezzi*,<sup>3</sup> in the mingling of making and thinking from various disciplines.

As we increasingly experience the world as surfaces, the changing technologies that design or manufacture these surfaces, in turn, make us. In contrast to the responses to preceding industrial revolutions, contemporary concerns with surface seem preoccupied with its function of mediation or passage, rather than with that of separation or boundary. Interestingly this dissolution of surface often occurs in tandem with insistence on its materiality. In this volume, scholars and practitioners in the fields of design, architecture, film, media, fine art, archival practices and anthropology account for how the material and the immaterial draw attention to each other, focusing on the changing technologies and processes that make everyday and artistic surfaces. Existing surfaces are scored, cut, carved, grooved, travelled on, polluted, layered or become porous, while new surfaces, for better or worse, inevitably emerge. Because surfaces are always continuously being made, we approach the surface in terms of its change and its ability to change anything that comes in contact with it; the way extrinsic relations – rhizomatic alliances or alloys, instead of arborescent filiations (ibid.: 25) – are made and unmade, how surfacing is always interfacing, or rather, poly-facing.

Following the process of surfacing means, then, following various heterogeneous components of matter-flow and instances of their various dis/assemblage. Therefore, each chapter, written by a practitioner or a scholar sensitive to current practice in their respective fields, addresses particular materials (cloth, paper, silver, copper, wood, resin, sandstone,

nuclear waste, database, light or air), technologies (human sensory organs, manually operated tools or machines, industrial machines, digital devices and robots), modes of attention and movement, and affects. They account for the instances of material practice as ‘events’, as repeated processes of deterritorialization and reterritorialization, capable of drawing a new plane of consistency (ibid.: 422–423).<sup>4</sup>

This introduction first sets out the contribution this volume makes to the emerging ‘surface scholarship’ by positioning it within existing literature. It then considers the theoretical and practical issues that the book throws up, exploring why an attention to surfaces is vital today. In particular, I take relational and processual approaches to surface and surfacing, via Deleuze and Guattari’s machinism; ‘surface ontology’ (Küchler 2008); and semantic devices that estrange common dualistic assumptions regarding the surface. The final section explains how the contributions come together as an assemblage via surface ‘method’ and introduces each chapter, pointing out some of the most salient lines running across the chapters.

### **Surfacing affinities**

Surface is one of the most intensely debated topics in recent scholarship in arts, humanities and social sciences. The significant attention paid to various kinds of surface is reflected in proliferating publications and conferences held in fields as diverse as sociology (e.g. Adkins and Lury 2009), human geography (e.g. Forsyth et al. 2013), anthropology (e.g. Anusas and Simonetti 2020), design history,<sup>5</sup> early modern history,<sup>6</sup> or architecture (e.g. Hedges, Engels-Schwarzpaul and Jenner 2017). Many interdisciplinary exhibitions have also been held on the theme, accompanied by a catalogue weaving together the works exhibited and critical texts. To position this volume within these lively activities and their outputs, a few examples which have close thematic or organizational affinities with this volume are brought together below.

In a 1992 publication, *Incorporations*, the modern body and its macro- and micro-systems are in the relation of mutual incorporation. The essays and photographs by interdisciplinary artists, scientists and scholars illustrate how, throughout the twentieth century, overlapping ‘biotechnic’ arrangements have transformed a ‘lifeworld’ (Crary and Kwinter 1992). Almost thirty years on, we explore the increasingly uncertain organic–inorganic boundaries, especially how, in the process of making, humans, tools, information, social and cultural milieu can collectively function as ‘autopoietic’<sup>7</sup> machines. More recently, in *The Virtual Window: From Alberti to Microsoft* (2006), film and media theorist Anne Friedberg’s ultimate concern is the dissolution of screen surface and human sensorium into a

virtual plane. As computer screens, televisions, glass walls, architectural windows, paintings and virtual reality technologies in public and domestic spaces gradually merge, in the future ‘the screen may dissolve; images and data will be “uploaded” directly, bypassing the eye and the optics of vision’ (Friedberg 2006: 244). Radical as this view may sound, with the growing dematerialization in the history of image – ‘a territory-wall-painting-window-mirror-screen-becoming’ (Grosz 2008: 17) – the current and future location of the human–nonhuman sensory interface is contingent and unpredictable. Both exhibitions, *Sensorium: Embodied Experience, Technology, and Contemporary Art* (MIT Visual Arts Center, 2006) and *Sk-Interfaces* (FACT Liverpool, 2008), and their catalogues (Jones 2006; Hauser 2008) explore the techno–human interface in order to rethink contemporary sensory apparatus as much more interconnected than ocular-centric Western culture would have it. In both publications, art, science, philosophy and technology relate with each other through surfaces. This volume similarly shows how creative practices and their interdisciplinary critical appraisals can destabilize existing understanding of what it means to be human in a changing technological environment. The idea of the body – of human, of technical machines, of im/materials – and its contentious territories are repeatedly brought into question via focusing on the process of their surfacing.

In the context of human geography, the special issue of *Environment and Planning A*, ‘What are Surfaces?’ (2013), rethinks surfaces as multiple, embodied and practised material productions. The editors suggest that we re-conceptualize the surface to challenge conventional ontologies and epistemologies by adopting relational approaches (especially non-representational theories) (Forsyth et al. 2013: 1015–1016). A need to reformulate the link between depth and the superficial is a consistent thread in publications on the theme of surface that have recently proliferated. In this regard, *Surface Tensions* (2013) benefits from the methods and viewpoints of design history, by contrasting the historical preoccupation with the surface as superficial with contemporary efforts to complicate its understanding (Adamson and Kelley 2013: 2). The surface here is conceived as ‘a site where complex forces meet’, with the ‘forces’ referring mostly to people and things meeting via the acts of patterning, finishing and maintaining (ibid.: 1). In the special edition of *Theory, Culture & Society*, ‘Visualizing Surfaces, Surfacing Vision’, critical and practice-based contributions collectively emphasize the essentially processual quality of surfaces. The editors highlight ‘how a focus on surfaces is at the same time a focus on (its) surfacing’ (Coleman and Oakley-Brown 2017: 7), as ‘a surface is always in the process of – and is constituted through – its surfacing: a surface is its becoming’ (ibid.: 8). This emphasis on surface-becoming is what

this volume also insists on, approaching it with more multi- and inter-sensorial modes of engagement within the process of material-making.

This rhizomatic review of recent works brings us to Giuliana Bruno's foreword to this volume, 'Surface Matters' and her monograph *Surface: Matters of Aesthetics, Materiality, and Media* (2014). In *Surface*, Bruno's (2014: 2) main concern is how the space of material relations manifest themselves on the surface of different media. Similar to Lyotard's assertion below, in the age of virtuality, relations are made more explicit and material. As the contact between humans and our environment occurs on the surface, it is the surface – 'a quality of "becoming" as a connective, pervasive, or enveloping substance' – that allows us to engage with material relations (Bruno 2014: 3, 5). Surfaces and atmospheres enter a relational mode through touch or touch-like mediation, and it is also through this surfacing touch that the book *Surface* becomes interdisciplinary, bringing together art, architecture, fashion, design, film, new media and the body. This volume builds on Bruno's works and other existing literature touched on above, with a strong emphasis on practice and process, extending across disciplines and theoretical approaches. In particular, the four practice-based, visual-led contributions convey the complexity of surface beyond the textual, evincing that surfaces *are* relations; surfacing is the process of relating.

### **Surface, the machine and a clock of variable speeds**

Writing about the conditions of British working life in industrial capitalism, socialist historian E. P. Thompson (1967: 57) asks: 'When the watch is worn about the neck it lies in proximity to the less regular beating of the heart. ... how far did it influence the inward apprehension of time of working people?' The wider diffusion of the clock during the Industrial Revolution evidences that technological innovations subtly influence the way we are, as it irreversibly changed human conception and perception of time, habits and labour-discipline. Skilled clockmakers played a critically important role in the early stages of the Industrial Revolution, inventing and constructing much of the machinery used in the textile factories (ibid.: 65). The many technical innovations of the Industrial Revolution further intensified 'technological conditioning' (ibid.: 80), the ever-closer encounter between the mechanical and the organic. The French inventor Jacques de Vaucanson, whose mechanical loom was the basis of the automatic Jacquard loom, also designed a silk factory near Lyon that is often considered to be the first modern industrial plant (Foster 1993: 131). Vaucanson upheld the Cartesian mechanist view of the human body – distinct from the immaterial mind or soul – believing its workings to be analogous to the controlled movement of clockwork.

His ‘flute player’ (1737), the famous automaton using clockwork mechanisms, epitomizes the material (body)–immaterial (mind) dualism in early modern Europe, which continued through the Industrial Revolution to the twentieth-century ideals of Taylorism.<sup>8</sup> As advanced technology allows more sophisticated ways of measuring and monitoring human resources, it could be argued that the now-ubiquitous ‘digital Taylorism’ brings the mechanical and the organic even closer. Coming true, then, is Donna Haraway’s (1991: 150) prophesy: ‘Modern production seems like a dream of cyborg colonization work, a dream that makes the nightmare of Taylorism seem idyllic.’

In the course of ongoing technological ‘revolutions’, works being carried out in fields such as biotechnology, artificial intelligence and neuroscience play a pivotal role in unsettling the Western transcendental and humanist subject. Artistic and scholarly interests today lie less in the rational, free and self-aware human mind presiding over material stuff, and instead lie in how the human is a part of an interconnected system which is also comprised of nonhumans. A long line of theories and ideas that rethink the relationship between humans and technology is a good case in point. Anthropologist Marcel Mauss’s ‘Techniques of the body’ ([1935] 2006), for example, touches on how the ways we use the body are conditioned by proto-machines such as shoes, hands or benches. Philosopher Georges Canguilhem (1992: 45, 55), in his 1947 lecture ‘Machine et organisme’, takes an anti-Cartesian non-dualist stance: putting forward the notion of ‘organology’, he suggests the use of certain biological principles to understand the construction of the machine. By contrast, cybernetic perspective, pioneered by mathematician Norbert Wiener (1948), regards living systems as machines working via the principle of closed feedback loop – with no material specificity. Inspired by cybernetics, neurophysiologist Manfred E. Clynes and psychologist Nathan S. Kline (1960) introduced the term ‘cyborg’, for unconsciously auto-regulating man-machine systems. The aim of such system was to adapt human bodily functions to their extra-terrestrial environment during long-term space voyages by incorporating exogenous devices (Clynes and Kline 1960: 27, 76).<sup>9</sup> The idea is resolutely Cartesian dualist, as it imagines the human mind capable of thinking and exploring, as if unaffected by the body integrated within the human-machine feedback loop (Hacking 1998: 209–210). An ontological separation between human and machine is also rigorously rejected in Bernard Stiegler’s (1998) idea of ‘technogenesis’ which suggests human’s co-evolution with their technological environment, and Andy Clark (2003) similarly argues that we have always been ‘natural-born cyborgs’ or ‘human-technology symbionts’.

Out of various works and ideas exploring the inseparable link between humans and technology, it is through Deleuze and Guattari's idea of the machine that I want to provide a rationale for this volume to collectively propose. In many of their collaborative or respective works, Deleuze and Guattari suggest the idea of the machine as 'the functional ensemble' including various components such as human, material, energy, plans, information, etc. (Guattari 1995: 34), as the technical object is determined by its extrinsic relations or an 'ecosystem' (Deleuze and Guattari 1987: 395). Whether an object is a weapon or a tool is thus 'nothing but consequences' (ibid.: 398). In this context, the term 'machine' refers to a 'synthesis of heterogeneities' (ibid.: 330): when heterogeneous elements enter into combination with each other 'through recurrence and communications' (Deleuze and Guattari 2009: 91–92), they constitute a machine or a 'machinic assemblage'. Such machine, still a 'multiplicity of distinct elements' (ibid.: 112), is *unpredictable, non-teleological* and capable of producing 'events'. On that account, the relationship between machines and organisms is also explained in terms of their in/ability to produce *differences*. The organism ('the organization of organs') is regular, static, binary and territorializing, whereas the machine is 'a body without organs'<sup>10</sup> composed of nomadic singularities and intensities, constantly drawing the line of flight (Deleuze and Guattari 1987: 40–41). For Deleuze and Guattari (ibid.: 150–151), the need to find your body without organs is 'a questions of life and death', because 'nothing happens anymore' in an organized and stratified world: you must find out how to 'walk on your head, sing with your sinuses, see through your skin, breathe with your belly ...'; find out how to become the machine.

They call attention to paleoanthropologist André Leroi-Gourhan's study in *L'Homme et la matière* (1943), in which he takes biological evolution in general as the model for technical evolution. Leroi-Gourhan's thesis is based on the fact that the technical object, as the living being, is developed within conditions established by the milieu (Stiegler 1998: 45–46). Accordingly, Félix Guattari (1995: 33) extends the biological idea of 'autopoiesis' (Maturana and Varela 1980) to technical, cognitive, affective and social domains to explain the machinic assemblage as the process of innovation or a movement of individuation. Autopoiesis refers to self-organizing aspects of living systems as they continually self-repair in relation to the changes happening in their external environment. Therefore, unlike a cybernetic structure with insular feedback loops, an autopoietic machine would be ontologically dependent on heterogeneous exterior elements (Guattari 1995: 37) and is capable of becoming a new assemblage possessing 'phylogenetic differences' (ibid.: 42). By adopting the biological terms 'phylum' or 'phylogenesis' in describing the changes of non-organic forms, Deleuze

and Guattari suggest ontological continuity between the organic and the mechanical as they co-mutate.

In the process of assembling, disassembling and reassembling, a ‘war machine’ (a new phylum or a new shoot of a rhizome) emerges: an industrial innovation, a technological invention, a scientific or artistic movement can all be a war machine, insofar as they draw, in relation to a phylum, a creative line of flight, fostering further new connections (Deleuze and Guattari 1987: 360, 422–423). A machinic assemblage, in this sense, is a veritable invention and genuine creation (ibid.: 406). We must, therefore, conceive the modification of cultural forms in terms of capabilities immanent in the matter-flow, and assemblages surfacing in changing configurations. This volume maps various ways of following the matter-flow, as each contribution enquires into the selective action of the assemblages upon the phylum (ibid.: 407). Matter has powerful surfacing capacities of its own, and the surface gives access to how such surfacing occurs.

### **Surface ontology**

Writing between 1920 and 1931, cultural critic Siegfried Kracauer (1995: 75) analyses the modern condition, brought on by technology and mechanized production, from ‘surface-level expressions’. With the thriving urban mass and extended nightlife, surfaces of popular culture (picture palaces, circuses, theatres) and commercial display (arcades, advertising, hotel lobbies) were filled with ‘surface splendor’ (ibid.: 323). Modernity’s obsession with the surface was played out through built and manufactured everyday material things. Factory spaces full of gleaming machinery were worshipped like a temple; the sleek surface of Bakelite signalled a new era of affordable consumer goods; Josephine Baker wore her naked skin like a shimmering sheath (Cheng 2011), an idealized surface of industrial capitalism. The link between the changing cultural environment and various surfaces in the everyday and artistic contexts was also discussed in many of Walter Benjamin’s essays. Benjamin ([1939] 2003: 251) begins the third and final version of his essay ‘The Work of Art in the Age of its Technological Reproducibility’ with Paul Valéry’s prescient comment, written in 1928: ‘the amazing growth of our techniques, [and] the ideas and habits they are creating, make it a certainty that profound changes are impending in the ancient craft of the Beautiful’. Valéry goes on to suggest that technological innovations will transform the entire techniques of the arts and even our very notion of what art is. Indeed, with new material and technological possibilities, we attain new ways of sensing – more distributed, shared with or enhanced by computation, in or outside of the body – and subsequently, of perceiving and knowing. For



example, Anne Friedberg (2006: 194) argues that, with the computer screen on which multiple ‘windows’ overlap, our new mode of perception is more multiple and fractured than it was in pre-PC eras. Since 2007, properties of various media such as film, TV and computer are brought together in smart touchscreens, consistently ‘interfacing’ with humans. Beyond glass screens, computational technology is being discreetly embedded in everyday surfaces, including the human body. These surfaces are ‘intelligent’, ‘smart’ and networked: they respond to, record and watch our heart rates, touch, voice, habits, eye movement and sleeping patterns. It is not surprising then, that popular culture and creative fields display a renewed preoccupation with the surface. If previous eras were preoccupied with stable surfaces as the limits, now surfaces are being reimagined as vapour, air, light, vibration, perfume or powder, acquiring ephemerality. They dissolve, fizz and effloresce. In many popular ASMR videos,<sup>11</sup> surface interactions dominate the scene with amplified sounds of grating, crushing, cutting through, scratching or stroking all kinds of surfaces, which may suggest the heightened responsiveness of visual-auditory-haptic sensorium. These surfaces do not signify; they instead enter into composition with the viewer-listener to become a sort of assemblage that combines affects and intensities. Many artists and designers challenge existing notions of surface, operating between computational and non-computational realms, thereby producing new types of art and products. Such post-digital modes of working are ubiquitous in contemporary art, design and architecture. David Berry (2015: 52) defines the post-digital as a relation produced by various surfaces embedded with computation, which is hegemonic, entangled with every aspect of human experience. This would mean that aesthetics and the everyday must always be reflected on in relation to the computational (ibid.).

Therefore, the renewed preoccupation with the surface or its dissolution – rather than being a reflection of ‘depthlessness’ within the cultural logic of late capitalism, as Frederic Jameson (1990: 99) regarded seemingly weightless architectural surfaces – is brought on by the changing technology outlined above, and by our heightened awareness of the fluid and distributed modes of being that this change affords. Surface is our becoming. Criticizing the negative use of the term ‘superficial’, Daniel Miller (2005: 53) points out that ‘depth ontology’ is pervasive in Western philosophy, ‘whereby we tend to assume that everything that is important for our sense of being lies in some deep interior’. Surface in such contexts is a boundary, delimiting relations with the ‘outside’. For that reason, anthropologist Susanne Küchler (2008: 116) suggests the need for a ‘surface ontology’, as smart, sensing and networked membrane-like surfaces now create at once a material and informational environment. Our concern, then, is not looking under the surface, but instead, looking *at*

surfaces in constant action and modification; or rather, looking between surfaces as a ‘spatial, inter-artifactual modality’ (ibid: 104). As these surfaces function in close proximity with the human body and its quotidian life, reacting to various affective responses, it is now essential that we bring our interaction with them into the notion of social relations. As the idea of the autopoietic machine makes clear, this state of ‘transhuman’ has always been the case, but becomes more explicit in computerized, sensorized and networked environments today. Surface ontology, or surface-becoming, is a multiple and relational mode of being, in which human and nonhuman, material and immaterial, surface and space are radically continuous. Surface needs to be rediscovered over and over, if we acknowledge Deleuze and Guattari’s (1987: 257) assertion:

We know nothing about a body until we know what it can do, in other words, what its affects are, how they can or cannot enter into composition with other affects, with the affects of another body, either to destroy that body or to be destroyed by it, either to exchange actions and passions with it or to join with it in composing a more powerful body.

We can now reimagine surface as a flexible and im/material dimension that expands and contracts along the flow of relating. Surface is thus a practical achievement, that is, something that must always be created, as it is not a site or container of relations; it is rather the very body of relations.

### **Outplaying<sup>12</sup> dualism: floating devices**

As briefly touched on at the outset, Deleuze and Guattari use the idea of machine to do away with the hylomorphic model and its ‘organic chauvinism’ (Delanda 1997). The hylomorphic model assumes the genesis of form as imposed from the *outside* (typically God or humans) of supposedly inert matter. Negating transcendental agency hidden in the background, Deleuze and Guattari emphasize that forms are immanent to matter itself.<sup>13</sup> It is haecceities, or degrees of intensity, that bring about individuals or events by assembling themselves and forming a machine in turn (Deleuze and Guattari 1986: 86). Biological, geological and social systems are all spontaneously self-generated from haecceities. The hylomorphic model is also based on binary oppositions – matter and form at each extreme of a teleological development – ignoring the existence of intermediary dimension. In Deleuze and Guattari’s ontology, nothing progresses or develops; instead, ‘things arrive late or in advance, and enter into some

assemblage according to their compositions of speed. [... things] grow from the middle, to be always-in-between' (Deleuze and Parnet 2007: 93). Like the Schumannian body in *Kreisleriana* (Barthes 1991: 304), machinic assemblage keeps diverging: the body *stretches*, extends to become a corpuscular space. (Deleuze and Guattari 1987: 273)

Critical of depth ontology and hylomorphism, each chapter of this volume interrogates dualism or binary assumptions via surfacing operations: layering, growing, grooving, fluting, weaving, mixing, folding, oscillating ... all reveal the intermediary dimensions that emerge as surfaces surface. This collective attitude is reflected in the word 'immaterial' in the title of this book. The term conveys a binary relationship between two things by implicitly containing an apparition-like stroke ('im/material'), because the most common use of this sign is to denote alternatives, as in either/or, on/off, s/he (Waddingham 2014: 90). What Deleuze and Guattari (1987: 20–21) try to achieve in *A Thousand Plateaus* is precisely to 'invoke one dualism only in order to challenge another', thereby to 'arrive at the magic formula we all seek – PLURALISM = MONISM – via all the dualisms that are [the] entirely necessary enemy, the furniture we are forever rearranging'. Similarly, in a series of lectures entitled *The Neutral*, Roland Barthes (2005) suggests that we annul the binarism of A/B via 'a back-and-forth, an amoral oscillation' (Barthes 1997: 132). Rather than defying boundaries by merging or being neither A nor B, Barthes chooses to float or waver while exploiting existing binaries. Such movements let us experience the intermediary area – the space of 'and ... and ... and ...' (Deleuze and Guattari 1987: 25) – which is composed of differences, haecceities and nuances, rather than abstract generalities or averages. In an attempt to avoid the inherently oppositional structure of meaning and discourse in Western culture, Barthes (2005: 51, 211), as a literary semiologist, deploys a grammatical genre 'the neutral' to register the nuanced space in-between, replete with slight differences. The 'immaterial', therefore, outplays dualistic paradigms by highlighting existing assumptions and choosing, instead, to multiply, float and waver. Via the operation of the neutral, it hopes to do what Jean-François Lyotard tried to achieve with the title of his exhibition *Les Immatériaux* (Centre Pompidou, 1985): to show how the human-centred conception of the material is altered by new materials (Hui and Broeckmann 2015: 10) and how relations are made explicit and *material* under digital conditions (Hui 2015: 131). 'Material' and 'immaterial' are not considered in opposition to each other, allowing a floating space for multiplicities.

The desire for the neutral, the desire to create a nuance that 'skips the paradigm' (Barthes 2005: 51) is also present in the term 'apparition'. As a figure of indistinction, apparitions 'defy binary oppositions such as presence and absence, body and spirit, past and present, life

and death' (Buse and Stott 1999: 10). In this book, this figure is variously deployed to explore mediatized fashion, invisible vitality of nuclear power, algorithmic creativity, the virtual augmented by the artist-machine combination, and so on. Surface-making here, as the operation of the neutral and apparition, dodges dualism by exploiting existing binaries: art and science, material and immaterial, virtual and actual, living and non-living, human and nonhuman. What emerges out of the surfacing operations performed by each of the contributions is that the practice of surfacing allows us to be more aware of relational modes of being, and how the process of relating is also a movement of differentiating. This would mean, conversely, that any study concerning changes and the line of change must engage with surface and its becoming.

### **Surface method**

In this book, the surface functions as an interdisciplinary 'method' for attending to critical issues concerning creative and technological innovations. As a machinic assemblage, the book itself is a multiplicity of distinct elements, and manifolds<sup>14</sup> of extrinsic relations (interdisciplinary alliances) rather than of intrinsic relations (disciplinary filiations). The chapters grow in many directions, rhizomatically along the surface, with no chronological order or disciplinary boundaries, so that theories and practices that are not often discussed in a single volume come into contact with each other and become contagious. Akin to the topology of ice deserts or sand deserts that relies on haecceities – on sets of relations between 'winds, undulations of snow or sand, the song of the sand or the creaking of ice' (Deleuze and Guattari 1987: 382) – its unity is that of 'contagions, epidemics, the wind' (Deleuze and Parnet 2007: 69) circulating through surface-contacts. Multiple threads run across the chapters in non-linear ways. New assemblages may thus surface, potentially opening up spaces for 'methodologies without boundaries' (Denzin and Lincoln 2018: 8). The process of relating is the practice of surfacing. As surfaces emerge whenever and wherever relations occur, it is not possible to explore the theme in a comprehensive way. Therefore, this volume focuses on making surfaces and surfacing changes: each chapter is a critically engaged discussion written either by a practitioner on their own practice; by a practitioner on others' practice in their respective discipline; or by a scholar sensitive to current practice.

The main body of the book begins with Jussi Parikka's sharp political investigation into the planetary surface of the Anthropocene, exposing the smooth surface of global capitalism as an illusion generated by mediatized culture. Through the architecture studio Unknown Fields

Division's video work *Unravelling*, which maps postcolonial aspects of the 'planetary conveyor belt' (globalized fashion production that relies on subcontracting and outsourcing), this chapter positions the book within the interdisciplinary fields that Giuliana Bruno brought together in *Surface*, while expanding the spatio-temporal scale into continent-crossing infrastructures and the Anthropocene. Surfaces here operate as points of tension between the visible and the invisible, and between micro- and macro-scales of movement, connecting the cloth upon our skin, the planetary surface, polluted rivers in foreign lands and the fingertips of exhausted workers at industrial sewing machines. Fashion is ephemeral yet material, and this is precisely the problem. The surface of fashion here exposes the environmental chains linking the living and the non-living, highlighting the urgency of conceiving the world as a web of interrelated processes, of seeing how the everyday choices we make as individuals have consequences for the world.

The planetary surface is also the main focus of Petra Tjitske Kalshoven's chapter, 'Surface-making in Nuclear Decommissioning'. Kalshoven narrates her anthropological fieldwork on the practice and discourse of nuclear waste storage in the UK, linking geologic time with the present. The continuity between living and non-living, which Deleuze and Guattari (1987: 411) explain via the example of 'panmetalism', is supported by complex technologies involved in creating artificial boundaries between human and radionuclides. Whether radioactive waste is stored on the surface of the earth or deep underground, the unknowns and uncertainties of nuclear waste are a constant reminder of 'thing-power' (Bennett 2010), forgotten in the context of waste disposal in general, which often involves movement across the planet, to be made into someone else's problem.

The living and non-living divide is complexified by the fascinating hybrid creatures borne out of, and evolving in, the digital realm: in Chapter 3, 'Surface Eruption: Machine creativity and emotive data objects', designer Barbara Rauch discusses the surfaces of algorithm-generated 'art'. As Rauch traces the process of 'data surfacing' – from AI-generated objects on computer screens to 2D- or 3D-printed physical objects – involving no physical human touch, she questions the origin of the distinct aesthetic surface qualities. Artefacts created by machines are now often indistinguishable from those created by humans.<sup>15</sup> As intelligent surfaces gather, analyse and learn our unconscious behaviours and habits, machine creations tend to reveal the human characteristics and cultures that produced them.<sup>16</sup> Can algorithms possess emotions, and ultimately, artistic creativity? God the creator, human the creator, and machine the creator merge in Rauch's creatures, which cut across multiple boundaries.

In compelling contrast, artist Lesley Halliwell's entirely handmade drawings in 'The Depth of Surface' look as if they are computer-generated. The drawings are created by painstakingly grooving patterns on paper and silver foil with a plastic Spirograph toy and biro. As Halliwell's methodical movement simultaneously coalesces (the rhythm of pattern and patterning) and erodes (material wear and oxidization, hesitations, imperfections) the surface, the artist's empathic relation to her medium creates contingencies (*L. con-*, 'together' + *tangére*, 'to touch') (Doane 2012: 349), eventually opening an 'entry point' through which image turns into a kind of n-dimensional surface.<sup>17</sup> Silver is a material of visual illusion: early motion pictures, modern 3D films, our reflections in the mirror or in photography all rely on the material for their apparition. While human labour is usually invested in bringing out the reflective shine of silver, Halliwell's labour is invested to interrupt the shine in her conscious effort to float between seeing and touching, the virtual and the actual.

In Chapter 5, 'Where Surface Meets Depth', designer Elaine Igoe also approaches intersensorial transmutations through the devices of material swatch and computer screen. As a small tear on the surface of silver foil in Halliwell's *Portal* (2000; 2017) opens an n-dimensional surface, Igoe's swatch operates as a neutral passageway through which designers can oscillate between material and immaterial, presence and absence, optic and haptic. Through case studies of four emerging design studios that practise within the post-digital, Igoe bears out that virtual textiles and materials can deliver affect. As we also see in Mosscrop's fine art practice in Chapter 8, it is our relationship with the surface – our immersion in matter-flow and social machines – that generates intensities, converting the digitality of the textile to something analogue and affective.

In 'Growing Surface between Textiles and Electrochemistry', textile designer Joanne Horton is also a 'metal horticulturist'. Her copper-crystal embroideries are not sewn, but instead grown in a chemical solution, adopting the Victorian technology of electrometallurgy. This process of interfacing the living and the non-living, cloth and metal, growing and making, art and science brings about a resourceful attitude towards making, drawing a line of flight. Horton's repurposed and retrofitted tools lead us to the following three makers' creative use of tools, explicitly surfacing maker-tool-material-environment machines.

In Chapter 7, sculptor Benedict Carpenter van Barthold explores the fluted surface of a rosewood dish as an index of David Pye's uniquely mechanized system of production. In this system, the material (wood), the maker (Pye), the implement (*Fluting Engine*, a hand-operated milling machine Pye invented) and their movement come together as a single machine. As Carpenter van Barthold traces the iterations of Fluting Engine over a period of

four decades, he is also able to investigate how the machinic ensemble changed. This combination of synchronic and diachronic analysis allows us to reflect on the nature of practice mediated by tools, the link between actual and virtual touch, and how the surface materializes the technology that made it. As his study shows, when the maker constructs or improvises their own implements, the elective character of assemblage becomes pronounced.

This aspect of the machinic phylum is also evidenced by artist Max Mosscrop's work, *Journal (2016–2018)*, discussed in Chapter 8. Mosscrop is a painter who weaves: his attempt to escape the binary opposition between figure and support in fine art painting led him to move from the painting frame, firstly to a wicker board as deconstructed frame, and then to weaving, which in turn led him to build his own wooden loom. The documented journey, or journal, reveals how the looms, the cloth and the weaver are in a relationship of co-production. Once set in motion, self-built, hand-operated machines like the Fluting Engine and Mosscrop's loom, seem to become almost indistinguishable from the maker's body, perhaps like a ballet dancer's customized pointe shoes. The resulting wood dish or cloth, then, is a thoroughly in/organic surface.

Architect and anthropologist Ray Lucas's drawings in Chapter 9 are also the surface of the in/organic assemblage: in this case, the lifeworld at Namdaemun Market, Seoul. Lucas's in- or post-situ inscriptive practices reproduce profuse surfaces of the market beyond their visual manifestations, conveying the unique relational system in which people and environments make each other. The drawings show how the politics of space in the market – with its people and ephemeral architecture of modular and mobile carts – is articulated through adaptive creation and use of surfaces. Lucas's method of grasping the vast and unknowable market through walking and inscribing is particularly salient in comparison with, and also in contrast to, disembodied internet searches: we can only 'surf', as any attempt at comprehensiveness would inevitably fail. This chapter also allows us to consider how and what we can know by artistically reproducing surfaces. The drawings of Leonardo da Vinci reveal his desire to understand the workings of nature and technology, and Lucas gains unique access to the lifeworld of the market through his drawings. The same question prompts Birkin's material translations through scanning and printing in Chapter 10.

In 'Archive Surface', Jane Birkin tackles 'depth ontology' head-on, by juxtaposing the archive document as linguistic information (depth) and material information (sensorial and affective surface). An exceptionally decomposed, tightly bound bundle of letters from the Wellington archive is ironically rendered an icon of literacy, precisely because the written information is inaccessible due to decay. Birkin intensifies this tension between textual and

textural, between depth and surface, by 3D scanning and printing the bundle, thereby creating superficial surfaces in the computer screen and in the hollow 3D print. This surfacing adds another layer of tension: between original and copy. As Walter Benjamin ([1939] 2003) suggests, the process of copying reveals the mechanisms of the aura and how its authenticity is performed. Birkin successfully defamiliarizes the implicit dualism regarding language (depth, mind, cerebral) and material (superficial, body, peripheral) through the use of digital technology.

Historian Freyja Hartzell also performs an operation of the neutral in Chapter 11, ‘Experience, Poverty, Transparency: The modern surface of interwar glass’, by oscillating between the concept of the glass surface as an object for ‘looking *at*’ and for ‘looking *through*’. As Hartzell traces glass objects and architecture produced in early twentieth-century Germany, the material moves from a surface appreciated for its material properties to a self-effacing transparent vessel for shifting human values and intentions. Taking advantage of the historian’s point of view, Hartzell effectively demonstrates how attending to surface is attending to the renewed relationship between humans and nonhuman materials.

Richard Sennett (1992: 108) suggests that the use of transparent thermal plate glass in modern buildings, combined with air-conditioning, isolated other senses from the optic, contributing to the dematerialization of everyday experience. In the final chapter ‘On Genealogy of Translucent Screen and Rehabilitation of the Ephemeral’, film theorist Oksana Chefranova explores how this type of dematerialization is countered by means of translucent screens in contemporary surroundings. With examples ranging from the nineteenth-century Diorama and spirit photography to contemporary post-cinema, installation art and performance, Chefranova suggests that the phenomenon of omnipresent translucent surfaces supports a post-digital aspiration to ‘overcome the superficiality of the digital image’. The quality of translucency, a thoroughly nuanced surface spatiality, is another operation of the neutral. This surface, almost-there, floats and wavers between visible and invisible, figure and background, stage and screen, collapsing these binaries as a result. Chefranova approaches such apparition-like quality with a near meteorological awareness, as the ‘screenness’ here virtually touches our skin, like breeze or mist. These types of intersensorial transpositions open more questions about various interfaces and intermezzi.

The surface is a multiplicity, manifolds, constantly surfacing. As our surfacing operations render surface even more complex than before, here would be a good place to address the element of uncertainty contemporary technological surfaces tend to generate, as computation



becomes increasingly opaque and unknowable. To do this, I return to the figure of apparition. If the phantasmagoria of the eighteenth and nineteenth centuries effectively evoked Gothic apparitions that may appear anywhere at any time, our WiFi-enabled technological prostheses evoke contemporary apparitions, the ‘uncanny of virtual locality’ (Punter 2007: 133). With well-regulated surfaces (selfies and other curated personal information) featured on various social media platforms and wirelessly distributed around the globe, the contemporary ghost is truly omnipresent. Technology–human interface increasingly occurs on the level of emotions, beliefs and biases, but we do not have control over our personal data being put together as ‘data doubles’ to be manipulated by surveillance regimes (Haggerty and Ericson 2000). Furthermore, the techno–human interface is also creating ‘ghost workers’: the invisible labour force behind digital transactions often claimed to be powered by AI. Rather than replacing humans in low-paid menial tasks with machines, digital Taylorism conceals them from view. Amazon Mechanical Turk (MTurk), for instance, is a crowdsourcing site for employers to post tasks that computers are currently unable to do, such as moderating social media content (O'Brien 2019). E. P. Thompson’s clock and its technical conditioning has come a long way. The figure of apparition, then, brings home to us that we are still far from grasping the ideal combination between human and machine.

These uncertainties hint that new technologies and globalization do not necessarily enhance our understanding of the world as a whole. This world cannot be comprehended by ‘getting to the bottom of things’, ‘digging deeper’ or ‘peeling off the surface of things’. Surface ontology is helpful in overcoming the ideal of comprehensive knowledge and instead facing partial, contingent and topological views. This is because we can only follow particular combinations of human and nonhuman matter-flow as they surface in continuous variations. Through the process of surfacing, we ‘get a sense of the irreducible social complexity characterizing the contemporary world’ (DeLanda 2012: 42). If our future well-being depends on the extent to which we can nurture the generative processes of relating, we must pay attention to how surfaces are made, used, reused, repurposed and disposed. As Giuliana Bruno (2014: 8) suggests, rethinking materiality involves a refashioning of our contact with the environment to foster new forms of relatedness, and it is the surface – ‘an architecture of relations’ – that affords spaces for us to perform such transformations.

## Notes

1. The term ‘haecceity’ is used in the medieval philosophy of Duns Scotus in order to designate the individuation of beings. Deleuze and Guattari adopt it in a unique sense to

- convey the process of individuation as an ‘event’, that is, *differentiation*. (Deleuze and Parnet 2007: 169–170)
2. In the phrase *ligne de fuite* (line of flight), the French term *fuite*, translated as ‘flight’, conveys the sense of escaping rather than flying. For Deleuze, art functions as a line of flight by deterritorializing existing ways of being and thinking, thus generating new percepts and affects as a result. (Parr 2005)
  3. Roland Barthes (1991: 299) perceives the Schumannian body in *Kreisleriana* (Opus 16) as composed entirely of multiple intermezzi, with no organizing structure. Inspired by this sensibility, Deleuze and Guattari (1987: 277) write: ‘The only way to get outside the dualisms is to be-between, to pass between, the intermezzo’.
  4. The plane of consistency has nothing to do with an interiority, memories, phantasms, the evolution or development of forms. (Deleuze and Parnet 2007: 96–97) Instead, it is ‘a plane of proliferation, peopling, contagion’, in which ‘form is constantly being dissolved, freeing times and speeds’ (Deleuze and Guattari 1987: 267). For more on the plane of consistency in relation to the plane of transcendence, see the segment ‘Memories of a Plan(e) Maker’ in Deleuze and Guattari (1987: 265–271).
  5. For example, Nic Maffei and Tom Fisher (2015) ‘Unstable Surfaces: Slippery Meanings of Shiny Things’ [conference paper], *Skin of Objects* (Norwich Castle Museum, 27 June).
  6. See, for example, *Global Skins in Early Modern Europe, 1400–1700* (conference held at King's College London, 19–20 September 2019).  
<https://renaissanceskin.ac.uk/events/conference-global-skins/>.
  7. For the notion of ‘autopoietic’ machines, see page ... of this text.
  8. Taylorism is the theory and practice of scientific management developed in the late 19th century by American engineer Frederick W. Taylor (1856–1915) to increase work efficiency and productivity. It aims to evaluate every step in a manufacturing process by breaking down production into specialized routines; by eliminating non-essential motions; by timing the workers; and linking pay to performance.
  9. Clynes and Kline (1960: 74) offer the example of a 220-gram rat – ‘one of the first Cyborgs’ – which has under its skin an osmotic pressure pump capsule continuously injecting biochemically active substances.
  10. The body without organs is ‘opposed not to the organs but to that organization of the organs called the organism’. (Deleuze and Guattari 1987: 158)
  11. The acronym for so-called ‘Autonomous Sensory Meridian Response’, referring to a sensation of euphoria triggered by certain types of audio prompts. (Young 2019)

12. Barthes (2005: 6) explains that the neutral is ‘that which outplays the paradigm’, or ‘everything that baffles the paradigm’. ‘Outplay’ is Rosalind Krauss and Denis Hollier's translation of the French word *déjouer*.
13. Manuel DeLanda (1998) explains how intensity differences, or haecceities, are morphogenetic: ‘If one creates a container separated into two compartments, and one fills one compartment with cold air and the other with hot air, one thereby creates a system embodying a difference in intensity, the intensity in this case being temperature. If one then opens a small hole in the wall dividing the compartments, the intensity difference causes the onset of a spontaneous flow of air from one side to the other.’
14. The French term Deleuze uses in *Difference and Repetition* (1994) is the mathematical term *multiplicité* which translates as ‘manifolds’ in English. (Patton 1994: xii)
15. In 2018, an AI-produced portrait entitled *Edmond de Belamy* was sold for US\$432,500 at a Christie’s auction in New York. It was created from a data set of 15,000 portraits painted between the fourteenth and the twentieth centuries, printed on canvas. (Lawrie 2019)
16. In March 2016, Microsoft’s Twitter chatbot, Tay, turned into a racist and sexist troll within 24 hours of its release. The system, in the process of learning the properties of language, also learned their historical cultural associations and acquired human-like biases in turn. (Johnston 2017)
17. ‘A term in physics and mathematics, “n-dimensions” refers to an unspecified number of dimensions beyond our familiar three spatial dimensions and one temporal dimension. There are theoretical models that posit dimensions into the double digits.’ (Sobchack 2016: 299)