

Interfacing the screenic and painted surface: an artistic research project asking what can painting and drawing practice reveal of the contemporary practices and perceptions of touchscreen technology

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Declaration

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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Abstract

Touchscreens form an increasingly prevalent part of daily life. They are often the primary mode of interaction with smartphones, tablets and devices in the public realm, yet the experiential aspect of navigating these devices has received relatively little attention. This study forms an enquiry into the contemporary practices and perceptions of touchscreen technology from the disciplinary context of painting and drawing. A period of studio practice was undertaken in which touchscreens were placed under consideration as a recurring subject matter, with artistic research constituting the main method of enquiry. Touchscreen gestures were a particular focus in the studio practice, drawing on the work of theorist Vilém Flusser on gestures. Original outcomes in the form of artworks include 1) *Touch* (2021), consisting of oil on gesso paintings based on a day of observed smartphone use, for which fingerprint marks left on a smartphone screen were emulated using oil paint, and, 2) *Trace* (2019), a series of metalpoint drawings depicting cracked screens made using gold, silver, aluminium, nickel and copper, these metals being both historical drawing materials and those used as smartphone components. The studio process offered a position from which to revisit established ideas in painting and drawing and apply them to the contemporary context of touchscreens.

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Introduction

Touchscreens form an increasingly prevalent part of daily life. They are often the primary mode of interaction with smartphones, tablets, and devices in the public realm, yet the experiential aspect of navigating these devices has received relatively little attention. Art is often valued for its ability to question and reflect aspects of cultural experience, including technological mediation. Focussing on an aspect of a shared contemporary cultural experience, this study forms an enquiry into the practices and perceptions of touchscreens from the disciplinary context of painting and drawing. The practice-based research included a period of studio activity in which electronic display screens, specifically mobile phone touchscreens, were placed under consideration as a recurring subject matter leading to the creation of artworks. This MPhil thesis includes both the reflective and practical elements of the research.

In adopting a materialist perspective of the digital, this thesis draws on three interconnected areas of current interest in art and cultural theory: a genealogy of the screen in terms of pictorial representation, mediation and spectatorship; screen as a surface; and screen as a material site of sensory engagement. This study critically investigates existing concepts and debates in dialogue with fine art practice. Work in the visual arts that has taken as its object the material properties and representational tropes of the technologically produced image – for example, work associated with the photorealist genre – is revisited in relation to the touchscreen.

Arguing that artistic research methods are well-placed to form an enquiry into contemporary practices and perceptions of touchscreen technology, this study is based on the premise that particular kinds of understandings of the mediated image may be derived from painting and drawing. The research activity was developed as a continuation of my painting and drawing studio practice, adapting

and developing existing approaches to imagistic subject matter. The study is based on the hypothesis that a similar approach extended to the contemporary touchscreen may usefully yield new knowledge; notably, in the area of touch as related to the screenic and painterly surface.

The artistic research process is here conceived of as the action of bringing together, of interfacing, two components: that of the touchscreen and that of contemporary painting and drawing practice, specifically as each relates to surfaces. The studio practice activity involved devising ways of incorporating touchscreen gestures into a painting and drawing practice, for example visualising traces made on the surface of touchscreens using aluminium fingerprint powder. The research outcome includes two completed artworks. The first, *Touch* (2021), consists of forty-four painted objects depicting fingerprints made on a touchscreen surface (Appx. 2). Together these represent a day of observed smartphone use, beginning with selecting 'snooze' in response to the morning alarm clock. The second, *Trace* (2019), is a series of line drawings describing patterns of cracked glass found on smartphone screens (Appx. 4). For these, gold, silver, aluminium, nickel and copper were used to produce metalpoint on gesso drawings; these metals being both historical drawing materials and those used for smartphone components.

While most of this research project took place before the recent pandemic, the period from 2020 onwards bore witness to a significant shift in social practices and the use of digital forms of communication. For example, the proportion of online adults in the UK making video calls doubled from 35% to 71% between February and May 2020 (Ofcom, 2020, p. 11). Touch and the technological surface is an area of limited yet expanding interest across academic disciplines (Parisi, Paterson and Archer, 2017). Located within this area of expanding interest, this research is well-positioned to contribute to an aspect of digital culture that is noticeably underrepresented in current academic forums, as demonstrated in part through my journal contribution *Fingertips and Touchscreens* (Downing, 2020) (Appx. 5). This research, concerned with aspects of haptic engagement with hand-held screens, is both culturally relevant and timely.

Chapter 1, **Contextual review**, presents information drawn from a range of sources from the fields of theory and art practice, serving to locate the topics of this study within an area of discourse. Structured thematically, the chapter opens by outlining theorisations of screens in terms of pictorial representation and viewership. The next section is focussed on screens in terms of sensory engagement; in particular, as surfaces that are touched. The final section presents screens as considered materially, both in terms of their material make up and as placed in dialogue with artistic materials and processes. The sources involved help define the topic of this study, leaving methodological matters to the following chapter.

Chapter 2, **Methodology**, situates this study in the context of current research and offers an overview of how the study was designed and carried out. The first section addresses the broader methodological approach taken for this study, with reference made to the field of artistic research. Conceptualisations of the role of art practice in a research context and in the production of knowledge pertinent to this field – for instance, Christopher Frayling’s proposed categorisations of research in art and design (Frayling, 1991) – are employed to situate this study in terms of its epistemology. A description is offered of the practicalities and specificities of realising this study, in which painting and drawing studio practice are used as the main method of enquiry. This leads on to the topic of methods of documentation and analysis, closing with an evaluation.

A discussion of the research undertaken is presented in Chapter 3, **Gesture, touch and trace**, which details the studio practice in three sections, each taking a different thematic focus. This chapter was written with the aim of advancing a dialogue between the main topics of the study, those of touchscreens and of painting and drawing, grounded in a period of studio-based practical work. These are intended to be read in conjunction with the Appendices, which are referred to throughout. Here studio processes are discussed with reference to the theoretical and technical literature. The first section centres on the integration of touchscreen gestures into a painting and drawing research practice. The second section focusses on the making of an artwork; forty-four oil on gesso paintings representing a day of observed touchscreen gestures. For the final section, the creation of metalpoint drawings is discussed with reference to trace-making in terms of

movement and material in drawing. Theoretical works drawn upon for this chapter include Vilém Flusser's *Gestures* (1991) and Paul Crowther's *What Drawing and Painting Really Mean: The Phenomenology of Image and Gesture* (2017).

Following the third chapter is the **Conclusion**. A full **Bibliography** is included, followed by **Appendices**. The appendices comprise documentation taken from studio practice, documentation of artworks, and a copy of a published contribution.

Ch. 1 - Contextual Review

Aligned with the broader 'material turn' in cultural studies at the beginning of the 21st Century, a materialist perspective of the digital is concerned with new media and digital cultures as embedded in everyday life (van den Boomen et al., 2009, pp. 8-10). Initially positioned as a counterpoint to the dominant discourse in digital scholarship around immateriality, disembodiment and the virtual, the materialist perspective continues to inform a key area of development in recent digital humanities research (Mandal, 2017, p. 374). This inquiry is positioned amongst such developments, sharing an interest in commonly used digital electronic devices in terms of their material presence as sites of interaction and sensory experience. With respect to the specific topic of the screen, existing works in media and cultural theory that take a materialist perspective include *The Virtual Window: From Alberti to Microsoft* (2006) by Anne Friedberg; *Surface: Matters of Aesthetics, Materiality, and Media* (2014) by Giuliana Bruno; and *Touch: Sensuous Theory and Multisensory Media* (2002) by Laura Marks. Visual display screens form a common component of many digital electronic devices and can reasonably be regarded as a pervasive part of daily experience (Rose, 2014, pp. 17-19; Verhoeff, 2012; Friedberg, 2006). An electronic visual display here refers to a display device for the presentation of transient images, e.g. television sets, computer monitors, and digital signage. They are also abundant in mobile computing applications like tablet computers and smartphones, encompassing technologies such as the PDP (plasma display panel), LED (light-emitting diode), OLED (organic light-emitting diode) and LCD (liquid-crystal display). This study is chiefly concerned with touch-screens; an electronic visual display screen assembled with a touch panel for input via touch gesture.

The research is located within the theoretical terrain defined by overlapping areas of discourse related to the screen: in terms of pictorial representation, mediation, spectatorship, as a surface, and as a material site of sensory engagement. This

contextual review chapter is structured thematically, opening with the theorisations of screens in terms of pictorial representation and viewership. The following section focusses on screens in terms of sensory engagement, specifically as surfaces that are touched with hands. For the final section of this chapter, the screen is considered materially, both in terms of its component parts and as placed in dialogue with artistic materials and processes.

Screens and pictorial space

Anne Friedberg (2006) traces a genealogy of the screen in terms of pictorial representation. Here, for instance, Alberti's *velo* grid is considered a direct antecedent to the bit-mapped computer screen (Friedberg, 2006, p. 39). Responding to questions posed by theorists of vision and representation, such as Crary (1990), Damich (1994), and Panofsky (1927), Friedberg demonstrates the relevance of painterly representation, cinema, and photography to the understanding of screens in the digital technological instance. Relating technical and formal developments of mediated space – the window, the frame, the screen – to broader ontological concerns – via Descartes' window, Heidegger's frame, Bergson's virtual and Virilio's screen – her argument centres on the spectator: how does this mode of representation position the viewer and what type of subjectivity does this position engender?

Artistic strategies that methodologically engage the recursive aesthetics of spatial construction in relation to the digital image include works by Dan Holdsworth (b. 1974). For example, the series *Spatial Objects* (2015-16) consists of brightly coloured structures featuring visualisations of "a geographical 3D virtual landscape composed of data depicting the architectural geometry of individual 3D pixels"; the pixels in question originating from US Geological Survey mapping data (Holdsworth in Robinson, 2016, p. 12). As Alistair Robinson explains, a central concern of Holdsworth's work is to be found in the relationship between images and knowledge; how the world has become "known and indeed knowable not only through images [...] but through 'computer architectures' that predetermine both the 'forms of knowledge' open to us, and the 'forms' in which knowledge is communicated" (Robinson, 2016, p. 15).

Aside from Holdsworth, who identifies the interface of the screen as being requisite to the consideration of the digital realm (Holdsworth in Holdsworth and Kennedy, 2018, pp. 220 – 221), the screen has formed an object of interest to several artists in recent years, giving rise to divergent artistic responses. Alex Meurice points to *Marks II* (2014) by Alex Ball and *Exile (Screw #3)* (2014) by Gordon Cheung as examples of artworks that combine traditional media with a 'screen sensibility' (Meurice, 2015). A feature shared by these works on canvas is the juxtaposition of illusionistic volume and physical flatness. A recent exhibition, *Liquid Crystal Display* (2018), drew its focus from the LCD screen, significant for its ubiquity – as the curator Laura Sillars puts it “[w]e live in a crystal world” (Sillars, 2018, p.5). Works exhibited included *Anathema* (2011) by The Otolith Group, an HD video that “re-imagines the microscopic behaviour of liquid crystals that inhabits the eyes and fingertips of a population enthralled by LCD touchscreens” (The Otolith Group, 2018, p. 36), and *Oldest and Newest Tools of Human Beings* (2015) by Shiambuku, consisting of a vitrine displaying smartphones and tablets placed alongside, and in dialogue with, stone tools. Journal contributions from the field of artistic research on the topic of screens include *Stained Black Mirror* by Vappu Jalonen (2014); a 'fragmented essay' exposition on an online platform bookended by rectangular black fields that fill the reader's computer window, replicating the effect of the reflective, smudged screen surface placed under consideration.

Works in the disciplines of painting and drawing that have taken as their object the material properties and representational tropes of the mediated image may be usefully revisited in relation to the screen in the digital context. Artists associated with the photorealist genre, such as Vija Celmins (b. 1938), Gerhard Richter (b. 1932) and Chuck Close (b. 1940), have used divergent approaches and material processes to investigate the mediated image and observation in pictorial forms such as newspaper print, photographic prints and television (Rugoff, Hancock and McCracken, 2007).

By creating paintings that possess a close resemblance to a photographic subject, including aspects such as the effects of flash, focus, colour, and motion blur, the work of artists connected to the photorealist genre calls to mind the question of

what it means to present the appearance of one image in the medium of another. While painting in a photorealist manner, a particular way of looking is evoked: instead of *seeing* an image of a grape or a butterfly, for example, the image may be experienced as areas of sharp and soft transitions of colour. Describing the thought processes involved in painting from a photograph, Richter concludes: “[t]he photograph has an abstraction of its own, which is not easy to see through.” (Richter, 1995, p. 30). Richter makes a notable contribution to the subject of pictorial representation, his written and artistic works complicating received oppositional understandings of figuration and abstraction (Silverman, 2007, pp. 18-20; Godfrey, 2011, Honold, 2019). Katja Silverman relates a technique used by Richter for some of his well-known ‘photo paintings’ as a two-step process of laying down paint resembling a photographic reference image, and subsequently dragging the still wet paint across using various implements (Silverman, 2007, p. 18). The gestural horizontal augmentation of paint creates a distinctive blurred effect which reads as ink-smudged newsprint, or the motion blur of a camera. The experience offered to the viewer is often the appearance of a convincingly photographic image at a distance, and a distinctively painterly surface up close.

The interest of this research lies explicitly in the tangible material dimension of the screen, specifically its outermost glass surface. Attention is given to the surface of the screen over the myriad images appearing in the virtual plane ‘beyond’. While a comparison may be drawn to the relationship of a glass frame to a painting displayed beneath, or the outermost surface of a printed photograph, it is suggested here that the glass component of the touchscreen in relationship to a digital image holds a particular character, itself in the process of transformation in the contemporary instance.

The established metaphor of the window used in relation to planes that are both looked ‘at’ and looked ‘through’, is often appropriated in discussions of the screen surface (Verhoeff, 2009, pp. 214-215). An alternative is offered by Giuliana Bruno, suggesting an understanding of the screen that is conceptually closer to a membrane or partition and arguing for a reconfiguration of surfaces under a haptic, rather than optical, modality (Bruno, 2014). She discusses painting,

installation, film, architecture, and fashion in correlation with the increasingly screen-mediated experience of digital technology. In juxtaposing canvas, wall, and screen, and in drawing connections between works such as *The Veiling* by Bill Viola (1995), *Six Grey Mirrors* by Gerhard Richter (2003), and *If You See Something...* by Krzysztof Wodiczko (2005), she evokes what she terms 'surface tension' – a quality of awareness brought to the surface, or the 'skin' of the image (Bruno, 2014, p. 2). Reflecting the complex relationship between technological development and ontology, Bruno's analysis of the screen-surface suggests a necessarily oblique approach, where knowledge of the screen is incomplete and partial, revealed through appositions of artistic, filmic and poetic investigations of surface.

Touch and screens

Touch in relation to technology and media is an area of limited yet expanding interest across academic disciplines (Parisi, Paterson and Archer, 2017). Similarly, Tim Ingold identifies the lack of formalised knowledge of touch and gesture as oriented to the 'surfaces of the mundane', including surfaces of electronic devices and touchscreens (Ingold, 2017, pp. 100-103). Located within this area of expanding interest in touch and the technological surface, this research is well-positioned to contribute to an aspect of digital culture that is noticeably underrepresented in current academic forums. Parisi, Paterson and Archer (2017) speculate that the recent expansion of interest in touch is a delayed reaction to a transformation of touch that is only now coming into view; a change they directly attribute to the proliferation of hand-held technologies – touchscreen phones, tablets and video-game controllers – in daily life (2017, pp. 1514-1515). Thus, research concerned with aspects of haptic engagement with hand-held screens is both culturally relevant and timely.

Established full length examinations of touch and technology include Mark Paterson's *The Senses of Touch: Haptics, Affects and Technologies* (2007), Laura Marks' *Touch: Sensuous Theory and Multisensory Media* (2002) and David Parisi's *Archaeologies of Touch: Interfacing with Haptics from Electricity to Computing* (2018). Theorizations that engage haptic experience of hand-held screens include Cooley (2004), Verhoeff (2009, 2012), Fors (2015) and Plotnick (2017). In the arts,

investigations involving touch in relation to digital media is evident in the research of Kozel (2011) and Jalonen (2004). An unresolved and recurring point of elaboration in many of these studies is the relation of the haptic to the ocular. Various configurations of vision are presented; including 'haptic visibility', an understanding of vision as embodied and material (Marks, 2002), 'tactile vision', a mode of 'seeing in which the hand [...] always participates' as advanced by Cooley (2004, p. 145), and elsewhere engagement with Merleau-Ponty's phenomenology (e.g. Kozel, 2011; Paterson, 2007). Examples of artistic research investigating the complexity of visual and tactile experience in relation to electronic devices is evident in the collaborative work of Jen Southern (e.g. *Unruly Pitch*, 2015) and Chris Wood (*Walking with Satellites*, 2016), both concerned with practices of navigation and mobility in conjunction with hand-held electronic mapping and tracking visualizations in the environment.

For this study, an interest in the perception of touchscreens was influential in conceiving of the topic of enquiry, however a sensorially driven understanding was not pursued directly. Rather, touch, in the sense of physical contact between the hand and screen became a focus, leading to analyses of gesture, material and trace-making, discussed further in the discursive chapter, *Gesture, Touch and Trace*.

Reference is made in this thesis to theorisations of gesture, mainly *Gestures* by Vilém Flusser (1991) and *What Drawing and Painting Really Mean: The Phenomenology of Image and Gesture* by Paul Crowther (2017). Flusser's most noted contribution is to the area of media theory and communications; monographs include *Into the Universe of Technical Images* (Flusser, 1985), *Does Writing Have a Future?* (Flusser, 1987), and *Towards a Philosophy of Photography* (Flusser, 1983). For this thesis, reference is made to *Gestures* (1991), a volume recently translated into English in which Flusser proposes a phenomenologically-informed 'general theory of gestures'. Paul Crowther is known for his work in the areas of art, aesthetics, and phenomenology. His works include *Phenomenology of the Visual Arts (even the frame)* (Crowther, 2009) and *Phenomenologies of Art and Vision: A Post-Analytic Turn* (Crowther, 2013). This study draws on the recently published *What Drawing and Painting Really Mean: The Phenomenology of Image and*

Gesture (Crowther, 2017), which is focussed on meanings embedded in pictures that are 'autographic' or made by hand.

Hand gestures became of particular interest in this study. For instance, part of the art practice activity involved observing touchscreen gestures and the interactions between hand and screen. Artistic works that feature hand gestures as related to media include Agnes Varda's *The Gleaners and I* (2000), a documentary film which frequently incorporates Varda's own hands in the frame while simultaneously revealing the manual gestures used with the hand-held digital camera used for filming. Homa King explains that "[e]mphasizing the hands and body of the filmmaker, *The Gleaners and I* challenges not only the logic of digitality, but the conventions of documentary" (King, 2015, p. 5). *Der Ausdruck der Hände [The Expression of Hands]* (1997), directed by Harun Farocki, is a short film exploring the visual language of hands in film. Concerned in particular with close-ups of hands, archival matter such as collected film scenes are interspersed with scenes of hands interacting with this material (Farocki in Ernst and Farocki, 2004, p. 274). The film explores how the specific media produces, as well as depicts, gestures.

In the works of artists connected to the photorealist genre, the materiality and production of the medium in question is often engaged with through a combination of emulation and contradiction of elements such as colour, size, surface texture and mark making. Whiting's (2009) analysis of Vija Celmins' lunar drawings made between 1969 and 1972, for example, examines the artists' ability to reveal the handmade, material and technological qualities innate to the historically significant images of early space exploration, positing that these works contribute to a broader reframing of the dominant narratives of the moon landing (Whiting, 2009). Describing the construction of early lunar surface images as made up of two-inch-square photographs, glued together by hand in a laboratory resulting in a mosaic effect of overlapping paper pieces, Whiting writes of Celmins' decision to 'carefully preserve' these marks in her drawing; "[i]n so doing, she recorded both the lunar landscape and the traces of the human technician's work." (Whiting, 2009, p. 42). Other references to gesture may be drawn from Celmins' reflections on drawing and painting. For example, she explains: "I crawl over

the photograph like an ant. And I document my crawling on another surface” (Celmins in Sollins, 2003, p. 162).

Screens and materials

Computation is not a visual medium, yet our engagement with computing technology is increasingly mediated through the interface of the screen (Gaboury, 2015, p. 40; Rose, 2014, p. 11). Considered socially, the prevalence of screens leads to divergent analyses. David Rose (2014) notes that a consequence of the economic forces driving the interests of large companies invested in both the manufacture of screens and the applications that run on them is that significant computational advances forgo commercial development in favour of expansion of screen technology towards greater colour brightness, refresh rates, vibrancy etc. (Rose, 2014, pp. 17-21). Similarly, the speed of development in LCD screen technology, observed in parallel with advancements in graphics, forms part of a broader discussion on the liquid crystal state of matter in Esther Leslie’s *Liquid Crystals* (2016). Leslie’s central concern, drawing a social history of the LCD screen in terms of scientific discovery, technological development, politics and aesthetics, is the changing and complex relationship between natural states of matter, technology and ways of thinking (Leslie, 2016).

Examples of art works aligned with similar concerns may be drawn from the exhibition *Liquid Crystal Display* (Site Gallery, 2018) referred to earlier in this chapter; one of the many perspectives on LCDs being the origins and material properties of crystalline forms and the substances involved in the production of LCD screens and devices. These include depictions of crystals e.g. *Crystals* (2000) by Kiki Smith, and a navigable structure based on the arrangement of molecules in the hexagonal crystal family in *Crystal Fabric Field* (2018) by Anna Barham. The materials of electronic components are featured in *The Crystal World* (2012) by Jonathan Kemp, Martin Howse and Ryan Jordan; a project in which participants conducted experiments using computer parts, including extracting and repurposing raw materials and a “a communal drinking of gold and silver drinks distilled from the junked computers” (Kemp, Howse and Jordan, 2018, p. 26).

Departing somewhat from its initial focus on the screen surface, the practice activity in the latter parts of this study involved making drawings using gold, silver, aluminium, nickel, and copper; these metals selected due to their role as component parts of smartphones. Extending the theme of gesture, these materials undergo movement by being held and carried as part of daily life, and, in turn, capture traces of those movements as data. These materials are also displaced on a global scale, via extraction, processing, and manufacture. In addition to their use as components of smartphones, the metals used for drawing in this study are also traditional drawing materials used for the technique of metalpoint drawing, a method of drawing “using soft metal tools to mark on specially prepared surfaces”, used, for example, by Albrecht Dürer (b. 1471), and Rembrandt (b. 1606) (Schwalb and Mazzullo, 2019, p. 1). There has been relatively little work published on the subject of metalpoint drawing. This thesis is therefore well positioned to contribute an example of metalpoint drawing as practiced in a contemporary context, as demonstrated in part through my journal contribution *Fingertips and Touchscreens* (Downing, 2020) (Appendix 5).

Clive Cazeaux’s (2017) discussion of Vija Celmins’ Night Sky series, *Night Sky #19* (1998) in particular, is focussed on the metaphorical nature of material in representational art (Cazeaux, 2017, pp. 91-108). Describing Celmins’ process of applying several layers of charcoal and erasing specks to emulate stars as they appear in the photographic source imagery, Cazeaux interprets a relationship forged between the specific ‘slow’, ‘precise’ technique of applying and erasing charcoal as dust, creating “senses of the calibrated and the particulate that interact with ideas of the celestial and the astronomical” (Cazeaux, 2017, p. 99). The analysis is extended, for example, through drawing relationships between the represented subject matter and aspects of the production and composition of charcoal, and further interactions with the photographic material involved.

Similarly, the practice activity and artworks in this study create conditions for interpretations to be drawn – in this instance emanating from the relationship between the represented subject matter of touchscreens, and the materials and methods of both oil painting and metalpoint drawing. Asking what painting and drawing practice can reveal of the contemporary practices and perceptions of

touchscreens, the next chapter attends to the way in which the subjects outlined above were approached and involved in the context of academic research.

Ch. 2 - Methodology

This study is positioned in a rapidly expanding area of research involving art as a form of inquiry, often referred to as 'artistic research'. During its growth since the 1990s, a number of terms were developed for this field (Biggs and Karlsson, 2010, p. xiii), however in recent years, the term 'artistic research' has gained a somewhat established recognition, selected as a preference by authors of recent academic publications (e.g. Butt, 2017; Cazeaux, 2017; Nowotny, 2010; Borgdorff 2007, 2010; and the Journal for Artistic Research, 2011-).

Artistic research lacks an agreed upon definition (Cazeaux, 2017, p. 1; Schwab, 2000). A recent policy paper co-authored by a number of key organisations and networks, *The Vienna Declaration on Artistic Research* (AEC et. al, 2020), describes artistic research instead in terms of a set of 'key features' that are aligned with the Frascati Manual's criteria for Research and Development. This description outlines a broad field of research by means of all art practice disciplines, inclusive of diverse approaches, methods, and contexts. Several authors have commented on the lack of a singular conception of artistic research being a positive feature, citing advantages such as methodological diversity and openness to change (e.g. Schwab, 2000; Kjørup, 2010; Schwartz, 2010, p. xxviii). While the validity of this field is not universally accepted (Kälvemark, 2010, p. 22), there are currently an increasing number of peer-review journals, book-length publications, and rapidly growing academic research in the field (AEC et. al., 2020), reflecting a diverse and dynamic area of study.

There are several conceptualisations of how art practice may broadly be involved in a research framework; for instance, categorisations proposed by Frayling (1993) and Borgdorff (2007). Frayling's well-known paper *Research in Art and Design* (1993) proposes possible categorisations of research into, for and through art and design. Here, research into art and design refers to research in which art and

design forms the subject of the inquiry. Research for art and design points to research conducted for the purpose of art and design, “where the end product is an artefact – where the thinking is, so to speak, embodied in the artefact” (Frayling, 1993, p. 5). Research through art and design refers to art and design being used as a means of investigation, summarised by Scrivener (2011) as relating art and design to the ‘method condition’, “as a means of arriving at knowledge and understanding about something, in fact anything, including art and design itself” (Scrivener, 2010, p. 261). This study, whose overall aim has been to consider touchscreens through the disciplinary lens of painting and drawing practice, corresponds most closely to research ‘through’ art and design, where the art practice is being used most prominently as a method of inquiry.

The overall aim of the study has been to consider touchscreens through the disciplinary lens of painting and drawing, grounded in a period of studio practice. This chapter provides an outline of methodological matters relevant to this study: the first section addresses the broader methodological approach taken; the second section attends to the practicalities and specificities of realising the study; the third section describes methods of documentation and analysis; the final section provides an evaluation.

Methodological approach

The view adopted in the methodology for this study is that while art, practiced and recognised as formalised research, is a relatively recent development, artmaking, as a form of knowledge-producing inquiry, is long established (e.g. Hannula, 2009, p. 2). Historical examples of artmaking in this sense might include John Constable’s (b. 1776) studies of cloud formation that made possible his landscape paintings (Frayling, 1993, p. 3), and David Hockney’s (b. 1937) composite polaroids and photographic collages. Sullivan (2008) relates these works by Hockney as ‘visual experiments’ that extend discipline knowledge by questioning perspective, as well as helping to “reconfigure ideas about pictorial illusion and reality” (Sullivan, 2008, pp. 244-245).

A set of artistic concerns not dissimilar to those of Hockney’s are evident in the artworks and practices drawn upon in this study. As indicated in the previous

Contextual Review chapter, examples are taken from works and practices in which subjects for paintings and drawings are in themselves imagistic or pictorial. Within this domain, the main contextual focus is drawn from practices connected to the photorealist genre from the 1960s onwards, including the work of artists such as Vija Celmins, Gerhard Richter, Chuck Close and others. These works go beyond merely offering a social and cultural commentary – through their appropriation of contemporary images drawn from media, advertising, family life and subculture – to encompass wider forms of knowledge production. Echoing Sullivan’s framing of Hockney’s work as a form of enquiry, Ralph Rugoff (2007) describes the contribution of these artists as “profoundly explor[ing] not only the relationship of painting and photography, but also the nature of how we forge our pictures ‘of reality’” (Rugoff, 2007, p. 10).

The artworks and practices of those connected with the photorealist genre are frequently interpreted in relation to discourses of representation and realism in the tradition of western art (e.g. Rugoff, 2007, pp. 13-14). These artworks may be viewed as present-day iterations of the longstanding and complex interplay between painting, on the one hand, and image-making or optical technologies, on the other, as advanced since the Renaissance; an area of knowledge subject to in-depth analysis (e.g. Kemp, 1990; Hockney, 2006; Steadman, 2002). As indicated earlier, photorealist genre artworks often provoke a re-evaluation of the perception and place of technologically produced images in contemporary culture. Examples include Whiting’s (2009) analysis of Vija Celmins’ lunar drawings, examining the artists’ ability to reveal the handmade, material and technological qualities innate to the historically significant images of early space exploration (Whiting, 2009), and Richter’s written and artistic works that complicate received understandings of the opposition between realism and abstraction (Richter, 1995, pp. 30-31; Silverman, 2007, pp. 18-20), both discussed in the previous chapter. Unlike commentaries that are arrived at via a retrospective study of completed artworks, Richter’s insights, as well as others, are embedded in the process of making (e.g. Richter, 1995; Celmins and Close, 1996). Contributions of this kind include reflection on the sensory study of planes, depth and image in the process of drawing (e.g. Celmins, 2011, 03.19.55 - 03.21.26).

This study is built on the premise that painting and drawing that approaches imagistic matter as its subject foregrounds a particular set of formal, conceptual and cultural concerns. The study is based on the hypothesis that a similar approach extended to the contemporary touchscreen may usefully yield new knowledge in the more specific area of touch as related to the screenic and painterly surface. The works involved in a contextual capacity offer both a thematic framing as well as a point of reference for some of the artistic approaches employed. For instance, they provide a way of looking at images that attends to their material and technological aspects and a way of delineation that is grounded in verisimilitude.

While the work of artists such as Celmins and Richter was drawn on to provide context to the present study, on a more practical level the artistic methods employed were based on ways of working that were inherent to my visual art practice prior to commencing the study. In my practice, I had taken a thematic interest in the mechanically produced image, involving it in a creative process in combination with painting, drawing and occasionally other media. The coherence of the body of work I had produced since 2007 lay once removed from what was depicted – a crowd, a tree, an interior – and was instead to be located in a recurring interest in the way types of media represented and abstracted the physical world in the form of an image, pictorial space being of particular interest. I made artworks about the downward-pointing view of a surveillance camera e.g. *A View From Above 13* (Downing, 2012), the blurred or pixelated appearance of live-streamed video e.g. *Still Life 7* (Downing, 2009), and the single, fixed point of view implicit in a photograph e.g. *Vertical Panorama: Oak Tree* (Downing, 2013).

The process of re-examining my art practice, in concordance with the contextual review, guided a topic focus towards an interpretation of the digital that centred on electronic display screens; the extraction of research questions from pre-existing art practices being a strategy commonly used in artistic research (Hannula, 2009, p. 3). Additionally, this approach offered an artistic way of working with ideas and materials that was familiar to me. Translating this practice into the overall method for the study and relating it to the previously described 'method condition' in the research context forms the focus of the next section.

The research undertaken

This section attends to the practicalities and specificities of realising the study. The research design was founded on the premise that “visual research methods can be grounded within the practices of the studio and that these are robust enough to satisfy rigorous institutional benchmarks” (Sullivan, 2010, p. xxii). This section offers an account of how the research was designed and carried out.

Whereas the previous section of this chapter considered artmaking in its capacity to investigate and yield insight on a topic, here artmaking as academic research is examined. The distinction between ‘art practice in-itself’ and ‘art practice as-research’ has contributed to several methodological texts (e.g. Borgdorff, 2010; Sullivan, 2010). These include, for instance, interpretations of the relationship between artistic research and scientific research (e.g. Kjølrup, 2011; Sullivan 2010, pp. 31-64) and the possible tensions between conventions in art and academia (e.g. Candlin, 2000; Haseman, 2007; de Freitas, 2007). Borgdorff addresses the issue of when art practice qualifies as academic research, proposing the defining criteria of intent, originality, knowledge and understanding, research questions, context, methods, documentation and dissemination (Borgdorff, 2007, p. 10; 2011, pp. 54-58). This study is outlined with these components in mind.

Conducting the research activity involved a period of practice during which the topic of touchscreens was deliberately adopted as a recurring subject matter, based on a continuation of established ways of working that included aspects that are both general and individual. For example, the use of a studio setting for artistic research activity was based on prior ways of working; this type of setting being both conventional in the field of contemporary fine art practice, and simultaneously possessing idiosyncrasies in terms of its accumulated contents and usage (Sjöholm, 2014, p. 507). Other aspects that share both general and individual facets include the use of familiar techniques and materials as well as processes such as material experimentation for developing ideas.

Studio based art practice formed the context for this study, determining what was placed under consideration as research activity. Several stages of artistic experimentation and development were enacted and included, spanning the

early stages of developing an artistic idea, the lines of inquiry that were either followed or abandoned, the testing of materials and techniques, as well as the more specific act of the making of artworks and tangible outcomes. The choice to place focus on the production of artwork as a site for knowledge production is aligned with a general tendency observed by Candy and Edmunds in practitioner research (Candy and Edmunds, 2011, pp. 120-121).

The artistic research process is here understood as the action of bringing together, of interfacing, two components: that of the touchscreen and that of contemporary painting and drawing practice, specifically as each relates to surfaces. This forms the focus of the discursive chapter of this thesis, *Gesture, Touch and Trace*, divided into three parts. The initial, experimental part of the research activity involved observing touchscreen gestures and finding ways of incorporating these in the context of a painting and drawing practice. Some ideas were developed and led to artworks using painting media and referring to both painting and technological theories of gesture and surface for analysis. A subsequent part of the research activity involved making metalpoint drawings, selecting metals that are used as component parts of smartphones, which is discussed with reference to trace-making in terms of movement and material in drawing. Interactions such as these between the two areas - that of the touchscreen and that of contemporary painting and drawing practice - drove the research activity, producing novel lines of inquiry that were followed during a period of studio practice. I return to the conceptualisation of the process of artistic development through the analogy of 'interfacing' for the Conclusion chapter of the thesis; the term used to propose relations between the topics of the touchscreen and of painting and drawing, through making in the instance of the artistic research activity of this study. Etymologically, the term 'interface' comes from inter- (between) + face (shape, figure, form). Applied to material practice, this directs a focus towards the surfaces of the physical things involved: that of the touchscreen, and that of painting and drawing.

Documentation, interpretation and analysis

Multiple methods were selected to gather the research data from the practice activity in keeping with research involving art practice methods (Gray and Malins,

2004, p. 72). This data, presented in the Appendices of this thesis, consists of accounts of studio practice activity in the form of a log (Appendices 1 and 3) and documentation of completed artworks (Appendices 2 and 4). Appendix 5 contains a copy of an authored contribution to a journal, meeting the university's requirement for the inclusion of published material relating to the research (UWTSD, 2020, p. 16).

Appendices 1 and 3 are intended to present an account of studio practice over the duration of the study, in two parts, structured chronologically. These Appendices are composed of visual and textual information in repeated units, structured as (a) a note on intention, (b) a description of the material process that was carried out, together with (c) documentation of the resultant creative outcome. These are a repository of practice information gathered over the period of study, presenting a structured summary of data extracted from a wider pool of studio-based methods. For instance, a statement of intent is a concise and actionable statement distilled from ideas formulated by use of notebooks, diagrams and sketches. Elsewhere, the visual documentation was assembled from a more substantial body of ongoing photographic documentation. A visual diary or sketchbook could have been used to a similar purpose; however, this format was better able to accommodate the various media that I was using as part of the studio process.

Whereas the studio logs (Appendices 1 and 3) relate activity situated in the context of the studio, Appendices 2 and 4 assume the condition of public display as a frame of reference – here I include documentation of artworks as installed, accompanied by material apposite to the context such as gallery text. Although there are connections to be drawn between the artworks, they exist in this study as stand-alone pieces rather than as components of a cohesive exhibition, and as such it is the individual art objects rather than an exhibition that is documented. For practicality these artefacts were intended to exist in documented rather than actual form as part of the thesis, aiming for what Candy and Edmunds describe as “sufficiently good documentation of the artefact for the work to be understood in whatever sense is required” (Candy and Edmunds, 2010, pp. 133-4).

The Appendices described contain forms of information that each contribute to the thesis differently. The completed artworks, presented in Appendices 2 and 4, occupy a state where no further change is to be expected. Placing these in the context of contemporary fine art allows for a comparison to be drawn with the contextual works that were referred to, given that they exist in a similar format. The information brought together in Appendices 1 and 3 was recorded incrementally over time and as such it is used to both derive and evidence insight about the development of artistic ideas over time. The inherent difficulties of communicating ways of working with materials in the studio is expressed as part of Elkins' discussion of painting (Elkins, 2000). A comparable sentiment is expressed by practice-based researchers in the arts; for example, de Freitas (2007) comments that "[t]he experience, knowledge and skill acquired, expressed and applied through material means is historically difficult to communicate although it is inevitably embodied in material artefacts" (de Freitas, 2007, p. 7). This thesis is in part an attempt to communicate an instance of studio-based making, a topic that is relatively under-represented in comparison to other domains of knowledge.

Since methods of conducting and disseminating artistic research remain fluid, there are methodological considerations that arise from the relationship of the written to the practical components of the research. Considerations include the communicative potential afforded by divergent approaches to the textual component of a thesis as well as the potentially transformative effect of integrating writing with making (e.g. Hockey and Allen-Collinson, 2005; Robinson, 2009; Borgdorff, 2010, pp. 57-8). In this research, the discursive writing forming the third chapter of this thesis, *Gesture, Touch and Trace*, was produced following the completion of the practical component. Rather than attempting to recount the studio-based research in its totality, my aim for this text is to retrace a route through the development of the practice, guided by the topic of gesture.

For this text, descriptive accounts of material experimentation and production are interspersed with discursive sections centred on research problems encountered. In this instance, research problems arise from the practice and are responded to through the practice. However, they are examined in dialogue with broader discourses and knowledge in the areas of art and media scholarship. As such,

existing knowledge in the form of theoretical and technical material is introduced and discussed in the chapter; for instance, Flusser's theory of gesture. The chapter therefore contributes to a fuller description of practice than provided by the appendices alone. The discursive writing serves the overarching aim of the thesis – that is, to advance a dialogue between the main topics of the study, those of touchscreens and of painting and drawing, grounded in a period of studio-based practical work.

Evaluation

The question of how to begin an artistic research project divides opinion. For example, while Barrett writes that “practitioners need to view the practice as research and to design the studio enquiry as a research project before commencing” (Barret, 2010, p. 186), others promote a more speculative approach. The challenge of initiating research is not exclusive to the arts: writing from a disciplinary background of anthropology and the social sciences, Holliday describes the central role of opportunism in beginning a qualitative research study, reasoning that “research settings are difficult to control, and we have to capitalize on those that are available to us”; adding that “[i]t will rarely be possible to pre-design research conditions or even find the conditions we want” (Holliday, 2016, p. 23). This section offers an account of how this study was initiated, operated and changed. Its limitations are considered alongside its ability to address the research question set out.

Another feature noted by Holliday is the impossibility of deciding in advance what kind of data would be collected (Holliday, 2016, p. 80). A similar challenge was encountered in the early stages of this study. I felt that some amount of studio practice needed to take place in order to develop the research focus, both to narrow a topic area and to clarify appropriate methods of documenting studio practice activity, aiming for those that were practical as well as likely to yield useful data. For this study, practice documentation was collected broadly during the early stages, gathering more information than was required. Over time, the recording of information was simplified, retrospectively consolidating the earlier records to arrive at a consistent log of practice over time. One aspect that needed to be considered was the frequency that documentation would be collected

– whether to record information at fixed points in time or at instances determined by other factors. After consideration, the decision was made to structure a log of what seemed like steps or intervals in the development of artistic ideas, regardless of the length of time spent on each.

It was anticipated that the practice activity, as a generative research method, would develop and take directions that were not predetermined. As well as evolving through processes of material making and reflection, the practice activity developed in tandem with the acquisition and integration of knowledge, such as contextual, theoretical and technical information. For this study, for example, seeking to create smooth surfaces to paint on necessitated the learning of how to make gesso grounds that involved consulting technical painting manuals (e.g. Mayer, 1991; Pearce, 2005 and Cennini, c.1400). This reading pointed to the technique of metalpoint drawing because it works well in conjunction with a gesso ground, opening up avenues explored in the latter part of the studio practice discussed in greater depth as in *Gesture, Touch and Trace*, the discursive chapter of this thesis.

It became apparent to me that alongside other elements of the research context, documenting the art practice and taking a more systematic approach impacted how I worked in the studio. For example, aside from its function as a repository of practice information, the logging of practice data – contributing to Appendices 1 and 3 – introduced a structure and method for reflection and the conceptualisation of ideas that would otherwise have occurred differently. De Freitas (2007) expands on the perceived impacts of documenting and reflecting on creative practice in the context of academic research, citing the largely positive effects in terms of learning. Others relate the impact of documenting art practice with greater caution (e.g. Fortnum and Smith, 2007). On the topic of academic research, Kjørup (2011, p. 24) challenges the perception that artists should be doing research about their own practices, arguing that others may be better placed to draw analysis from accounts recorded along a period of making. Had the aim of the study been to analyse artistic practice as its research object, a failure to replicate usual studio practice exactly may have been a notable limitation, however in its role as a method of inquiry, there is a certain amount

of self-awareness to the altered use of the studio-based process under research conditions.

A distinct advantage of the practitioner-researcher position is the ability to relate insight drawn from stages of making that would otherwise be difficult to achieve. With this in mind, the discursive chapter deliberately draws analysis from several stages in the production of artworks resulting from a period of studio practice in which touchscreens were placed under consideration as a recurring subject matter. Thus, the response offered to the overall question of what painting and drawing practices may reveal of contemporary practices and perceptions of touchscreen technology is answered in a way that is embedded in the process of making, drawn from an instance of studio practice conducted for this study.

Ch. 3 - Gesture, Touch and Trace

Gesture is defined as “a movement of part of the body, especially a hand or the head, to express an idea or meaning” (Oxford, 2015). In the field of technology, the term points to “a type of input to a computer where the meaning depends on the time-related positions input from the device” (Butterfield, Ngondi, and Kerr, 2016). Drag, tap, pinch and swipe are some of the many standard gestures for touchscreen interfaces, performed by touching the screen’s surface. In painting, gesture is often associated with Action Painting and Abstract Expressionism, ‘gestural painting’ being a term describing “the application of paint with expressive gestures so that the sweep of the artist’s arm is deliberately emphasised” (Chilvers, 2015). Here, however, a broader interpretation of gesture in painting is adopted, pointing to actions intended to obfuscate as well as to express, to stutter as well as to sweep, and that measure a hair’s breadth as well as an arm’s length.

In the realms of both touchscreen use and painting and drawing practice, gestures are generally performed in parallel with a corresponding surface: the former involving hands touching a screen, and the latter directed towards imparting pigment onto a ground such as paper, canvas or gesso. In this chapter, gesture is adopted as a perspective to ask what painting and drawing practice can reveal of the contemporary practices and perceptions of touchscreen technology. The discussion traces stages of the development of the studio practice activity and the production of artworks. Opening with a discussion of how touchscreen gestures were incorporated in the context of a painting and drawing practice, reference is made to Flusser’s theorisation of gesture. The second section is focused on the making of *Touch* (2021) (Appendix 2), an artwork consisting of forty-four paintings representing a day of observed smartphone use. Here consideration is given to the decision to create paintings that replicate the scale of a smartphone, extending to topics of painterly gesture and surface qualities of the paintings

such as the lack of visible brushstrokes. The making of *Trace* (2019) (Appendix 4), a series of five metalpoint drawings depicting cracked mobile phone screens, is recounted for the third section and placed in discussion with topics of materials and trace-making.

Observing touchscreen gestures

While the completed artworks that I make are predominantly paintings or drawings, these are often developed through a period of creative experimentation involving other materials and media. For example, *Public View 3* (Downing, 2009) is one of a series of paintings that began with material sourced from live-streamed webcam images of city centre spaces that were printed out, collaged, and photographed in a way that exaggerated certain characteristics and later used as the basis for paintings. This approach, involving the development of an idea through material experimentation, allows for an abstract idea to gradually take a tangible form and for possible creative directions to emerge. In the initial stages of this study, the studio practice began with the aim of producing an artistic response to touchscreens with emphasis given to its properties as a physical surface of touch and contact; gesture being prominent as a focus. This section relates most closely to practice activity documented in Appendix 1, in which ways of visualising interactions between hands and a smartphone's screen in a creative context were explored.

In *Gestures* (1991), Flusser proposes a phenomenologically informed 'general theory of gestures' in which gesture is defined as "a movement of the body or of a tool connected to the body for which there is no satisfactory causal explanation" (Flusser, 1991, p. 2). The book is structured as a collection of essays, each presenting a study of a specific gesture by means of the phenomenological method set out. The gestures in question represent a mixture drawn from the area of media and communication as well as others, for instance, 'The Gesture of Telephoning', 'The Gesture of Filming' and 'The Gesture of Smoking a Pipe'. 'The Gesture of Photographing' (Flusser, 1991, pp. 72-85) opens with a comparison of photography and painting in terms of their respective ontologies and progresses through an interpretation of a scenario of a man being photographed at a social event. An analysis is drawn through the adoption of several subjective positions,

these perspectives informing a description of a complex situation consisting of intersecting spheres of observational and proximal relationships. Nancy Ann Roth draws attention to a feature shared by each of Flusser's *Gestures* essays in that they "explicitly reject 'common sense' knowledge of their objects", explaining that "[t]he approach lets Flusser – and us with him – step away from what we know" (Roth in Flusser, 2011, p. 281).

Similarly, in the period of studio practice in question, a focus on gesture provided an oblique position to view a device that was ingrained in everyday activity, offering a break from its familiarity. The focus on the relationship between hands and screen surface created a point of departure from a practiced way of looking 'through' the screen's surface to read the images and text depicted beyond. As a result, those characteristics of the outermost surface of the screen – those that come into contact with hands, such as smudges and cracks – seemed increasingly prominent. Consequently, the initial period of studio practice involved testing possible ways of visualising aspects of the phone's screen. This involved attempting to record fingerprints, made from hypothetical tasks such as texting, using fingerprint ink (Appx. 1.1); to visualise the cracked and chipped glass by using the phone to make relief prints (Appx. 1.2); and removing its glass screen cover to make digital scans (Appx. 1.3). As a result, a way of recording fingerprints and traces of movements using fingerprint powder, glass screen covers and a document scanner, was arrived at. After some trial and error, this method produced an image that seemed to offer a close rapport with both the hand movements that produced them and the unintentional oily smudges observable on the surfaces of touchscreen devices (Appx. 1.4).

Some of the processes mentioned above were employed with the aim of capturing the trace of an 'original' or 'found' mark that had been left on the screen. For instance, attempting to record latent prints left on the phone's screen at hourly intervals, while trying to use the device as normally as possible (Appx. 1.6). Another thread that was followed involved recording and re-enacting touchscreen gestures. I used the video function of a digital SLR camera to record each instance in which I used my mobile phone over the period of a day (Appx. 1.5). Here the

video was watched whilst trying to replicate the hand movements that I saw, often replayed at a slower speed in order to keep up (Appx. 1.7).

For Flusser (1991), a gesture, as a movement that cannot be explained satisfactorily by mechanical means alone, requires interpretation via another area of knowledge, this in turn being determined by asking what motivates the gesture (Flusser, 1991, pp. 163-164). For the act of reproducing hand movements from a video recording in a creative context, the movements are copied, however there is clearly a departure from the original in terms of intention. In one instance, the hand movements recorded were copied as closely as possible with hands covered in ink, using a piece of glass in place of the screen, and filmed from the reverse – the result being a video of a transparent surface gradually becoming obscured by black ink (Appx. 1.7). Another involved dividing the recorded movements into phrases and using these to create a series of scanned latent prints on glass screen covers (Appx. 1.10). Here the intention was to experiment in order to see what kinds of marks and visual effects could be created using the hand movements and specific materials.

Integrating these hand movements in a creative process involved isolating, abstracting, and recontextualising the movements and placing these in an artistic frame of reference, specifically those of painting and drawing. In this context, mark-making is assigned meanings, histories, and functions particular to these artforms, offering a particular perspective on the subject of touchscreens. Parts of the initial experimental stage of studio practice presented in this section were further developed and used to produce paintings and drawings, discussed in the next sections of this chapter.

Making 'Touch': gesture and surface

This section is focussed on the making of *Touch* (2021) an artwork consisting of forty-four paintings representing a day of smartphone use, documented in Appendix 2. The work is based on the studio practice activity presented in the previous section, specifically those of producing fingerprint marks based on touchscreen gestures. Here, this material is used in conjunction with painting media. Consideration is given to the decision to create paintings that replicate

the scale of a smartphone, as well as considerations of the material handling of paint, surface quality and texture.

In parallel with formulating ways of producing fingerprint marks related to touch-screen use, some of the resulting images were selected and used as reference material for paintings made using oil paint on gesso boards. A longstanding interest in my practice has been the use of images sourced from various media in conjunction with painting or drawing, the mixing of media being an opportunity to create visual alignments and contradictions. An example being paintings including *A View From Above 11* (Downing, 2011) and *A View From Above 13*, (Downing, 2012), that depict toy figures navigating a blank space, adopting an aerial viewpoint high above the scene reminiscent of surveillance images. Here, features of the image are exaggerated, most notably the wide-angle view that appears to warp the flat space of the canvas. Other details include a shallow depth of field. Here the tops of the figures' heads are in sharp focus while their feet are slightly blurry, an effect made more prominent by a glossy varnish applied to the figures. Both of these features are effects of a camera image and are at odds with tendencies of painting from direct observation. Incorporating images from other media in painting and drawing creates the opportunity to interface aspects of images and media, in this instance those characteristic of touchscreens. This section examines a stage of the studio practice in which oil paintings were developed in dialogue with the pictorial matter and processes described in the previous section.

Paintings were made depicting marks and cracks on glass mobile phone screen covers, the image positioned at the centre of rectangular gesso boards, leaving a blank boarder of an inch or so (Appx. 1.8). Upon reflection, a decision was made to create gesso grounds of the same dimensions as a smartphone to be used as the basis for an artwork. To achieve this, the gestures recorded from a day's smartphone use, referred to in the previous section, were split into forty-four parts. Each part was re-enacted using a white plastic block in place of the phone, leaving it carrying barely visible fingerprint marks on each of its faces. Next, the block was carefully dusted with fingerprint powder to reveal 'latent prints' and scanned using a document scanner to produce digital images (Appx. 1.12).

Printouts of the images were used as reference material from which paintings were made. The gesso panels were painted using oil paint, creating a likeness of the printouts on each side. Documentation of the completed artwork may be found in Appendix 2.

Advancing a theory of the material and gestural in painting and drawing, Paul Crowther (2017) discusses the autographic image – a depiction made by the hand or body – placing it in dialogue with the digitally produced image. Crowther draws attention to the fact that “[i]n contrast with the way movements are lost in time through the enacting of them, they are not lost when embodied in drawings and paintings” (Crowther, 2017, p. 3). At the core of the theory presented is the argument that the intrinsic meaning of a painting or drawing lies in the “creative tension between the fact of its physical and made materiality and its way of projecting virtual space” (Crowther, 2017, p. 3). Expressed in these terms, the creative tension in the artwork under discussion here is located between two sets of gestures. The first are the movements involved in creating the paintings through manual and material manipulation and the second are those depicted; those of fingerprint marks indicating a trace left by hand movements.

In the practice activity, described in the previous section of this chapter, the nature of the processes involved – those of making prints and re-enacting hand movements in conjunction with materials – meant that the outcomes, by necessity, replicated the scale of the touchscreen used. The same is not true of images utilized as reference material for paintings, for instance an enlargement or a cropped selection of the image may have been chosen. However, a 1:1 scale was maintained, embedding in the artwork a physical point of reference to the device in question. With regards to the gestures used to make this artwork, both the scale of the ground and the marks imitated contributed to a situation in which comparisons may be drawn between the gestures used to produce the paintings and those involved in smartphone use. For instance, the small and precise brush movements used to paint may be likened to the small and precise navigational fingertip movements used to operate the smartphone. Similarly, a way of looking focussed over a few square inches at a time, was used both for painting and for using a smartphone.

Another aspect of the gestures used for painting involved the material handling of paint. A deliberately flat application of paint was used, applied in several thin, blended layers resulting in a surface distinctively lacking in detectible protrusions and revealing few individual brushstrokes. Had this same technical approach been used in conjunction with a canvas support, the painted surface would likely reveal the woven texture of the fabric substrate. However, the gesso board provided a distinctly smooth surface for the paint to adhere to, contributing further to flatness as a feature. These choices were partly informed by the desire to appropriate the textural qualities of a smooth touchscreen surface in the artwork.

As part of a discourse on the materiality of painting and drawing, Paul Crowther (2017) draws attention to historical shifts in the surface qualities of paintings in western art, as aligned to changing aesthetic values. Works made between the Renaissance and the First World War, he explains, “are usually highly finished, in such a way that the physicality of the marking material, as shown, say, through the brushstroke, is optically concealed” (Crowther, 2017, p. 58). He claims that it is relatively recently, from modernism onwards, that value and attention is given to the “manifestness of the brushstroke and painted surface” (Crowther, 2017, p. 59). Paradoxically, a smoothly painted surface may be interpreted as mark-making of a particular kind, revealing the gestures of repeated blending for example, whilst also indicating the negation of human presence via the concealment of the brushstroke. Attributing this same effect with a ‘mechanical texture’, Ralph Mayer, writing in *The Artist’s Handbook of Materials & Techniques*, warns that “[o]ne danger in overreliance upon smooth glazing is that glaze effects in the general run of contemporary artistic painting are likely to lead to undesirable halftone, lack of forcefulness, or mechanical textures, especially if they are overdone” (Mayer, 1991, p. 251).

Much of the ability to paint in a way that conceals brush marks is afforded by the material qualities of oil paint, specifically its slow drying time and its capacity to be painted in glaze layers (Crowther, 2017, p.58). The relatively slow drying time allows for paint to be manipulated once applied, making possible effects such as gradated transitions between areas of colour and softened edges. For the artworks made, a soft natural fibre brush was used to blend and adjust areas

of colour after being applied with small, pointed brushes, often in a stippling motion. Glazing is a technique involving the application of several transparent or semi-transparent layers of paint, in contrast to *alla prima* where colour is applied in a single application (Chilvers, 2015). For the painting discussed here, glazing was used to some extent. Generally, one application of semi opaque paint was used together with translucent layers, allowing for subtle transitions of tone to be revisited, for detail to be built up, for edges to be sharpened, and for adding depth to areas of dark tone.

Themes of concealing and revealing may be applied to the artwork produced. For example, fingerprint patterns on the surface of touchscreens may be experienced as visible but also largely ignored and looked 'through' towards the depictions and text beyond. For the artistic process described, aluminium powder was used to reveal the fingerprint patterns in greater clarity; latency being the state of existing but not yet manifest. Oil paint was used to create a depiction of the latent print, and for this, paint was applied in a way that conceals brushstrokes and other aspects of the materiality of the paint. In an analogous way, the painted surface is also therefore looked 'through' towards the depicted subject.

One of the overarching intentions of the studio practice activity in the context of this research was to create an interface, or meeting point, between touchscreens and paintings, using painting to cast light on alignments, contrasts and questions. One such alignment that may be further developed is the relationship between layers and light. For the paintings made for this study, around ten layers of gesso were applied to a board; the gesso made by mixing glue with water, pigment and chalk, and applied warm to the boards over the course of a day, waiting for each to dry before adding the next. Once fully dried, the gesso board is sanded and a layer of size is applied, reducing the absorbency in preparation for subsequent layers of oil paint. If painted using glaze layers, light permeates each of the translucent layers and is reflected back from the white gesso layer to produce the colour as seen, which may be compared to a touchscreen in terms of light passing through several layers – including polarizing filter films, glass substrates, liquid crystal, electrodes and anti-reflective coatings – to reach the eye.

Making 'Trace': gesture and material

While the previous section presented a discussion focussed on artworks made using oil paint, this section offers an account of studio practice activity involving drawing media. Comparing painting and drawing, Crowther elaborates on the “contrasting ways that marks are placed on the physical surface”, describing painting as a process in which the “image is generated more through a process of growth” with focus on layering, and drawing as one of inscription aligned with outlines and edges of objects. (Crowther, 2017, pp. 66-67). Evoking linearity, this section turns its attention to ideas of traces and their associated gestures; for example, traces made by fingers on the surface of touchscreens and those resulting from the action of integrating a mobile device into parts of daily life. Reference is made to practice activity documented in Appendix 3 and artistic outcomes documented in Appendix 4. The discussion presented focuses in particular on *Trace* (2019), a series of five metalpoint on gesso line drawings depicting cracks made on the screens of mobile phones.

As part of the studio practice activity for this study, gesso grounds were initially made in answer to the need for a flat, smooth surface to paint on, texturally comparable to that of a screen surface. Learning the process of making gesso boards involved trial and error together with the reading of technical literature (e.g. Mayer, 1991; Pearce, 2005 and Cennini, c.1400) which in turn pointed to specific adjustments that may be made in readiness for the surface to receive different types of media, metalpoint being one. Metalpoint drawing involves using a piece of metal held in a stylus – silver for example – to mark a surface. Since the metals used are hard, an abrasive ground such as gesso is required for metal particles to be imparted and for a visible mark to be made.

Reusing the reference images produced for the painted works described in the previous section, three metalpoint drawings were made (Appx. 3.5) together with a further drawing depicting fingerprint marks on a laptop computer (Appx. 3.7). The reference image for this work was made by dusting a laptop computer with aluminium fingerprint powder to reveal latent prints, which were transferred to strips of clear tape, scanned using a document scanner and printed out (Appx. 3.1). Making these drawings involved a process of tracing over the same visual

information several times. Initially, translucent drafting film was laid over the image and traced using graphite. This was transferred onto the gesso board, and traced using metalpoint, the difference in hardness making it possible for an eraser to easily remove the graphite while leaving the metalpoint marks relatively untouched. These outlines were subsequently drawn over in greater detail.

Although the depicted subject was the same as that of the paintings discussed in the previous section, the materials and processes of metalpoint drawing indicated different associations between the artistic process and the subject matter. The line afforded by metalpoint is characteristically uniform: it does not vary significantly in response to pressure, as compared to graphite for example, nor does it smudge easily. Therefore, tone is created by repetitions of lines and crosshatching resulting in a different relationship to the image than that of painting. The fingerprint patterns depicted may be thought less in terms of areas touched and more in terms of lines traced.

Departing from the focus on contact made between fingertips and screens, further notions of trace may be drawn not from what is touched, but from what is held and moved. For example, a smartphone carried over the course of a day may produce a trace of the route as mobile location data. Another interpretation may point towards the traces of metals and minerals incorporated in the components of a smartphone, including traces of gold, used to make connectors, and silver, used in circuitboards. The mining and deposit of materials, for example, may be thought of as movements of matter inscribing traces on a global scale, traces particular to this time. The drawings made as part of this study used metals that form component parts of mobile phones and that are also traditional drawing materials: gold, silver, aluminium, nickel and copper were used to create metalpoint drawings.

Another aspect of carrying a touchscreen device as part of daily practice is that it collects scratches, dents, and cracks from being handled over time. Each crack uniquely made and each crack a linear mark made on the glass surface of the screen. Continuing with the idea of using the specific metals mentioned above, further drawings were produced depicting cracked screens. To make these,

second-hand broken screens were purchased. These were scanned using a document scanner, printed and an outline traced and transferred onto gesso boards. Since the image was often unclear, the cracked screens were drawn by looking at both the screen and the printed image. Each drawing was made using one type of metal – gold, silver, aluminium, nickel and copper – constituting a series of five metalpoint drawings.

The decision was made to produce line drawings, however alternative possibilities were present. The cracked screens involved complex marks that were difficult to see fully; each crack spanning the depth of the glass, sometimes appearing as a pair of lines, one at each face of the glass. The depth of glass was drawn as a test, however a line corresponding to the upper surface of the glass was used for the final series of drawings. The decision to draw a line as it exists on a surface is to draw it as it is experienced through touch. Considering the ways that a cracked screen may be perceived, it may be largely unnoticed, looked through while attending to the text and images beyond. It might also be experienced as a familiar web of ridges, the previously avoided experience of running fingertips over broken glass now being strangely habitual.

Conclusion

On the subject of ubiquity in computing, Mark Weiser wrote that “[t]he most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it” (Weiser, 1999, p. 94). This study was focussed on touchscreens due to their ubiquity. It considered qualities that arguably have ‘disappeared’ from view through habituation, focusing on particular interactions with the screen surface: the act of running fingertips over broken glass being one example and the act of looking ‘through’ patterns of fingerprints on a screen’s surface being another. The paintings and drawings in this study reveal these ubiquitous aspects of touchscreens.

The research activity was initially focussed on touchscreen gestures, placing these in the context of artistic experimentation. A method of visualising fingerprint marks on screens using fingerprint powder and a document scanner were used to produce images, and later adapted to form the basis for the artwork *Touch* (2021) (Appx. 2). The discussion of this work (in Ch. 3) drew alignments and contradictions between the gestures of touchscreens and those of painting. Similarly, a dialogue was formed between the depicted marks of fingerprints on glass and the marks made using paint, focussing in particular on the concealment of individual brushstrokes.

Turning attention towards materials used as part of touchscreen devices, drawings were made using metalpoint on gesso; resulting in *Trace* (2019), a series of line drawings describing patterns of cracked glass found on smartphone screens (Appx. 4). For these, gold, silver, aluminium, nickel and copper were used to produce metalpoint on gesso drawings; these metals being both historical drawing materials and those used for smartphone components. A dialogue was formed between trace-making in drawing and interpretations of traces in

touchscreen use, including cracked glass and materials used for component parts of smartphones.

As indicated above, emphasis was placed on aspects of touchscreens that are thought to be overlooked or unnoticed. These aspects, including cracked and smudged screens, became a central feature for the studio-based inquiry and for the artworks produced, as well as forming points of convergence between the subjects in question within the textual discourse. Here, painting and drawing are positioned as a means to gain an alternative perspective on a subject and in so doing to disclose some of the unnoticed or concealed aspects therein. The ability for artistic processes to be revelatory of everyday phenomena, or otherwise to 'make the familiar strange', is also embedded in the research question, which asks "what can painting and drawing practice reveal of the contemporary practices and perceptions of touchscreen technology". A principal outcome, therefore, has been to identify, examine and describe aspects that are present yet inconspicuous, using artistic methods.

Placing painting and drawing as research methods evoked ways of looking at or attending to the subject of touchscreens that differ from those involved in context of everyday life. The visual practices in the studio-based research involved deliberate ways of looking, which are, nevertheless, socially constructed. In this instance, an artistic perspective was adopted, implying a way of looking shaped by learned studio-based behaviours (e.g. practices of observational drawing, conceptualising, re-contextualising), as well as historically-informed frameworks of analysing images (e.g. the frameworks of technical production, content, colour, spatial organisation, light and expressive content discussed in Rose, 2016, pp. 61-83). The research therefore entailed questioning the relationship between sensory modality, observation and representation in the making of artworks.

As indicated in the research question, the process was imagined as one of 'interfacing' the screenic and painted surface and thereby bringing to light points of similarity and difference. These included aspects of each surface in terms of their physical compositions (e.g. structural and material properties, typical dimensions); the relationship between image and viewer (e.g. mode of interaction, proximity,

attention, gesture, time); and sensorial associations (e.g. tactility, visual qualities). These points of contrast often arose at different stages of the studio practice, as elements that were noticed, reconsidered, and incorporated as part of the development of artistic ideas. While gesture was given prominence as the main interpretative perspective taken in this thesis, the above points of intersection were significant to the development of the studio practice, as demonstrated in the Appendices.

The response taken in this research to the question of what can be revealed of touchscreen technologies was guided significantly by themes of illusionism and a kind of disappearance arising from a practiced way of looking 'through' pictorial surfaces to the depicted subject beyond. As described in the Contextual Review chapter, the construct of pictorial space and its corresponding ways of looking is part of a longer history of art. Against the backdrop of illusionism, strategies employed by artists working in the photorealist genre that make explicit the materiality and technical production of the photographic image may be viewed as critical commentaries of the image. Here an interruption to a practiced way of reading the image is presented through the depiction not of the notional subject matter, but rather its physical manifestation, including renderings of the marks of smudged newsprint, halftone and creased edges. Guided by these contextual works, as well as ongoing interests in my art practice, the outermost glass surface of touchscreens was placed under consideration for this study, eliciting a way of looking at an object that is often looked through.

The emphasis placed on the touchscreen itself in this study, in preference to the content of smartphone-mediated interactions, is comparable to the approach taken by Marshall McLuhan to media communications, calling for attention to be placed on the medium itself rather than its content (1964). McLuhan asks what effect is generated by each form of media, forming analyses of television, the typewriter, the telephone etc. The same question may reasonably be applied to touchscreens, smartphones, and aligned forms of contemporary technology. One such effect of smartphones suggested in this study is the consolidation of previously separate functions – checking the time, shopping, conversing – that are each enacted through the same set of hand movements, anywhere and anytime.

Abstracting the gestures of smartphone use from their original context, the artwork *Touch* (2021) represents gestures that are highly individual in one respect yet pre-programmed in another. In this regard, comparisons may be drawn with Flusser's writing on media, in which the question of freedom is ever present (Flusser, 1983, 1985).

While illusionistic space is often discussed in relation to the ocular, this study provided the opportunity to consider these familiar ideas and ways of looking with the less familiar emphasis on hapticity – rather than glass which is 'looked at', glass which is perhaps 'touched at'. Tangible expressions of this repeated focus are present in the practice documentation, textual discourse, and artistic outcomes. This research forms a contribution from an artistic perspective to the subject of touch and the technological surface, an area of limited yet expanding interest across academic disciplines.

Another aspect of the relationship formed between artform and subject in this study is the interplay between traditional and new media, notably through the use of traditional materials and techniques to artistically respond to new media. Broader questions, of how traditional and new media relate to one another in a cultural context, are apposite to the juxtapositions realised in the work. One factor at play is how the medium of oil painting – arguably a forerunner of the present-day screen – relates to its latter-day counterpart (e.g. Friedberg, 2006). An alternative to a genealogical reading of the development of media is offered by Bolter and Grusin (2000). As the authors explain, "[w]hat is new about new media comes from the particular ways in which they refashion older media and the ways in which older media refashion themselves to answer the challenges of new media" (Bolter and Grusin, 2000, p. 15). Given that painting and drawing continue to be practiced as artforms and are experienced as art objects, it is fitting to ask what influence touchscreen-familiarity might have on the perception of these 'older' forms.

While the research question asks, "what can painting and drawing practice reveal of the contemporary practices and perceptions of touchscreen technology", the resulting research indicates further lines of inquiry, including the

aforementioned “what can the present-day condition of touchscreen-familiarity reveal of painting and drawing?”. The overarching subject of gesture is itself influenced by touchscreen gestures that were novel a decade or so ago and that have since become habitual; the first consumer smartphone with a direct finger input touchscreen, rather than stylus or keypad operation, being introduced in 2007. The consequences of increased familiarity of touchscreens on painting and drawing include direct effects, such as those of artworks being increasingly reproduced and experienced via screen-mediated digital portals. These effects are compounded by pervasive shifts of a perceptual nature evolving in tandem with the developments of screen and haptic computing (e.g. Bruno, 2014; Parisi, Paterson and Archer, 2017). As a result of considering touchscreens in the context of artistic research, this study suggests features of painting and drawing that are brought to light differently in relation to touchscreen familiarity, including those of surface qualities; interactions of light and layers; scale and aspect ratio; practices of viewership; and environmentally informed understandings of materials. The exploration of these themes, in the context of this study, may serve as the basis for future investigations.

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Appendix 1

Practice part 1: Touch

1.1: fingerprint ink, tracing paper and cellophane

Date: 23/03/2017

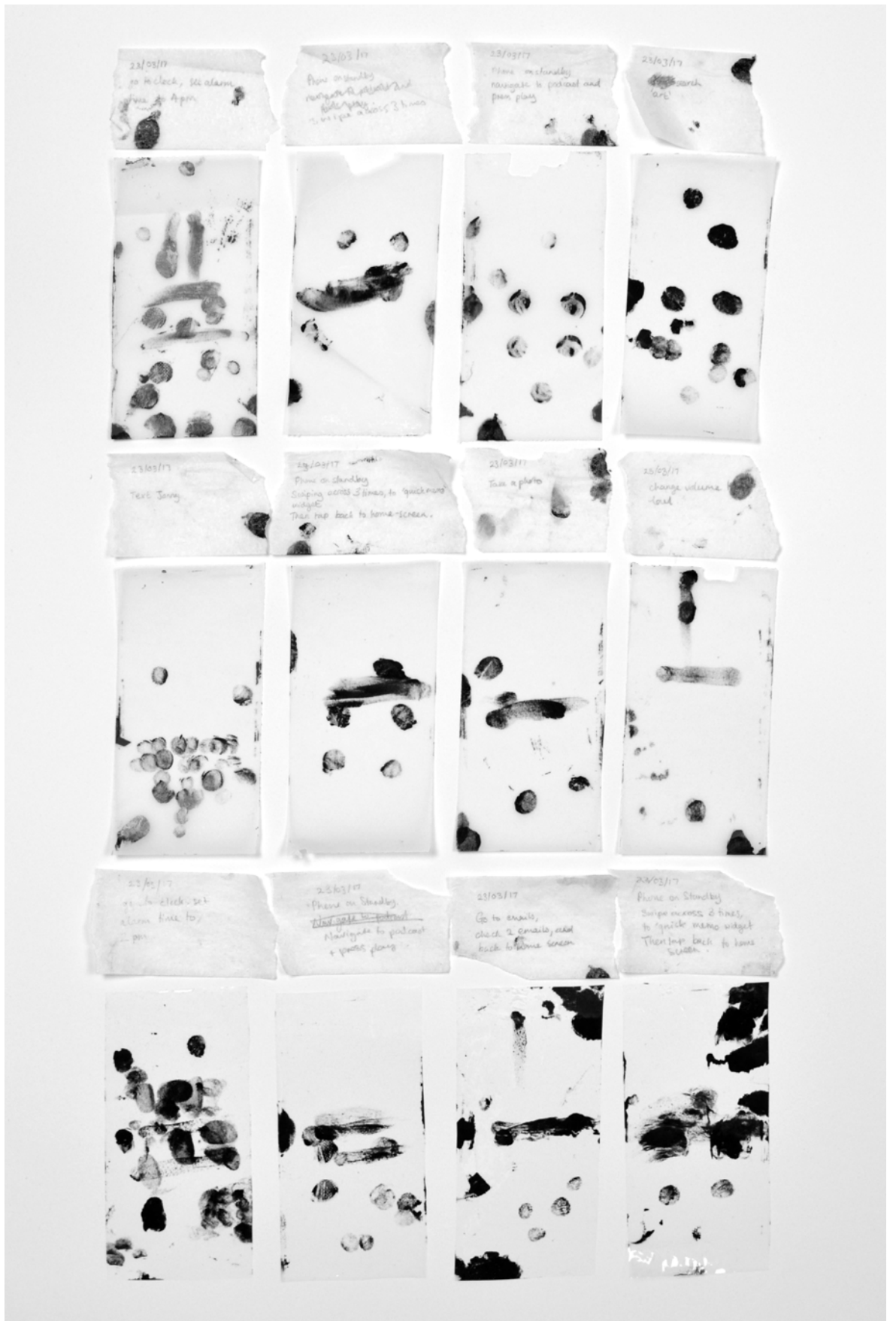
Intention: towards testing a way of visualizing the gestures that I use to operate a touchscreen phone, using fingerprint ink. As an initial action that may lead to further inquiry.

Description: hypothetical tasks relating to mobile phone use were written. Pieces of tracing paper and cellophane were attached to a touchscreen phone. Fingers were covered in fingerprint ink, and the written tasks were undertaken one at a time, replacing the sheet of cellophane or tracing paper between each.

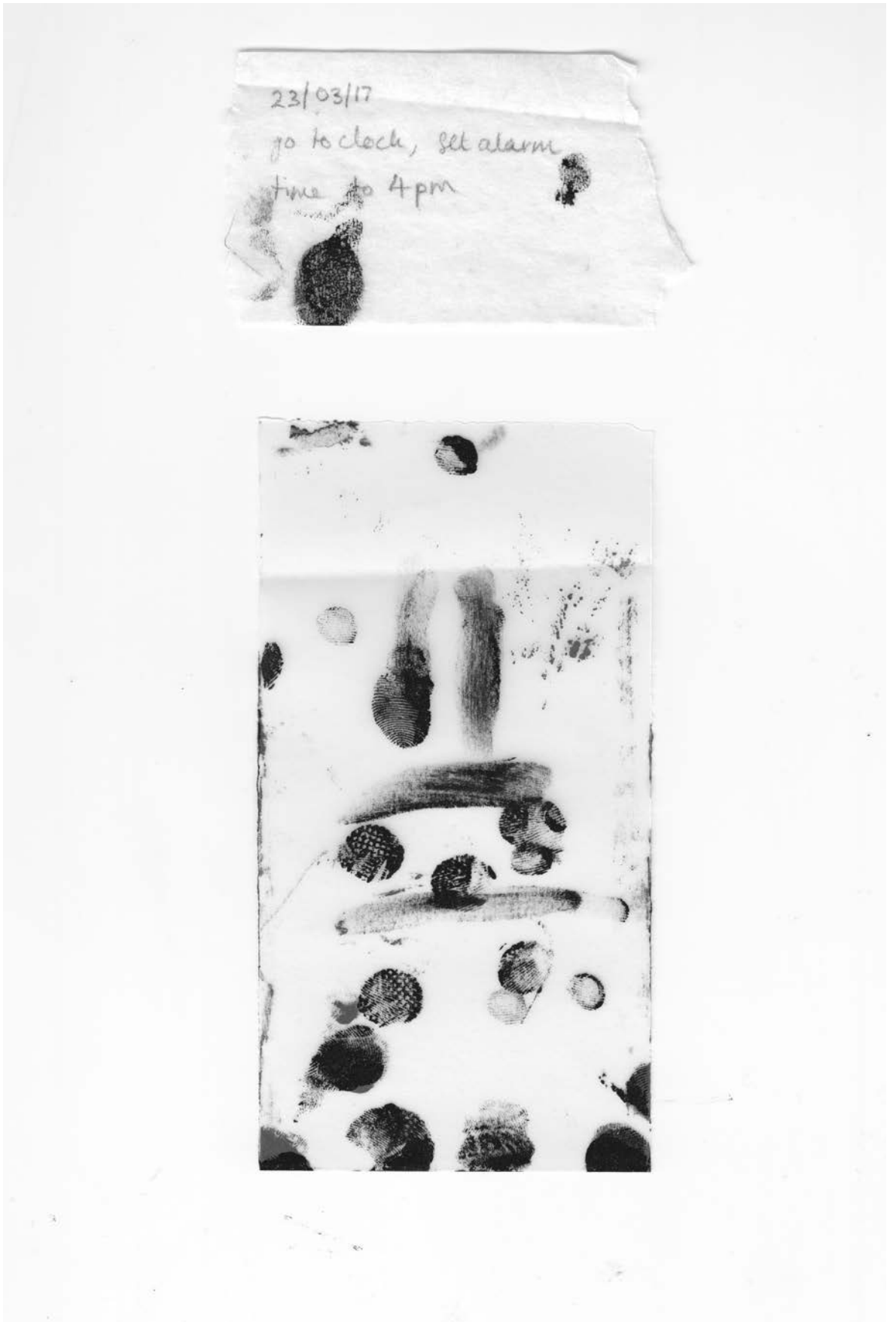
Outcome: twelve pieces of tracing paper and cellophane marked with fingerprint ink and notes detailing corresponding tasks.



Images documenting 1.1, 2017, digital photograph.



1.1 outcomes, 2017, fingerprint ink on tracing paper and cellophane sheets, and masking tape with notes in graphite, arrangement: 57 x 32 cm, sheet: each 13.5 x 7 cm. Reproduction: digital photograph.



1.1 outcome: *Go to clock, set alarm time to 4pm*, 2017, fingerprint ink on tracing paper and masking tape with notes in graphite, sheet: 13.5 x 7 cm.
Reproduction: scanned digital image.

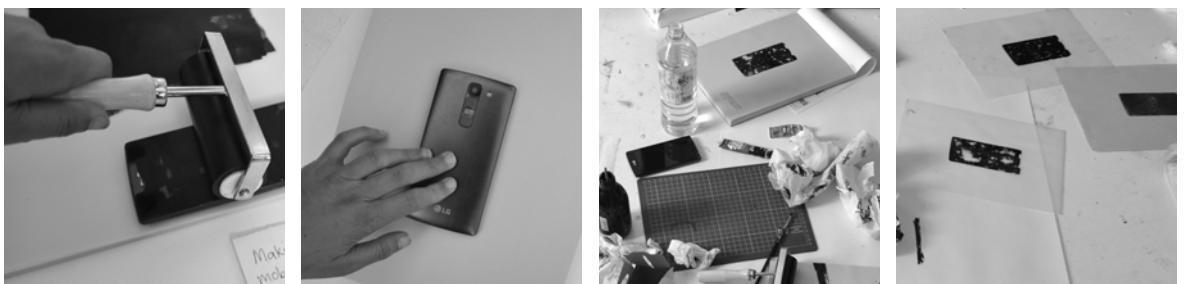
1.2: cracked screen and relief printing

Date: 09/06/2017

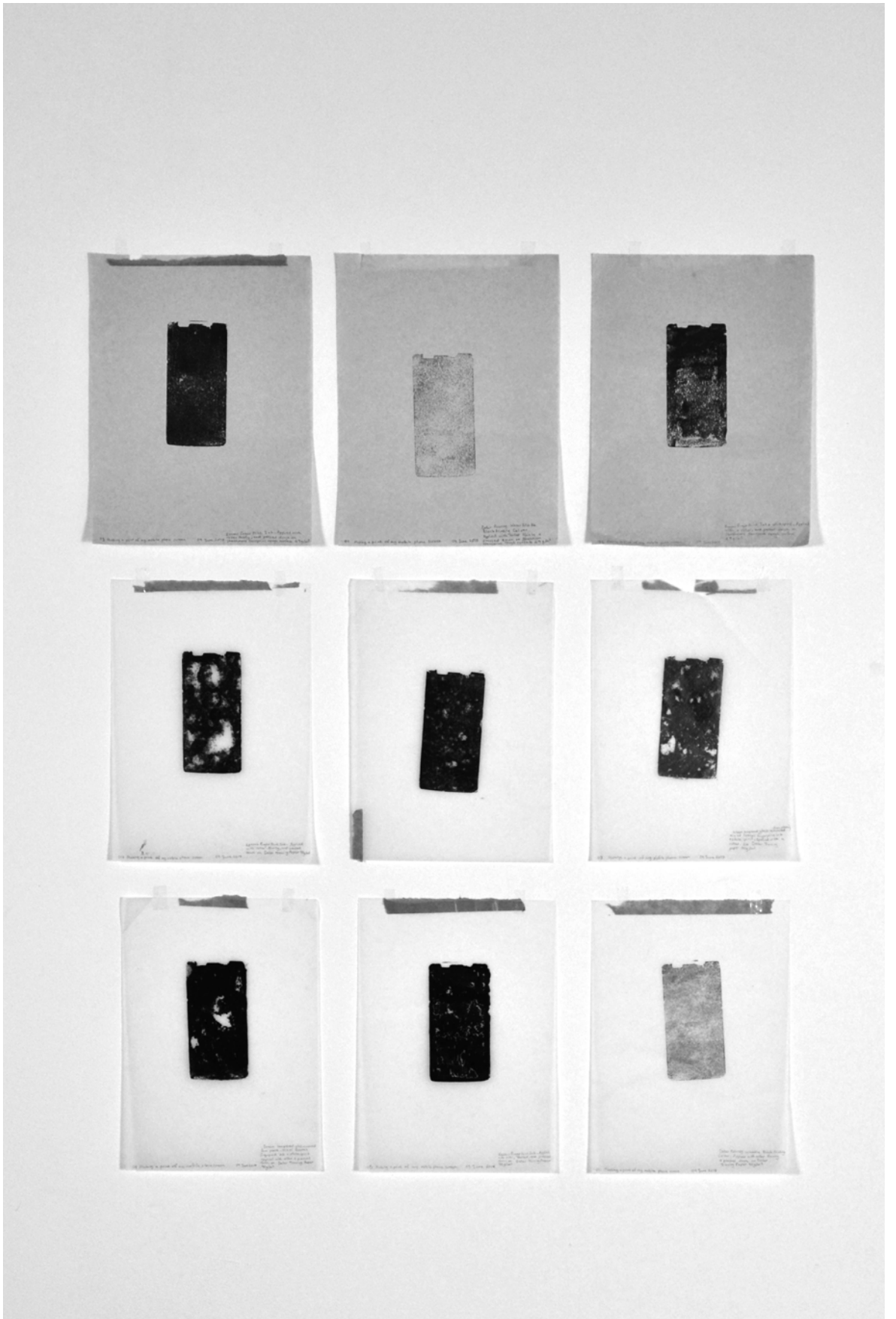
Intention: towards making a record of the cracked and chipped glass of a touchscreen phone that was familiar to me. Here using fingerprint ink and block printing ink.

Description: ink applied to glass mobile phone screen cover using a roller. A relief print made by pressing the surface against paper (newsprint and tracing paper). This process repeated with alterations made, aimed at revealing cracks in the glass as marks in the print.

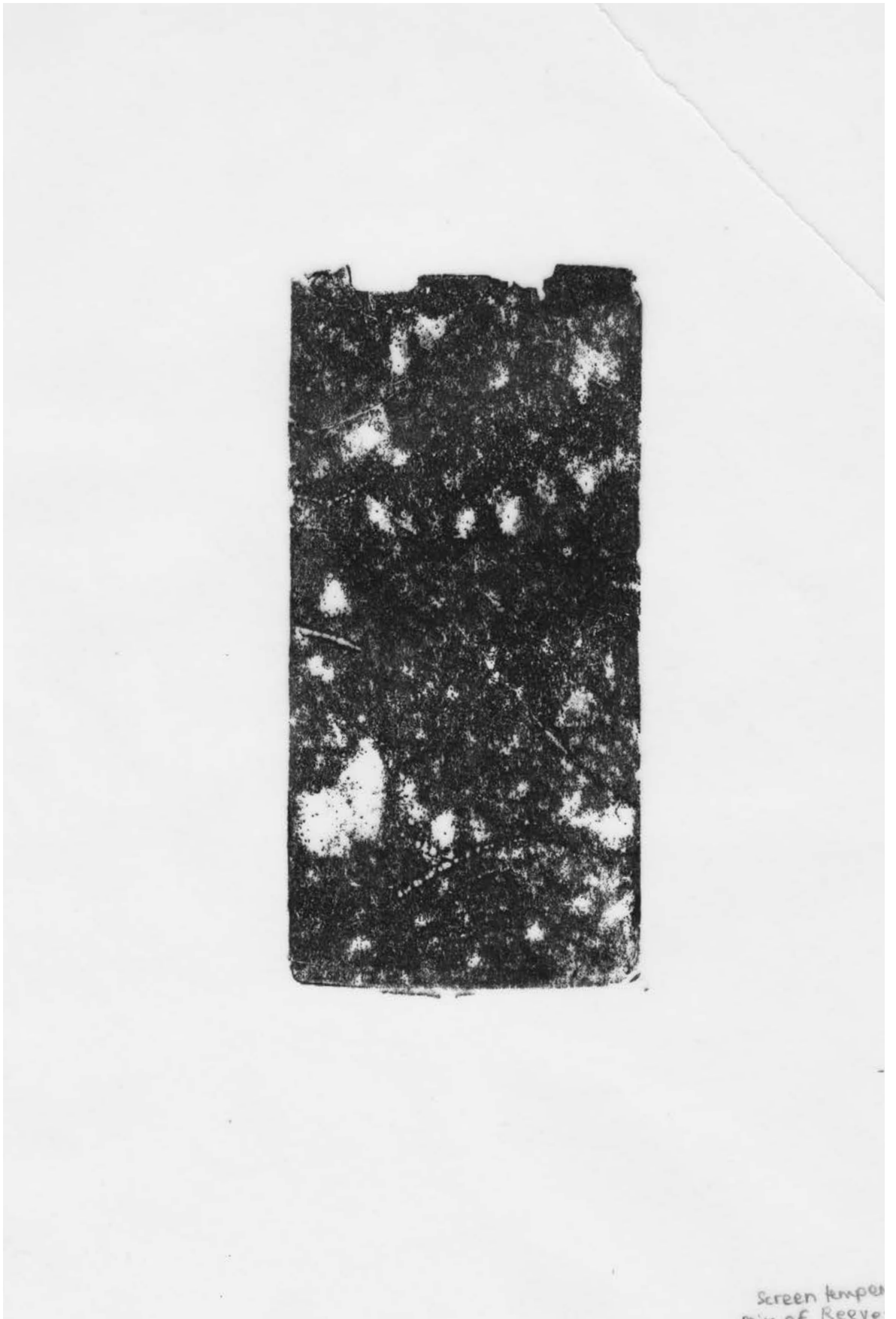
Outcome: nine relief prints on tracing paper and newsprint with notes detailing materials used.



Images documenting 1.2, 2017, digital photograph.



1.2 outcomes, 2017, relief print on tracing paper and newsprint with notes in graphite, arrangement: 97 x 75 cm, sheet: top row each 30.5 x 22.5 cm, middle and bottom row each 29.5 x 21 cm. Reproduction: digital photograph.



1.2 outcome: *A print of my mobile phone screen 07, 2017, relief print on tracing paper, detail.*
Reproduction: scanned digital image.

1.3: cracked glass and a document scanner

Date: 09/06/2017

Intention: towards making a record of the cracked and chipped glass of a touch-screen phone, using a document scanner.

Description: The outer layer of glass (a screen cover) of a touchscreen phone was removed and cleaned. It was then placed on the platen of a flatbed document scanner and used to produce a digital image.

Outcome: a digital image of a cracked glass screen cover.



Images documenting 1.3, 2017, digital photograph.



1.3 outcome: image of a cracked glass touchscreen cover produced using a document scanner, 2017, scanned digital image.

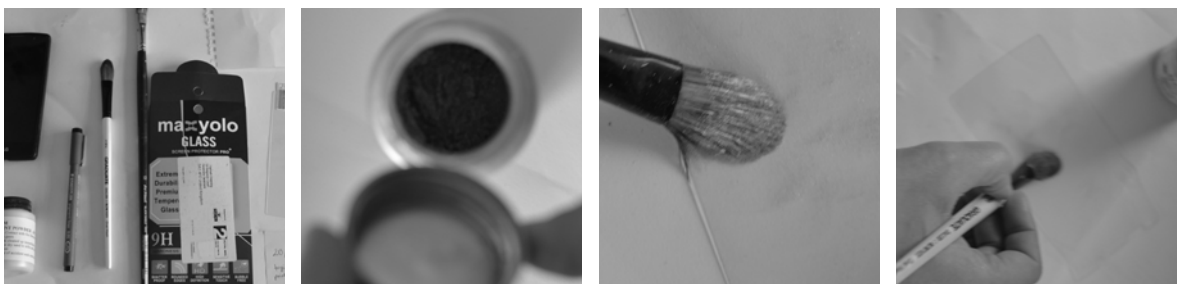
1.4: glass screen cover and fingerprint powder

Date: 20/06/2017

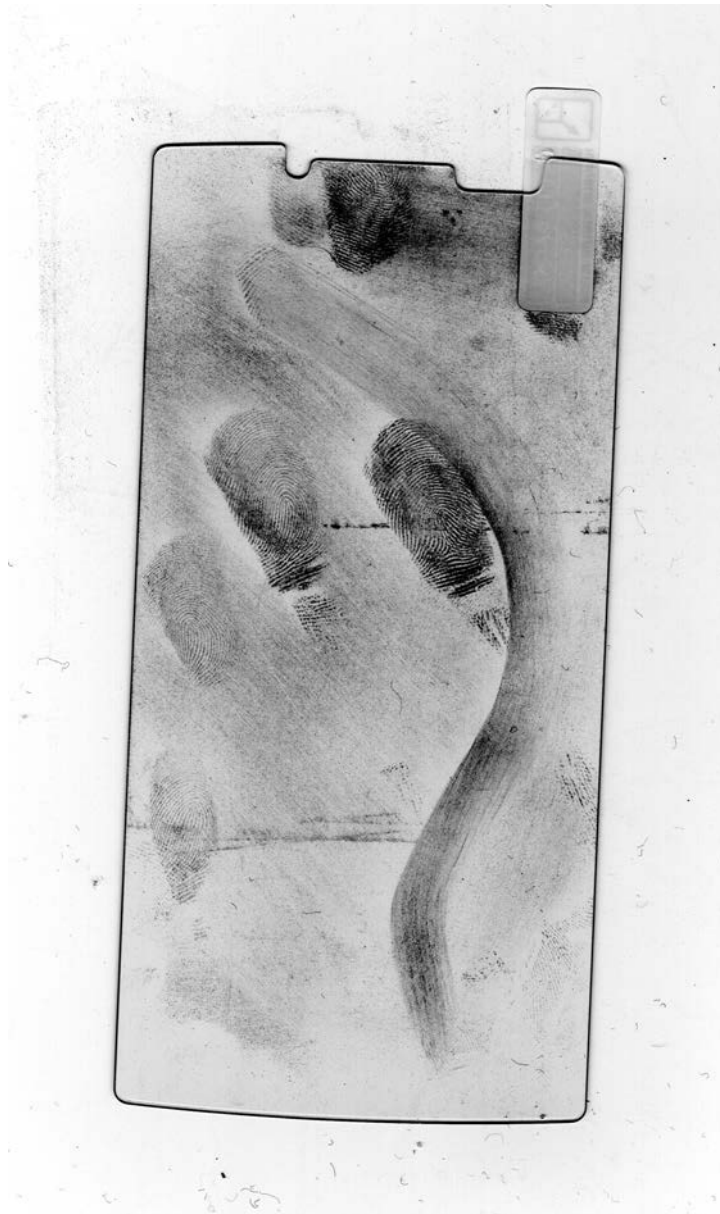
Intention: towards testing a way of visualizing the gestures that I use to operate a touchscreen phone, using fingerprint powder.

Description: hands were used to create latent prints on a glass screen cover. Aluminium powder lightly dusted over the surface of the glass, which was then placed in a flatbed document scanner and used to produce a digital image. The image was adjusted on the computer with the intention of clarifying the marks.

Outcome: digital image of fingerprints on glass.



Images documenting 1.4, 2017, digital photograph.



1.4 outcome: image of fingerprint powder on glass touchscreen cover, 2017, scanned digital image.

1.5: touchscreen phone, hands and a video camera

Date: 21/06/2017 and 23/06/2017

Intention: towards studying the gestures that I use to operate a touchscreen phone over the period of a day. Towards collecting material that may be integrated in further studio-based processes, being in the form recorded video footage and thoughts about time, attention, habituation and movement in the context of the research.

Description: every instance of using my phone over the period of a day was recorded, using the video function of a digital SLR camera with spoken descriptions. This was repeated twice.

Outcome: notes reflecting on the experience of doing the activity; digital video.



1.5 outcome: 23/06/2017, 2017, digital video, 37 min.
Reproduction: composite digital image of several frames.



1.5 outcome: 23/06/2017, 2017, digital video, 37min.
Reproduction: digital photograph of video playing on a laptop computer.

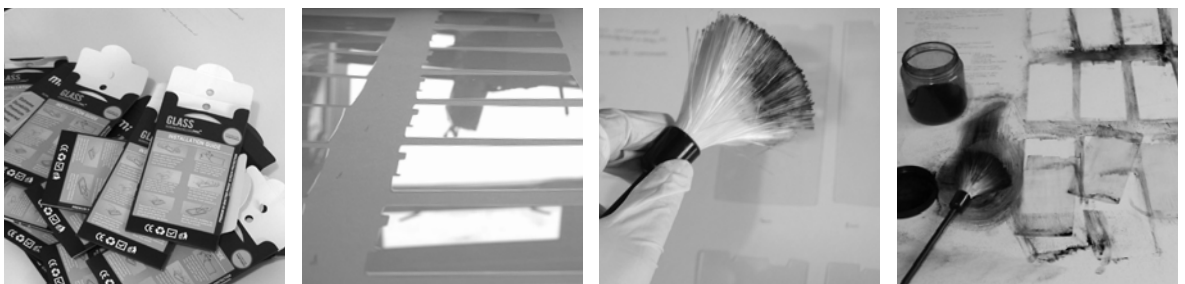
1.6: hourly latent prints and glass screen covers.

Date: 20/09/2017

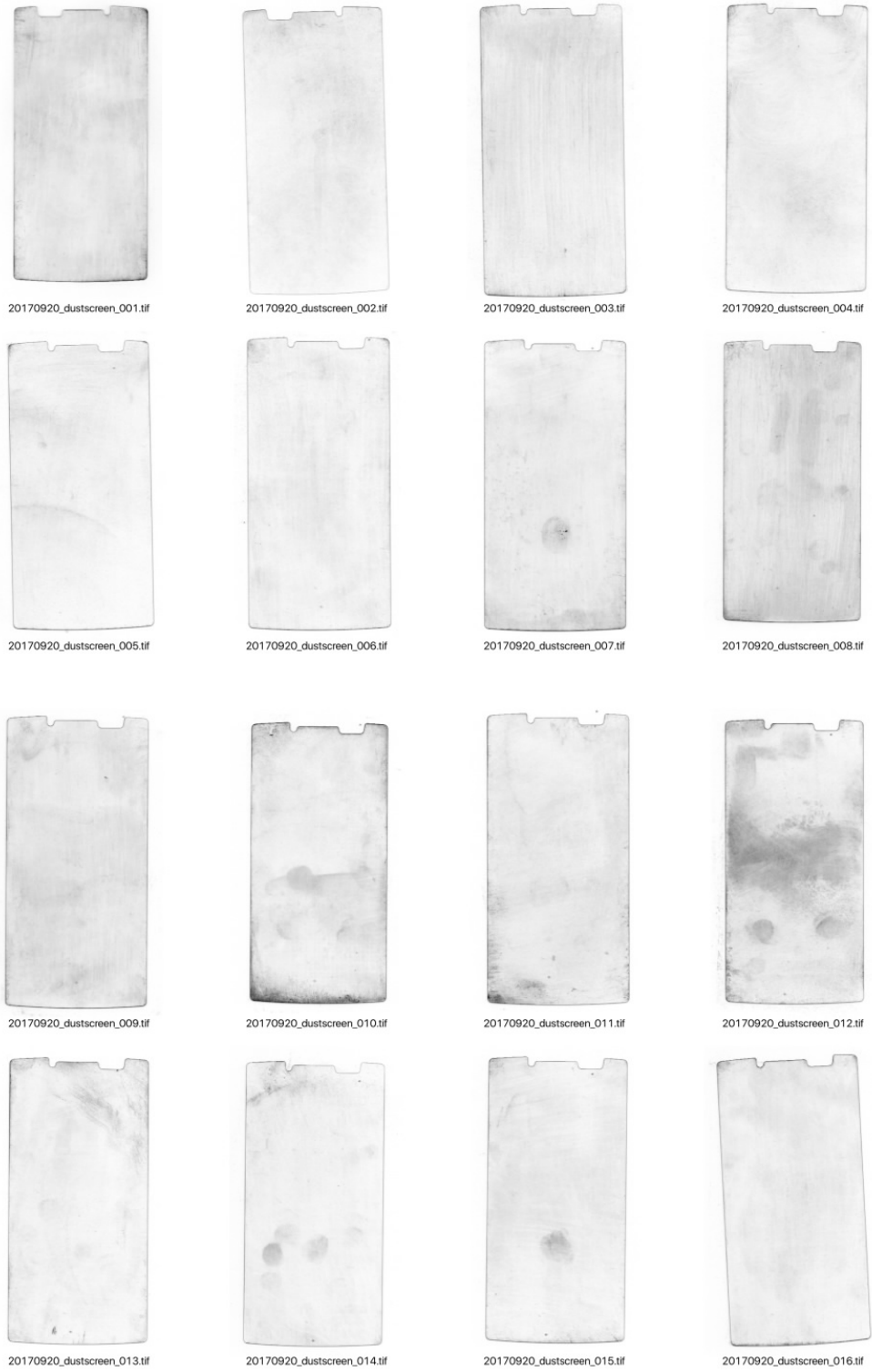
Intention: towards studying fingerprint marks made by operating a touchscreen phone over the period of a day, using fingerprint powder.

Description: twenty-four glass screen covers were prepared and cleaned, removing plastic and adhesive layers, leaving only glass. The glass was placed over the touchscreen of a phone, which was to be used as normally as possible for an hour. On the hour, the glass was carefully replaced. This was repeated over a day, yielding twenty-four glass screen covers with latent prints on them. These were then dusted with black fingerprint dust and scanned with a document scanner to produce digital images.

Outcome: notes reflecting on the experience of doing the activity; twenty-four digital image files of fingerprint marks on glass.



Images documenting 1.6, 2017, digital photograph.



1.6 outcomes, 2017, composite of several scanned digital images with text additions.

1.7: re-enacted hand movements, ink and glass.

Date: 07/09/2017

Intention: towards studying fingerprint marks made by operating a touchscreen phone over the period of a day, using fingerprint powder. Here, to re-enact the movements recorded in 1.5 in conjunction with glass and ink.

Description: a piece of glass was partly covered, revealing a window the same size as a touchscreen phone. This was positioned horizontally and under it a DSLR camera with a video function pointing upwards. A laptop computer was placed near-by to play video footage from 1.5 at half speed. Fingers were covered in a mixture of fingerprint ink and painting medium, and used to re-enact the movements seen on the video.

The videos produced were adjusted, cropping the edges and adjusting the speed. Stills were made in to a composite digital image which was printed.

Outcome: a digital video; printed stills from the videos.



1.7 outcome: *Stills from 23/06/2017 re-enacted with ink, 2017*, laser print on copy paper, sheet: 19.5 x 28.2 cm.
Reproduction: digital photograph.



1.7 outcome: *23/06/2017 re-enacted with ink*, 2017, digital video, 3 min 07 sec.
Reproduction: digital photograph of video playing on a tablet computer.

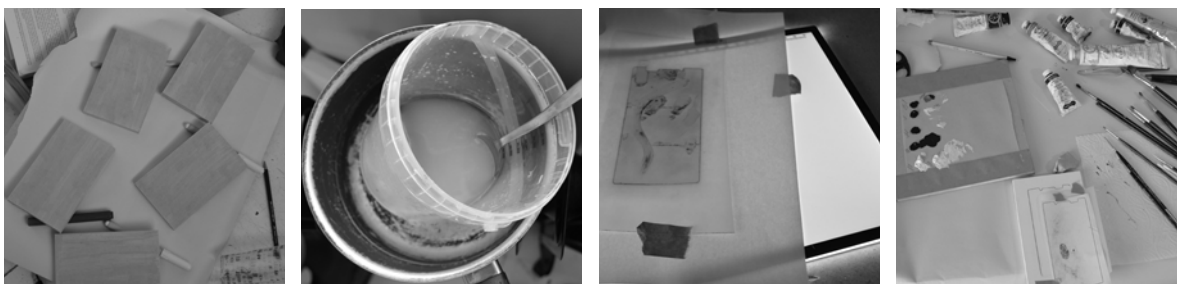
1.8: painting on boards and fingerprints

Date: 10/11/2017 continuing over several weeks

Intention: to test making a smooth ground to paint on, intending to make paintings that draw a relationship between the surface qualities of a screen and that of the painting (i.e. flat, smooth, uniform)

Description: MDF boards were prepared with different grounds: acrylic primer, gesso and a combination of gesso and a layer of thinned acrylic primer. As reference material for the paintings, printed images from 1.3 and 1.4 were used, as well as new images made by repeating the process of 1.4. An outline was traced and transferred to the ground before painting using oil paint and matt glaze medium. Some were left unfinished when the intention of testing seemed to have been satisfied.

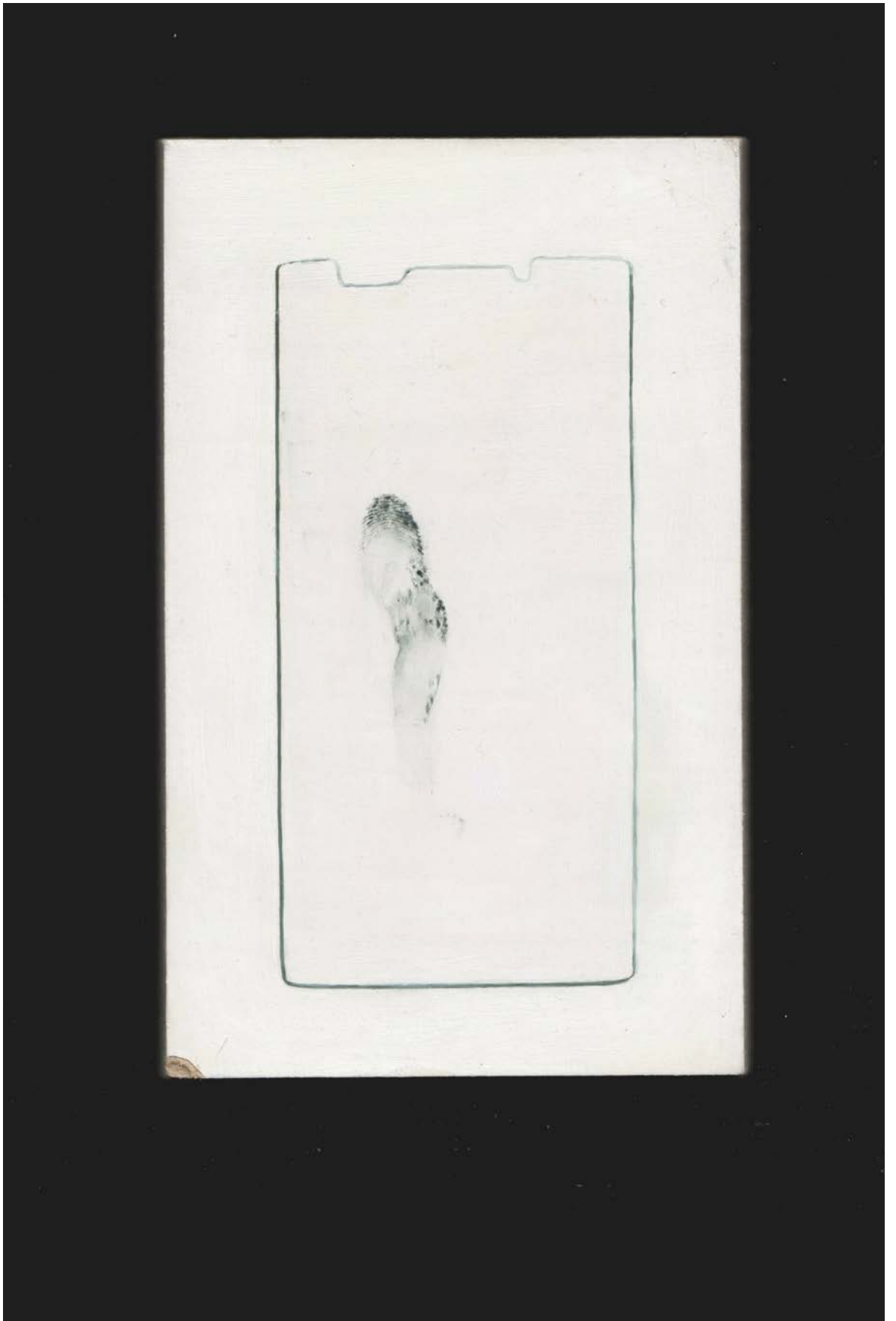
Outcome: five paintings on boards prepared with grounds of varying material composition; notes reflecting on the properties of the materials, questions and problems to follow up on.



Images documenting 1.8, 2017, digital photograph.



1.8 outcomes, 2017, oil on gesso boards with various grounds of gesso and acrylic, arrangement: 34 x 32 cm, boards: each 16.5 x 10.3 x 1.2 cm.
Reproduction: digital photograph.



1.8 outcome, 2017, oil on gesso board, board: 16.5 x 10.3 x 1.2 cm.
Reproduction: scanned digital image.

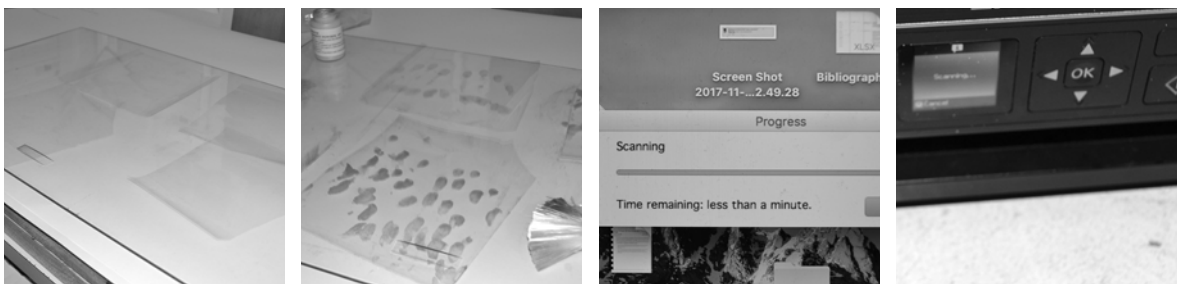
1.9: fingerprints and cellophane

Date: 10/11/2017

Intention: to extend the process of creating fingerprint marks used in 1.4 and 1.6 into a larger area. Also, to test the capacity of creating similar marks using a material other than glass, here using cellophane.

Description: hands were used to create marks on pieces of cellophane. These were dusted with aluminium powder, cut into sections to fit a document scanner and scanned to produce digital images. The images were adjusted, printed, and glued together.

Outcome: three collages of laser prints on paper, glue and tape, pieces of cellophane containing latent prints dusted with aluminium powder.



Images documenting 1.9, 2017, digital photograph.



1.9 outcomes, 2017, latent print dusted with aluminium powder on cellophane, and tape, sheet (irreg.): 16.2 x 19 cm.
Reproduction: digital photograph.



1.9 outcomes, 2017, three collages of laser prints on paper, glue and tape, arrangement: 100 x 87 cm, sheet (irreg.): clockwise from top 53.5 x 52.5 cm, 41 x 46.5 cm, 55 x 38.5 cm
Reproduction: digital photograph.

1.10: hand movements, fingerprints and glass screen covers

Date: 11/01/2018

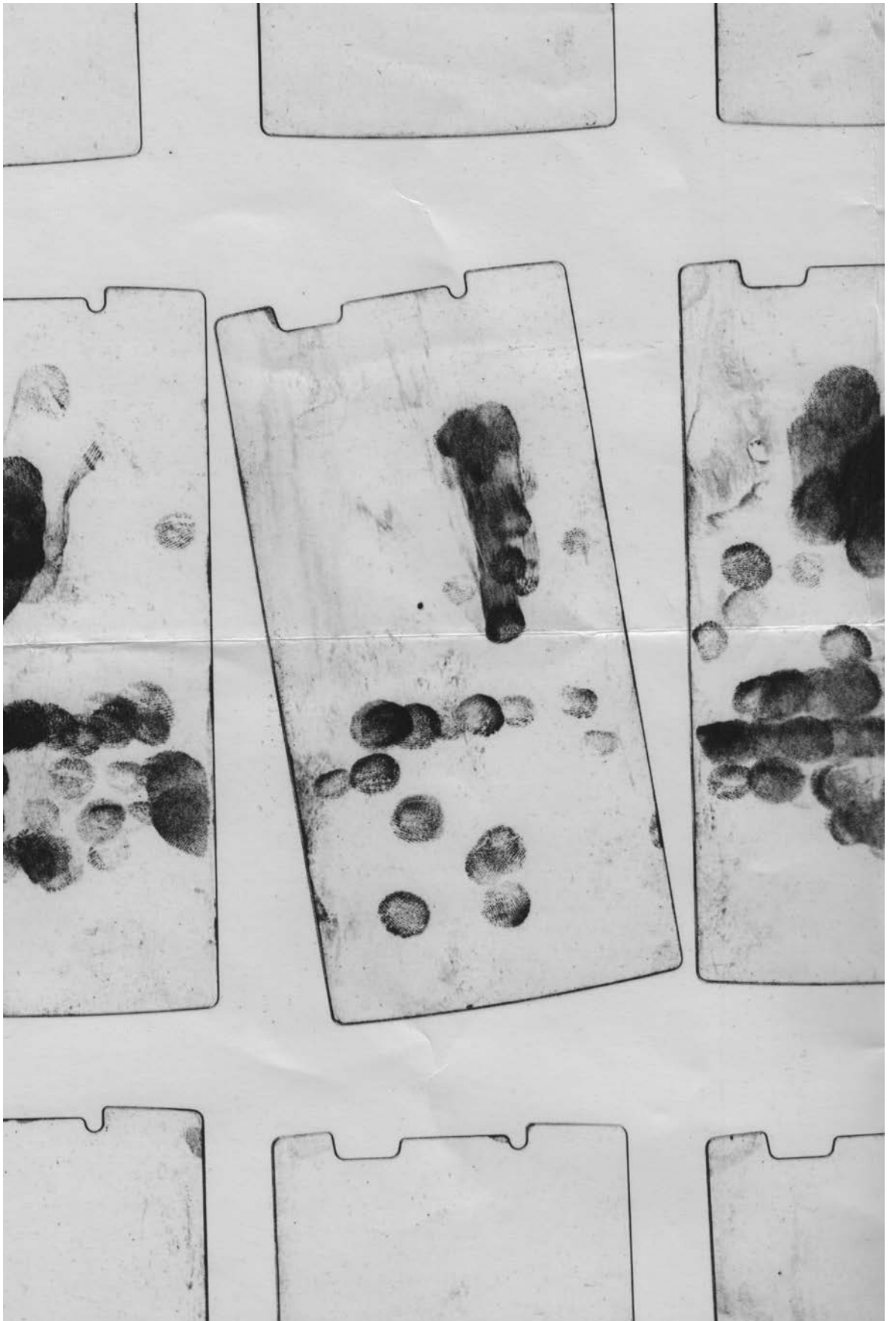
Intention: towards studying fingerprint marks made by operating a touchscreen phone over the period of a day, using fingerprint powder. Here, to re-enact the movements recorded in 1.6 in conjunction with glass screen covers and fingerprint powder.

Description: the digital video *23/06/2017* was divided into forty-four parts based on what felt like a 'phrase' or section of movement. In a similar process to 1.8 a glass screen cover was placed on top of the mobile phone. Movements from the video were re-enacted, replacing the glass between each of the forty-four sections. The glass screen covers were dusted with aluminium powder to reveal latent prints, later scanned to create digital files. These images were combined, adjusted and printed.

Outcome: a laser print on paper.



Images documenting 1.10, 2017, digital photograph.



1.10 outcome, 2017, laser print on paper, detail.
Reproduction: scanned digital image.



1.10 outcome, 2017, laser print on paper, sheet: 89 x 89 cm.
Reproduction: digital photograph.

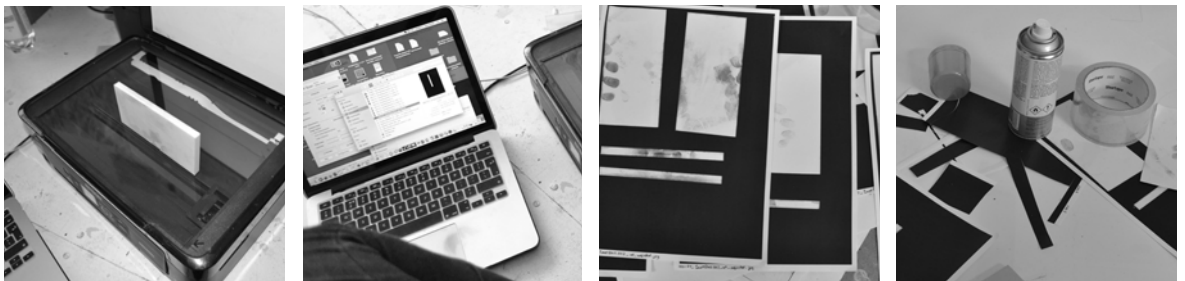
1.11: fingerprints and a perspex block

Date: 07/01/2018

Intention: towards testing a way of creating a three-dimensional representation of the movements involved in operating a touchscreen phone.

Description: A white acrylic block was held, then dusted with aluminium powder to reveal latent prints. The block was then scanned with a document scanner on four of its faces. This was repeated with several hand postures. The digital images produced were adjusted and printed on paper. One set was cut out and attached to an MDF block.

Outcome: an object made from MDF, laser print on paper, glue and tape.



Images documenting 1.11, 2018, digital photograph.



1.11 outcome, 2017, scanned digital image.



1.11 outcome, 2017, object of MDF, laser print on paper, glue and tape, object: 14 x 7 x 0.9 cm. Reproduction: digital photograph.

1.12: making Touch

Date: January 2018 onwards

Intention: towards making an artwork entitled *Touch*.

Description: the digital video 23/06/2017, divided into forty-four parts, was used as a basis for artworks. The parts were each re-enacted using a white acrylic bloc, then dusted with aluminium powder on each of its six faces to reveal latent prints. The bloc was scanned, using the process in 1.11. The images produced was printed out and used as reference material to paint from. The images of the fingerprint marks were painted on gesso panels of the same scale as the smart-phone. Together these formed an artwork.

Documentation includes the processes of: i) making the gesso panels; ii) creating the images; iii) transferring the images; iv) colour choices; v) painting; vi) documenting time; vii) layout considerations

Outcome: the artwork produced is documented in Appendix 2



Images documenting 1.12 i) making the gesso panels, 2018, digital photograph.



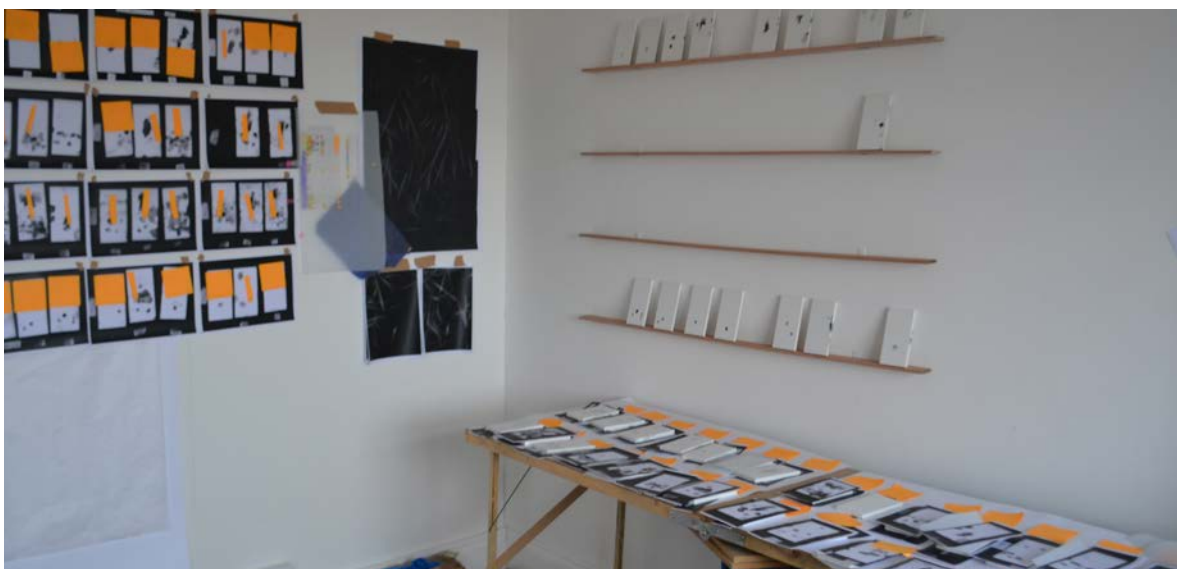
Images documenting 1.12 ii) creating the images, 2018, digital photograph.



Images documenting 1.12 iii) transferring the images, 2018, digital photograph.



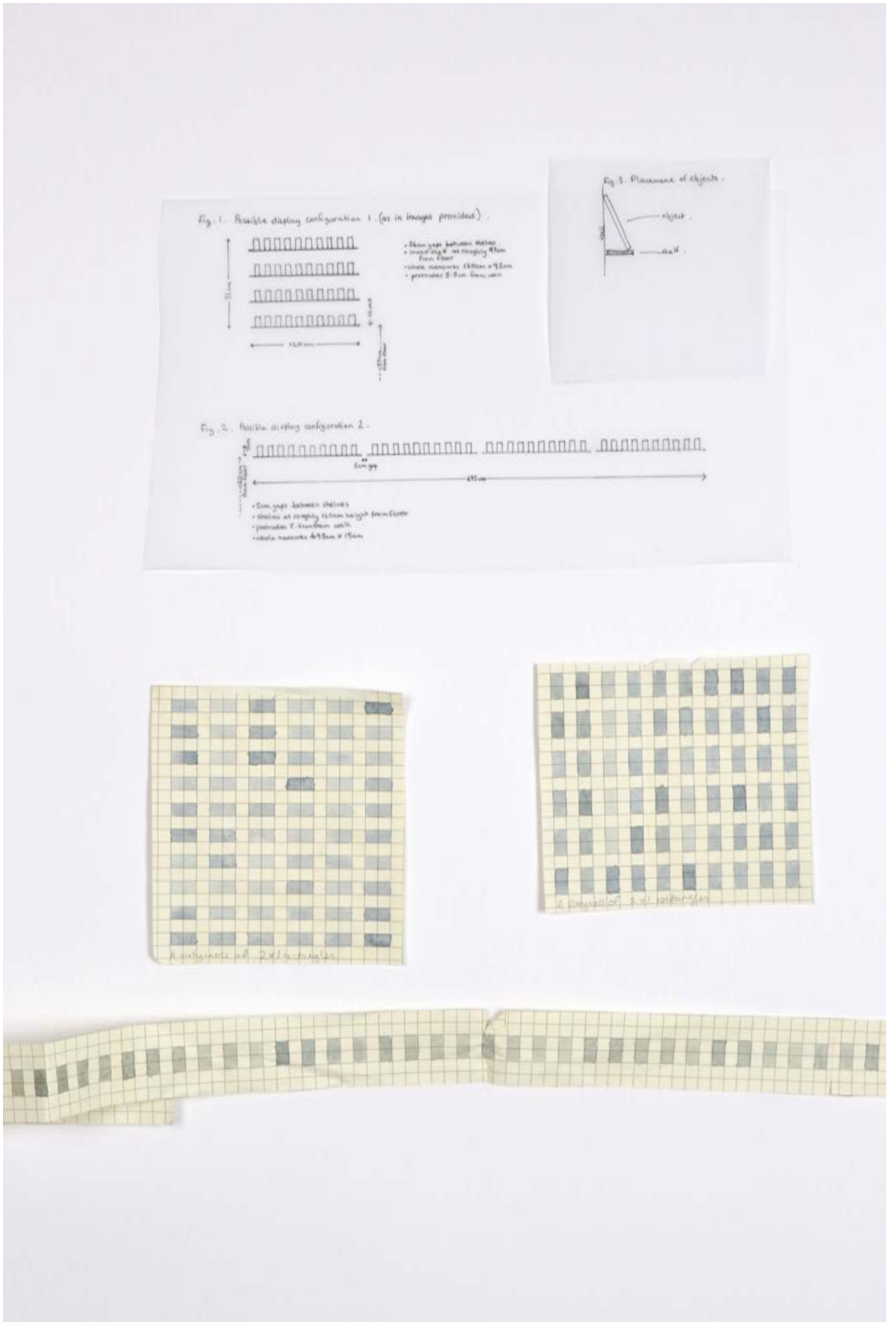
Images documenting 1.12 iv) colour choices, 2018, oil paint and medium on drafting film with pencil annotations and tape.
Reproduction: scanned digital image.



Images documenting 1.12 v) painting, 2018, digital photograph.



Images documenting 1.12 vi) documenting time, 2018, drafting film with multimedia chart. Reproduction: digital photograph.



Images documenting 1.12 vii) layout considerations, 2018, drafting film, paper, watercolour, pencil, pen.
 Reproduction: digital photograph.

Appendix 2

Artworks part 1: Touch

2.1: artwork information and accompanying text

Touch (2021)

Forty-four oil and acrylic on gesso painted objects, and a list.

Each painting: 14 x 7 x 1 cm

List: variable

Overall dimensions: variable

Touch consists of 44 painted objects. Together they represent one day of observed smartphone use, beginning with selecting 'snooze' in response to the morning alarm clock.

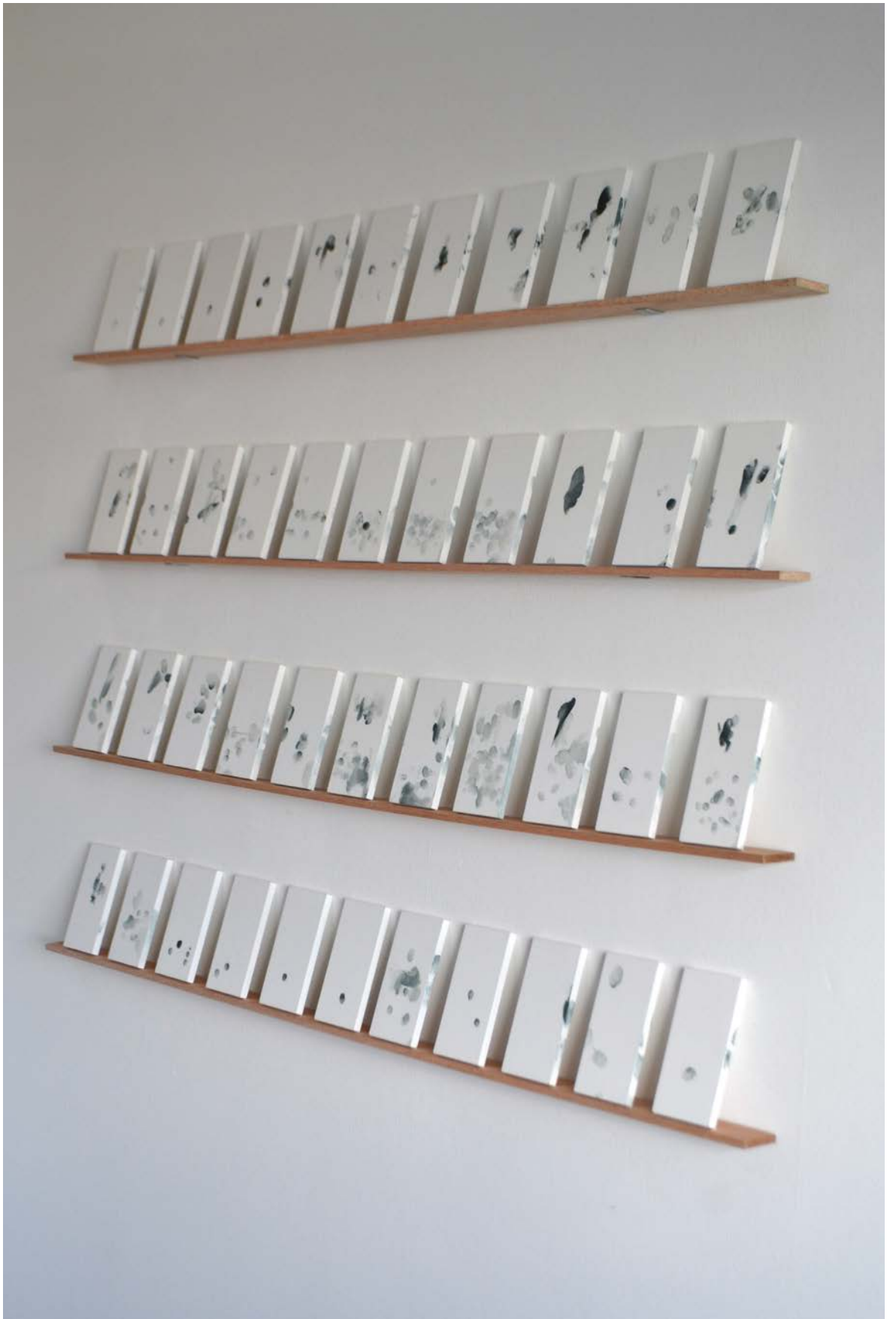
Over the last decade or so, the movements of fingers interfacing small glass screens has become a daily activity for many. With attention fixed on the task at hand, these gestures are performed with unthinking fluency; a silent haptic choreography corresponding to this technological moment.

Latency is the state of existing but not yet manifest; hidden or concealed. A 'latent print' is produced by dusting aluminium powder very lightly over a surface revealing fingerprint marks. *Touch* was made by simulating these marks in oil paint in a similarly deliberate, slow, contemplative act, bringing in to dialogue the contrasting marks left by the gestures of touchscreen use and those of painting.

2.2: artwork documentation images



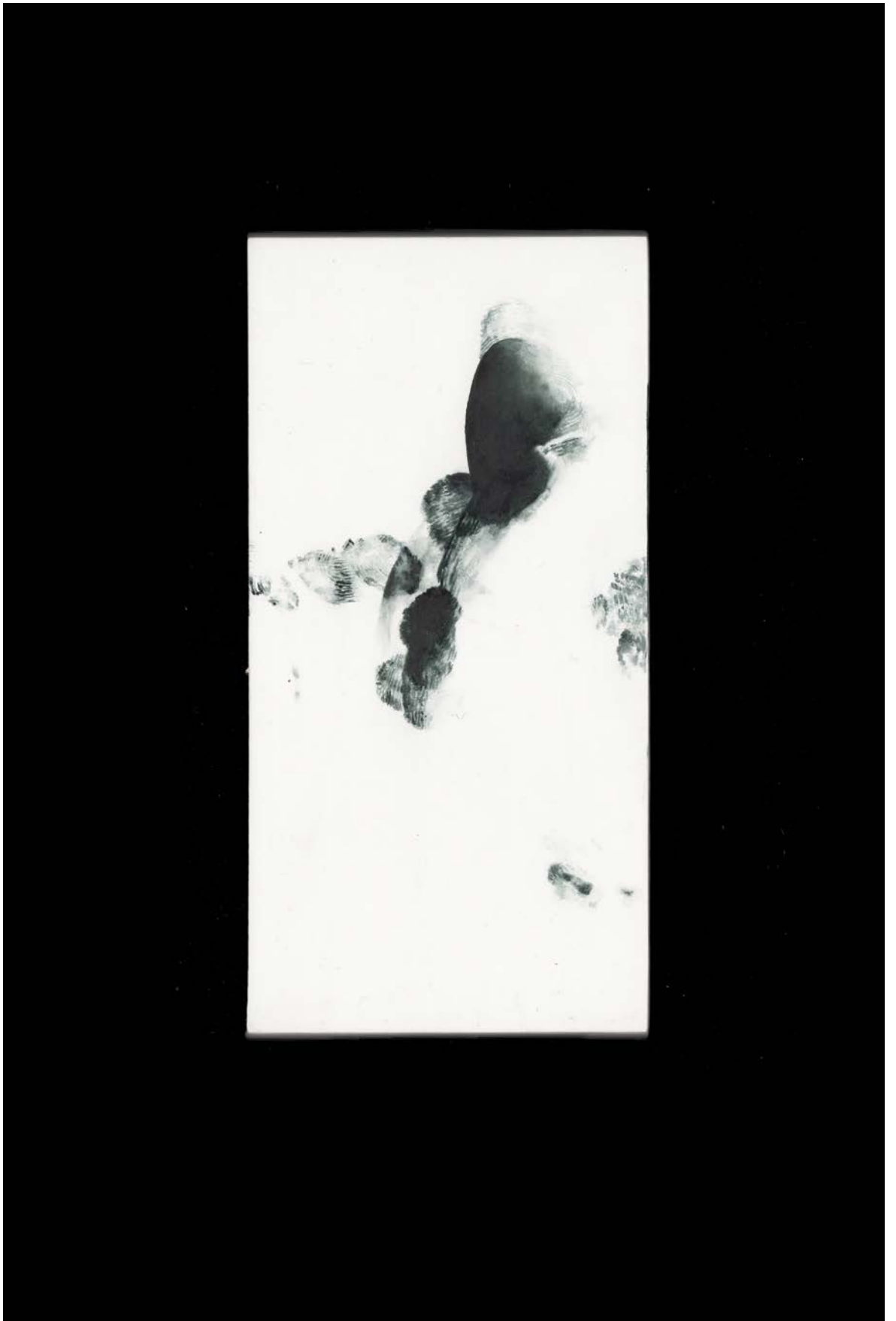
Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, painted objects as installed, paintings: 14 x 7 x 1 cm, installation: 92 x 120 x 5.5 cm.
Reproduction: digital photograph.



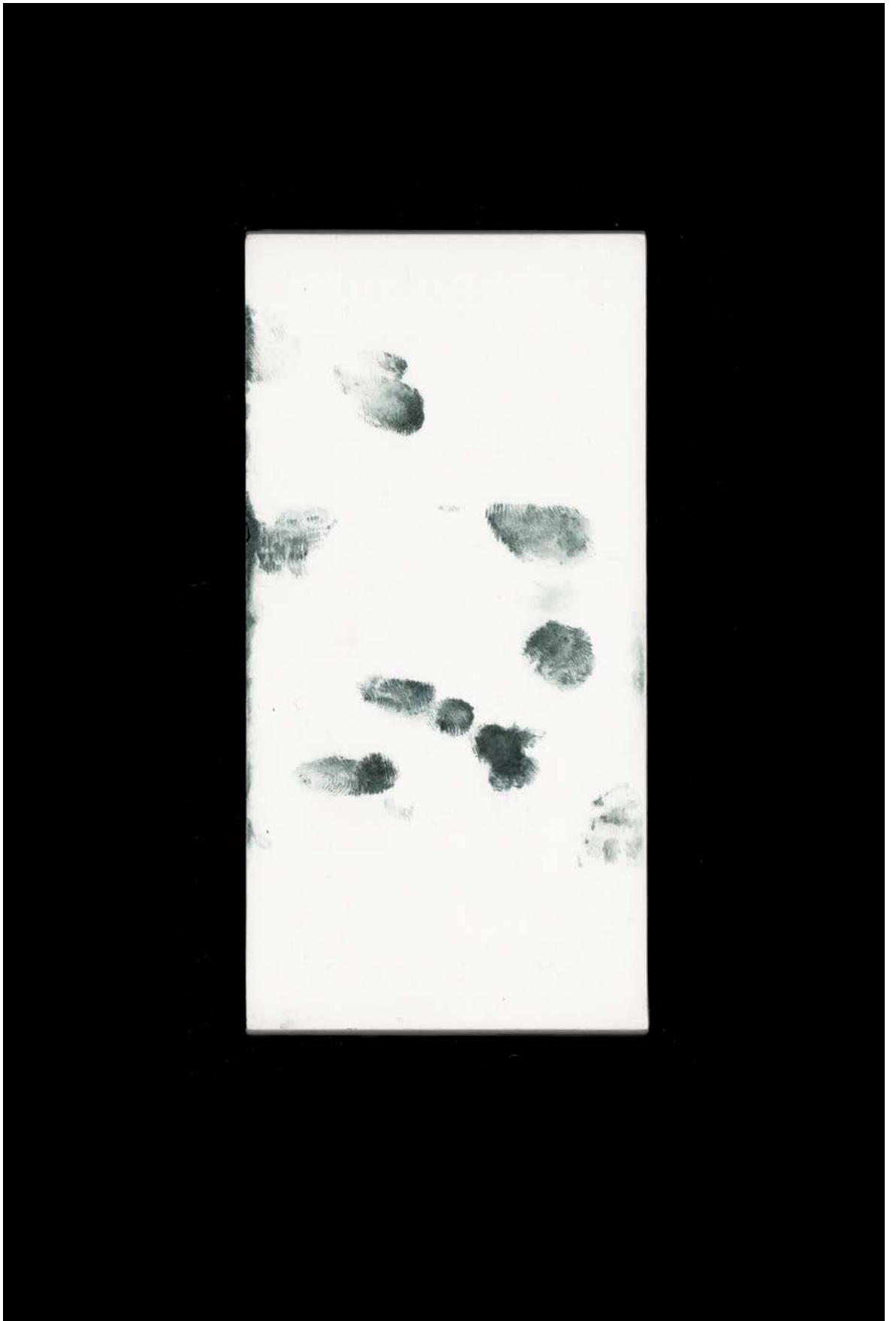
Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, painted objects as installed, paintings: 14 x 7 x 1 cm, installation: 92 x 120 x 6 cm.
Reproduction: digital photograph.

1 alarm clock, press 'snooze'
2 alarm clock, press 'snooze'
3 alarm clock, press 'dismiss'
4 unlock
5 adjust brightness of screen
6 select emails
7 scroll through emails, select one
8 read email
9 place email in a folder
10 scroll through emails, select one
11 read email, select another, read email
12 scroll through emails, select one
13 unlock
14 adjust brightness of screen
15 read a text message, compose a reply
16 type in a phone number
17 write a text message
18 edit a text message
19 edit a text message
20 check a text message
21 send a text message
22 check a sent text message
23 unlock
24 check
25 check
26 read a text message
27 scroll through text messages, select one
28 write a text message
29 edit and send a text message
30 read a text message
31 check
32 unlock
33 internet search
34 read web page
35 set timer
36 stop alarm, reset timer
37 stop alarm, reset timer
38 stop alarm, reset timer
39 stop alarm clock
40 check the time, scroll through audio files
41 select and play an audio file
42 check
43 answer a call
44 end call

Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, list printed on acetate as installed: 30 x 21 cm
Reproduction: digital photograph.



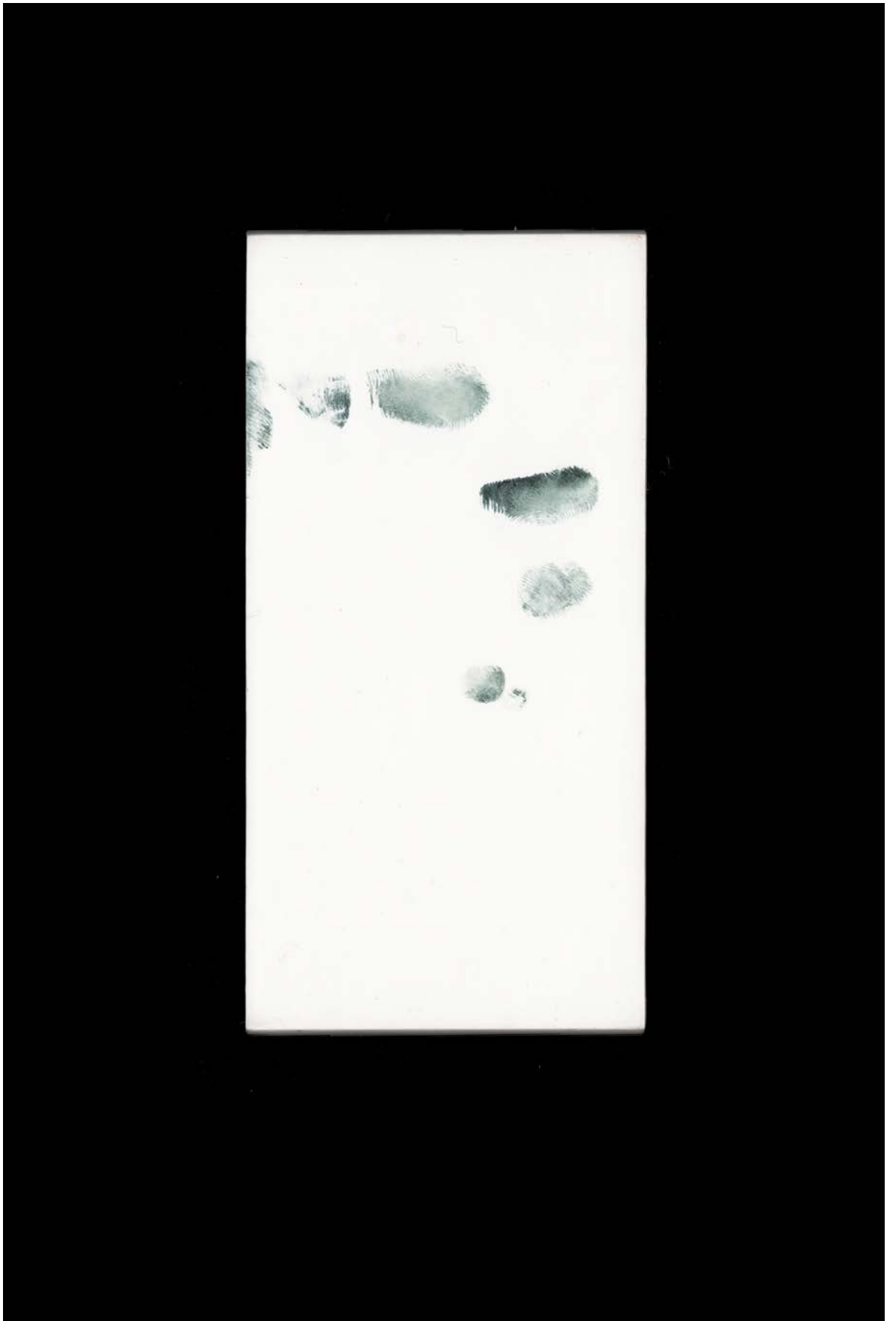
Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.



Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.



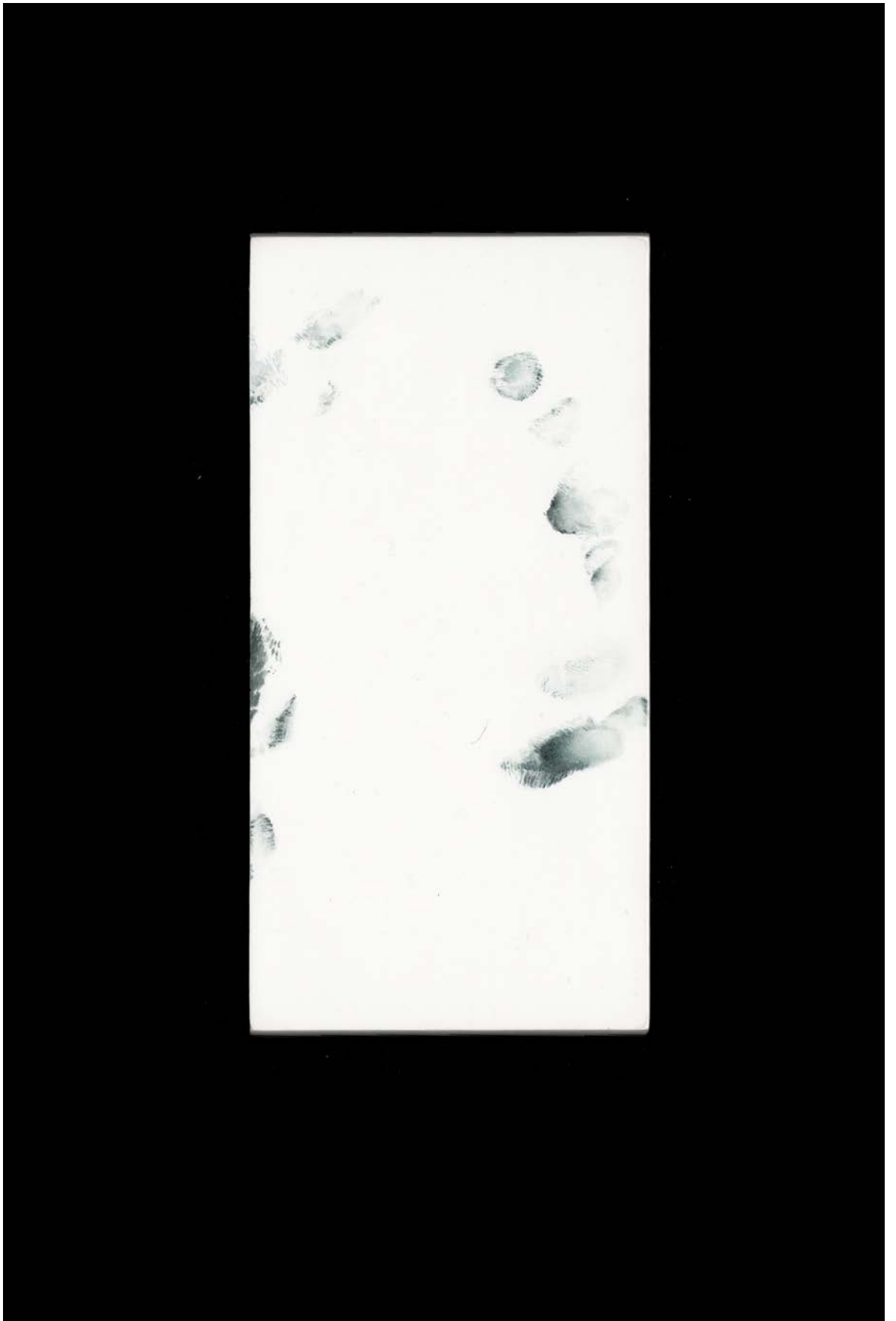
Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.



Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.



Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.



Touch, 2021, forty-four oil and acrylic on gesso painted objects and a list, detail.
Reproduction: scanned digital image.

Appendix 3

Practice part 2: Trace

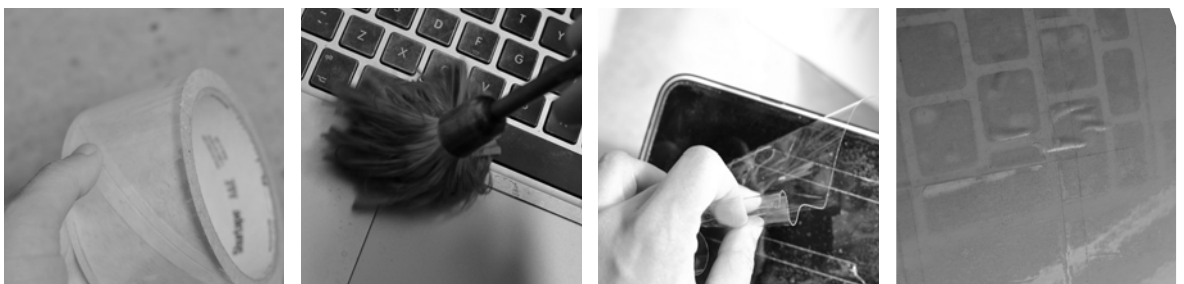
3.1: fingerprints, clear tape and a laptop computer

Date: 06/12/2017

Intention: to extend the process of creating fingerprint marks used in 1.4, 1.6 and 1.9. Also, to test the capacity of creating similar marks using a material other than glass, here using clear tape.

Description: a laptop computer was dusted with aluminium powder, then covered with strips of clear tape. The tape was peeled away and cut into sections to fit a document scanner. These pieces were scanned, adjusted, printed, and glued together.

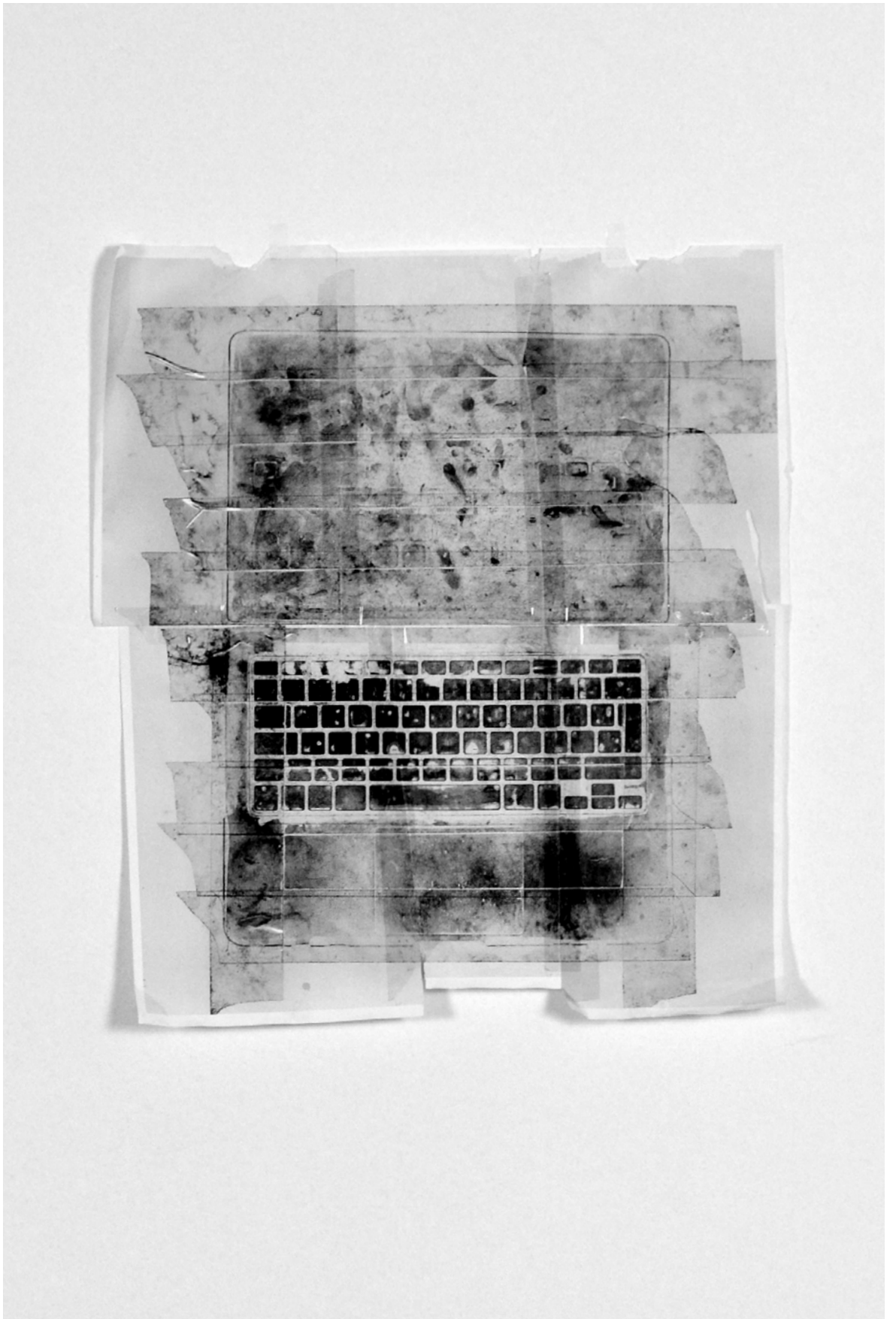
Outcome: a collage of laser prints on paper, glue and tape.



Images documenting 3.1, 2017, digital photograph.



3.1 outcome, 2017, collage of laser prints on paper, glue and tape, sheet, detail.
Reproduction: scanned digital image.



3.1 outcome, 2017, collage of laser prints on paper, glue and tape, sheet (irreg.): 55 x 49 cm.
Reproduction: digital photograph.

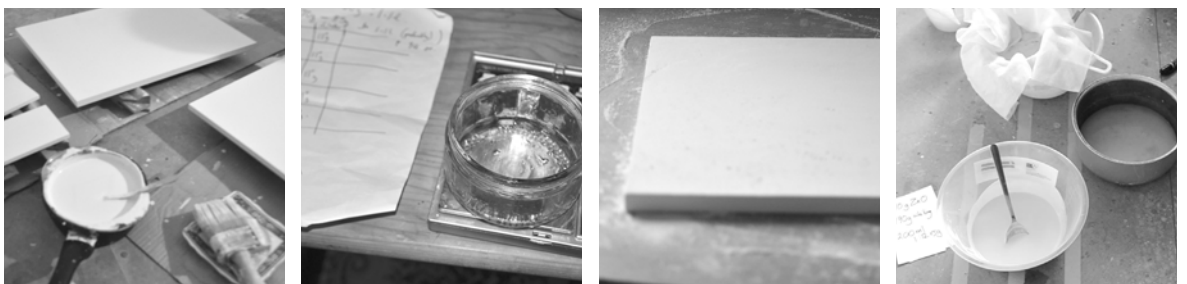
3.2: making gesso

Date: October 2018 onwards.

Intention: towards testing and making gesso boards.

Description: trying out different techniques for making and applying gesso and arriving at a preferred recipe and method to continue using. This involved trying out various boards, gesso mixtures and sizing. As it is possible for boards to warp and for there to be variations of texture, it was useful to keep a record.

Outcome: a list of the make-up of several boards, including those that were not used for artworks.



Images documenting 3.2, 2018, digital photograph.

3.3: enlargements and painting pixels

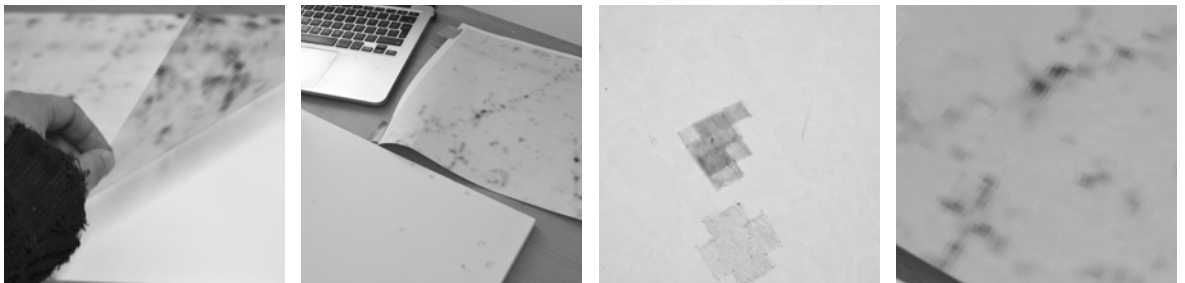
Date: October and November 2018.

Intention: towards thinking about scale and and image.

Description: an image from 1.12 was enlarged using computer software and printed out on A3 pages that were stuck together.

Also, tracing and making a painting on a gesso board. The image was based on an enlargement of the same image.

Outcome: an oil on gesso painting.



Images documenting 3.3, 2018, digital photograph.



Images documenting 3.3, 2018, digital photograph.



3.3 outcome, 2018, oil on gesso board, detail.
Reproduction: scanned digital image.



3.3 outcome, 2018, oil on gesso board, board: 25 x 36 x 1 cm.
Reproduction: digital photograph.

3.4: pixels and metalpoint

Date: November 2018 onwards.

Intention: to test materials and techniques for drawing on a gesso panel.

Description: drawing a pixelated image using silverpoint. The image used was transferred and drawn onto the gesso, then sized.

Outcome: a silverpoint on gesso drawing.

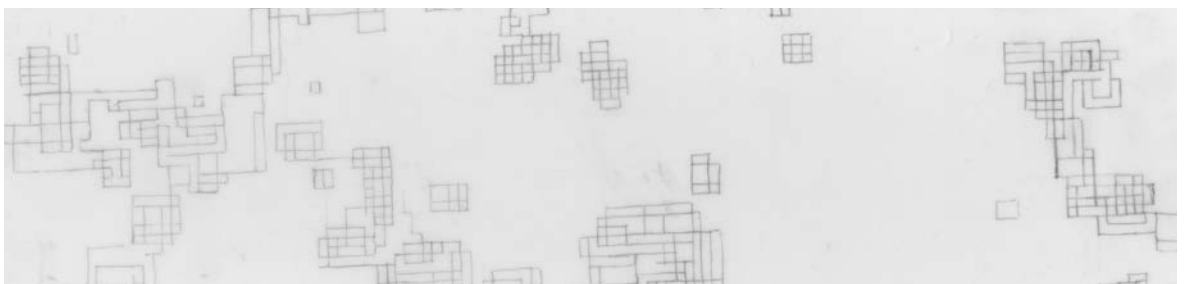


Image documenting 3.4, 2018, scanned digital image.



3.4 outcome, *Particles 1*, 2019, silverpoint on gesso board, detail.
Reproduction: scanned digital image.



3.4 outcome: *Particles 1*, 2019, silverpoint on gesso board, board: 25 x 36 x 1 cm.
Reproduction: digital photograph.

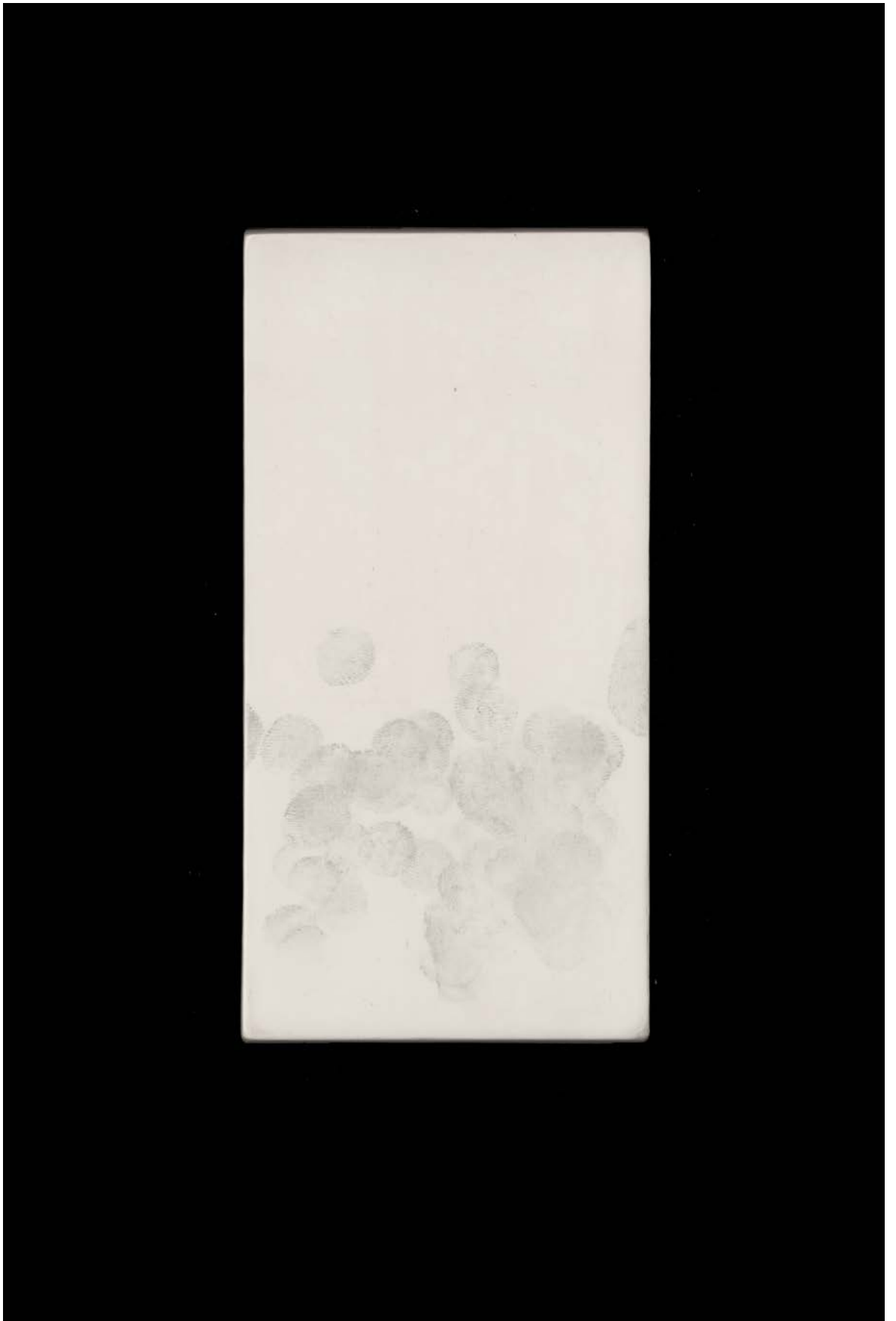
3.5: metalpoint and fingerprints

Date: January 2019 onwards.

Intention: towards using metals used for component parts of smartphones to make drawings.

Description: marks created by fingerprints earlier were repurposed to be traced with metalpoint on gesso boards. Metals used to produce smartphones and computers were researched; those that have also been used as traditional drawing materials were selected. Here aluminium, gold and silver were used to make the drawings.

Outcome: three metalpoint drawings on gesso boards.



3.5 outcome, *09.23*: 2019, metalpoint on gesso board, board: 14 x 7 x 1 cm, front view.
Reproduction: scanned digital image.



3.5 outcome: *09.23*, 2019, metalpoint on gesso board, board: 14 x 7 x 1 cm, reverse view.
Reproduction: scanned digital image.



3.5 outcomes: *07:30*, *09:23* and *16:07*, 2019, metalpoint on gesso board, arrangement: 14 x 26 x 1 cm, boards: each 14 x 7 x 1 cm, front and reverse views.
Reproduction: digital photograph.

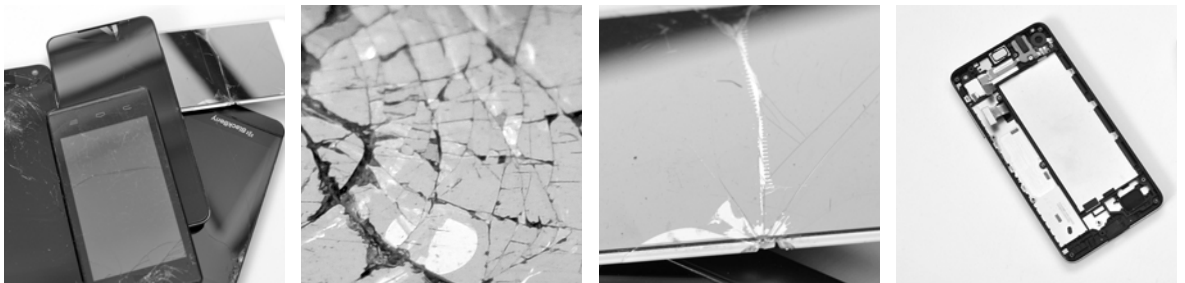
3.6: cracked screens and a document scanner

Date: January 2019 onwards.

Intention: towards gathering materials and images to be used for artworks.

Description: Cracked smartphone screens were bought second-hand over the internet. These were scanned using a document scanner.

Outcome: several scanned digital images of cracked smartphone screens.



Images documenting 3.5, 2019, digital photograph.



3.6 outcome, 2019, scanned digital image of cracked touchscreen.

3.7: fingerprints, a laptop computer and metalpoint

Date: January 2019 onwards.

Intention: towards developing artwork using metals used for component parts of computers.

Description: The image from 1.10 was re-traced on a gesso panel using metals from the laptop depicted. Aluminium and silver were use; aluminium forming part of the laptop's surface.

Outcome: metalpoint drawing on gesso board.



Images documenting 3.7, 2019, digital photograph.



3.7 outcome, unfinished, metalpoint on gesso board, detail.
Reproduction: scanned digital image.



3.7 outcome, unfinished, metalpoint on gesso board, board: 36 x 50 x 1.2 cm.
Reproduction: digital photograph.

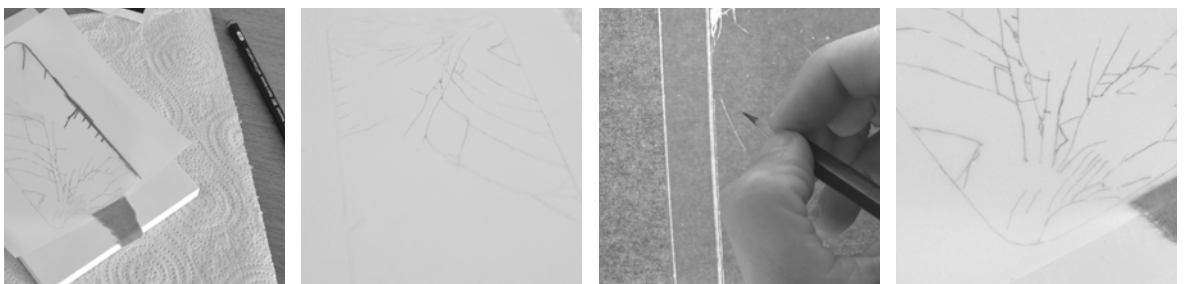
3.8: metalpoint and cracked screens

Date: January 2019 onwards.

Intention: towards developing artwork using metals used for component parts of smartphones.

Description: Scanned images of cracked smartphone screens from 1.3 and 3.6 were used as reference material to produce metalpoint drawings on gesso boards. Aluminium, copper, gold, silver and zinc were used as drawing materials, using one type of metal for each drawing. The metals were selected from those that are used as component parts of smartphones and that are also used as traditional drawing materials. An initial outline was traced using the scanned image, followed by drawing using a combination of the printed images and the screens.

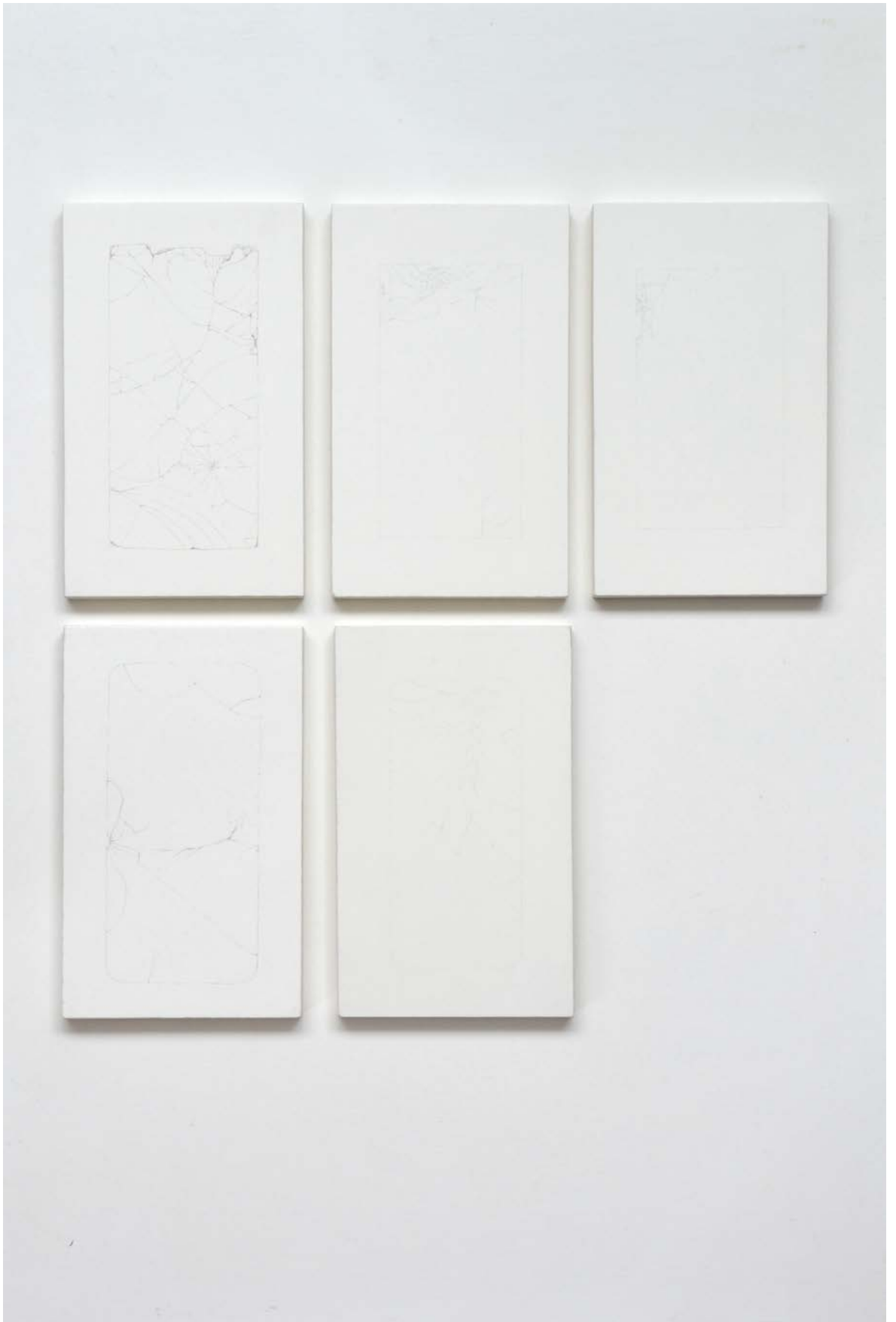
Outcome: several metalpoint drawings on gesso boards.



Images documenting 3.8, 2019, digital photograph.



3.8 outcome: *Trace 1*, 2019, silverpoint on gesso board: 16.5 x 10 x 1 cm.
Reproduction: scanned digital image.



3.8 outcomes: *Trace 1 - 5*, 2019, metalpoint on gesso board, arrangement: 34.5 x 32.5 x 1 cm, boards: each 16.5 x 10 x 1 cm. Reproduction: digital photograph.

Appendix 4

Artworks part 2: Trace

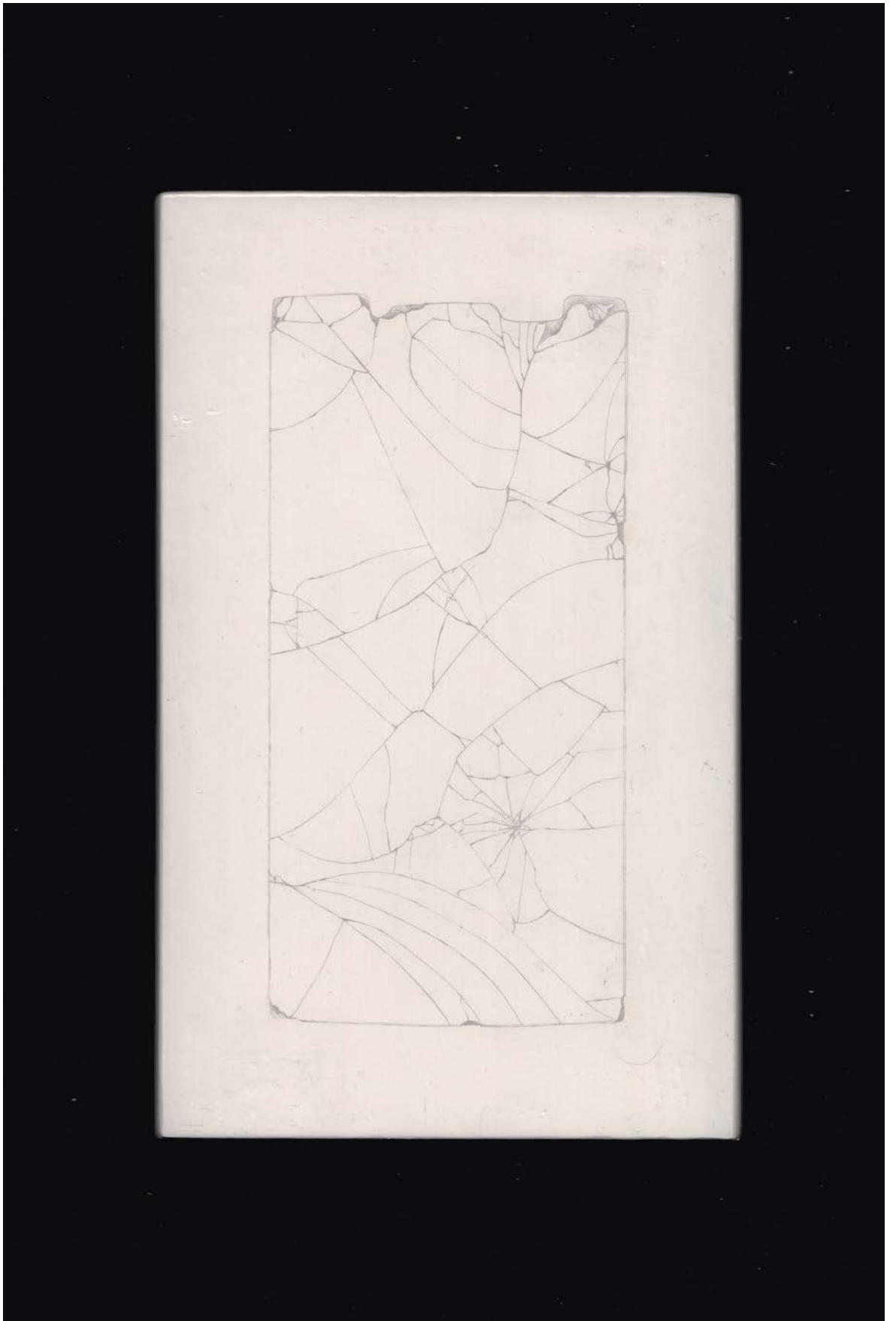
4.1: artwork information

Trace 1 - 5 (2019)

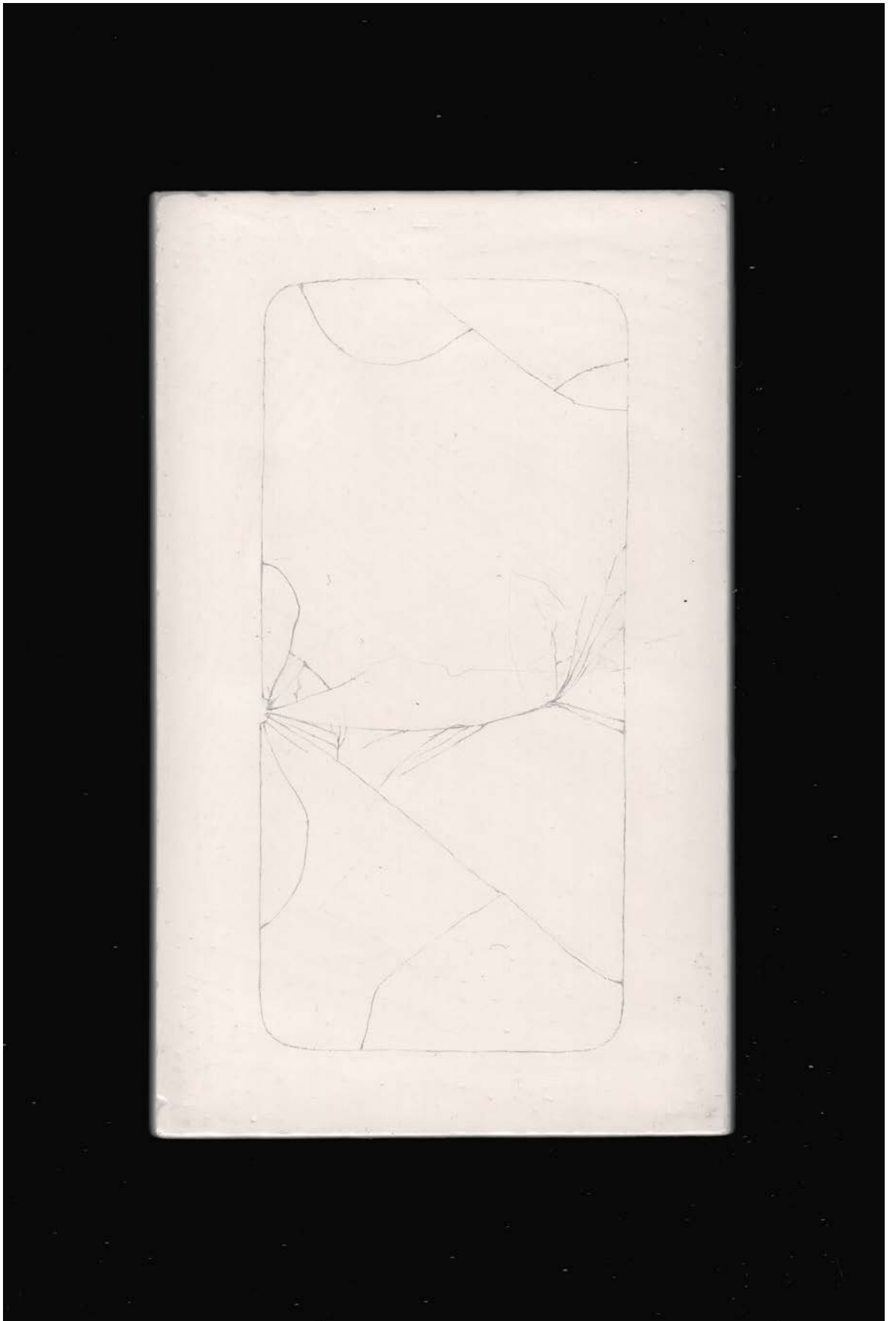
metalpoint on gesso board: silver, nickel, copper, gold and aluminium

Each drawing: 16.5 x 10 x 1 cm

Overall dimensions: variable



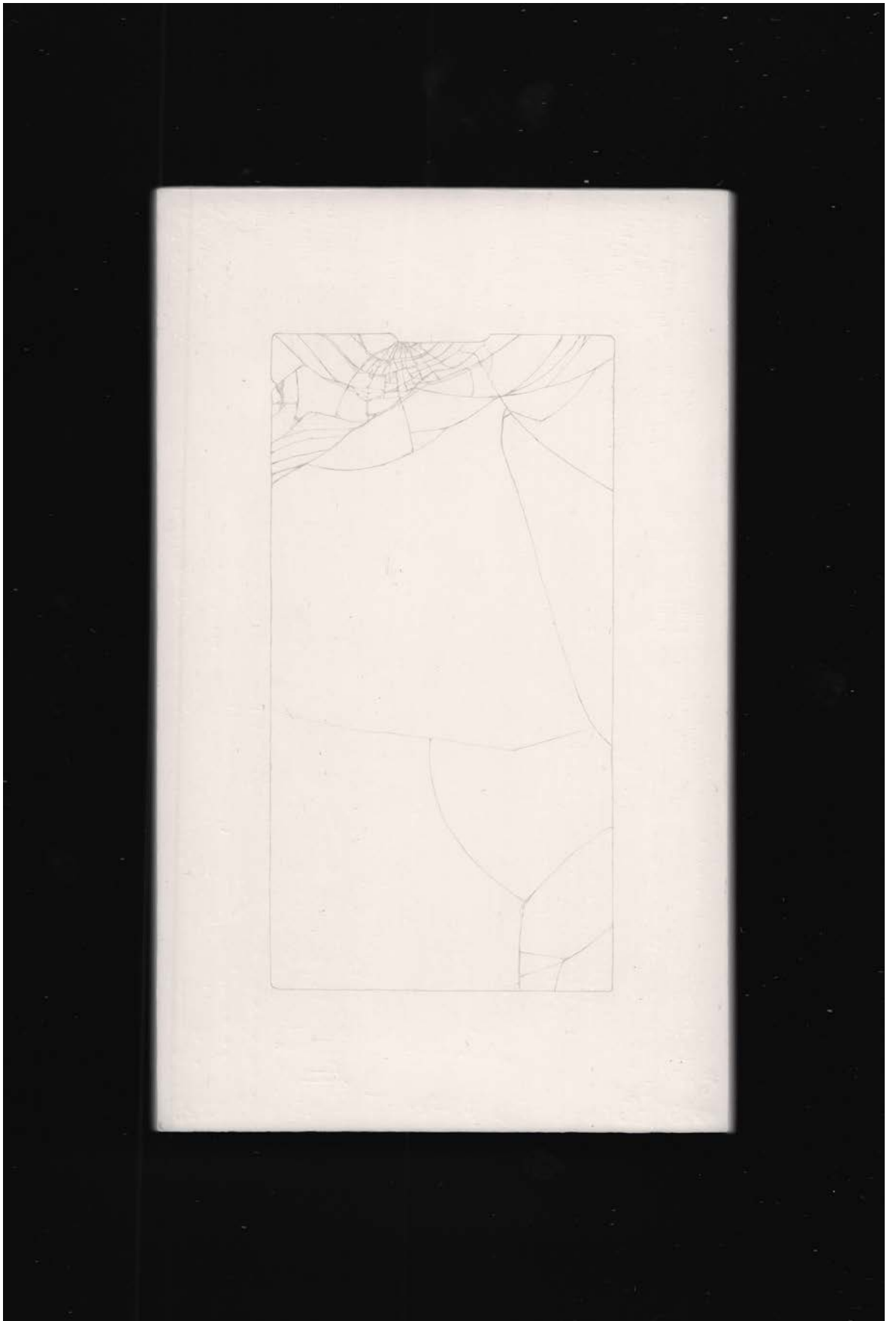
Trace 1, 2019, silverpoint on gesso board, 16.5 x 10 x 1 cm.
Reproduction: digital scanned image.



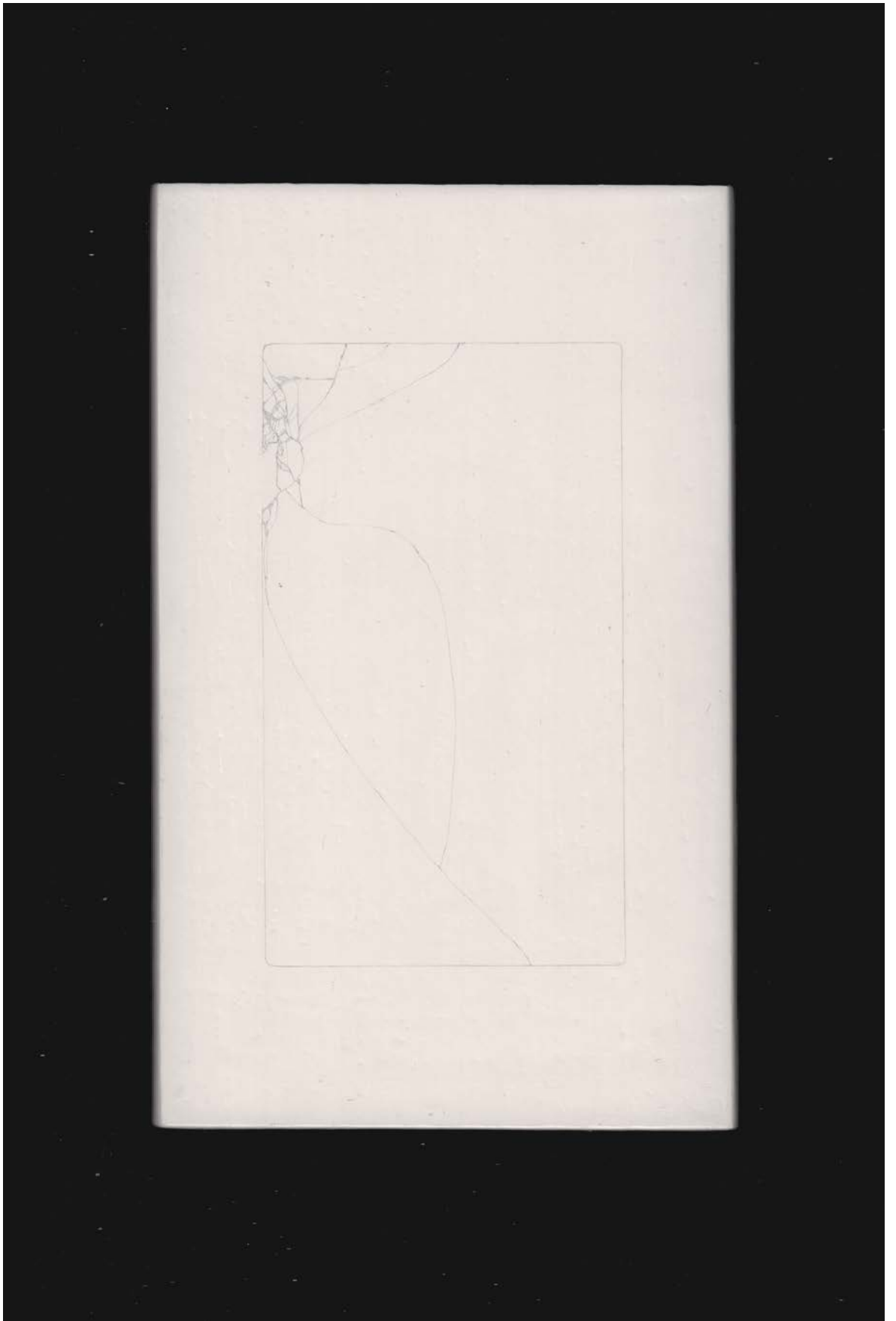
Trace 2, 2019, nickel point on gesso board, 16.5 x 10 x 1 cm.
Reproduction: digital scanned image.



Trace 3, 2019, copper point on gesso board, 16.5 x 10 x 1 cm.
Reproduction: digital scanned image.



Trace 4, 2019, goldpoint on gesso board, 16.5 x 10 x 1 cm.
Reproduction: digital scanned image.



Trace 5, 2019, aluminium point on gesso board, 16.5 x 10 x 1 cm.
Reproduction: digital scanned image.

Appendix 5

Published material

The following paper was published in the peer reviewed journal *Flusser Studies*, in response to a call for short contributions by artists whose work has been influenced or inspired by Vilém Flusser's writing.

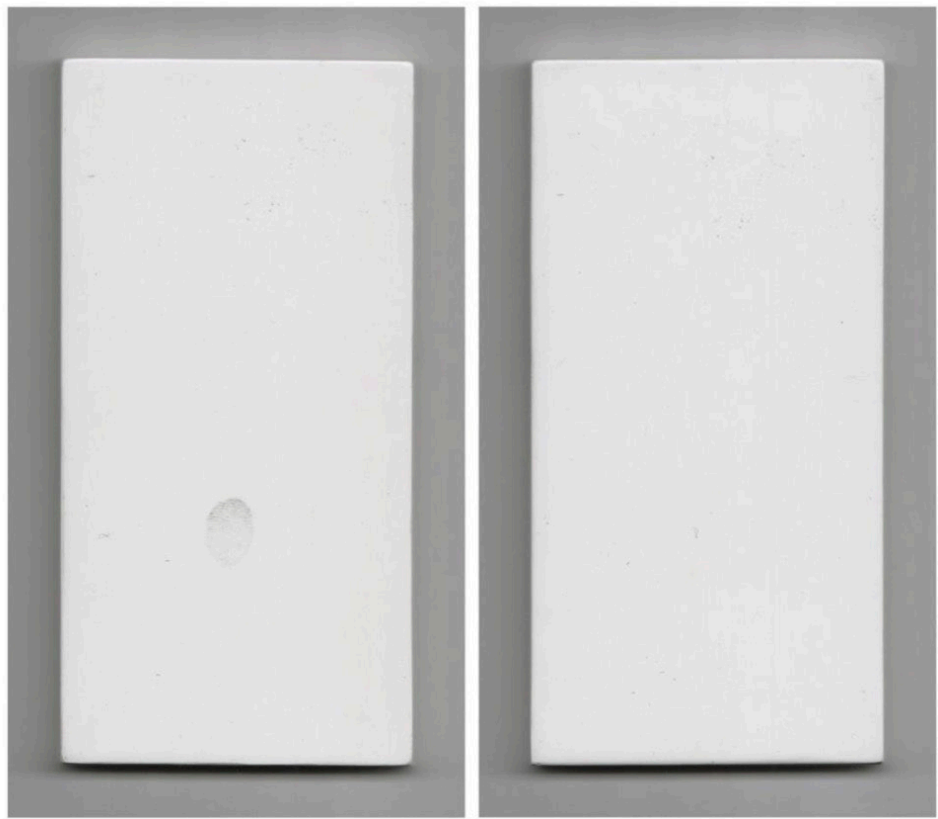
Bibliographic details are as follows:

Downing, H., 2020. Fingertips and Touchscreens, *Flusser Studies*, [e-journal] 29:1. Available at: < <https://www.flusserstudies.net/sites/www.flusserstudies.net/files/media/attachments/downing-fingertips-touchscreens.pdf>> [Accessed 12th July 2021].

Hannah Downing
Fingertips and Touchscreens

In his work *Into the Universe of Technical Images* (1985), Vilém Flusser identifies the gestures of fingertips interacting with apparatuses as a phenomenon worthy of analysis. In recent decades the pressing of buttons and keys has expanded to include a lexicon of swipes and taps performed in concert with the glazed surfaces of touchscreen devices.

The artworks included here arise from a deliberate observation of my own fingertips touching a smartphone over the course of a day, beginning with selecting snooze in response to the alarm clock at 07:30. Each artwork's title indicates the time of day that a gesture was performed - *09:23* corresponds to the typing of a text message, and *16:07* to the setting of a timer. In contrast to the speed at which the hand and finger marks were enacted, the drawings were made slowly; retracing the tiny ridges of fingerprints in a precise and deliberate manner. The artworks were drawn using metalpoint, a method involving the use of metal wire pieces held in a stylus to create marks on a surface. Metals that form component parts of a smartphone - gold, aluminium and nickel - were selected to mark a gesso ground to create drawn objects that share the dimensions of an average mobile phone.



Picture 1 Hanna Downing, 07:30 (2019), metalpoint on gesso, 14 x 7 x 1 cm. (front and reverse views)



Picture 2 Hannah Downing, 09:23 (2019), metalpoint on gesso, 14 x 7 x 1 cm. (front and reverse views)



Picture 3 Hannah Downing, 16:07 (2019), metalpoint on gesso, 14 x 7 x 1 cm. (front and reverse views)