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Spur der Arbeit

Oberfläche und Werkprozess

**ELEKTRONISCHER
SONDERDRUCK**



2018

BÖHLAU VERLAG KÖLN WEIMAR WIEN

Inhalt

- 7** *Magdalena Bushart und Henrike Haug*
Spurensuche/Spurenlese
Zur Sichtbarkeit von Arbeit im Werk
- 25** *Bastian Eclercy*
Spuren im Gold
Technik und Ästhetik des Goldgrunddekors in der toskanischen Dugentomalerei
- 39** *Heiko Damm*
Imprimitur und Fingerspur
Zu Luca Giordanos Londoner *Hommage an Velázquez*
- 65** *Farbtafeln*
- 81** *Yannis Hadjinicolaou*
Contradictory Liveliness
Painting as Process in the Work of Arent de Gelder and Christopher Paudiß
- 95** *Christian Berger*
Edgar Degas' Bildoberflächen als Experimentierfelder
- 111** *Aleksandra Lipińska*
Alabasterskulptur zwischen *sprezzatura* und Verwandlung
- 127** *Nicola Suthor*
(Non)Transparency in the Description of a Sketch
Rembrandt's *Christ Carrying the Cross*
- 145** *Nicola Shearman*
Reversal of Values
On the Woodblock and its Print in Weimar Germany
- 167** *Ekaterina Petrova*
Von Index zu Ikon
Transfigurationen der Arbeitsspur im zeichnerischen Werk von Auguste Rodin

- 179** *Johanna Malt*
The Edge of the Self
Casting and Moulding the Body in Modern and Contemporary Sculpture
- 199** *Ann-Sophie Lehmann*
Taking Fingerprints
The Indexical Affordances of Artworks' Material Surfaces
- 219** *Bildnachweise*

Ann-Sophie Lehmann

Taking Fingerprints

The Indexical Affordances of Artworks' Material Surfaces

Surfaces and Traces

Works of art – however conceptual, handcrafted or ready-made – are the result of processes.¹ In these processes, diverse materials meet and are transformed.² If defined as results of material transformations, artworks necessarily carry the transformative processes within them and can be described as indexes of their own making.³ Traces that pertain to making can therefore be described as indexical traces, and differ from traces of wear and tear that indicate 'pastness'.⁴ If we assume that making is always and intrinsically related to meaning, the indexical traces that processes of making have left behind offer a way to understanding art.

Indeed, a first encounter with a work of art is often a cognitive search for clues about how and from what it was made. Take for instance Peter Fischli and David Weiss' *Polyurethane Installations* (1991–), which are made up of everyday objects that are assembled into work-in-progress situations, like a builder's workshop or a renovation site or an artist's studio. Actually, all things one sees have been hand-carved from polyurethane foam and painted in order to resemble everyday objects. The artwork starts taking effect when one realizes that the objects are not what they seem. This realization is triggered by the observation of the surface appearance, which leads to retracing possible processes of making (i. e. carving, painting), which in turn may help to form a notion about possible meanings.

Retracing a process inevitably introduces an order in time and space, and thus produces a number of interrelated events. The French palaeontologist André Leroi-Gourhan described these as the *chaîne opératoire*: the sequence of technological, social, and cultural actions that occurs during the production of artifacts.⁵ Unlike utilitarian artifacts, however, works of art do not follow a pre-designed, familiar or easily reproducible sequence. The *polyethurane installations* by Fischli and Weiss demonstrate this particularly well, as they imitate common utilitarian objects, but have been fabricated from entirely different materials and by different procedures. Such counterintuitive processes make the identification of indexical traces and their sequential ordering more difficult, as the observer has to question his/her default assumptions about materials and making. Rather than a classic indexical trace, like the line of footsteps left behind in the sand, artworks'

indexes may be better compared to the hundreds of superimposed foot-, ball-, and racket marks that are left behind on a clay court after a tennis match. To make things more difficult, many works do not display indexical traces at all on their surfaces. Traces may have been swallowed up by the work in the process of becoming (think of a photograph, which though it is in itself an index, does not display much of its material becoming, unless the chemical developing process has gone wrong); be so abundant and diverse that they are obscured by their complexity (a participatory work); or have been hidden and effaced deliberately (the polished surface of a sculpture; a conceptual work).

The question is whether an exact reconstruction of the artworks' index is intended or needed. Looking for traces of making and re-constructing processes is, as has been suggested above, a way of understanding art. This understanding, I propose, already starts with the search for traces and the operational chains they may pertain to. It does not necessarily result in an exact reconstruction nor does it need one; it may very well suffice to form a general notion of what happened in order to understand why it has happened. When exact dating or attribution are at stake, however, the motivation shifts from understanding a work of art to determining authenticity and thereby value. If that is the case, a different apparatus moves in and indexical traces are interpreted with analytical technologies and tested against comparative databases in order to establish scientific exactness. Then, the indexical trace turns from cognitive support for understanding meaning into a proof for a unique instance of making. This shift explains the early crossovers between art historical and forensic technologies, which Carlo Ginzburg revealed in his famous essay on clue-finding as scientific method.⁶

The fingerprint can rightfully be called the indexical clue par excellence. First, because it relates to creation as it indicates touch and thus human engagement in a most immediate and recognizable fashion. Second, because following the late 19th century discovery that each individual's fingertips display a truly unique pattern, fingerprints did not only signal human touch in general, but the touch of a particular human individual. The subsequent use for identification however reduced the fingerprint to an identificatory trace, whereas its implications are far broader. What fingerprints actually betray about artistic production, is not only a question of 'whose finger?' but is also and intrinsically related to the surfaces that allowed the finger to leave a print. Only if the relation between the surface, its substance, the hand and the trace is taken into account (what George Didi-Huberman described as the "network of material relationships" caused by bodily imprints⁷) can the manifold ways in which fingerprints make meaning in art be described and understood. Fingerprints, it is proposed here, are traces that offer a way to understanding artworks not because but in spite of their promise of authentication.

Drawing on the concept of affordances, developed by the psychologist James Jerome Gibson in the 1970s,⁸ this chapter describes surfaces as elements of artworks, which depending on their material make-up offer a person to leave prints or not, or, to phrase it more poignantly, which 'take fingerprints'. An affordance, Gibson wrote

cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer.⁹

Applied to the particular context of artistic production, this definition explains that it is neither maker nor tool nor material alone, but the combination that makes art. It also pushes the boundaries of the physical and psychical beyond the subject-object relation, and situates meaning as a property of both.¹⁰ In Gibson's theory, the environment is divided into three prime elements: medium (such as air, light, water), substance (stone, earth, grass) and surface. Within this triad, surfaces are crucial because here medium and substance meet and the cutting across the object-subject dichotomy becomes most discernable:

The surface is where most of the action is. The surface is where light is reflected or absorbed, not the interior of the substance. The surface is what touches the animal, not the interior. The surface is where chemical reactions mostly take place. The surface is where vaporization of the substances into the medium occurs.¹¹

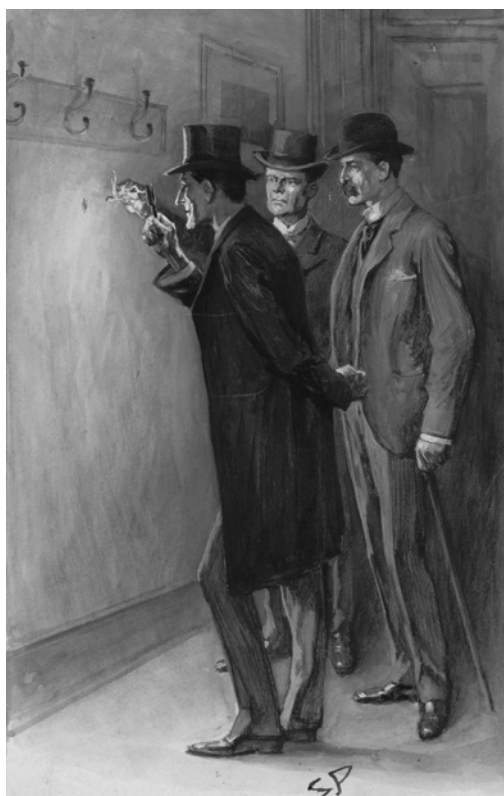
Based on these observations, Gibson formulated nine ecological laws of surfaces, of which the second, fourth and eighth are particularly relevant for understanding why fingerprints have different meanings for different surfaces:

2. Any surface has resistance to deformation, depending on the viscosity of the substance.
4. Any surface has a characteristic texture, depending on the composition of the substance. It generally has both a layout texture and a pigment texture.
8. A surface has a characteristic reflectance, depending on the substance.¹²

Before relating Gibson's surface laws to art works, this chapter first reviews the forensic iconography of fingerprints in 20th century art and shows how this particular paradigm has impacted the perception of fingerprints found on artworks made before that period. It moves on to describe anthropological connotations of fingerprints, in order to explain the fascination they evoke. In an attempt to structure the complexity of fingerprints' possible meanings, the third part discusses how different material surfaces of artworks afford fingerprints in different ways. This Gibsonian approach, we will see, suggests a division between fingerprints left on soft and malleable or hard and shiny surfaces. While the latter, due to the ecological laws of the substances involved, signify touch *after* making, the first are generally taken to pertain to making as creation, thus producing a further and less impartial distinction: that between desirable and undesirable prints. Such oppositions are confused and made productive in contemporary art, for instance by employing digital procedures or partly digital substances. Fingerprints, it appears, are well suited to create new and unexpected relations between soft, hard and digital surfaces.

The Artist as Fingerprint

Roland Barthes famously defined the indexical properties of photography by the mediums' ability to show, indisputably, that what 'has been there' in the moment it was photographed.¹³ Like photography, the science of dactyloscopy emerged in the first half of the nineteenth century. It used fingerprinting as a method of formal certification of identity and eventually enabled the disclosure of significant information because it indicated that a particular individual 'had been there' in a moment of crime.¹⁴ In the wake of the institutionalization of fingerprinting, publications about the process and method were prominently illustrated with fingerprints, sometimes on the title page.¹⁵ Such images were deeply associated with the criminal sciences. They were indexes that became the first pictorial elements of a forensic iconography.¹⁶ Didi-Huberman observed that the semiotic collapse of index and icon is potentially caused by all direct imprints of the human body because they simultaneously are *and* show both: "process and paradigm, presence and representation".¹⁷ The fingerprint however, collapsed more definitely than imprints of any other body part, which lack such a definitive and at the same time visually abstract identificatory potential.¹⁸



47 Sidney Paget, Original Watercolour for the Illustration of the "Adventure of the Norwood Builder", 1903. Austin, Arthur Conan Doyle Art Collection, Harry Ransom Center, The University of Texas at Austin.

Among the first artistic takes on the iconic index are the illustrations of Arthur Conan Doyle's *Adventures of Sherlock Holmes*, published first in *Beeton's Christmas Journal* (1887) and in *Strand Magazine* from 1891 onwards. Shortly after the first crime had allegedly been solved on the basis of fingerprint identification in London in 1902, Doyle published "The Adventure of the Norwood Builder" (1903). In this story, the culprit tries to pin a murder on a man by way of a false, bloody thumbprint, which he has manufactured from an imprint the innocent man has left on a document seal. Illustrator Sidney Paget chose the instance that Holmes scrutinizes the false print on the wall through a magnifying glass, an iconic scene of deduction.

This early forensic iconography was developed by several subsequent artists, for instance Otto Dix, who left blood-red fingerprints on his self-portrait as *Lustmörder* (1920) or Marcel Duchamp and Piero Manzoni, who in their ironic explorations of artistic authorship, left respectively fingerprints on film (Marcel Duchamp, *Anémic Cinéma*, 1925/26) and hard-boiled eggs (*Consumazione dell'arte dinamica del pubblico divorare l'arte*, 1960, Milano, Archivio Opera Piero Manzoni).¹⁹ The witty self-portrait *Fingerprint Man* (1951) by American illustrator Saul Steinberg brought the semiotic collapse of index and icon to perfection: the half-portrait consists solely of fingerprints and the face pinpoints the paradoxical loss of individuality that occurs when a person is reduced to his/her unique, identificatory trace.



48 Saul
Steinberg,
*Fingerprint
Man*, 1951,
Ink on Paper.

Chuck Close followed this lead and fingerprinted portraits based on photographs, thus superimposing the photographic with the fingerprinted index, but also inserting a division because his index produces portraits of others (see for instance Chuck Close, *Keith/Round Fingerprint*, 1979, stamp-pad ink and pencil on paper, Reynolda House Museum of American Art). Bruce Conner's installation *Prints* (1974, Walker Art Center, Minneapolis) consists of a set of police fingerprints of the artist, the documentation of the process and the materials pertaining to it, and may count as a definite criticism of indexical control. So can John Baldessari's photographic collage *Five Pickles (with Fingerprints) in the Shape of a Hand* (1975, Art Institute Chicago), which suggests that the prints were obtained from the pickles.

All these works not only reference the visual tradition of the forensic, but also its material framework: stamp-pad ink on white, paper- or paper-like grounds. Apart from these art works, the forensic iconography is reiterated in crime movies and series.²⁰ And it is also part of our personal experience, when we have our fingerprints taken for passports or are "ten-printed" in order to enter another country. This ongoing impression of the index-icon on our collective visual-material memory may explain why the forensic paradigm is so easily projected onto fingerprints found on artworks that were produced long before the indentificatory connotation of the index. The promotional text for a conservation studies journal for instance describes how "researchers shiver" with excitement at the discovery of such prints, which grant "moments of unexpected intimacy with masterpieces".²¹ Indeed, fingerprints on works of art are photographed, collected, and published about as tiny sensations of the immediate, physical presence of an artist long dead. As if Bellini, Jan van Eyck, Leonardo, Vermeer, Rembrandt or Van Gogh have briefly returned from the grave to grant the painted surface an authenticity beyond style, brushstroke, and even technical analysis. But pre-forensic fingerprints were never meant to stand in for the artist's identity or act in lieu of a signature, as they did in the works described above. The excitement therefore, is mostly in the eye of the beholder, who interprets them through the lens of forensic iconography, like Holmes did through his magnifying glass. And indeed, in many cases, they are found through the technical apparatus of magnification. Such prints, however, could only really become effective as identification, if they would have a counterpart either in a living being or in an archive. But without a database of famous, dead artists' fingerprints, they cannot be matched and may just as well have belonged to a colleague, an assistant, or a conservator who applied a new layer of varnish years later.²² This lack of reference may also be the reason that the Swedish *Journal of Ancient Fingerprints*, despite the promising venture of an archaeological dactyloscopy was not continued beyond the first issue that appeared in 2007. In fact, the only case known to me, in which an argument for attribution was made on the basis of an artist's fingerprint, involved forged Jackson Pollock paintings, which were certified by using much the same method as in the *Case of the Norwood Builder*: a fingerprint left on a paint can preserved in Pollock's Studio Museum was reproduced as a stamp and used to make fake prints on the fake paintings.²³

Pre-forensic fingerprints left on paintings, therefore, are quite different epistemological objects, compared to the deliberate fingerprints by Dix, Duchamp or Steinberg. They differ in intent and also materiality because they are impressed in only one material, paint, and not the result of the encounter of two materials, ink and paper. Generally speaking, there are three reasons for fingerprints on paintings: they were made to either enhance depiction, to smooth out traces of making on the surface, or they were left behind by accident. In all three cases, they are the result of a tool-like use of the hand, which is another reason for the prints to attract attention because in painting, most people expect tool-marks to be brushstrokes and not fingerprints.²⁴

Van Gogh (or someone else) left an abundance of unintentional fingerprints on the edges of his paintings, presumably due to picking them up and moving them around the studio while they were still wet. Prints caused by handling are also visible in the margins of paintings by Jan Vermeer.²⁵ Others were obviously intended to create a particular visual effect. Van Gogh tapped the painted surface with his finger to shape the clouds in one painting and to enhance the transparency of a background color in another (Vincent van Gogh, *De oevers van de Seine*, 1887 and *Glas absinth en karaf*, 1887, both Van Gogh Museum, Amsterdam).²⁶ Though in this case, the authorship of the artist is more likely (and could be used to start a database of fingerprints by famous dead artists) prints such as these, again, were not left for reasons of identity, but tie in with a history of finger-painting.²⁷ This history is embodied for instance by Rembrandt, who in a self-portrait drew his left eyebrow with his finger (*Self Portrait as Zeuxis*, ca. 1663, Wallraf-Richartz-Museum, Cologne), and also Cornelis Ketel, who supposedly painted exclusively with his fingers, though no print was ever found on his few surviving paintings.²⁸ Not only the proverbial "rough manner" (*ruwe manier*) of 17th-century Dutch painters was produced or enhanced with fingers, but also the smooth surfaces of early Netherlandish paintings bear fingerprints. But here fingers were used to hide and not emphasize traces of making. Such "de-representing" marks can be observed on several paintings by Jan van Eyck and other Early Netherlandish painters, who employed fingertips to pad over glazes or create perfect transitions in smoke, clouds or flesh areas, much like fingers are used to apply make-up on actual skin.²⁹ They also appear in the faces of Giovanni Bellini's Madonnas and in a number of paintings by or attributed to Leonardo da Vinci, where they were used to create soft transitions between face and hair.³⁰ This occurs most noticeably in the face of the *Virgin of the Rocks* (National Gallery, London), where the regular pattern of rounded ridges produced by the fingertips perfectly follows the rounded shape of the face and reveals exactly how the fingers were applied (Farbabbildung 20).³¹

Taken together, the examples show two things: the fingerprints were not left for identificatory but pictorial reasons, and the finger-as-tool is effective only in relation to the surface of the substance on which it leaves a mark. In accordance with Gibson's second ecological law of surfaces, oil paint affords fingerprints due to its viscosity in a way that a different medium, for instance watercolor, would not. This enables certain effects, like

smudging and smoothing, that fingers are better at achieving than other tools used in painting. So instead of causing “shivers of excitement” as tokens of authenticity, which they are not, fingerprints should excite us because they offer insights into processes of art making.

The Original Ornament

The conclusion of the last paragraph begs the question of whether it is the forensic paradigm alone that makes us notice fingerprints, wonder at them in delight, or get a cloth to wipe them off. A friend once told me that it had been a fingerprint that made him want to become an archaeologist when he was ten years old. He discovered it on a brick, he had found in a field near a Roman aqueduct during a summer vacation in France. The palpable body-mark of a person long gone amazed him, and though he did not become an archaeologist, he became a sculpture curator, deeply invested in the history of touch.³² Therefore, not only the identifiable fingerprint can have a far-reaching impact on a person’s life. But what is it exactly about the fingerprint (which after all is to be expected on surfaces and objects, which have been touched or are the result of touching) that imbues it with so much power?

In the previous paragraph, the indentificatory potential of the individual fingerprint was related to the paradigm of the authenticity of the index, described by Roland Barthes with regard to photography. In order to understand why a fingerprint that cannot be linked to a specific owner is equally meaningful, we can refer to Charles Sander Peirce’s semiotic triad, where the index as particular sign originated. Embedding his system of signs (icon – index – symbol) in a wider triadic system of meaning making, Peirce described how things exist in the world, namely in themselves (firstness), in relation to another (secondness), and in relation to another and to a third (thirdness; i.e. a network).³³ While the icon and symbol reference respectively first- and thirdness, the index alone is an instance of secondness, because it implies a one-to-one relation between the object and the phenomenon it has caused, nothing more and nothing less. Secondness, Peirce wrote, “is the mode of being of that which is such as it is, with respect to a second but regardless of any third”.³⁴ It follows that the fingerprint is essentially relational. Because it is relational, it does not only refer to the specific touch of that particular finger, but also alludes to touch as such: upon seeing a fingerprint, we sense the presence of the other who has been there before us. This perception then, enables a connection through time, for instance between the Roman brick maker and the ten-year-old who finds the brick two thousand years later. Because this connection is created through the sense of touch it is potentially empathic; a quality which not only informed semiotic but also phenomenological approaches to art.³⁵ Relational and empathic, the fingerprint played a role in the research into the origins of human creativity, carried out around 1900. The psychologist

Wilhelm Wundt for instance, explained the origin of ornament from the incidental fingerprint left on a piece of pottery: spotted by the maker, it was deliberately turned into a pattern of many prints.³⁶ Also the art historian August Schmarsow explained the origin of art as resulting from the inevitable encounter between surfaces (Grund) and bodies (Körper):

man cannot resist the transferal of his body's scale, his paces, his arm movements, even his fingers, onto the surface that supports all his actions [...] he who wanders along the seashore, draws pleasure from his own footprints [...] the dull white-washed walls of the city beg the passing shoeshine boy [...] to draw his black fingers along the surface, leaving traces of the antagonism between the living individual and the dead surface.³⁷

Though Schmarsow here develops his theory from the traditional dichotomy between active maker and dead matter, he also assigns the environment (sand, seashore, white walls) an active part in this process, as it "supports actions" and "begs" to be marked. The entire chapter on *Herstellungsmittel* (media/materials of production), from which this passage stems, is in fact, Gibsonian *avant-la-lettre*, as Schmarsow describes how objects "approach us" (p. 100), how the surface of the earth offers itself as the natural place for the origin of artistic creation, and how the „Teilkonfigurationen“ (sub-configurations) of the ground, by which he means its various material surfaces and substances (i. e. wood, earth, metal, granite, marble) are perceived and draw out specific creative actions, that turn the media of production into media of representation („Darstellungsmittel“).³⁸ Fifty years earlier, Gottfried Semper had noted that there was no terminology yet to describe materials with regard to their meaning and he missed in particular a term to describe soft material, which he considered the "origin of the visual arts".³⁹ Schmarsow started to develop such a terminology for his ecology of artistic creation and the affordances of surfaces to take fingerprints, was part of it. Today, the cognitive sciences support our empathic reaction to marks on surfaces: observations show, that upon viewing touch, our brains perform similar neurological actions to those that occur during the actual experience of touching.⁴⁰ It would follow, that upon seeing a fingerprint on a given surface, our brain creates an echo of how it feels to actually touch that surface.

It can be concluded, that the forensic iconography is embedded into an older, anthropological history of fingerprints, in which these are associated with formative pleasure and appear as traces of creation and possibly even witnesses to the origin of art. This history explains why popular visual culture today, apart from the forensic, considers the fingerprint also as a sign of love and affection. For instance, when two prints are combined to form a heart shape (a popular tattoo and jewelry design), or trinkets are crafted from salt dough to preserve the fingerprints of lovers, babies, even entire families. In such objects, the notion of authenticity and identification of forensics merge with the relational connotations of the pre-forensic print. In craft culture, these artefacts are referred to as

fingerprint *ornaments*, suggesting a diachronic consistency of the prints' ornamental affordances that Wundt described around 1900.

Fingerprints are suitable to ornamentation for a number of reasons: they are small and regular; they are easy to repeat while forming a substance (imagine someone who shapes the brim of a pot with two hands); and finally, unlike other body parts (hands, feet, face) they do not produce an immediately recognizable shape, but a regular roundel with an abstract, linear pattern inside. All of these qualities endow the fingerprint, which has been approached here from an iconological perspective, also with a strong anti-iconic component. The print therefore not only collapses index and icon, as Didi-Huberman pointed out, but also features both sides of a traditional art historical opposition: the indexical copy of nature, which denotes realism, and the ornament, that gives rise to abstraction.

Forensic and empathic, pictorial and effacing, realistic and ornamental: fingerprints emerge as layered objects and need to be analyzed carefully with regard to these different, opposing and nonetheless interrelated options they have for making meaning in and on works of art. To untangle these meanings and at the same time show the entanglement between finger and surface, print and substance, it helps to consider the affordances of the materials that "take prints" in a number of examples.⁴¹

The Good, the Bad, and the Giant Fingerprint

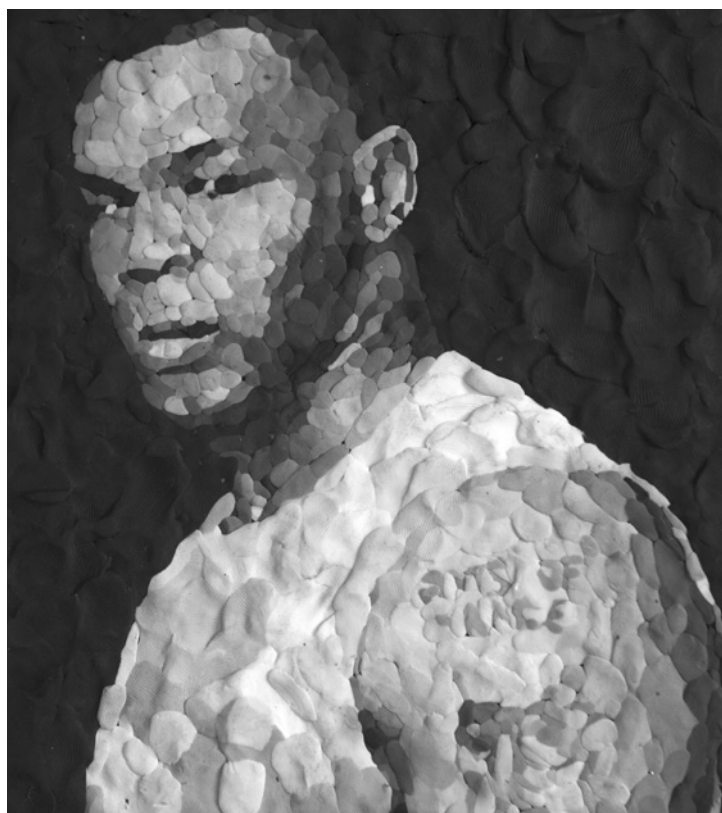
So far, softness in combination with plasticity – the specific quality of a substance to retain shape described in Gibson's second law – has emerged as paramount property of a surface to afford prints. Softness alone is not enough, however, as textiles for instance, do not take visible fingerprints; a fact that complies with Gibson's fourth law, that describes the importance of texture and material composition of surfaces. In general, fingerprints in paint and clay, are taken as signs of creative interaction, charging the material with a warm and positive connotation and emphasizing the material memory of the substance. Fingerprints discovered on clay sculptures therefore are treated with less excitement than those discovered on paintings, as they are to be expected, but nonetheless offer a way into the analysis of working procedures.⁴² The impressions on soft materials can also be transferred to hard materials, for instance in the process of casting bronze sculpture from clay models. They reference a process of material transformation, while the observer understands that they initially occurred in a different material. Such literal second-hand marks are a regular feature of late nineteenth and early twentieth century cast bronze sculptures, when a rougher surface and traces of making became an aesthetically accepted and even desirable feature of the sculptured surface. When fingerprints origin on hard surfaces, however, they are generally considered to disrupt the aesthetic experience: the shininess of metal and mirrors, and the transparency of glass which affords reflection

(Gibson's eighth law), is diminished and disturbed by fingerprints. Prints on shiny surface are generally not the result of making but of handling. They are intuitively experienced as traces, which do not pertain to creation but to use, turning them into potentially unwanted prints. Just like on soft materials, these prints are a result of the affordance of the surface, but now in relation to the substances on the finger. Visible, black fingerprints on brass and silver surfaces as well as on paper and parchment are caused by the residue of human skin; a quite aggressive mixture of fat, water, and salt, that if not removed, causes a chemical reaction that etches fingerprints into the surface permanently.⁴³ While the "power of patina" can increase the cultural value of an object, actual fingerprints are seldom perceived as patina, which favors a more indistinct aura of usage.⁴⁴ Only incidentally are concrete traces of handling on originally shiny surfaces considered aesthetically pleasing, for instance in Japanese lacquer ware.⁴⁵

The erosive effect of sweat and dirt on human hands perfectly illustrates Gibson's description of the surfaces' relevance: "The surface is where chemical reactions mostly take place. The surface is where vaporization of the substances into the medium occurs."⁴⁶ It's also the reason why professional handlers of artworks wear gloves, as do criminals, and if they don't, we see them wiping the handles of the guns they used, just like we see investigators dusting for fingerprints (both actions are standard motifs of forensic iconography). These 'bad' fingerprints add yet another category to the list summed up at the end of the previous paragraph: unwanted ones. Semâ Bekirovic's *Relational Voodoo* (2016) makes such touches productive by using the forensic apparatus on a postcard and a life-size bronze copy of Rodin's *La Penseur* (ca. 1904). The postcard and the copy have been dusted with fingerprint powder and placed under UV-lights, revealing hundreds of finger- and handprints that form an awesome colour film on the postcard and a glistening second skin on the sculpture (Farbabbildung 21).

Fingerprint powder was developed early on in forensic sciences in order to make the bodily residue on surfaces visible to the eye. The powder can consist of a variety of ingredients, but generally two main components are crucial: a binder, which adheres to the salt-fat-water mixture and creates a relief from the traces, and a pigment that renders the relief visible.⁴⁷ Any paint is composed of binder and pigments and with the fingerprint powder, Bekirovic's work "paints" the prints into a beautiful visibility. As an artwork, *Relational Voodoo* is effective because it makes use of the forensic iconography and the apparatus pertaining to it, while at the same time emphasizing the empathic effect that the now visible touches produce: everyone knows the urge to touch sculpture, has suppressed it, but also yielded to it, when no one was looking. It is these furtive touches that Bekirovic brings to light.

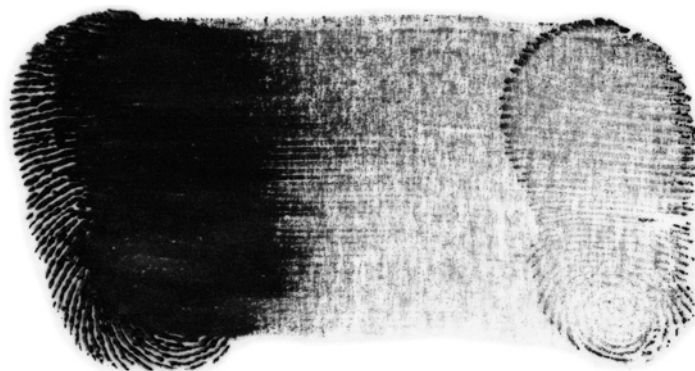
Like metal, the surfaces of photographs are a shiny plane, on which prints are highly undesirable. Notwithstanding the power of photographs to touch us, which Roland Barthes described as the *punctum* (the piercing detail that reaches out to us), we do not really want to touch the precious surface for fear of spoiling it. But one could also look



49 Henrik Jacob,
Mike Tyson, 2011,
20 x 22 cm, Play-Doh.
Collection of the
artist.

upon a fingerprint on a photograph as one index being superimposed onto the other: the glimpse at some real moment that the photographic print presents, is obscured by fingerprints, which speak of a different real moment, when the print was touched. Artists who combine fingerprints and photography make this superimposition productive, like for instance Chuck Close in his large portraits, which were based on photographs and executed with fingerprints. The German artist Henrik Jacob gives a new dimension to this particular layering of indexes by employing a different material: he reconstructs photographs with small pieces of Play-Doh in shades of gray, black and white, which are pressed onto a flat surface. Though the results retain the classic two-dimensional format of a photograph, they also have a distinctly three-dimensional quality about them, because the blobs of Play-Doh are layered and show the imprint of the fingers that shaped them. The Play-Doh pictures have diverse yet typical photographic subjects – a Ming Vase, a portrait of Mike Tyson, a shop display, a parking lot – and occupy a space somewhere between sculpture and photography. The fingerprints in the Play-Doh (which we know from experience does not harden like real clay) draw out the observers' tactile desire to continue the work by adding on more little lumps.

50 Evan Roth, *Slide to Unlock*, 65 x 120 cm, lambda print face mounted on acrylic, dibond backing.



While touching photographs was considered destructive as long as they were printed on paper, the emergence of touchscreen technology has made touching photographs an everyday practice, transferring the problematic residue on our fingertips to a different surface: the screen. Some touchscreen users carry a special antistatic cloth while others simply use their sweaters to wipe away the marks that the interaction leaves behind. The constant production of undesired fingerprints, which are not only afforded but demanded by the way the technology works, have inspired the American artist Evan Roth, who re-materializes digital-born phenomena in traditional media. The works *Slide to Unlock* and *Zoom In, Zoom Out* (2011, 2013) from the *Multi-Touch Series* isolate the marks that fingers leave when carrying out exactly these commands.

The oversized photographs of the ephemeral traces emphasize the finger movements that have become second nature to users of touchscreen technology. By translating the traces into clear black-on-white marks, Roth harks back to the forensic iconography. But the images' aesthetic effect lies in the way they relate the unwanted fingerprint on the screen to the finger-as-tool: the detested smear becomes a beautiful gesture, reminiscent of Chinese calligraphy, allowing observers to reflect differently on their everyday swiping, zooming and pinching.⁴⁸

All the works described here make surfaces productive and play with their affordances. They combine surfaces that love to be touched, like paint and clay, with those that are forbidden to touch, like brass, silver, bronze and photographs, and finally with those that have to be touched to render them active, like the touchscreen.

Surfaces and substances that extend into the digital or have been worked using digital processes undermine the looming dichotomy between soft, malleable and responsive surfaces on the one hand and hard, shiny and reflective surfaces on the other even more. Two examples show how digital processes let fingerprints occur in unexpected places, on substances that usually do not afford prints, or in unusual sizes.

MetaFoil is a stage curtain that the Los Angeles based artist Pae White made in 2008 for the new opera house in Oslo. The large tapestry started out from a piece of aluminum



51 Pae White, *MetaFoil*, 2008, cotton and polyester, 29 x 11 m. Oslo, Opera House.

foil, which the artist crumpled up, unfolded and photographed. The resulting high-resolution transparencies served as input for the digitally woven tapestry. The curtains' aesthetic impact relies on the interplay between represented and actual material: what appears to be a shiny, creased metallic surface is actually woven with dull cotton and polyester threads. The apparent sheen of the foil is achieved only through the faithful rendering of the optical effects, not the materials' actual qualities.⁴⁹ White describes the counterintuitive encounter of materials as a core element of her art making. To her, materials are active, even conscious beings. Recreating the small piece of foil as a large tapestry, was as if the textiles "had a dream of becoming something that was not in their nature, a fantasy of being silver and reflective [...] As if the material itself were in costume, and on stage."⁵⁰ White started on her woven works with a cooperative in Mexico, but their irregular and crafty style dominated the look of the tapestry. In search of a technique that would impose a less or rather no personal style at all, she discovered the *Flanders Tapestries Company* in Wielsbeke, West-Flanders, a manufacture that continues the century-old Flemish tradition of translating designs into large-scale tapestries. To facilitate intricate, pictorial designs, the mill works with a digitally driven loom. Yet it was exactly this seemingly impersonal technology that inserted unknowingly and as a surprise to the artist herself, a gigantic personal signature. When White had crumpled up the aluminum foil, she had left a fingerprint on the metal surface. Blown up to immense proportions by the high-resolution photograph that provided the data for the digital loom, it was translated onto the

52 Urs Fischer, *Big Clay #3*, 2008–2011, Cast aluminum, chrome steel skeleton, chrome steel bolts, 10,25 x 7,60 x 6,50 m. Greenwich, Connecticut, The Brant Foundation Art Study Center.



textile surface; a surface that is not susceptible to prints. Only after the weaving, the print was discovered in the upper left corner of *MetaFoil*, a slight yet clearly different pattern amongst the regular triangular shapes that form the reflecting wrinkles of metal.

Like Pae White, the Swiss-born, New York artist based Urs Fischer, works with a wide array of found and formed materials and gravitates towards the large scale. Unlike White, however, Fischer favors the personal mark and recently used an immense amount of clay, the foremost artistic material to afford fingerprints. In 2013, he enlisted the help of 1500 volunteers to work no less than 300 tons of clay into sculptures for his project *Yes* at the Museum of Contemporary Art in Los Angeles.⁵¹ Collaborators worked without any instructions or predetermined plan, turning clay into a participatory mass medium. *The Last Supper*, one of the sculptures on which Fischer himself worked during the clay-marathons, and which bears the imprints of many hands, was cast into bronze. The casting process is enabled by a high-resolution 3D scanner, which was also employed for other work, such as the *Big Clay* series.

These sculptures started out as very small lumps of clay, which Fisher kneaded into indistinct shapes of approximately five centimeters within only a few moments. The objects

were scanned at the Kunstgießerei (Sitterwerke, St. Gallen), a foundry specialized in producing large-scale, materially challenging art projects with cutting edge equipment and specialized knowledge of old and new technologies.⁵² From the scan, differently sized models and eventually a large mold was produced, in order to cast *Big Clay* in several parts in aluminum at the Chinese partner of the Kunstgießerei.⁵³ *Big Clay #3* is eleven meters high and a landmark in the grounds of the The Brant Foundation Art Study Center (Greenwich, Connecticut). The sculpture displays clearly visible, very large fingerprints and looks as if it has been kneaded by a giant for whom the big lump of aluminum must have felt as small and malleable as the tiny lump of clay to Fischer.

Where the Action Is

The brief inventory of the indexical affordance of different surfaces has shown how fingerprints emerge and entangle tools, surfaces, substances, and marks in a “network of material relationships”.⁵⁴ White’s and Fischer’s works illustrate particularly well that the print indeed enables a better understanding of the work’s potential meaning. Pae White did not intend to leave a print. Like a criminal, she left it behind unwittingly when crumpling up the aluminum, a substance susceptible to the residue on her fingertips. It materialized through the magnification of the high-resolution photograph – a forensic method in fact – and was discovered only after the weaving. Unwanted or not, the mark on the woven surface is a clue to the process that enabled the “dream of the woven tapestry to become something it was not”, as White described it. While the title *MetaFoil* and the optical appearance of the curtain speak of metal and leave the viewer to wonder about the nature of transfer between materials, the fingerprint leads us back through the operational chain that actually worked foil into tapestry. It does not only reveal the material transfer from aluminum to textiles, and therefore from a high to a low indexical affordance. It also explains the shift in scale, achieved by the digital-mechanical apparatus and as such the *meta* of *MetaFoil*. *Big Clay* works in a comparable manner: its title draws attention to the material of the artwork, which is precisely not the one in the title, while *big*, just like *meta*, hints to a change in scale. Again, the fingerprints – now intended to be visible – offer a clue to understanding the apparent paradox: the metal, which does not afford fingers to leave indented marks, cannot be the original material and the prints’ size shows that the work must have started out small and was subjected to a radical change in scale. The immense effort of the many hands, bodies, and machines it took to make an eleven-meter high aluminum cast stands in a sharp and ironic contrast with the sloppy squeezes that produced the vaguely shaped piece of clay. Both works therefore emerge from the travel between soft and hard materials and relate their processes of becoming through desired as well as undesired fingerprints. Finally, the indexes, claimed as monumental signatures or left by accident, also highlight the fact that an individual

could never have achieved these works alone, thereby revealing their collaborative production.

Surfaces of artworks have emerged here as places “where the action is”, as Gibson noted, or rather, where the action has been. The action of making art – as the initial hypothesis at the beginning of this chapter posed – can be reconstructed through a careful analysis of surface traces with regard to the particular material qualities or affordances of surfaces and substances, such as viscosity, plasticity, texture, reflectance, chemical reaction etc. As an exceptionally distinct index of artistic action, the fingerprints’ interpretation in relation to surface affordances allowed for an exercise in understanding making and consequently, meaning. Fingerprints, however, are only one among the manifold traces, which surfaces take from hands or tools, or material interactions. They all – including invisible or removed traces – betray making and need to be considered when studying surfaces of artworks as meaningful places.

Notes

- 1 This article is dedicated to the memory of Marianne van den Boomen, the most astute indexical thinker. I thank Nadia Baadj for her valuable comments and Magdalena Bushart and Henrike Haug for their patience.
- 2 This holds true for all materials, be it clay, plastic, oil paint, air, digital data, paper, wax, human bodies, museum walls etc.
- 3 Alfred Gell, *Art and Agency. An Anthropological Theory*, Oxford 1998, p. 13; Tim Ingold, *Lines. A Brief History*, London 2007, see chapter 2 in particular. On the relevance of surfaces in creative production, see also *Surface Tensions. Surface, Finish and the Meaning of Objects*, eds. G. Adamson and V. Kelley, Manchester 2013.
- 4 Cornelius Holtorf, *On Pastness. A Reconsideration of Materiality in Archaeological Object Authenticity*, in: *Anthropological Quarterly* 86/2, 2013, p. 427–444.
- 5 André Leroi-Gourhan, *L’homme et la matière*, Paris 1971 [1943]. See also Georges Didi-Huberman, *Ähnlichkeit und Berührung. Archäologie, Anachronismus und Modernität des Abdrucks*, Cologne 1999, p. 16–22.
- 6 Carlo Ginzburg and Anna Davin, *Morelli, Freud, and Sherlock Holmes. Clues and Scientific Method*, in: *History Workshop* 9, 1980, p. 5–36. The German translation: Carlo Ginzburg, *Spurensicherung. Der Jäger entziffert die Fährte, Sherlock Holmes nimmt die Lupe, Freud liest Morelli. Die Wissenschaft auf der Suche nach sich selbst* [1979], in: Carlo Ginzburg, *Spurensicherung. Die Wissenschaft auf der Suche nach sich selbst*, Berlin 1995, p. 7–44.
- 7 Didi-Huberman 1999 (note 8), p. 17.
- 8 James J. Gibson, *The Ecological Approach to Visual Perception*, Hillsdale/New Jersey 1986 [1979].
- 9 Gibson 1986 (note 8), chapter 8, p. 129.
- 10 See Ann-Sophie Lehmann, *The Matter of the Medium. Some Tools for an Art Theoretical Interpretation of Materials*, in: *The Matter of Art. Materials, Technologies, Meanings 1200–1700*, eds. C. Anderson, A. Dunlop and Pamela H. Smith, Manchester 2015, p. 21–41. For the significance of affordances for socio-cultural human interaction see: Erik Rietveld and Julian Kiverstein, *A Rich Landscape of Affordances*, in: *Ecological Psychology* 26/4, 2014, p. 325–352.

- 11 Gibson 1986 (note 8), p. 21.
- 12 Gibson 1986 (note 8), p. 21–22.
- 13 Roland Barthes, *Camera Lucida. Reflections on Photography*, New York 1981, p. 76–77.
- 14 During the late 1870s William Herschel introduced identification by prints in India, in 1894, the English police introduced a systematic database of prints from convicted prisoners. On the history of the fingerprint, see Ginzburg and Davin 1980 (note 6); Bettina Uppenkamp, *Der Fingerabdruck als Indiz. Macht, Ohnmacht und künstlerische Markierung*, in: *Bildwelten des Wissens* (Kunsthistorisches Jahrbuch für Bildkritik 8.1, Kontaktbilder), ed. V. Dünkel, Berlin 2010, p. 7–17; Roland Meyer, *Fremde Muster. Übertragungswege der Daktyloskopie*, in: *Versteckt. Verirrt. Verschollen. Reisen und Nicht-Wissen*, eds. I. Gradinari et al., Wiesbaden 2016, p. 367–388.
- 15 For instance Francis Galton, *Fingerprints*, New York 1892, which figured the author's own prints on the title page. On Galton see Meyer 2016 (note 14), note 122.
- 16 The term 'forensic iconography' has been adapted in media studies as well as in archaeology, see for instance Alana Cordy-Collins and Charles F. Merbs, *Forensic Iconography. The Case of the Moche Giants*, in: *Art and Archaeology of the Moche. An Ancient Andean Society of the Peruvian North Coast* eds. S. Bourget and K. L. Jones, Austin 2008, p. 93–111. If iconography is a forensic method in itself, however is doubtful (see Marion G. Müller, *Iconography and Iconology as a Visual Method and Approach*, in: *The Sage Handbook of Visual Research Methods*, eds. E. Margolis and L. Pauwels, Los Angeles u. a. 2011, p. 283–297).
- 17 Didi-Huberman 1999 (note 5), p. 17 and 26.
- 18 For an explanation of how and why fingerprint identification actually works, see James Elkins, *How to look at a fingerprint*, in: Idem, *How to Use Your Eyes*, London/New York 2000, p. 154–163.
- 19 See Uppenkamp 2010 (note 14); Didi-Huberman 1999 (note 5). Duchamp signed with his alter ego, Rose Sélavy, enhancing the 'fingerprint = identity' pun.
- 20 See for instance *Ant Man* (Peyton Reed, 2015), in which the hero manufactures someone else's fingerprint with sticky tape and glue in order to trick a scanner.
- 21 From a promotional text for *Facture*, conservation journal of the National Gallery Washington, see <http://artbooks.yupnet.org/2014/01/09/on-creating-facture-the-national-gallery-of-arts-new-conservation-journal-privileged-intimacy-with-great-works/> [accessed August 1, 2016].
- 22 "Fingerprints and DNA traces are, after all, only indexical tokens for authenticity and proof when authenticated by a matching record in a database. In that sense, indexicality becomes more and more a matter of digital storage, indexing, and retrieval." Marianne van den Boomen, *Transcending the Digital. How Metaphors Matter in New Media*, Amsterdam 2014, p. 57.
- 23 Paul Biro, who made the attributions in 2005, see: www.artnews.com/2008/06/01/the-blue-print/ [accessed August 1, 2016]; *New Yorker* journalist David Grann, who unmasked the fraud in 2010, see: www.newyorker.com/reporting/2010/07/12/100712fa_fact_grann?currentPage=all [accessed August 1, 2016]. Biro sued the *New Yorker* for wrong allegations, but the case was dismissed, see: artsbeat.blogs.nytimes.com/2013/08/02/forensic-art-experts-libel-case-against-new-yorker-magazine-is-dismissed/ [accessed August 1, 2016].
- 24 On the hand as machine-like device in the pre-modern period and the modernist misunderstanding that manual operations connote artistic creation while machine driven operation is mechanical and therefore non-artistic, see Patricia Falguières, *Art Machine*, in: *Decorum. Carpets & Tapestries by Artists*, Shanghai 2014, p. 170–173.
- 25 The prints were found in 2010 during technical analysis at the National Gallery, London, see: www.nationalgallery.org.uk/paintings/research/meaning-of-making/vermeer-and-technique/secrets-of-the-studio [accessed August 1, 2016].

- 26 Ella Hendriks, *Van Gogh's Fingerprints*, in: *Van Gogh. The Adventure of Becoming an Artist*, eds. C. Stolwijk and R. Suijver, Tokyo/Nagoya 2010, p. 220–23, 262–63; Martin Bailey, *Van Gogh's Fingerprints Discovered on a Mistral Work*, in: *Art Newspaper* 18/205, 2009, p. 27.
- 27 Diane Wolfthal, *Renaissance Fingerpainting*, in: *Colloque XV pour l'étude du dessin sous-jacent et de la technologie dans la peinture*. (Bruges, 11–13 septembre 2003), eds. H. Verougstraete and J. Couvert, Leuven 2006, p. 91–97.
- 28 *A Corpus of Rembrandt Paintings* (The Self-Portraits IV), eds. E. van de Wetering et al., Dordrecht 2005, p. 551–554; H. Perry Chapman, *Cornelis Ketel. Fingerpainter and Poet-Painter*, in: *Envisioning the Artist in the Early Modern Netherlands* (Nederlands Kunsthistorisch Jaarboek 59), eds. H. P. Chapman and J. Woodall, Zwolle 2010, p. 249–273. See also Yannis Hadjinicolaou, *Denkende Körper. Formende Hände. Handeling in Kunst und Kunsttheorie der „Rembrandtisten“*, Berlin 2016.
- 29 There are fingerprints discernable on the floor tiles in Jan van Eyck's *Annunciation*, ca. 1434–1436, National Gallery, Washington and the right leg of Jan van Eyck's *Adam* of the Ghent Altarpiece, 1432, see macro-photographs on: <http://closertovaneyck.kikirpa.be/> [accessed August 1, 2016].
- 30 Ann-Sophie Lehmann, *Natte Vinger Werk*, *Kunstschrift* 4, 2001, p. 16–19; David Bull, *Two Portraits by Leonardo. 'Ginevra de' Benci' and the 'Lady with an Ermine'*, in: *Artibus et Historiae* 13/25, 1992, p. 67–83, see p. 76; Rachel Billinge, Luke Syson and Marika Spring, *Altered Angels. Two Panels from the Immaculate Conception Altarpiece once in San Francesco Grande, Milan*, in: *National Gallery Technical Bulletin* 32, 2011, p. 57–77, see p. 65.
- 31 Illustrated in *National Gallery Review of the Year 2013/14*, London 2014, p. 29. See also *Leonardo da Vinci's Technical Practice*, ed. M. Menu, Paris 2014.
- 32 I thank Frits Scholten for sharing this memory.
- 33 See Marianne van den Boomen, *Interfacing by Iconic Metaphors*, in: *Configurations* 16, 2008, p. 33–55, here p. 43 and Van den Boomen 2014 (note 22), p. 38–39; see also Didi-Huberman 1999 (note 5), p. 117.
- 34 Pierce, cited in Van den Boomen 2008 (note 33), p. 42.
- 35 See for Constance Claassen, *The Deepest Sense. A Cultural History of Touch*, Chicago 2012.
- 36 Wilhelm Wundt, *Völkerpsychologie*, 10 Vols., Leipzig 1900–1920, Vol. 3. For a recent discussion of “evolutionäre Kunsttheorie”, see Norman Kasper, *Genetische Methode oder „Instinkt-schöpfung“*, in: *Telling Stories, Literature and Evolution*, eds. C. Gansel and D. Vanderbeke, Berlin/Boston 2013, p. 241.
- 37 “Der Mensch kann nicht umhin, den kleineren Maßstab seines Körpers, – seiner Schritte, seiner Armbewegungen, seiner Augen und Hände, ja seiner Finger auf die Unterlage all seines Tuns und Treibens abzutragen [...] Wer auf weiten Strecken des Dünensandes am Meere wandert, der freut sich über die Fußspuren in der glatten einfarbigen Wüste und verfolgt sie mit Vergnügen wie eine Augenweide [...] Die öden weißgetünchten Mauern, die sich straßenlang hinziehen, reizen noch heute den vorübergehenden Schusterjungen oder Anstreicher unwiderstehlich, daran entlangzufahren und mit Pinselquast oder schwarzen Fingern die Spuren des Antagonismus zwischen dem lebendigen Individuum und der toten Fläche zu hinterlassen”, August Schmarsow, *Grundbegriffe der Kunstwissenschaft* [am Übergang vom Altertum zum Mittelalter kritisch erörtert und in systematischem Zusammenhange dargestellt], Leipzig u. a. 1905, p. 108 [authors' translation]. For a history of ornament on the intersection between anthropology and art history around 1900, see *Histories of Ornament. From Global to Local*, eds. A. Payne and G. Neciporîlu, Princeton 2016.
- 38 Schmarsow 1905 (note 37), p. 101–107.

- 39 Gottfried Semper, *Der Stil in den technischen und tektonischen Künsten oder praktische Ästhetik. Ein Handbuch für Techniker, Künstler und Kunstfreunde* (Keramik, Tektonik, Stereotomie, Metal-lotechnik für sich betrachtet und in Beziehung zur Baukunst 2), München 1863, paragraph 86.
- 40 See for instance Lambros Malafouris, *Metaplasticity and the Primacy of Material Engagement*, in: *Time and Mind* 8/4, 2015, p. 351–371; Zdravko Radman, *The Hand, an Organ of the Mind. What the Manual Tells the Mental*, Cambridge/MA 2009.
- 41 'Entanglement' captures three-dimensionality and material character better than the 'network', which, as already Bruno Latour pointed out, has a tendency to get metaphorically flattened. See Ian Hodder, *Entangled. An Archaeology of the Relationships between Humans and Things*, Malden/MA 2012.
- 42 Softness and responsiveness of material is also described as a weakness in Renaissance and Baroque art theory, when the immaculate surface serves as a carrier of visual realism and hard materials are conserved the greater challenge for the artist, see for instance Joris van Gastel, *Il marmo spirante. Sculpture and Experience in Seventeenth Century Rome*, Leiden 2012.
- 43 See Donna Stevens, *The Effects of Fingerprints on Silver*, in: *Conservation Journal* 59, 2011, online publication: www.vam.ac.uk/content/journals/conservation-journal/spring-2011-issue-59/the-effects-of-fingerprints-on-silver/ [accessed August 1, 2016]. On fingerprints as a way to understand readers' behavior see Kathryn M. Rudy, *Dirty Books. Quantifying Patterns of Use in Medieval Manuscripts Using a Densitometer*, in *Journal of Historians of Netherlandish Art* 2:1–2, 2010, online publication: www.jhna.org/index.php/past-issues/volume-2-issue-1-2/129-dirty-books [accessed August 1, 2016].
- 44 See for instance Alois Riegl's concept *Alterswert* and Georg Simmel's aesthetic of patina, discussed in Holtoff 2013 (note 4), p. 435–437.
- 45 Christine M. Guth, *Layering. Materiality, Time, and Touch in Japanese Lacquer*, in: *Surface Tensions. Surface, Finish and the Meaning of Objects*, eds. G. Adamson and V. Kelley, Manchester 2013, p. 35–44.
- 46 Gibson 1986 (note 8).
- 47 Brian Yamashita and Mike French, *Latent Print Development*, in: Eric Holder, Laurie O. Robinson and John H. Laub, *The Fingerprint Sourcebook*, Washington 2012; see in particular 7.3. and 7.3.2., p. 11.
- 48 See also Stefan Werning, *Swipe to Unlock. How the Materiality of the Touchscreen Frames Media Use and Corresponding Perceptions of Media Content*, in: *Digital Culture & Society* 1: 1, 2015, p. 55–72.
- 49 Glenn Adamson, *Summer Work. The Art of Pae White*, in: *Afterall* 32, 2013, online publication: www.afterall.org/journal/issue.32/summer-work-the-art-of-pae-white [accessed August 1, 2016].
- 50 White during a lecture at the Powerplant Contemporary Art Gallery, Toronto 2010, see vimeo.com/20048912, at 33.38 min [accessed August 1, 2016].
- 51 Urs Fischer, *The Making of Yes*, Exhib. Cat. (Los Angeles, Geffen Contemporary Center/The Museum of Contemporary Art, 2013), New York 2013.
- 52 See Ariane Roth and Felix Lehner, *Whatever Works*, in: *Frieze* 10, 2013, online publication: www.frieze.com/article/whatever-works-de [accessed August 1, 2016].
- 53 The process is documented at the foundry's website www.kunstgiesserei.ch/kuenstlerwerke/urs-fischer/ [accessed August 1, 2016] and in the documentary *Feuer & Flamme/The Art Foundry* (Schumacher & Frey, 2014).
- 54 See here note 7.