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## “A new image of man”: Harun Farocki and cinema as chiro-praxis

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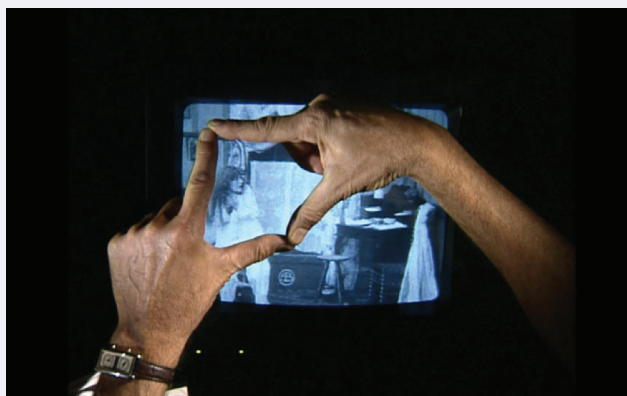
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### ABSTRACT

In Harun Farocki's lifelong study of the mute language of manual expressions, the human hand is explored not only as a versatile tool, but as a repository of social memory, a topos in the genealogy of the moving image, and a critical agent in the theory and practice of filmmaking itself. While cinema distinguished itself from previous artistic media through its capacity to salvage and store everyday gestures for later scrutiny, accruing a *Bilderschatz* for future anthropological and archaeological research, it was also integral to an ongoing process that spurred the progressive withdrawal of the human hand from the manufacturing of images. By adopting a double-pronged approach that considers the programming of bodies and images as integrally aligned, the article traces the gradual demise of craftsmanship and the increasing automation of imaging and perception as engaged across a wide range of Farocki's essay films, found-footage compilations and observational documentaries. Taken together, this body of work at once proffers an encyclopedia of gesturing hands, a form of chiro-praxis in its own right, and a search for alternative or forgotten modes of manual communication and collective imagination.



### KEYWORDS

Animation; anthropology; automation; gesture; Harun Farocki; hand; imagination; operational chain; operational image; social memory; soft montage



“The whole of mankind is now busy relearning the long-forgotten language of gestures and facial expressions,” Béla Balázs proclaimed in his 1924 essay *Der sichtbare Mensch* (2010, 10). With the advent of motion pictures, the Hungarian film theorist extolled, “our academics will perhaps realize that we should turn to the cinema so as to compile a lexicon of gestures and facial expressions on par with our dictionaries of words” ([1924] 2010, 12). In the wake of the medium's centennial some seventy years later, in an eclectic compilation of gesturing hands culled from the history of cinema called *Der Ausdruck der Hände* (The Expression of Hands 1997), filmmaker Harun Farocki ponders why such a prospect was not undertaken. Indeed, if silent cinema had succeeded in establishing a formal vocabulary of human gestures,

he speculates, maybe it would have lasted longer? Going against the anthropocentric tenor of Balázs, however, Farocki makes a distinction between close-ups of hands and close-ups of faces, insisting that the hand and the face speak different languages that often, as his compilation film demonstrates, contradict or undermine each other. While the face functions metonymically, representing the unified subject, the rounded character, the whole self, hands retain a disquieting autonomy and alterity. As Farocki notes, “the longer one looks at them, the more hands look like objects, or perhaps like small creatures. Hands often seem to reveal something that the face seeks to hide” (Farocki and Ernst 2004, 275). Even more unsettlingly, they appear to act of their own volition, like the dismembered hands of a murdered pianist in

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quest for vengeance in *The Beast with Five Fingers* (Robert Florey 1946), and to turn against their hosts. In neurology, this phenomenon is known as Alien hand-syndrome, including the famous case of self-strangulation.

The involuntary movement of the disobedient or aberrant hand raises a more general question that concerns the relation between images and their media, in this case, between the gesture and the body that transmits it. Simply put, it prompts us to ask: where does the gesture come from? In 1924, the same year as Balázs greeted cinema as the master tool for recovering a universal grammar of the body, the German-Jewish art historian Aby Warburg began to grapple with this question through the medium of a vast photographic montage mounted on the black panels of his *Mnemosyne* atlas. Tracing the migratory pathways of corporeal expressions (*Gebärdensprache*, which is also the phrase used by Balázs), the memory of Western culture crystallizes as *Pathosformeln*, Warburg's coinage for psychic states of passion or suffering frozen in the movement and fossilized as a gesture. The miscellany of motifs assembled across the black boards of the atlas, pinning photographic reproductions of sculptural friezes, frescos and paintings alongside commercial ads, propaganda flyers and newspaper clippings, demonstrates Warburg's conviction that the anthropological study of images is inimical to aesthetics and that the image, rather than a fixed and formal unit, functions as a vessel and vehicle for the transmission of mnemonic energies from pagan antiquity to the present. Warburg thus conceived of gestures as performances of an invisible power, channeling the savage and demonic undercurrents of European culture, or what he simply referred to as "unchained, elemental man" (Forster 1999, 25).

More recently, Hans Belting has resumed Warburg's anthropology of images. Perpetually migrating from one host to another, mental images—dreams and desires, fears and passions—are received, processed and transmitted by human bodies, understood by Belting as "the natural *locus of images*, a living organ for images" ([2001] 2011, 37). As the physical site where memories and imaginations take place, acting both as their tool and material support, the body therefore also constitutes a living archive, not merely of the individual but of a society at large (Belting [2001] 2011, 11). Along similar lines, Georges Didi-Huberman has drawn on the *Mnemosyne* atlas as the template for developing a "political anthropology" of bodily forms (2016, 20). In contrast to the tragic pathos of lament or suffering traced by Warburg, however, this project pivots on gestures of uprising, incarnated by raised hands and clenched fists at rallies and riots, hurling stones and waving banners. Corroborating Warburg's anachronistic concept of *Nachleben*, Didi-Huberman understands

the corporal forms of uprising as manifestations of "an indestructible energy" (2016, 314) that seizes the body at critical moments of upheaval, and therefore as expressive of an intuitive commonality and solidarity across history.

The notion that the past resides in our bodies and returns as gestures in the present was also conveyed in a lecture titled *Bilderschatz* given by Farocki in honor of the late media philosopher Vilém Flusser in 2002. The filmmaker here situates some of his recent films, including *Der Ausdruck der Hände, Arbeiter verlassen die Fabrik* (Workers Leaving the Factory 1995) and *Gefängnisbilder* (Prison Images 2000), within a larger work-in-progress aimed at developing a dictionary of filmic expressions. Updating "the Warburg paradigm" to the era of digital search engines, this "cinematographic thesaurus" (from the Greek "treasure" or "storehouse") would constitute "a visual memory in its own medium" (Farocki and Ernst 2004, 266, 263).<sup>1</sup> Always a keen observer of hands, the following pages proposes to understand Farocki's filmography as a whole in terms of a lexicon of gesturing hands. Pursuing this venue of inquiry will soon reveal that a series of interrelated questions are engaged through the activities of the hand. The first concerns social memory and the unique capacity of cinema, or more broadly what Walter Benjamin called "the optical unconsciousness" (Benjamin [1931] 1999, 512), to salvage and store everyday gestures for later scrutiny. The second locates this vast, and often unintended, historical record within the campaigns launched in the twentieth century to mold and monitor behavior through social and human engineering. Rather than a repository for a universal grammar of gestures, or what Balázs referred to as "the true mother tongue of mankind" ([1924] 2010, 11), the kinetics of the body, and therefore also of memory, is thus disclosed as an eminently malleable and socially contingent medium. From this follows a third point of interrogation: namely how the evocations or erasures of social memory by means of manual communication are enmeshed in the production and reception of images.

As a point of departure, I want to refract the set of questions raised above through the prism of a provisional selection of hands examined by Farocki, all of which react or retort to the presence of a camera. In the first film screened to a paying audience in a theatrical setting, the Lumière brothers *La Sortie des Usines Lumière à Lyon* (1895), which establishes the primal scene for Farocki's assemblage of industrial workhands departing through factory gates in *Arbeiter verlassen die Fabrik*, a mischievous hand snatches at the skirt of a coworker, "knowing that the other will not dare to retaliate under the stern eye of the camera." The suggestion that the camera

impinges upon spontaneity is reinforced by a cut from the workshop in Lyon to a CCTV camera, thereby implicating cinema in a burgeoning regime of automated systems of surveillance and deterrence. A related example is gleaned from a surveillance tape recorded from the ceiling of a visitors' room in a high-security prison in California in *Ich glaubte Gefangene zu sehen* (I Thought I Was Seeing Convicts 2000). While inmates and loved ones are only permitted to touch hands, a turned chair offers a brief respite from lens-based capture. The illicit gesture is detected, however, and the moment of intimacy quickly disrupted. Frequently set in spaces where only a limited array of gestures is likely to occur, Farocki's gaze remains vigilant to the ingenuity of hands to deviate from the norm.

Gestures like these, isolated or magnified by an iris effect (as in *Arbeiter*) or a close-up (as in *Ich glaubte*), are precisely the kind of treasures that Farocki anticipates an encyclopedia of filmic expressions would make retrievable for further study. If his found-footage compilations are primed for such small discoveries, the situations captured by Farocki's own camera affords a more sustained observation of the expression of hands, as in the two studies considered next, both devoted to the handicraft of camera operators. *Stilleben* (Still Life 1997) interlaces an analysis of still lifes from the seventeenth century with long uncommented sequences documenting the production of contemporary advertisement images. A genealogy of the depiction of inanimate objects is thus construed from the photorealistic brushwork performed in Flemish workshops to the laborious process in modern-day photo studios. Farocki's camera registers the sheer level of dexterity invested in the monitoring of the consumer's gaze and desire. A set of rules crystalizes from these observations. The scant conversation among the studio team is focused on the precise trimming of edges, cuts and angles. Various tools are deployed to handle the products and props in order to ensure that no trace of the craftsman's hand is left upon them (Figure 1).

The nimble fingers of the photographer, prop master and set decorator preparing a platter of cheese, glasses of beer and a Cartier wristwatch in *Stilleben* echoes the gestures studied in *Ein bild* (An Image 1983), an observational documentary of a four-day photo session in the *Playboy Magazine* studios in Munich. Again, we see a stage being set and circumscribed by screens and spotlights, followed by the rigorous arrangement of the centerfold model, who receives minute instructions on how to arc, lean and stretch each limb. In comparing these two films, one will note that the studio hands make no distinction between a person and a prop. As the off-screen narrator in *Stilleben* concludes:

In the end, objects bear witness to their producers, who reveal something of themselves in the act of production. But producers do not appear with their objects. When you look at objects, the people who produced them remain unimaginable. The spectator who grasps this becomes unimaginable to himself. This is the departure for a new image of man.

Something is forgotten, or maybe rather disappeared, in the production of these images. Yet, the traces of this disappearance gradually reveal themselves through a close observation of the diligent work of hands. It is this conundrum that the following pages aim to unpack.

### Factories of Gesture

In the first theoretical treatise on cinema, penned by the perceptual psychologist Hugo Münsterberg in 1916, the distilled emotional expressivity of the human hand, isolated and magnified in close-up, is singled out as the center of attention for the new medium. "Here begins the art of the photoplay," Münsterberg declares, with "one nervous hand which feverishly grasps the deadly weapon," or with "a play of the hands in which anger and rage and tender love or jealousy speak in unmistakable language" (1916, 87, 113). Chiming with the prevailing discourse at the time, Münsterberg takes the

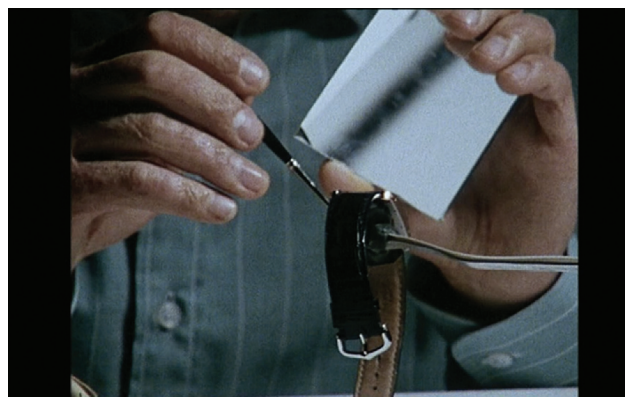


Figure 1. *Stilleben* (Still Life 1997).

articulacy of the hand for granted, fluently read by an audience worldwide. Two paradoxes can be gleaned from Münsterberg's assumption. First, while the photoplay may distinguish itself from previous artistic media through its firm devotion to manual dexterity, the medium was also integral to an ongoing process that spurred the progressive withdrawal of the human hand from the manufacturing of images. This is a topic to which the essay shall return in greater depth in the next section. Second, in order to adapt the purportedly natural and universal semantics of speaking hands to silent screens, they had, in fact, to undergo meticulous tutoring and training.

One scene in *Der Ausdruck der Hände* shows the hands of the filmmaker as they leaf through a manual for film actors titled *Gestologie und Filmspielerei* written by the theatre theorist Dyk Rudenski in 1927 (Figure 2). As the subtitle states, its topic of research is twofold, dealing with “the physiognomy and psychology of expressions.” Consequently, in Rudenski's gestural charts, hands are always shown together with the face. Aiming to suture human interiority and outward appearance into a single expressive unit, external effects, like close-ups of gesturing hands, are harnessed to an idea of psychological realism. In a play of words familiar from the writings of Martin Heidegger and Vilém Flusser, Farocki here connects hand to *handlung*, and further to the dominant mode of popular cinema, *handlungsfilme*, or action film. In the *handlungsfilme*, each gesture is made to serve and signify according to the demands of narrative economy. The connection becomes explicit in the syllabus for a film actors school whereby Rudenski concludes his handbook, the stated aim of which is to learn from American cinema in order to surpass it. Included in the mandatory literature for the third semester is the study of “Taylorismus (Okonomie) in der Bewegungslehre” (1927, 50), associating the streamlining of workflows in Henry Ford's automobile factories with the economy of action concurrently established in the dream factory.

While “Fordism” tended to be used interchangeably with “Americanism” in a European context

(Gramsci [1934] 1971), it was in fact among theatre practitioners of the Soviet Union that Frederick Winslow Taylor's labor efficiency studies enjoyed their most ardent following in the 1920s.<sup>2</sup> In his educational system for theatrical biomechanics, Vsevolod Meyerhold transcribed the techniques of the actor's body into scores of codified gestures. Lev Kuleshov likewise instructed his troupe of actors to Taylorize their movements by internalizing the speed and precision of the machine. This rationalized choreography of sensorimotor functions should in turn stimulate the imitative behavior of the audience and educate the population at large on how to conduct themselves within the new urban and industrialized environment. In her ambitious compilation film study *The Factory of Gestures: Body Language in Film* (2008), film historian Oksana Bulgakow demonstrates the instrumental role played by the moving image to form the public by seizing hold of their gestures, postures and bodily attitudes. The human body is thus understood both as a repository of involuntary memories and as an erasable surface ready to be reinscribed. Freed from the past and cleansed of their vulgar gestures, the Russian peasantry could be forged by the screen into the new anthropological type of the Soviet State. In the montage theory developed by Dziga Vertov, the Taylorist schemata of chopping up the fluxes of life and reassembling the fragments piece-by-piece is transferred from the assembly line to the editing room, established as a veritable laboratory for the creation of “a new, perfect man” (Vertov [1923] 1984, 17). Consequently, Vertov's *Man with a Movie Camera* (1929) pays equal attention to industrial workhands as to the manual gestures of the projectionist, cameraman and editor. As Jacques Rancière notes: “The film tries to just create communism with gestures, with hand gestures” (Boynik 2017, 99). According to Sergei Eisenstein, however, himself mentored by Meyerhold, the hands summoned to motion by Vertov's self-reflective poetics were not sufficiently firm and forceful: “It is not a ‘Cine-Eye’ that we need but a ‘Cine-Fist’” (1988, 64).

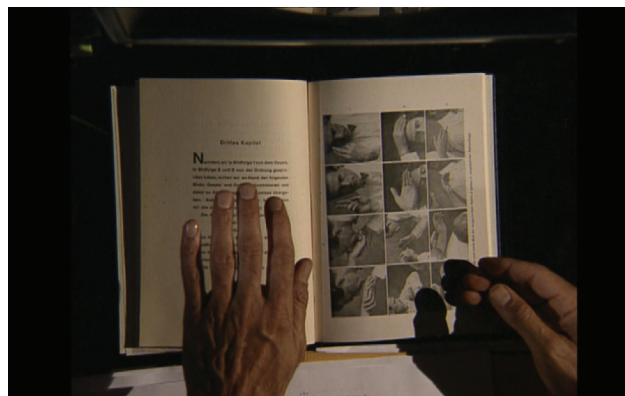


Figure 2. *Der Ausdruck der Hände* (The Expression of Hands 1997).

Seen through the lens of *Der Ausdruck der Hände*, the history of cinema can be construed within a genealogy of the socialization of the body, spanning ancient textbooks on rhetoric delivery to studies on the civilization of manners and etiquette. Rudenski's manual codebook notably employs the customary grid format of hand lexicons with a long pedigree in Western culture, popularized by the English physician John Bulwer in the twin volumes *Chirologia, or the Natural Language of the Hand* and *Chironomia: or the Art of Manual Rhetoricke* published in 1644. Parsing the flux of the hand into a grammar, the chirogram (from the Greek *chir*, meaning hand) tabulates hand signs into a diagrammatic chart. In the mid-1880s, the chirogram resurfaced in Eadweard Muybridge's serial photography of animal locomotion. Breaking down the arc of the hand drawing a circle, beating time or lifting a ball into its smallest consecutive phases by means of sequential exposures, then resynthesizing its trajectory by means of a rotating disk and a Magic Lantern, Muybridge's Zoopraxiscope was able to project the first close-ups of the hand in motion.

The decomposition of movement, classified and tabulated in clinics, asylums, workstations and research labs, became a staple of scientific analysis, including Jean-Martin Charcot's iconography of hysteric seizures and Gilles de la Tourette's decomposition of human gaits. These are among the examples considered by Giorgio Agamben in support of his claim that a gestural crisis was underway by the end of the nineteenth century, stated in a short but remarkably influential text titled "Notes on Gesture" from 1991. This crisis, which according to the Italian philosopher unleashed a frenzy of nervous tics, spasms and convulsions, coincides with the advent of the cinematograph. Rather than reviving a natural language of the body, as Balázs anticipated, cinema reified the moment when "the Western bourgeoisie had definitely lost its gestures" (Agamben [1991] 2000, 48). For Agamben as well as for Warburg, to whom the former committed a yearlong study in 1974, a loss of gesture is tantamount

to a loss of social memory. It is worth recalling that Warburg commenced his work on the *Mnemosyne* atlas after recovering from a mental breakdown, which inflicted a loss not only of his mental faculties but also of his bodily composure. Inaugurated in the wake of the Great War and developed in tandem with the rapid advance of totalitarian regimes, which were saluted by raised hands and clenched fists, Warburg conceived of his atlas as an urgent response to an accelerating crisis of gesture.

If the Western bourgeoisie lost its gestures by the end of the nineteenth century, the modern man of the Eastern Block was similarly dispossessed a century later. What Agamben describes "as a generalized catastrophe of the sphere of gestures" ([1991] 2000, 50) was captured in real time in the live transmissions, studio broadcasts and amateur videos mined by Farocki together with Andrei Ujica from the archives of the Rumanian television in *Videogramme einer Revolution* (Videograms of a Revolution 1992). The film begins with Nicolae Ceaușescu addressing a staged mass rally from the balcony of the Central Committee Building facing Bucharest's Palace Square on 21 December 1989. Responding to signs of unrest, the speech was a deliberate attempt to repeat the general secretary's gesture of defiance against the Warsaw Pact in a speech given on the same spot in 1968. However, a moment of hesitation causes a disturbance in the scripted scenario after which the social choreography rapidly disintegrates and the transmission ceases. Over the following days, a frantic upsurge of kinetic energy inundates the streets of Bucharest and the television station overtaken by the protestors (Figure 3). The overall impression of these recordings is of a gestural vocabulary in disarray, of an agitated and aimless force seeking its proper mode of expression. Overexcited hands clasp and wave and fists hammer the air, as if discharged after forty years of deterrence during which, the voiceover tells us, "the basic movement was that of idling, the basic feeling the inertia of fear." Other hands seek to master the situation and abide



Figure 3. *Videogramme einer Revolution* (Videograms of a Revolution 1992).

the currents, appealing to order with down-pressed palms. As one voice in the cacophonous crowd at the television station puts it: “We need a program.”

In the passage from the *homo sovieticus* to the *homo oeconomicus*, a new gestural program is installed, as the iron fist of the central plan succumbed to the “invisible hand” of the free enterprise system. According to the eighteenth-century economist Adam Smith’s doctrine of the invisible hand, merchants and manufactures pursuing personal gain in a deregulated market will unintentionally contribute to the collective good.<sup>3</sup> The *homo oeconomicus* imagined by the nascent science of political economy is a self-interested, risk-taking and competitive subject acting under uncertain and unforeseeable circumstances in a precarious environment. As Michel Foucault stresses in his penultimate lecture on *The Birth of Biopolitics* from 1979, this non-interventionist, off-hands policy prohibits sovereign oversight. In other words, it is imperative that the totality of the social body remains invisible, and the possibility for collective actions or common goals unimaginable. The *homo oeconomicus* is “an entrepreneur of himself,” Foucault writes, “being for himself his own capital, being for himself his own producer” (2008, 226). Governed by an invisible hand, this atomistic subject is intrinsically incapable of imagining himself as a social or collective being.

Farocki has devoted a string of observational documentaries to the relentless modification and fine-tuning of the choreography of the *homo oeconomicus*, currently known as the neoliberal subject, in contemporary factories of gesture. While shot in the unobtrusive style of Direct Cinema, and typically set within nondescript seminar rooms and employment offices managed by white-collar consultants, the situations under scrutiny are themselves highly theatricalized, including a wide variety of self-management activities practiced in role-plays, screen tests and sales talks for the sole purpose of learning how to master a convincingly effortless performance of oneself. *Die Schulung* (Indoctrination 1987) follows a five-day leadership seminar where executives receive basic training in corporeal rhetoric to improve their salability. The same instructor returns in *Die Umschulung* (Retraining 1994), now preparing ex-GDR employees for the transition to the free market of the reunited republic. In *Die Bewerbung* (The Interview 1997), similar skills are coached to job applicants undergoing a cycle of exercises and evaluations on how to conduct themselves during an interview. Entrances, exits and self-presentations are also rehearsed in *Worte und Spiele* (Words and Games 1998) from the following year, this time by aspiring talents tested for chat- and game shows on daytime TV. In these “new production

plants,” Farocki writes, “the most important raw material is the ordinary, everyday person” (Farocki 1998). In the montage of preemptive gestures, inculcated through therapy sessions, self-help manuals and emergency simulations, assembled in *Leben, BRD* (How to Live in the German Federal Republic 1990), the gamification of life is compared with automated test runs of domestic products in factories. It is as if the participants in these self-monitoring programs, be they salesmen or long-term unemployed, inadvertently ascribed to Bertolt Brecht’s notion of the *gestus*. Intrinsic to his theory of *Verfremdung*, Brecht conceived of the *gestus* as a stylized social hieroglyph, arrested and exaggerated by the actor in order to denaturalize the socially scripted conduct of the body. Through such “quotable gestures” (Benjamin [1939] 1998, 19) the otherwise indistinct background of capitalist modes of production gels into a palpable form.

As Foucault’s archaeological exposition of power structures elucidates, power is relational and operational in nature, always practiced and reproduced in specific situations. The “preexisting scenarios” (Halle 2001, 56) repeatedly sought out in Farocki’s deadpan behavioral studies proffer concrete yet stylized set-pieces that demonstrate how power, as Gilles Deleuze writes in his book on Foucault, “passes through the hands of the mastered no less than through the hands of the masters” ([1986] 2006, 60). Updating Foucault’s account of the passage from sovereign to disciplinary societies, Deleuze identifies a more recent historical shift to what he names societies of control ([1990] 1992). Following Foucault’s intuition that the individual’s body can be studied as an index of power, as the physical site where and through which power articulates itself, the emergence of control societies should also be discernable in the terms set forth by Jean Baudrillard, namely as a passage from “the old gestural system of effort” to “gestures of control and remote control” ([1968] 1996, 49). According to Baudrillard, this transition ensues from a general reconfiguration of the relation between tools and techniques of the body. Whereas in the former gestural structure of effort, tools channeled and extended the energy of the hand, automated control tools dissociate themselves from the physical expenditure of bodies. Unmoored from corporeal restraints, these tools further stake out “a new operational field” ([1968] 1996, 50). At the time Baudrillard made these observations in the late 1960s, this operational field had increasingly come under the purview of remote sensing technologies, imaging processing devices and computer vision. Whereas the previous pages have considered the inscriptions and erasures of gestural programs in the transition from one social construct to another, the succeeding pages seek to

address them in light of the gradual automation not only of imaging and perception, but of the faculty of imagination itself.

### Operational Chains and Operational Images

Alien hand-syndrome, the disconnect of mind and motor activities highlighted in *Der Ausdruck der Hände*, is endemic to discourses on the automation of optical media and industrial manufacturing alike. The disconcerting sensation that hands may turn against their hosts to expose a concealed or unconscious vice or weakness was memorably conveyed by the painter Henri Matisse after he had attended a screening of François Campaux's documentary *A Great French Painter, Henri Matisse* (1946). The film shows the artist at work before the easel in his studio, including long close-up sequences in slow motion that isolate the actions of his hand and paintbrush. To these intimate revelations, the painter responded in dismay: "I suddenly felt as if I were shown naked—that everyone could see this—it made me feel deeply embarrassed" (Bois 1990, 46). The vagaries of the hand are here a cause for humiliation and shame, stripping the artist of resolve and intentionality. For early proponents of photographic automatism, however, the apparatus' implacable disclosure of the shortcomings of the human hand was regarded as a merit. In *The Pencil of Nature* (1844–6), the painter and scientist William Henry Fox Talbot greets the camera as an emancipator that freed the image from the flawed touch of the artist's hand. From now on the external world could draw itself without human intervention, "impressed by Nature's hand" (1844, 1). Exactly a century later, André Bazin extolled photographic automatism in terms of a redemption from the mimetic tools of the draughtsman who vainly sought to copy nature. "The fact that the human hand intervened cast a shadow of doubt over the image," Bazin writes ([1945] 1960, 7), a shadow exorcised, once and for all, by the

amalgamation of lensed media, darkroom chemicals, and mechanized shutters.

The notion that emerging technologies of reproducibility shamed the hand of the artisan is frequently pondered by Farocki. With the application of the Jacquard loom in the textile mills during the first years of the nineteenth century, the craft of weaving was outperformed by a chain of punched cards. The complex patterns executed by programmable weaving machines, the off-screen narrator in *Wie Man Sieht* (As You See 1986) explains, "puts to shame the unsteady hand of the worker." Today the computer-generated image, as Farocki notes in his working diary some twenty years later, "reproaches filmed footage for its redundant details, as much as industrial products reproached the handmade object for its irregularities" (Dziewior 2011, 50). Throughout the double-channel trilogy *Auge/Maschine I–III* (Eye/Machine 2000–2003) and its single-channel partner *Erkennen und Verfolgen* (War at a Distance 2003), a brief extract from a 1949 Swiss industrial film is repeatedly quoted. It shows the hands of a factory employee feeding metal sheets into a mechanical punch-press (Figure 4). The jerky motoric pattern appears as a conditioned reflex hardwired into the neural system of the operator. Internalizing the beat and speed of the cutter, the workhand is reduced to a mere function of the machine: notably, a machine for making punched cards, the basic hardware of the Jacquard loom as well as the computer. Footage from a contemporary factory shows the same rudimentary task of clutching and releasing executed by a primitive gripper. As the voiceover comments, "the robot uses the worker's hand as a model, but quickly leaves the model far behind."

The human hand was also the subject of the first computer-generated 3D animation, created by Ed Catmull and documented in a short experimental film titled *A Computer Animated Hand*, co-directed with Fred Parke in 1972. This footage was included in the archive of research material assembled by Farocki for a work-in-progress titled *Bewegte Körper* (Moving



Figure 4. *Auge/Maschine II* (Eye/Machine 2001).



Bodies), which was left unfinished at the time of his death in 2014. As Erika Balsom points out, *A Computer Animated Hand* marks an anomaly in the files gathered for *Bewegte Körper*, the basic idea of which was to compare motion capture techniques of the late nineteenth and early twenty-first centuries, positioning the twentieth century as the absent third of the intended two-channel installation (2019, 362). While we are left to speculate on Farocki's plans for this material, the hands on display in the film speak amply on their own. Taking us through the various stages of production, *A Computer Animated Hand* begins with a plaster model of Catmull's left hand being marked up with ink polygons. Next, the line segments are converted into a wireframe model by computer graphics, which is then processed by a three-dimensional animation program. The film concludes with a demonstration of the finalized digital rendition of the hand polished by a smooth shader program. Reminiscent of the dismembered hands animated by Muybridge, the digitized hand rotates in a black void as it opens and closes, flexing the thumb and clenching into a fist, then extending the index finger and pointing at the viewer. A zoom takes us inside the hand to probe its cavernous interiors where the fingers fan out as dark tunnels. Over the course of its three-minute duration, the computer animation condenses the passage from handicraft to arithmetic, from model to copy, and from workshop to screen space projection, culminating in the spectral realization of a hand not merely disjointed from the body, but unmoored from a social world.

Once a human faculty is operationalized, it is imminently replaceable. In light of the examples considered above, this process entails an ongoing transfer from "operational chains" to "operational images." The former is the French paleoanthropologist André Leroi-Gourhan's term for manual memory, denoting the gestural programs embedded in the nervous system and muscular structure through acquired skills and routines in the long-term interaction between hands and tools. The latter is Farocki's coinage for images that act upon, rather than represent or reflect, reality. Such action-oriented images are integral to an operation, programmed to react and respond to anticipated changes in the image data. Operational images are always constituent of an assemblage where its various applications for civil, industrial or military purposes form a network of intersecting paths. This logistical field of operations expands in tandem with the outsourcing of operational chains, no longer passing through human sensory ratios but executed by numerical codes of conduct and command. "Freed from tools, gestures, muscles, from programming actions, from memory, freed from imagination by the perfection of the broadcasting media," Leroi-Gourhan writes,

"zoological *Homo sapiens* is probably nearing the end of his career" ([1964] 1993, 407). This cautionary critique suggests that the automation of labor, memory and imagination are integrally aligned, and should therefore be considered jointly. Hence, I want to proceed by unpacking the analogy between the quantification of laboring bodies and laboring images.

Automation entails a step-by-step, or point-by-point, procedure. The first phase in the automation of the manufacturing industry was the decomposition of laboring bodies precipitated by means of motion capture lenses. With the advent of the first fully automated image, the photographic camera, the pictorial surface disintegrated into a granularized mosaic. In both cases, operational efficacy is facilitated through discretization, breaking down fluxes and flows into their smallest constitutive parts or "pixels" (picture elements). As literalized by its prototype the *Camera Obscura*, the optical apparatus blackboxes its atomization of the image into an aggregation of particles. The automated conversion of the visual field into enumerable and encodable units is the defining characteristic of what has variously been termed "technical images" (Vilém Flusser), "discrete images" (Bernard Stiegler), "numerical images" (Gilles Deleuze), "data-images" (Kenneth Laudon), or "softimages" (Ingrid Hoelzl and Rémi Marie). Quantified into a data storage facility, the image becomes accessible for mathematical calculations and computations. Concurrently, as Flusser notes, it is rendered "inaccessible to hands, eyes, or fingers" ([1985] 2011, 10). In *Wie Man Sieht*, the demise of handicraft and the automation of imaging is threaded together in the first picture woven by the Jacquard loom, disassembled into pointed rows and columns like the rasterized screens of electronic monitors.

It is worthwhile to recall that autonomously generated images, disassembled and reassembled inside cameras and computers, nonetheless remain conceptually grounded in the hand that they severed. The ontology of the photographic image, and by extension cinema, has traditionally been theorized in light of its indexicality, Charles Sanders Peirce's term for a sign causally connected to its signifier. Like Paleolithic handprints stenciled on cave walls by blowing pigment through a spraying pipe, or the fingerprint left by the inked thumb as a vindication of identity, the actions of light imprints its touch on the emulsion. The index finger, the most versatile finger of the hand, furthermore performs what Peirce describes as the exemplary instance of indexicality, the deictic act of pointing at something. Fingers are not merely used for pointing, however, but also for counting. Digital media, which convert images into discrete numerical values, derive their

name from the digits of the hand. Whereas the typewriter differentiated the fluent hand into ten digits, consigned to tap keys one by one, the computer managed with one numeral sign and its absence. Through the standardized language of binary digits, images could henceforth be parsed for machine readability and primed for programmable actions. Computation, rather than film, has thereby realized Balázs' dream of a language universally understood, albeit not by humans. The standardized mother tongue of digital code does not merely allow computers to communicate, but also "to compile a lexicon of gestures and facial expressions" (Balázs [1924] 2010, 12). By digesting vast training sets of image data, neurological networks are able to learn the language of bodily expressions. With the advent of pattern recognition software and search engines used for biometric authentication and profiling, deviant patterns of behavior can be detected, deciphered and deterred automatically.

A standardized vocabulary of interfacing gestures is further implemented by gesture recognition programs, which coordinate the functionalities of human digits and operating systems. Digitization may therefore be understood quite literally and observed through the study of manual behavior. Vilém Flusser describes the transformation wrought on gestural language by control tools as a transition from the hand to the fingertips, from gestures of reaching out and grasping to gestures of typing and tapping, or with current touchscreens, of pinching, scrolling and swiping. As Baudrillard similarly notes, "only man's 'extremities' now have an active part to play in the functional environment" ([1968] 1996, 49). In his final collection of essays *Gestes*, published the same year as Agamben's "Notes on Gesture" and extending its diagnose of a crisis of gesture to the age of control societies, Flusser argues that these activities cannot really be considered as gestures in the true sense, but merely as operations, "functioning as functions of a machine" ([1991] 2014, 14). Or, as an intertitle in Farocki's inverted city symphony *Gegen-Musik* (Counter-Music 2004) puts it, as "appendages of the apparatus." While the hand initially serves as a model for the machine, at some point the situation is reversed whereafter the functions of the hand are automated and digitized by the tool.

Farocki's later body of work is replete with the kind of effortless and functional gestures described by Baudrillard and Flusser. In control rooms, surveillance centers and military training facilities, human eyes remain firmly affixed on screens while fingers carry out their tasks autonomously, numbly tapping keyboards, flicking joysticks or clicking mice as they monitor emergent contingencies in public transport, shopping malls and simulated battlefields. In Farocki's last completed film cycle, *Parallel I-IV*

(2012–2014), attention is shifted from the gestures conducted by control screen personnel to those performed by virtual bodies in computer-animated worlds. Game world avatars are only able to interact with their surroundings through a limited series of possible actions. Flight or physical assault—hitting, running, pushing, bumping, pulling a gun—seem to constitute the only eligible means of expression within these menacing environments. When awaiting further instructions, hands either remain stiff and idle or caught in a redundant loop or mannerism: grabbing the crotch, adjusting a tie, waving a cigarette. Alternating between aggressive self-assertion and apathy, the fatalistic impression of these pre-programmed gestural chains and hiccups is further augmented in contradistinction to the omnipotent, unedited and free-floating camera. On the one hand a rigidified and rule-based body, on the other an infinite operational field. The logic of inversion, whereby the copy supersedes the model from which it was wrought, is reiterated once more in the passage from analog reproduction to digital construction. In operative terms, the off-screen world is outperformed by the on-screen simulation. The search for alternative modes of gestural communication, for ways of expression irreducible to the causal logic of function and finality, therefore approximates what we may call an aesthetics of inoperativity.

### Gestic Thinking

The single most prominent feature in Farocki's oeuvre is the hands of the filmmaker himself. Frequently they are shown drafting scenarios, leafing through books or organizing material on a working desk or editing table, cutting, pasting and reframing images. The hand serves as a notepad in *Der Ausdruck der Hände*, as the author jots down words onto his open palm, and as a protective shield against the intrusive gaze in *Bilder der Welt und Inschrift des Krieges* (Images of the World and the Inscription of War 1989), covering the faces of Algerian women photographed for the purpose of issuing identity cards, and of an inmate photographed on the selection ramp in Auschwitz. The hand is also a plastic medium in its own right and deployed as a tool for mimicry. For example, formed into a provisional viewfinder by the thumbs- and index fingers to crop-out and extract a new image from the second-hand material. In *Der Ausdruck der Hände*, the filmmaker's hand assumes the form of a two-legged creature rummaging across a table, whereas in *Zwischen Zwei Kriegen* (Between Two Wars 1978) two hands transform into a dancing couple, elegantly launching into the syncopated steps of a tango. The hand may also mimic an invisible or unimaginable body. In the gesture of self-immolation performed by Farocki in

the opening scene of his first film, *Nicht lösches Feuer* (Inextinguishable Fire 1969), the right hand turns against the left, stubbing out a burning cigarette on the wrist in order to demonstrate the effect of Napalm (“a cigarette burns at 400 degrees Celsius, napalm at 3000”). This gesture is performed to revoke the spectator’s willed oblivion: “First you will close your eyes to the images. Then you will close your eyes to their memories.” Four decades later, the same war is commemorated through the tender gestures of hands stroking the smooth granite panels of the Vietnam Veterans Memorial in the Washington National Mall. This is the opening scene of *Übertragung* (Transmission 2008) and the first in a series of memorial gestures performed around the world, most of which involve hands touching stone. Fingertips trace the engraved lettering, and open palms press against it. Due to the high finish polishing of the granite, it appears as if the hands of the departed reach out from the hindside of the glasslike rock. At once acting as a wall and a window, the mineral surface functions as a screen in the double sense of the word. The titular transmission, however, retains a certain ambiguity. As an intertitle dryly remarks: “Touching the lettering is a custom. This custom is described in the guidebooks.” Prior to memory, what is transmitted is the ritualized gesture itself, migrating from one hand to another.

Yet another iteration of the motif of one hand touching the other appears in *Wie Man Sieht* when the camera frames a prosthetic hand mounted on a robotic wrist with its fingers clutched on a valve. The synthetic flesh of the prosthesis is in turn grasped by a human hand, as if joining in a handshake (Figure 5). Later in the film, we are shown a human forearm strapped with sensors to a mechanical hand that, slightly out-of-sync with the original, replicates its motions. These two uncommented sequences are subsequently elucidated by the off-screen narration. First in regard to the analog technology of Record/Playback that was tested out in the machine tool industry at the end of the Second World War

whereby the operations of the machinist’s hand were first recorded and then played back to and reproduced by the machine. According to historian David F. Noble’s critical appraisal of the social history of automation, the Record/Playback system, which extended the reach of the machinist’s tactical knowledge and sensory capabilities, was eventually defeated by means of numerical coding of motional information. Control over the labor process was thereby wrestled from the grip of workers and unions and transferred from shop floors to managerial supervisors (Noble 1984). Towards the end of the film, the narrator further reflects on telechirics (formed from the Greek *tele*, meaning distant, and *chir*, which means hand) as an alternative to the deskilling of human labor by means of computer programming. Telechiric devices follow the lead of the human hand in real-time, mimicking its activities without objectifying them. Since muscle-power is transmitted analogically, skill remains firmly embedded in the working hand, and the circuit of hand-eye-cognition intact. The analog processes exemplified by Record/Playback and telechirics thus enable a progressive co-evolution of man and machine. With numerical control, the feedback loop is broken and supplanted by electronic circuitry. Manual interference is not merely made redundant but deterred by design. As the voiceover notes, “covering protects the devices from inapt hands.”

The recurring motif of two hands touching—stopping, pressing, caressing—calls to mind Maurice Merleau-Ponty’s observation of how the hand touching becomes the hand touched ([1945] 1962, 92–3). Continuously oscillating between object and subject, sensible and sentient, our hands relentlessly alternate their roles as exterior tools and internal sensors. Since our hands are symmetrically opposed, however, the two can never unite. This is also the premise for Vilém Flusser’s reflections on “The Gesture of Making.” In order for the left hand to coincide with the right, our hands would have to be able to move in a fourth dimension, while in reality, as Flusser notes,

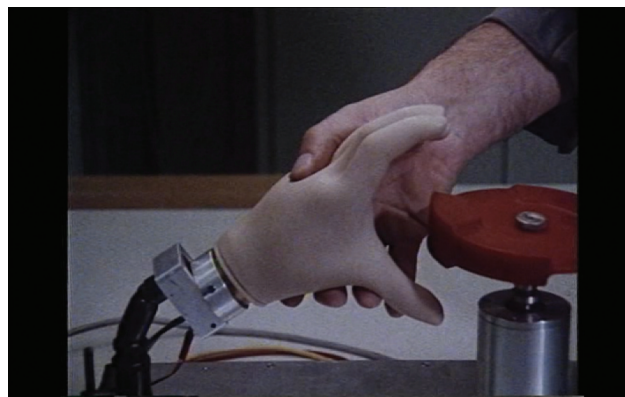


Figure 5. *Wie Man Sieht* (As You See 1986).

“they are condemned to forever mirror each other” ([1991] 2014, 32). We are therefore physiologically predisposed to approach and comprehend reality dialectically, from two sides, as we attempt to grasp it as whole. Consequently, a space always remains between our hands. Or perhaps one should rather say that our hands bring this space into being.

Following *Der Ausdruck der Hände*, Farocki’s hands withdraw from the frame. This removal concurs with the transition to a new working format, inaugurated by the self-reflective and retrospective two-channel video installation *Schnittstelle* (Interface 1995). In part, this was a pragmatic response, adapting to the demise of film theatres and the increase of screening venues at festivals, art galleries and museums. More importantly, it marked a conceptual response to the changed conditions of production in the passage from analog film to magnetic tape and digital file, and from editing table to mixing board. This in turn altered the conditions for what Farocki in a 1980 essay on film editing refers to as “Gestic Thinking” ([1980] 2001, 78), a coinage that highlights the constitutive alignment of *praxis* and *theory*.<sup>4</sup> While Farocki’s hands, more than in any previous work, play the lead in *Schnittstelle*, it also bids them farewell as a visible presence in the frame (Figure 6). A new mode of chiro-praxis is instantiated with the strategic shift from a pair of working hands to a pair of working images, and the method that Farocki dubs “soft montage.” Placed side-by-side or overlapping diagonally, he explains, “[o]ne image doesn’t take the place of the previous one, but supplements it, re-evaluates it, balances it” (Hüser [2000] 2004, 302). Working from two sides, going back and forth, soft montage proffers a formal equivalent to thinking with one’s hands. In common with our hands, a distance always remains between the screens. The titular interface, *schnittstelle*, denotes this interstitial space between the monitors facing the author, and the intermediary position occupied by the spectator.

“I always try to avoid interpretations where the film dissolves without leaving a residue,” Farocki

clarifies. “One of my strategies is to over interpret or even misinterpret a film. My hope is that something is being saved in such an exaggeration” (Farocki and Ernst 2004, 276). Connecting images at once laterally and sequentially, soft montage affords new possibilities for the critical activity of intentional misreading and overinterpretation, for example by repeating the same image or image sequence in a new combination. Aiming neither for synthesis nor suture, the eponymous “softness” is at once indicative of Farocki’s understated and restrained approach to the material, and of the malleable and tenuous connections elicited between the screens, further permuted by the distilled and elliptical intertitles.

In his next venture into the double screen format with the *Auge/Maschine* trilogy, the concept of soft montage gains further currency as a direct response to, and inversion of, the procedural logic of operational image systems. “The idea of working with two image tracks to illustrate the process of comparing performed by the software is an obvious corollary,” Farocki explains in a conversation with Yilmaz Dziewior (Dziewior 2011, 210). Cybernetic weapons, like the guided missiles used during the First Gulf War, adjust their performance through a self-regulating feedback mechanism. An input image, the field of vision recorded by a camera in the missile head, is compared with a template stored in computer memory, matching the real-time image with the remembered image. Hitting the target, the image is extinguished and the transmission ceases. Placing images side-by-side without establishing definite connections or conclusions, the *modus operandi* of soft montage is conversely to disrupt, delay and defer the route along a predetermined path. Rather than being consumed without a residue, the comparative process endows the image with a quality of latency, elision and open-endedness.

In soft montage, two images gesture toward an unnamed and perpetually deferred third. This principle lends the title to *Vergleich über ein Drittes* (Comparison via a Third 2007), a double-screen

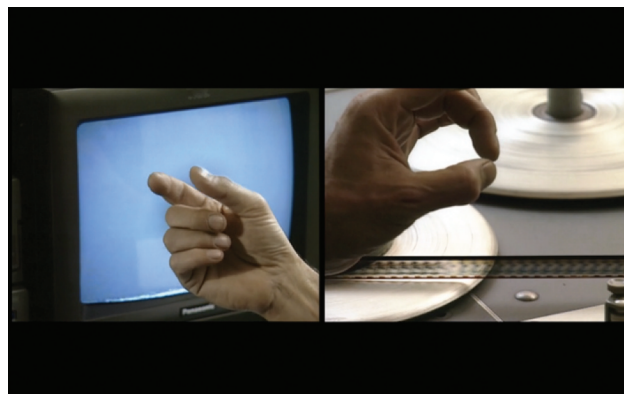


Figure 6. *Schnittstelle* (Interface 1995).

installation that compares pre- and postindustrial practices of brick manufacturing at various sites around the world. The two channels irregularly switch on and off, blackening out one of the screens to summon the invisible third parameter of the comparison. The two-channel piece was subsequently assembled into the single-channel *Zum Vergleich* (In Comparison 2009), Farocki's last feature film shot in 16 mm. The director states the basic premise of the project as follows:

For *In Comparison*, I wanted to make a film about concomitance and contemporary production on a range of different technical levels. So I looked for an object that had not changed too much in the past few thousand years. This could have been a shoe or a knife, but a brick becomes part of a building and therefore part of our environment. So the brick appears as something of a poetic object (Farocki 2011).

On closer consideration, the chosen object of study appears less arbitrary. In fact, several lines of inquiry followed in the preceding pages converge in the ancient art of brickmaking. The working routines of bricklayers were the topic of a pioneer study on the rationalization of workflows conducted by Frank B. Gilbreth, a former student of Frederick W. Taylor. In the “micromotion studies” subsequently developed by Frank and Lillian Gilbreth, eighteen basic hand motions, named “therbligs,” such as to reach, grab and release, were identified. Staging their experiments in a darkened room, electric lightbulbs were attached to the hands of the operator who performed against a luminous measuring grid, similar to those previously used by Étienne-Jules Marey and Muybridge.<sup>5</sup> This enabled the camera to track the gesture as a graphic trail of light. A universal standard was thus obtained by extracting the gesture from the individual employee, whose body was either blurred out into a fog or completely disappeared. Three-dimensional wire models were further constructed in order to demonstrate, as the Gilbreths' explain in their

*Applied Motion Study*, “one man's progress of learning paths of least waste” (1917, 89). In the quest to increase efficiency, reduce fatigue and maximize profit, the model was to learn, and to unlearn, from the copy, so as to purge the body of redundant gestures.

The fabrication of bricks was also submitted to a detailed analysis by Gilbert Simondon in the first chapter of his doctoral thesis (Simondon [1964] 1995, 37–64). In contradistinction to the Taylorist segmentation of the work process, which proceeds through isolation and abstraction, the French philosopher insists on the intermeshing of material and bodily flows involved in manual brickmaking. Considered as agential forces in their own right, the soft clay and the hardwood mold participate in an operational chain of preparations and transformations through which a form gradually actualizes itself. Congruently, the gestures of the brick maker's hands are always already immanent in the form that they express. The tasks described by Simondon—digging out clay from under the topsoil, adding water, stamping it by foot and kneading it by hand, and the subsequent molding, drying and burning of the bricks—is precisely laid out in the succession of shots with which *Zum Vergleich* begins. Following the construction of a clinic in Burkina Faso, the first panning shot grounds the process in the materials extracted from the soil and the surrounding environment, establishing a connection between the sense of touch and the sense of place, or what Simondon calls the “associated milieu.” Abiding to its own rhythm and pace of correlation, individual acts of carrying, grasping, shoveling, pressing, lifting, clutching, piling, fitting and cladding unfold as an uninterrupted sequence. Pivoted on the production of bricks, a social space is gesticulated in the communal effort and channelized as a flow of interconnecting movements passing from one pair of hands to another (Figure 7).



Figure 7. *Zum Vergleich* (In Comparison 2009).

Meanwhile, the film itself passes from one production site to another. In the process, gestural chains are uncovered as historically sedimented material, moored in the time of traditions and technologies, like the labor practices determined by the primitive machinery in a production plant from 1930 in Nimbut, India (Figure 8), or by the more advanced machinery from 1945 operated in a factory in Leers, France. Placed side-by-side, these embodied temporalities disclose the historicity of gestures, unevenly distributed and stratified in discontinuous layers around the globe. As production becomes increasingly automated, and factories increasingly deserted, the bustle of bodies and murmur of voices swiftly subside. In an industrial plant in Germany, a sole employee idly divides his attention between the machines and the control table with his arms crossed. No hands come into contact with the material. In a suburban neighborhood in Austria, a construction crew is assembling brick modules guided by the manual instructions of their foreman. The camera frames his single, gloved hand suspended in the air, giving directions through a limit series of basic hand signals: pointing, halting, rotating, thumbs up (Figure 9). The concluding field study moves between the research facilities of the world's first architectural robotic laboratory in Zürich and the finished

customized brick facade of a building located in a vineyard in the Swiss Alps. Inside the fully automated laboratory, there is merely the hissing sound of the robotic arm executing its tailor-made control code. The grasping claw rotates each individual brick and lays it down in an irregular pattern designed to convey the impression, when viewed from a distance, that the facade of the winery is made of oversized grapes (Gramazio and Kohler 2014). A computer monitor displays the image data driving the robot: each pixel equates a single brick whereas the screen corresponds to the completed brick wall. In this automatized implementation of Zeuxis' grapes, assembled bit-by-bit and brick-by-brick, a chain of images has completely supplanted a chain of gestures. Kinematic tutorials, like the one written by Rudenski for theatre actors in 1927, are now scripted to program the navigation paths of robotic limbs. In light of the pixel-to-brick and screen-to-wall ratios in the concluding scene of *Zum Vergleich*, we may also recall the trick famously projected by the Lumière brothers in 1896: first showing the demolition of a brick wall and then, through the use of reverse printing, the wall rising up from the dust and reassembling itself. This conceit already contains the idea that the built environment can be produced and destroyed solely by means of images.



Figure 8. *Zum Vergleich* (In Comparison 2009).



Figure 9. *Zum Vergleich* (In Comparison 2009).

*Zum Vergleich* attests to an abiding concern in Farocki's chiro-praxis by demonstrating the capacity of cinema to serve as a repository and reminder of forgotten languages of the body. This was precisely the critical task allocated to the cinematic thesaurus of gestural expressions. The *Bilderschatz* project has a notable predecessor in an appeal drafted by Farocki in 1975, asking for funds to establish a "national image library" devoted to the production of "building blocks" to be preserved as raw material for future research (2016, 3, 5). In his final years, Farocki founded such a library together with Antje Ehmann, assembled from a series of video production workshops around the globe. Conceived as a collective brick-by-brick effort, the online database *Eine Einstellung zur Arbeit* (Labor in a Single Shot 2011–2018) currently comprises close to five hundred videos. In each of these cases, the architectural metaphor of bricks or building blocks, drawn from Lev Kuleshov's conception of montage as bricklaying, serves as a corollary to the individual gestures that make up the fabric of film and society alike.<sup>6</sup> While Eisenstein attacked Kuleshov and his disciples for treating the shot as a brick, as an inert rectangular unit rather than an always-already vital cell (Eisenstein 1988, 143–4), Farocki's mode of chiro-praxis proceeds neither by mortaring shots together, nor by making them collide and clash as Eisenstein prescribed, as both methods ultimately aim toward a preconceived idea. Anticipating the use of multiple monitors, the emblematic "handmade frame," the provisional viewfinder formed by the symmetrically opposed hands as the thumbs and index fingers align, instead serves to isolate and unlock the building blocks—limbs, expressions, activities, topoi—from their adjacent construction material, and thereby

also to gesture toward an alternative social architectonics. As Jan Verwoert puts it: "Just because reality came to be built in a certain way, doesn't mean you can't reconfigure it by shifting its building blocks around" (2014, 54). On that note, let me conclude with a brief reflection on how the mnemonic aids of kinetic archives and dictionaries might assist our memory, and thereby also our imagination.

In 1975, Farocki directed an audiovisual essay commissioned for the TV-series *Telekritik*. *Über "Song of Ceylon" von Basil Wright* (About "Song of Ceylon" by Basil Wright 1975) analyzes the eponymous 1934 travelogue through a combination of uncommented excerpts from the original film and hand-written title cards and crude drawings with off-screen commentary. Farocki reedits Wright's footage into an inventory of the manual gestures that organize the sacred and secular life of the Sinhalese society: performing ceremonies, teaching dance, hauling water, beating laundry, harvesting rice, husking coconuts (Figure 10). In common with *Zum Vergleich*, Wright compares the labor conducted in village fields and in modern factories. However, as the voiceover reprimands, it remains unclear whether the tasks shown are carried out for the benefit of the commonwealth of the Empire or for the local community. Working relationships are thereby hidden by the montage, which exhibits the manual actions but obscures the social forces that compel hands to move. Wright's documentary is nonetheless commended for inviting the audience to engage in an act of imagination: "The images from foreign places show us something we don't have, but that we can imagine. For instance, a community in which people's movements relate to each other." In all its simplicity, this remark intimates the promise that Farocki's lifelong study of the mute



Figure 10. *Über "Song of Ceylon" von Basil Wright* (About "Song of Ceylon" by Basil Wright 1975).

language of hands shares with Balázs' thesis on the coming visibility of mankind: that a single gesture, flowing between the external expressions of the body and the internal screen of the imagination, is able to dispel the reign of the unimaginable.

## Notes

1. The lecture was subsequently published as a two-part essay co-authored with Wolfgang Ernst. See also Wolfgang Ernst, Stefan Heidenreich and Ute Holl *Suchbilder* (2003).
2. For a discussion, see Beller (2006, 88–149).
3. Smith's Invisible Hand has remained an enduring metaphor in managerial theory, subsequently updated by the business historian Alfred Chandler as the Visible Hand in reference to the coordinating efforts and long-term planning required by largescale industries, then returning full cycle with the economist Richard Langlois' notion of the Vanishing Hand in reference to the vertical disintegration and outsourcing of labor under Neoliberal management. Smith (1776); Chandler (1977); Langlois (2003).
4. For a discussion on the reciprocity of manual and mental labor, praxis and theory, in light of the topic and topos of the hand in Farocki's work, see Volker Pantenburg's chapter "Two or Three Ways of Speaking with the Hands" (Pantenburg [2006] 2015, 217–253).
5. For a discussion, see Braun (1992, 320–48).
6. "Movement, dynamics—these are the material of the film spectacle," Kuleshov writes, "laid out in shot-signs, like bricks" (Kuleshov [1929] 1974, 90–1). As considered in the final pages of the essay above, the brick is a flexible metaphor applicable to multiple aspects of the social architecture, spanning buildings and bitmaps to the shot-signs, chirograms and "therbligs" that make montages from bodily flows. Worthy of note in this context is also the three-minute tracking shot along the brick wall corralling an anonymous factory in *Zwischen Zwei Kriegen*. The respective length of the shot and the brick and mortar enters into an isomorphic relationship, screening out labor from the collective imagination.

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