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The Technical Object and Somatic Thought. Theories of Gesture between Anthropology, Aesthetics and Cinema

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Abstract. This essay explores the lines of thought focused on the relationship between gesture and technique, examining the theories which have conceptualized the transfer of gestural matrices into inert matter, and understood technique as a result of this process. Although associated mainly with the writings of the palaeontologist André Leroi-Gourhan, this thought actually predates his work, and consists of multiple branches: having first taken root at the end of the nineteenth century, it became diffused throughout the following decades in different forms. These nevertheless shared a constant reference to cinema, both as a privileged place that captures gestures, and as a technique that can absorb their quintessence. From Espinas to Simondon, via Jousse and Eisenstein, the theory of gestural transmission breaks down various polarities, such as body and environment, organic and inorganic, animated and inanimate, performativity and inner life. It foregrounds the imaginative logic of the body and the many forms of somatic thinking developed by man. Such forms lie at the heart of the creative processes and have found their highest appreciation in cinema, as a machine that, from its very origins, has been grafted not only on the eye but on the whole body.

Keywords. Gesture; Film theory; Body agency; Prosthetics; Mimetic.

Technical gesture is the producer of forms, deriving them from inert nature and preparing them for animation.

Leroi-Gourhan (1965)

Contemporary neo-animist thought, which attributes life and agency to inorganic bodies, from artefacts to technical objects, can find possible connections and roots in the philosophical-anthropological theories of the gesture which emerged in France at the end of the nineteenth century and matured midway through the twentieth. The main thread of this thought connects Alfred Espinas to Marcel Mauss and Marcel Jousse to Leroi-Gourhan, and its various stages of development include some of Gilbert Simondon's most famous reflections. Here the gesture is no longer an involuntary, corporeal

manifestation of emotional states, but rather an interface between a subject and the world, a creative form of thought that rejects both rationality and the dimension of the drive. Being translated into an autonomous act of corporeal imagination, gesture moves therefore towards the dimension of technique, and achieves this through a twofold trajectory. The first establishes an apparently reflexive relationship between the two terms, interpreting the gesture as a technique that the body learns through different forms of knowledge; the second imagines a transitive relationship, maintaining that technique is a human gesture transfused into inert material.

Let us briefly examine the first, which is the more recent and more well known, albeit less relevant to the neo-animist shift. The idea was born of a famous essay by Marcel Mauss, *Techniques of the Body* (1936), which focuses for the first time on the way in which socio-cultural conditioning affects our uses of the body. Mauss asserts the ways we use it are never natural, that everything is the result of having learned *techniques* that were constructed, historically and culturally, in various societies and traditions. These techniques are still tied to a biological element, that, while not exactly denied, is nonetheless considered secondary to the huge process of re-writing to which bodies are constantly subjected, including by the media. The pioneer of the French school of sociology thus identified a border-space between the biological and the social, where an old object – the body – becomes new:

The body is man's first and most natural instrument. Or more accurately, not to speak of instruments, man's first and most natural technical object, and at the same time technical means, is his body [...]. I made, and went on making for several years, the fundamental mistake of thinking that there is technique only when there is an instrument. I had to go back to ancient notions, to the Platonic position on technique – for Plato spoke of a technique of music and in particular of a technique of the dance – and extend these notions.¹

¹ See Mauss (1936): 82-83.

The body's ability is technical precisely because it invents, perfects and modifies its own efficient acts, using its skills to form «pairs of mechanical elements», as Mauss writes. However, the body's technique is only partially innate, due to its exposure to the social: the body is an object which is created by culture, and culture models its gestures, postures and motorial actions – and not only its mental ones, as one might expect. In the «semi-unconsciousness» through which they are performed, techniques of the body intersect with traditions, and this factor led Mauss to his famous definition of technique as «effective and traditional actions», where the two adjectives have equal importance. His «borderline» science, as it has been defined (Karsenti [1998]: 230), consisted in an extensive deconstruction of the apparent organicity of corporeal acts with the aim of locating the convergence point of the various forces that condition bodies, and therefore troubling the boundary between nature and culture. As Mauss writes, the body's techniques are «physiopsychosociological assemblages of series of actions»², and he identifies three principal factors that compete in their formation. In brief: the nerve and muscle synergies made by the body, for physiological reasons (the first factor), «engage» (or not engage) according to a psychological drive (the second factor); subsequently they can be reinforced thanks to solidarity with the social context (rewarding them as virtuous, making them ritualistic, exhibiting them, etc.) (the third factor). Such forms of recognition and exhibition include, as mentioned, media representations – and especially those circulating through cinema, as Mauss suggests. For example, the medium diffused a specific walking style for girls, a wavering strut that Hollywood screens introduced across Europe in the first post-War period. Cinema's role as the great modeler of gestures and bodily techniques has recently been rediscovered in filmology, in particular by Bulgakova (2005) and Blümlinger (2017). The former turns to Mauss in order to expand on a post-War context, and in particular on the explicit re-edu-

² See Mauss (1936): 92.

cation of bodies through film as an essential part of the stimulation of democratic thought in post-Nazi Germany³. The latter focuses on the Tayloristic experiments of Frank and Lillian Gilbreth, who created chronophotographs, some even in 3D, of the labour gestures that produced minimal energy dispersion, in order to model the actions of workers and develop the most productive body techniques possible⁴.

It is not by chance that the current revival of gesture theory was inspired by film studies: if, as Vilém Flusser argues, the analysis of gestures would necessitate the foundation of an entire discipline, or rather an inter-discipline that aspires to be a «means of orienting ourselves in the circumstances in which we found ourselves with respect to things and people»⁵, then it is also true that there is a platform where many twentieth-century theories of gesture meet and interact, and this common ground is represented by cinema itself. The success of Giorgio Agamben's reflections on cinemas as the «homeland of the gesture»⁶ can also be explained in terms of this shared perception, i.e., that cinema is a «stakeholder» in discourses on gestuality; that it is the key instrument of its interception, archiving and transmission, and therefore also a privileged means to think through the gesture and its elusive dimensions.

Some of these nodes emerge more fully in the other trajectory where the relationship between gesture and technique has developed, thus far put aside: the transitive model⁷. Here, the technique is

considered as a human gesture transferred to matter, a form of worldly intelligence based on imagination and the production of resemblance, with a resulting distribution of agency to things as a prerequisite of their animation (we can read this in the above epigraph by Leroi-Gourhan; a sign, as we will see, of the work that preceded his own). The transitive theory of the gesture was developed in three phases: the first straddled the nineteenth and twentieth centuries, the second emerged in the thirties, and the third in the fifties and sixties. It builds on scientific concepts, especially biological ones, which enabled theorists to conceive of transition first as a bio-chemical reaction of the matter, a kind of paradoxical contagion between the organic and the inorganic; in a second phase, in relation to animal mimicry, a phenomenon that destroys the boundaries between the living and the inert, between body and environment; and finally as the transcendence of the prosthetic into the idea of the autonomous machine, a sort of sub-species of the human.

The following pages will attempt to reconstruct this line of thought, illustrating how it found a testbed in cinema. More than any other, the medium of the moving image inspired the reactivation of animist thought, which emerged most fully in the so-called «lyrosophic» vision of Jean Epstein⁸. The animation of images and of the bodies inscribed within lies at the foundations of this notion of cinema-as-technique, one that breathes life into the inanimate. However, the transition that is infused into such images derives concretely from a human gesture, and this can be imagined during the camera's act of creation, according to a specific idea of the relationship between man and the world. This is why transitive theories of the gesture relied on cinema, and why they have served to reconsider the medium from an anthropological perspective.

form (and meaning) of a human attitude through technology.

⁸ Epstein defines his own reflection on cinema as «lyrosophie (*lyrosophie*)», intending a form of thought that unites a rational component with an emotive and affective one.

³ The 2005 book is mainly about the Russian context; the application of Bulgakova's research to the German context is presented in Bulgakova (2018).

⁴ Blümlinger (2017) and Blümlinger, Lavin (2018): 341-360.

⁵ See Flusser (1991): 161.

⁶ See Agamben (1991): 57.

⁷ The imprint of gesture onto technical tools is different from Benjamin's idea of innervation. According to Benjamin, the nerves that growing through skin and muscles tissues so as to permit the transmission of motor impulses to different organs continue their ramifications into technical apparatuses, which amplify and externalize this process (see Pinotti [2018]: 88). In the transitive theory of the gesture, the point is rather the propagation of the

1. PRELUDE: PROJECTIONS AND RESONANCES

This discursive field, presenting the gesture as progressively absorbed by objects utilized by the body, united anthropologists and aestheticians. At the end of the nineteenth century, these thinkers demonstrated a shared interest in biology, a key field that helped to evade the swamps of various spiritualisms. The first such thinker was the philosopher and anthropologist Alfred Espinas (1844-1922), Marcel Mauss's teacher at the University of Bordeaux, friend and colleague of Théodule Ribot and promoter of a «scientific» sociology that looks at human phenomena from a biological perspective, searching for the rules of nature that govern the actions of men within their social life. Regarding the themes at issue here, Espinas's volume on the origins of technology (1897) is particularly relevant. Though predominantly a social history of antiquity, the volume also introduces two key notions: first, the idea of *praxéologie*, the study of simple and spontaneous human actions that are governed by social rules and followed unconsciously; second, the theme of the prosthetic, adapted from the German philosopher Ernst Kapp – the first to have elaborated this concept in an explicit way. In his pioneering *Elements of a Philosophy of Technology*, Kapp interprets technique as a *continuation* and a *projection* of limbs, organs and senses, from the concave hand as a bowl to the neural system as telegraph cables⁹. This produced a very important intuition, the full relevance of which Espinas fully understood. Kapp's idea of «projection» represents the first materialisation of the notion of technique as reproduction of a form; it meant not only the intensification and extension of the body's functions, but also the transfer of a *conceptual matrix*, from the organic to the inorganic. Espinas then adopted Kapp's key concepts, addressing the question from a specific slant: emphasizing the unconscious, uncontrolled and unacted part of the extension of the body in tools. «The tool and the worker are one», Espinas

writes, «the worker uses it like an extended limb, barely ever remarking on its structure, nor seeking to understand how its various parts adapt so well to their aim» (Espinas [1897]: 45). In use and design, the process is therefore «naturally» an imitation, and thus Espinas's work establishes a first idea of the body-machine.

The machine is no longer a projection of the limb's extremities, but of the articulation that unites them with each other and with the torso, enabling them to be, to act upon each other, to carry out certain movements and to exclude others. A machine is a combination of rigid and elastic pieces that are put together in such a way that the application of force to one part of the system produces movement in another, the only possible movement, that is perfectly designed for a useful objective.¹⁰

The same year that Espinas's *Les origines de la technologie* was published also saw the release of *De la corrélation des sons et des couleurs en art* by the musicologist Albert Cozanet, under the *nom de plume* Jean d'Udine¹¹. The synesthetic theory of art that d'Udine developed in this volume was the first step toward his more comprehensive theory of the gesture. It then found a more definitive form in *L'art et le geste* (1910), a very influential essay that profoundly conditioned the work of Francis Picabia¹² and left its mark, as we will see, on the work of Sergei M. Eisenstein too. D'Udine adapted the notion of the gesture from the work of Swiss musician and pedagogue Jacques-Dalcroze, the father of eurhythmics. He moreover combined it with the ideas of another key figure from his education, the doctor and biologist Félix Le Dantec, who provided a source of inspiration in particular for his studies of the imitative behaviours of protoplasm. D'Udine's bio-aesthetic project covered many of the arts, with the curious exception of cinema, though the musicologist had come close in his synesthetic experiments – enough so to invent an apparatus that could

⁹ See Kapp (1877). On his fundamental role to the theory of the prosthetic see Somaini (2018).

¹⁰ Espinas (1897): 46 (my translation).

¹¹ See D'Udine (1897).

¹² Pierre (2002): 102.

project colours to accompany sounds (Guido [2007]: 147). In the chapters of his extensive treatise, however, he addresses sculpture, painting, architecture, literature and music, and identified the primary role of dance: a naturally synesthetic art since it converts sounds into movements of the body according to a rhythmical meaning. With Dalcroze, d'Udine believed that the gesture was originally born of the body's immediate reaction to an auditory stimulus, a muscular contraction that was an instinctive imitation, but which could be sophisticated and strengthened through specific learning. He hence formulated an initial definition of the gesture as human imitation and restitution of the natural rhythms of things. This however followed Le Dantec's definition of imitation, i.e., not as a mere reproduction of appearances but rather as *resonance*, as the result of an affinity between two immeasurable systems that are harmonized through a shared interface (Le Dantec [1902]). The interface is guaranteed by the Dalcrozian «muscular sense», a hyper-sense which unites all others and which consists in a vast, rhythmic memory stored within cells. This organic database is accessed every time a gesture is used in response to a stimulus, which resonates in the colloidal nodes (made of suspended micro-particles in perpetual movement). Among the nodes lies protoplasm, the base material of living cells, which reacts to the stimulus by vibrating and reproducing the external rhythm in an undulating movement. Continual interceptions and translations of rhythms constitute a physiological question that also has significant psychological resonances, therefore inspiring d'Udine to introduce a second definition of the gesture: «The gesture is the plastic form of our "state of mind", and not only its emanation; it is an integral, essential part of it, and constitutes an inseparable rhythm, the breadth of which directly influences the intensity of our passion»¹³. Though he strays into the realm of expression, d'Udine does not reaffirm the classical idea of the gesture as a symptom of a passion located elsewhere (i.e. in man's unfathomable

«interiority»); rather he argues that gesture and state of mind are two parts of the same rhythmic phenomenon. This can find other sensorial translations including, as he suggests in one of the text's most well-known sections, in colours, volumes or words. Indeed, the arts are grafted onto this first conversion of rhythm into gesture, after each one has retraced a gesture according to its own specific sensorial modality. The aesthetic process that d'Udine describes is therefore similar to a kind of contagion, it is a circular chain of intermediated transmissions of gestures: the rhythm infects the muscular sense and becomes gesture/affect, these grow together into an «aggregation of matter»: the work. Even though it is inert, the latter can always reproduce the original gesture, transferring it to other individuals and enabling them to feel the same emotion. In this way, the artefact becomes a kind of fossil, which contains the «plastic form of a state of mind», the creative gesture translated and transferred but always ready to be re-activated. In this way, the visions of the anthropologist and the musicologist meet, in the shared idea that to create is to model matter according to a gesture, projecting onto it a framework which consists in a series of rhythmic combinations that identify operative models or forms of feeling.

But is it really worth insisting on the latter distinction? Are there ultimately some gestures that are purely technical and serve only to manipulate, and others that are essentially expressive, so limited to externalizing a state of mind in a symptomatic or symbolic way? This is one of the most elusive questions relating to the gesture, and one of the unresolved knots that cinema highlighted in a particularly explicit way, not only in film theory but also through the force of its images. When Kubrick portrayed a hominid in the exact moment it understands the potential of a dried-out tapir bone, creating the first aggressive-defensive tool, he used montage to show how the monkey's gesture is simultaneously an efficient action and the expression of a feeling. First the hominid is looking for food, it digs with its back legs but keeps its snout close to the carcass to get organic remains into its mouth quickly. But then, under the influ-

¹³ D'Udine (1910): 214 (my transl.).

ence of the infamous monolith, it stops, it repeatedly tilts its head from side to side, as though seeking the perfect angle to take in what stands before it. It attempts to hold a femur as a club, first allowing it to fall languidly to the ground two or three times, enough to note the destructive effect of its impact on the skeleton. In that moment, its body has begun to imagine, its arm carries out more and more consciously the percussive and violent gesture through its weaponized limb, depicted carefully in all of its parts through slow-motion (and made triumphant over Strauss's musical notes). In a sense, the use of slow-motion transforms the technical object into an expression, or, perhaps trying to nuance the concept, foregrounds the feeling that it accompanies. Without doubt it shows that exercising a gesture in all its technical functionality introduces an excess of some kind: the more precise its execution, the more the gesture transcends its performative limits and filters what it affects. As soon as the club has been invented, hand and mouth are separated in an energetic, upward outburst of the body: a medium shot becomes a close-up of the monkey's face as it howls and bears its jaws, as though the hand gesture has continued into the face, in the form of an expression; the mouth *expresses* what the hand *does*; in this sequence we see ground zero, the moment in which the two corporeal actions coincide. At the same time, beating the ground with the club has its own expressivity, determined by the intensity of the blow, its frequency and its efficiency. As the monkey beats the bone languidly we see its mental condition, its state of perplexity and suspension; analogously the more the impetus grows, the more we see aspiration, desire, fury, and the development of a dominating posture. In this cult sequence, cinema therefore «thinks», via images, the precarity of the confines between technique and expression, re-articulating the profound dialectic within the human gesture¹⁴.

¹⁴ In the first decade of the nineteenth century, many thinkers discussed the relationship between technique and expression, from Wilhelm Wundt – who believed

2. THEME: REFLEXES AND IMITATIONS

The Kubrickian sequence therefore helps us to conceive of how a gesture impressed in an object consists in two elements, one performative and the other affective, combined in varying proportions. The motif of the composition of gestures returned, later, in the work of two extremely different thinkers, as regards their formation and contexts: the Jesuit anthropologist Marcel Jousse (1886-1961), a student of Mauss that, through the latter, had access to Espinas's philosophy; and the director and film theorist Sergei M. Eisenstein. Their work makes more explicit the question of imitation posed by d'Udine, and achieves this returning to the important theme of mimetic ability, the irrational basis of which was meanwhile the object of much discussion in the 1930s. In 1933, for instance, Walter Benjamin wrote *Doctrine of the Similar* and *On the Mimetic Faculty*, in which he touches a set of questions that Jousse, almost contemporaneously, placed at the centre of his own anthropological approach, including the link between primary gestures in dance and cosmic movements, the Wundtian problem of the gestural origins of language, the question of animal camouflage and the mimetic power of infants (Benjamin [1933a] e [1933b]). At the same time, research on the physiological foundations of the psyche was translated into the explosion of reflexology, culminating in the English translation of Vladimir M. Bechterev's volume *General Principles of Human Reflexology* (1932), while in France the legacy of Théodule Ribot and especially Pierre Janet had a strong impact (for example on Henri Delacroix and his ideas of automatic imitation as «the body's reflected and undefined plasticity»,

that technique (and especially language) was, on the contrary, a by-product of expression (since initially labial gestures had been mere expressions) – to Ludwig Klages, who saw the expression as a metaphor of the action. Subsequently, Helmuth Plessner absorbed this dialectic within the broad idea of «human eccentricity», a condition of existence consisting in being at the same time *a* body, *in* a body and *outside* a body, with the consequent split of each gesture into technique and affect.

Delacroix [1927]: 56). At the end of the nineteenth century, Janet had explored «the inferior states of consciousness» in their ability to highlight the body's automatisms, and shed new light on the phenomenon of hysteria (Janet [1889]). Roger Caillois, an anthropologist from an entirely different tradition, had begun to study animal mimicry from an anti-evolutionist perspective (Caillois [1934]), referring specifically to Janet's terminology in defining the state of the animal in the moment it occurs: *psychasthenia* (and not the survival instinct), a psychological condition of abandon, the abandon of the Self as it strays into the other, an ambiguous pleasure in fusion based on cellular mimesis with environmental conditions.

Osmosis between the body and the environment, as well as the coincidence of somatic changes and affectivity, exhibited so strikingly in animals, became a point of reference for the gestural theories of Jousse and Eisenstein, both of which were developed in relation to cinema. Jousse elaborated his own anthropological approach to the gesture in around a thousand lessons, held at l'École d'Anthropologie at the Sorbonne and l'École des Hautes Études, between 1931 and 1957¹⁵. His courses had a widespread impact, defining the mood of that historical moment even without ever proving disruptive, instead circulating a form of knowledge that continued to re-emerge even decades later and in the most disparate of contexts¹⁶. Jousse's thought was constructed around a neologism that sought to appropriate a particular form of logic, halfway between imitation and animal mimicry, that informed human

gestures. He defined *mimism* as man's ability to understand the world somatically, assimilating her/himself through gestures, a primordial tool that was the subject of his most famous sentence: «in the beginning was the gesture», a testament, moreover, to an unconfessed debt to d'Udine¹⁷.

The gesture remained the only tool through which man could capture and participate in the universe's extremely intricate network of relationships. It provides a form of somatic¹⁸ intelligence that advances in phases and makes use of all the body's organs, because, as Pierre Janet – Jousse's teacher at the Collège de France – wrote, «we think as much with our hands as we do with the brain, we think with the stomach, we think with the whole body»¹⁹. The skeleton serves only to «attach» gestures, Jousse writes, while muscles and nerves are directly connected to the imitative process, since their fibres respond immediately to environmental triggers, reflecting them and initiating the mimismologic process. This first neuro-mimetic phase constituted a reflexological reconsideration of the late-nineteenth century question of muscular sense, adopting comparisons to the animal kingdom, where this process is most fully visible. While the animal does not go beyond this phase, humans begin a second one, *rejeu* (replay), which consists in a remodelling of the reflex as a gesture, a tool through which they reproduce the environment in the way they discern it. Only in the third phase, *formulism*, are gestures encod-

¹⁵ His lectures have been recently digitalized by the Association Marcel Jousse, Paris (Jousse [2002]). At the time they were professionally shorthanded, but Jousse never wrote them in full before presenting them to students. Jousse (1969) provides a collection of his ideas, assembled by his pupils.

¹⁶ Jousse was the main reference for artists such as Jacques Lecoq, but he also inspired theorists. In Agamben (1991) many of Jousse's arguments resurface, including the juxtaposition between gesture and image, and the idea of modernity as a loss of gesture, that is partially redeemed by cinema.

¹⁷ Considering his familiarity with the Gospel, Jousse may have autonomously adapted the verse «In the beginning was the word» – though D'Udine had certainly done this some decades earlier (1910: 86), reformulating Hans von Bülow's postulate («In the beginning was the rhythm»), making it, as d'Udine said, more precise.

¹⁸ Throughout this essay, I prefer to define this form of thought as *somatic* rather than *bodily*, to foreground the body not as an object seen from outside, but in the proprioception of its owner, living through it as a mixture of sensations and movements, both of which are central factors in gestuality. Doing so, I follow theoretical work from the past fifty years in the field of dance, sport sciences and psychotherapy. See Eddy (2009).

¹⁹ Jousse quotes this phrase often, for instance Jousse (1925): 39.

ed and fossilized, losing their vital element and becoming simply a code of communication or a rhetorical tool. Jousse writes off this degenerative moment rather hastily, concentrating instead on *rejeu* as a knowledge of forms. Intercepted and extracted from the environment, these forms can nevertheless also come back to it: with the creation of the instrument – for the first time defined here as an *extension of a human gesture* – man deposits them *within* matter.

One of these instruments, the most important one is cinema. Cinema does not simply extend any gesture, but rather the quintessence of the gesture, that is, its mimological capacity; hence it becomes anthropology's principle tool²⁰. Cinema is an intelligent machine that thinks by miming. Humans – congenitally capable of miming – have transmitted to film their gestural abilities, or perhaps invented an “imitative” technique that prolongs them, therefore simultaneously making visible (and studiable) the process that most fundamentally characterizes themselves²¹. Jousse insists on the parallelism between cinema and the human body: the two «machines» function in the same way, since man is «a plastic film camera that records and assembles gestures with his own body, his own hands, his own ocular musculature»²², and cinema is the mechanical translation of this chain of impressions and replays, a means of prolonging it but also of becoming a part of it («I ask of the cinematic technique to provide me with an extension of my gesture – *nota bene*, an extension»²³). Cinema's gesture begins with an impression of the

film that is traced out by the energetic waves of the real, in the way of our nerve receptors, and it ends with montage, a tool of replay, of the creation of chains of affinity in which the «environment's gesticulations» are connected to those of the individual²⁴. Cinema provides the possibility to observe the creation of these links: slowing down or accelerating the flow of film reveals how a gesture passes from one being to another. «Today», Jousse writes, «thanks to technical and scientific tricks that the screen allows, cinema lets us witness that fluid passage from one being to another, that gradual and imperceptible fusion of a man and an object, through which he realizes and ‘makes successive’ his own actions and gestures»²⁵.

The nodes that cinema creates – the subtle links between the animate and the inanimate, the individual and the environment – also inspired film theory at that time, with which Jousse entered into close dialogue, even if only indirectly²⁶. The most animistic inflection of Jousse's discourses can be found, with incredible precision, in the work of Jean Epstein. Epstein considered the use of the camera as a rational technique, a «metal brain» that thinks through mechanical synapses, thanks to the complexity of its inner workings²⁷. Gestures tied together on screen create connections and develop thoughts, especially when observed at twice the speed (the «trick» that Jousse also mentions); this makes them visible even when formed by plants or stones. Their transit remixes and radically re-articulates the scale of the various kingdoms, allowing us to observe the movement of forms between the organic and the inorganic, to see continual transfusions of gestures that in the end are deposited, in Epstein's work too, in objects and tools²⁸.

²⁰ «With cinema, the anthropology of gesture has found its instrument», see Jousse's 26 March 1936 lecture at Sorbonne (Jousse [2002]: 269) (my transl.).

²¹ Jousse dealt with cinema in many of his courses, for instance: *L'analyse cinématographique du mimisme* (12 December 1932), *Les mimogrammes cinématographiques* (1 April 1935), *L'anthropologie et le cinématographe* (8 April 1935), *Le livre cinématographique et la science* (19 March 1945), *L'anthropologie du mimisme et le cinéma* (6 March 1952). See Jousse (2002).

²² See Jousse's 5 November 1934 lecture at l'École d'Anthropologie (Jousse [2002]: 8).

²³ See Jousse's 26 March 1936 lecture at the Sorbonne (Jousse [2002]: 271).

²⁴ See Jousse's 1 April 1935 lecture at l'École d'Anthropologie (Jousse [2002]: 357).

²⁵ Jousse (1969): 125.

²⁶ Jousse's lectures were echoed in national newspapers, where his approach to cinema is often reported (see for instance “Le Monde”, 24 November 1928); however, cinema theorists of his time do not mention him.

²⁷ Epstein (1946): 309.

²⁸ Epstein mentions the laborer's gesture of screwing-in and defines it as «moving», because he perceives it as

Though Epstein's anti-physiognomic and anti-psychological notion of the gesture is unique in film theory, the important questions that Jousse raises also return in Eisenstein's last work. In the essay *Opredel'aiushchii zhest* [The Underlying Gesture] (1939-1940), as yet untranslated but summarized by Anna Hedberg Olenina and Irina Schulzki (2018), Eisenstein drafts a general theory of the gesture as a fundamental component of pre-logical thought, a primitive force that structures the work of art and models the aesthetic experience of its user. He argues that the film image takes root in the director's psycho-physiological gesture, in one of his/her specific expressive movements that constitutes the somatic embryo of the film, from which its chain of images and sounds emerges and is broadcast. This perspective is coherent with Jousse's vision of the gesture as a bodily intuition, and the impression is further confirmed both in an essay written one month before the director's death (Eisenstein [1948]) and in a passage of the unfinished volume *Metod*, in which his early reflections on expressive movement are connected to the gestures of film direction²⁹.

In *Metod*, Eisenstein interprets «the system of the creation of images as a superior stage of expressive movement, and of its manifestation»³⁰. Human gestures find their ideal continuation in the creative act, which gives form to the work, where giving form itself (in the case of cinema, to images) consists in an out-pouring of body matrices that are at the same time manipulative and expressive³¹.

This point is made more clearly in Eisenstein (1948), which presents the concepts of *mise-en-jeu*

and *mise-en-geste* (literally, «putting into play» and «putting into gesture»). Both of these correspond to Jousseian equivalents; however, these terms do not refer to the abstract operations of the film camera but rather to the concrete work of direction. Constructing a scene implies making a series of directorial decisions that are consistent with the initial gestural matrix, but translated into a system of relationships between bodies and objects within a specific spatial orientation. This conversion of a subterranean motif into structures of images corresponds to *mise-en-jeu*: affect, conflictual themes, forms of movement, all these become concrete in the specific traits of the scene («embodiment in action») (Eisenstein [2014]). In a way, *mise-en-jeu* re-introduces a corporeal intuition and distributes it among various environmental factors, and in this sense it very much resembles Jousse's concept of «rejeu». For Eisenstein, the phase of *mise-en-geste*, on the other hand, refers exclusively to the character, to their choices of movements and positions. Here, on the contrary, the specific configuration of the scene must be absorbed and reinstated in the body of the actor, whose gestures are therefore not motivated on a narrative or psychological level but, if anything, justified by rational «cover stories», not unlike those that hypnotized people use to give meanings to their manipulated actions. In another contribution, Eisenstein argues even more radically for a need for the actor's «auto-hypnosis of the nerves»³², as though the ultimate objective of his/her work was something similar to mimicry, at a neuro-mimetic level³³. Moreover, as well as recalling the inferior states of consciousness (hypnosis) that, via Janet, were of great interest to Jousse, he also makes recourse to the phenomenon of animal mimicry in order to illustrate the continued interchange, in film itself, of gestural material between bodies and environments. Following d'Udine, whom he cites explicit-

the endpoint of a chain of transmissions (Epstein [1921]: 100).

²⁹ This essay from the unfinished book *Metod* (Eisenstein [2002]) has been translated into Italian by A. Cervini, and included in Eisenstein (2009): 91-119.

³⁰ See Eisenstein (2009): 93 (my transl.).

³¹ Pietro Montani asserts that «the integral dramaturgy of the filmic form finds its germinal cell precisely in the biomechanics, in the intrinsically «expressive» movement of the anthropologically qualified *bios*». See Eisenstein (2009): 9 (my transl.).

³² Eisenstein (2009): 49.

³³ Cf., however, the circularity of this concept in Eisenstein's *Montage 1937*, in which he presents gesture as the concentration of *mise-en-scène* in a person, and *mise-en-scène* as gesture exploding into a spatial sequence (Eisenstein [1994]: 21).

ly³⁴, Eisenstein interprets colour as the translation of a gesture, and compares the creation of a film as a chromatic surface to the corporeal elaboration of colour by the chameleon, which oscillates continually «from the objective colouring of its surroundings to its objective recreation»³⁵.

Through the work of Jousse and Eisenstein, cinema therefore became the principal space for interchanges between body and its surroundings; its anthropological dimension, as a medium that allows man to confront his/her own way of understanding the world somatically, therefore emerged fully. It is not so much a reinforced eye, but a body that imitates and replays, a body that is both mechanical and biological thus bringing together together the logic of machines and animal behaviour, legitimating the movement from organic to inorganic, and ultimately presenting gesture as a vital form that can animate the inanimate.

3. CODA: EXUDATION AND CRYSTALLIZATION

This brings us to the renowned perspective of the French palaeontologist André Leroi-Gourhan, who reinstates an emphasis on technique in the strictest sense. In the pages of his writings, he clarifies the transitive hypothesis, though in part deprived of its complexity and audacity, since the idea of gesture that he adapts is more traditionally operative. Already in work written in the forties, the palaeontologist had defined the tool as «the exteriorization of an efficient gesture»³⁶ as «an interaction of matter with the means to transform it»³⁷; in the fifties, he began to formulate the concept of the operational sequence (*chaîne opératoire*), which would then become central to his most important contribution (Leroi-Gourhan [1964-1965]). In this work, technique is defined as the interweaving of «gestures and tools organized in sequence by a

true syntax», and this syntax of actions is, for the most part, devoid of those irrational components that had characterized previous definitions of technique, in the thirties. What therefore emerges here is the difference between humans and animals: animals use their own bodies, or body parts, as tools; man learns to separate the support and the gesture, increasingly able to transfer the latter into an object that is separate from the body. «The tool», as Leroi-Gourhan writes, is in some way «exuded» by humans in the course of their evolution», thus departing from an animal condition of total incorporation, as for the crab, whose «claws and jaws are all of a piece with the operating program through which the animal's food acquisition behavior is expressed»³⁸. In the passage from primitive tools to modern techniques, the key point is that the gestures of which they are descendants are no longer recognizable. While for machines of the first phase of industrialization they were still intuitable, by the information revolution (and in digital culture even more so) the gesture is obscured within an operative matrix that is increasingly abstract and sophisticated. With the creation of artificial memory, the operative programme is entirely externalized. As such, new machines become autonomous and therefore are denied the status of prosthesis (something that beforehand was recalled constantly, in the memory of a prolonged gesture). Rather they are effectively promoted to the level of thinking bodies, as «something like a real muscular system, controlled by a real nervous system, performing complex operating programs through its connections with something like a real sensory-motor brain»³⁹. This conclusion appears coherent with Jousse's and Eisenstein's anthro-bio-aesthetics, as the proximity between the technical object and the animal world is made explicit and noticeable. «A biologist», Leroi-Gourhan writes, «will find it hard to resist comparing the mechanisms of animals whose evolution is already completed with

³⁴ We find a direct quotation from d'Udine in Eisenstein (1949): 150.

³⁵ Eisenstein (2014), digital edition.

³⁶ See Leroi-Gourhan (1943): 319.

³⁷ See Leroi-Gourhan (1945): 333.

³⁸ See Leroi-Gourhan (1965): 239.

³⁹ See Leroi-Gourhan (1965): 248.

these organisms which, in the last analysis, constitute a parallel living world»⁴⁰. But in the 1960s, with the explosion of mediatization, sensibilities changed. In this parallel world of tools that were no longer dependent on humans, they began to be perceived as threatening and conflictual. This is clear immediately, for instance, reading the observations – which even then were somewhat dated – that the palaeontologist made about cinema, and more generally about audio-visual media. As a medium that demands that we listen and watch movement, cinema can be accused of producing passive forms of perception, penalizing man's imagination and thinking in his place, rather than allowing him to think freely. «Audiovisual techniques really seem to represent a new stage of human development»⁴¹, he writes, hypothesizing an anthropological mutation: one probably caused by a misunderstanding of the idea of the transition of living components to objects, but considered rather in terms of their theft underwent by man.

In order to find less anxious models that maintain the enthusiasm of previous historical moments, we can look to the work of Gilbert Simondon. Here, I limit myself to evoking his well-known rehabilitation of the technical object. At the end of the fifties, Simondon reinserted technique into the circuit of human action, moreover emphasizing the gesture as a component that remains connected to the machine and creating a link between man and nature – man's nature that goes beyond pure rationality and ability to operate, to include somatic and affective thought. His work begins with these famous words:

Culture has constituted itself as a defense system against technics; yet this defense presents itself as a defense of man, and presumes that technical objects do not contain a human reality within them [...]. The opposition drawn between culture and technics, between man and machine, is false and has no foundation [...]. Behind a facile humanism, it masks a reality rich in human efforts and natural forces, and

*which constitutes a world of technical objects as mediators between man and nature.*⁴²

The human reality that exists within machines – defined as «a human gesture fixed and crystallized into working structures»⁴³ – consists in the *expression* of a certain relationship between man and the world, which makes the object beautiful. That beauty, however, is naturally not the result of design, but dependent on the perception of a connection to the real that one is able to rediscover. «It is never the object strictly speaking that is beautiful», Simondon writes, «it is the encounter – which takes place about the object – between a real aspect of the world and a human gesture» (Simondon 1958) (Simondon [2017]: 202). Cinema returns within this discourse (even though the part of his work dedicated to film is incomplete), and in particular it inspires concepts once again, starting with the definition of film as «a psycho-social reality» that generates interindividual relationships and establishes a new regime in the relationship between man and himself. Simondon writes that cinema represents «the return of man's reality to man's knowledge, and of the gesture to consciousness of the gesture»⁴⁴. We are tempted to perceive an echo of the transitive theory of gesture in this sentence, even though it is difficult to grasp exactly what the philosopher had in mind. This is especially true in a project constructed on such a complex structure, consisting of «Cinema and the Past; Cinema and the Present; Cinema Itself; Cinema and the Future» (of these only the first part was written). In «Cinema and the Past», Simondon invokes various technical gestures made by the machines of moving images, and attributes them to the sphere of magic. He lingers on the enlargement of forms that were made to appear for projective means, and concludes that cinema took the place of Greek thaumaturgy. His argument is left incomplete, but what we can extract from his suggestions, like from the theories of the technical gesture in gen-

⁴⁰ See Leroi-Gourhan (1965): 251.

⁴¹ See Leroi-Gourhan (1965): 213.

⁴² Simondon (1958): 15.

⁴³ Simondon (1958): 18.

⁴⁴ Simondon (2014): 308 (my transl.).

eral, is the need for a systematic reconsideration of cinema's gestural dimension, that the digital era seems to have rediscovered and enhanced in every respect. The gestures represented in films – which remodel and often re-invent «natural» ones, creating techniques of the body – are in turn the result of a filmic gesture, consisting in an interpretation of what was inscribed in the camera in the moment of its invention. The director can decide whether to support or subvert the implicit «prescriptions of use» of his tool, but his way of generating images must always be contrasted with the indications inscribed in the machine. By following the close interweaving of these three forms – the *cinematographic gesture*, the *filmic gesture* and the *filmed gesture*, it may be possible to reconsider the way in which the main medium of the twentieth century became grafted, from its very origins, onto our bodies.

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